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**SOCIAL FACTORS RELATED TO RECOVERY AFTER HIP FRACTURE**

by

**Debra Lindstrom Hazel**

**A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Doctor of Philosophy  
Department of Sociology**

**Western Michigan University  
Kalamazoo, Michigan  
April 2000**

## **SOCIAL FACTORS RELATED TO RECOVERY AFTER HIP FRACTURE**

**Debra Lindstrom Hazel, Ph.D.**

**Western Michigan University, 2000**

**Objectives.** The relationship between social variables and performance of instrumental activities of daily living (IADL) was examined in participants three to nine months after they experienced a hip fracture. All participants were over the age of 60 and living in their own homes before and after their hip fractures.

**Method.** This study employed both qualitative and quantitative methods. There were 19 participants in the quantitative portion of the study that compared three subjectively rated questionnaires with an objectively rated IADL scale. The independent variable, subjective scales were: (1) Antonovsky's "Orientation to Life" Scale, which measures the sense of coherence, (2) the Center for Epidemiology's Scale of Depression, and (3) Pearlin's Expressive Social Support Scale. The Assessment of Motor and Process Skills (AMPS) was the objective instrument that generated the dependent variable values. From the 19 participants in the quantitative study, a 12-member subset participated in the qualitative interviews. The qualitative analysis used a naturalistic inquiry approach to elicit the participants' own ideas and thoughts about their experiences and the factors that they felt facilitated their return to their own homes and their ultimate recovery using a constant comparative data analysis.

**Results.** The social factors that were measured in the quantitative portion all emerged as major themes in the qualitative analysis. The other major factors

identified as significant to their recovery were (a) being in one's own home, (b) faith in God, (c) determination to get better, and d) the ability to participate in personally meaningful activities. The data analysis also validated Antonovsky's concepts of generalized resistance resources and altering expectations/priorities in response to changes in abilities.

**Conclusions.** Social support, adequate resources, positive attitude, faith in God, participation in meaningful activities, and the ability to adjust to limitations were significant factors that influenced the participants' recovery.

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Debra Lindstrom Hazel

## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	ii
LIST OF TABLES .....	ix
LIST OF FIGURES .....	x
CHAPTER	
I. INTRODUCTION .....	1
Age Related Health Problems .....	1
Meeting the Challenge of Living Longer .....	7
Purpose of This Research .....	8
Operational Definitions .....	9
Research Question/Hypotheses .....	10
II. REVIEW OF THE LITERATURE.....	12
Causes and Predictors of Recovery After Hip Fracture .....	12
III. METHODS AND INSTRUMENTS .....	47
Procedure .....	47
Quantitative Study .....	47
Qualitative Study.....	60
IV. QUANTITATIVE RESULTS.....	70
Hypotheses .....	70
Frequency Distributions/Descriptive Statistics .....	70
Relationships Between Dependent and Independent Variables.....	88
Summary of Quantitative Results .....	92

Table of Contents—continued

<b>CHAPTER</b>	
<b>V.</b>	<b>QUALITATIVE RESULTS ..... 95</b>
	Participant Description/Procedure..... 95
	Cross Case Analysis ..... 97
	Forces That Can Push a Person Out of Her Home..... 106
	Forces That Helped Keep People in Their Homes..... 118
	Summary ..... 153
<b>VI.</b>	<b>DISCUSSION ..... 155</b>
	Complexity of the Hip Fracture Experience..... 155
	Social Factors and Recovery After a Hip Fracture ..... 158
	Importance of Occupation in Daily Lives ..... 164
	Significance of the Qualitative Analysis ..... 165
	Limitations of the Quantitative Study ..... 166
	Limitations of the Qualitative Study..... 169
	Directions for Future Research ..... 170
<b>VII.</b>	<b>CONCLUSION ..... 173</b>
	Significance to Sociology ..... 174
	Significance to Occupational Therapy ..... 176
	Significance to Antonovsky’s Sense of Coherence..... 178
	Summary ..... 179

**Table of Contents—continued**

**APPENDICES**

A. Glossary of Terms .....	183
B. Human Subjects Institutional Review Board Approval Letters .....	186
C. Informed Consent Forms .....	192
D. Invitations to Participate .....	200
E. Dementia Screening Procedure .....	203
F. Data Collection Packet.....	205
G. Large Type Visual Aid .....	218
<b>BIBLIOGRAPHY .....</b>	<b>220</b>

## LIST OF TABLES

1. Descriptive Statistics for Demographic Variables .....	72
2. ADL and Ambulation Abilities Prior and Post Hip Fracture .....	76
3. Descriptive Statistics for Self-Report Scales .....	86
4. Normative Data From Studies Using the SOC Questionnaire.....	87
5. Mean ADL Motor and Process Ability Measures (Logits) for Well Adults and Hip Fracture Participants .....	88
6. Kendall's Tau b Correlations Between AMPS Scores and Independent Variables .....	89



## LIST OF FIGURES

1. Age Distribution .....	72
2. Level of Education .....	73
3. Marital Status Distribution.....	74
4. Living Situation Prior and Following Hip Fracture .....	75
5. Discharge Site After Acute Care Hospital.....	78
6. Months Post Hip Fracture .....	79
7. OT/PT After Discharge From Acute Care Hospital.....	80
8. Number of Meals/Snacks Eaten per Day.....	82
9. Number of Co-Morbidities .....	84
10. Definitions of Categorical Codes .....	98
11. “Independence Road”--From Infancy to Young Adult to Older Adult.....	100
12. Cross-Case Analysis: “Independence Road” After Experiencing a Hip Fracture .....	103

## **CHAPTER I**

### **INTRODUCTION**

#### **Age-Related Health Problems**

**Medical technology and public health advancements have made significant improvements in the quality and quantity of people's lives in the last 100 years (Hudson, 1999; Peterson, 1999). People are living longer and healthier, and are encouraged to follow preventive programs such as quitting smoking, restricting fat, exercising regularly and getting routine screenings and check-ups (Hermanova, 1998). Even with these efforts towards "healthy-aging," as people get older and older, they are more susceptible to multiple health problems associated with aging (Fulks and Molinari, 1995). When people experience age-related health problems, it becomes more difficult for them to live independently in the community (Clark et al., 1995).**

**Among the expected health problems that occur as people age, hip fractures are one of the most common of all the injuries or diseases that threaten older adults' ability to live independently in the community (Youm, Koval, and Zuckerman, 1999). Although most bones heal completely in younger people within six weeks, this is not always the case for older adults after a hip fracture. Older people often experience morbidities after hip fractures, which leads to decreased functional independence (Wolinsky, Fitzgerald, and Stump, 1997).**

### Predicted Incidence of Hip Fractures in the Future

In 1995, 13.8 billion health care dollars were spent in the United States related to osteoporotic fractures (Ray, Chan, Thalmer, and Melton, 1997). Because of the projected increase in the number of elderly people in the 21st century, researchers have projected that hip fracture incidence will significantly rise proportionately, and that rise will in turn increase related health care costs (Dubey, Koval, and Zuckerman, 1998; Riggs and Melton, 1995; Youm, et al., 1999). As more people have hip fractures, the problem goes beyond just the number of people who need physical care after the fracture. The increased number of people who need care will create a significant drain on the families and the communities that are attempting to support the people throughout the rest of their lives (Johnell, 1997).

Physicians, insurers and researchers have all been looking for more cost-effective ways for repair and rehabilitation after a hip fracture. As these cost-cutting measures proceed, it is important that “quality of care” rather than “cost” becomes the “bottom line ” to determine available treatment. Maximizing optimal outcomes after a hip fracture minimizes spending in the long run. If people do not receive adequate care after a hip fracture, health care costs increase because of the people’s need for more intensive long-term care (Koval, Aharonoff, Su, and Zuckerman, 1998). The objective thus far has been to decrease health care costs, but still maintain or improve the level of recovery. It is extremely important that we do not lose sight of optimal recovery in spite of the strong push to decrease all health care costs.

## Home and Independence

Outcome measures in the past have included the number of infections after surgery, length of hospital stay in the hospital, the ability to ambulate at discharge, and discharge site (Egol, Koval, and Zuckerman, 1997; Fox et al., 1998; Koval, Skovron, Aharonoff, Meadows, and Zuckerman, 1995; Marottoli, Berkman, Leo-Summers, and Conney, 1994). Discharge back to the home has become one of the major outcomes in the past few years because of two major factors: (1) the positive effects on social function for the patient if she returns home, and (2) the high cost of permanent institutionalized long term care (Lyons, 1997).

Older adults have generally reported that they regard physical disability as a major adverse health outcome (Fried, and Guralnik, 1997) because of the limitation that it places on their independence (Zuckerman, Fabian, Aharonoff, Kovan, and Frankel, 1993). Part of being independent involves being at home, but being independent involves more than just waking up and going to sleep in one's own bed. Having the freedom to decide what to do between the time you get up and the time you go to bed and having the ability to complete those actions is part of being independent. It is important for most people to be able to complete their own self-care skills, to dress themselves, bathe themselves, feed themselves and toilet themselves; but just being able to complete those tasks does not necessarily make someone feel "independent." These self-care skills are considered Basic Activities of Daily Living (BADL; Appendix A is a Glossary of Terms where this term and other uncommon terms and acronyms can be found), but most people associate more

complex tasks with independence. Instrumental Activities of Daily Living (IADL), includes skills such as meal preparation, shopping, yardwork, housework, childcare, and driving. These skills are often what people think about when they use the term “independence.”

Independence also includes being able to make one’s own decisions about how and with whom time is spent and being able to do things that allow a person to find meaning and purpose and have some control in her environment. To feel “independent,” some people want to be able to do things such as prepare their own meals, shop, do yard work, or drive. Others may want to be able to take the bus, take out the garbage or walk to school. The specific definition of “independence” will be different for different people, but there is usually a social context that is included in true independence that involves other people and places, as well as the feeling of having some control and meaning in life.

Measuring the concept of independence requires going beyond BADL and examining IADL. It is extremely important to most people to be able to complete their BADL tasks for themselves, but it is a very limited existence if a person is limited to completing only her BADL in the privacy of her own home. If a person does not have the freedom or ability to do other things, she would probably not consider herself to be “independent.” IADL are a better indication of independence because of the choice and meaning that is incorporated into the particular IADL a person completes. After a hip fracture, people must adjust to limitations in the IADL that they did not previously have. The way that people adjust to their limitations can determine their over-all health (Antonovsky, 1987).

### Adapting to a Hip Fracture

Even very healthy older adults are initially severely incapacitated after a hip fracture. People will experience severe physical limitations, which will be compounded by any other co-morbidities that they have, such as a visual impairment, Parkinsons, peripheral neuropathy, arthritis or others. If the person is not “healed” at the end of her allotted “healing” time period, whether that is eight-12 weeks or six months, she is forced to somehow cope with the complications and residual limitations as she goes on with her life. Charmaz (1995) described how people with chronic illnesses adapt to their physical impairments by acknowledging their limitations and altering their lives and selves in socially and personally acceptable ways.

Antonovsky (1987) developed the concept of sense of coherence (SOC) (see Glossary in Appendix A) to describe a personality disposition that he found in some people that allowed them to choose the most appropriate and effective coping mechanism possible in response to adversity. Antonovsky found that these people viewed barriers as challenges. One of the coping mechanisms that he introduced was the concept of having boundaries that change as life situations change. Each person has core values that do not change, but there are also secondary values that go in and out of significance, depending on the person’s life situation. When a person awards subjective importance to those qualities/values that are important to her at any given time, she moves those qualities/values within her boundaries. Qualities/values can move in and out of significance, depending on her current life situation.

Antonovsky realized that his perspective was very different from the traditional approach to health and disease that focused on the pathogenic concern for what made people sick. He suggested a salutogenic approach, and focused on **what allowed people to remain healthy** (1979). He conceived of a continuum that included health on one end and disease on the other. People move along this continuum, depending on their ability to use their coping resources at any given time. Health and disease are not dichotomous conditions, but are instead two conditions that exist within everyone simultaneously. A salutogenic perspective looks for where a person is on the health-ease, dis-ease continuum. In the case of people with hip fractures, the salutogenic question is where people are on that continuum, and how their location relates to their ability to regain their IADL.

Assuming physical strength was important to a person prior to a hip fracture, if she finds that she needs to use a walker to safely get around in the community, she has several choices of how she can cope with the limitation. Although she may have been proud of her physical strength premorbidly, she may choose to give up the significance of physical strength . She may decide that using a walker is not a problem if she believes that using the walker is the best way for her to get around to do the things that are now important for her to do. She allowed physical strength to move outside of the boundaries of what is important to her, at least temporarily. She now needs to “move something else in” her boundaries to continue to have meaning in her life. Allowing things to have more or less significance at different times in a person’s life, depending on the person’s life situation, is an appropriate and effective

coping mechanism that allows people to stay on what Antonovsky's (1979) described as the health-ease end of the health-ease--dis-ease continuum.

### Meeting the Challenge of Living Longer

#### Primary Prevention

There has been a call in the literature for prevention programs at the primary prevention level to decrease the number of older adults who will suffer from osteoporosis and resultant fractures in the future (Anders and Ornellas, 1997; Gill, Williams, Robison and Tinetti, 1999; Millar and Hill, 1994; Rizzo et al., 1998; Sherrington and Lord, 1998; Youm, et al., 1999). Dubey et al. (1998) discussed three approaches to primary hip fracture prevention: (1) preventing falls, (2) preventing and treating bone fragility by using treatment such as weight-bearing activities and pharmaceutical interventions, and (3) using external hip protectors.

Assuming that primary prevention is successful and the incidence of osteoporosis is significantly reduced, all hip fractures will not be prevented. As the older adult population increases, hip fracture treatment no doubt will remain a necessary and significant area of concern (Craik, 1994). Since it is likely that hip fractures will continue to be a significant social problem, independence after the hip fracture is an important outcome. Even with a focus on primary prevention for hip fractures, tertiary prevention is still important to target areas for improved treatment.



### Tertiary Prevention

As the population in the United States ages, there will be fewer younger family members to care for the increasing proportion of older adults with handicapping conditions (Wagenfeld, Baro, Gallagher, and Haepers, 1994). Adult children of older adults also will not necessarily live close enough geographically to provide care for their aging parents. Although there may be surviving spouses or siblings, they may have their own aged-related limitations and be limited in the amount and type of care they can provide. It is therefore important to apply tertiary prevention programs for people with hip fractures to maximize people's functional outcomes and to minimize possible dysfunction (Kniepmann, 1997).

### **Purpose of This Research**

In order to apply effective tertiary prevention programs for people who have hip fractures, we need to understand as much as possible about independence after a hip fracture. One way to do that is by measuring people's IADL after they experience a hip fracture. Medical research has found certain premorbid characteristics that are good predictors for regaining ambulation abilities (Koval, et al., 1995) and going home (Lyons, 1997) after hip fractures, but there have not been any clear predictors yet for why some people were able to regain their IADL more effectively than others (Koval, Skovron, Aharonoff, and Zuckerman, 1998). Social variables have been studied to a degree, looking at the effect of depression and social support on recovery (Mutran, Reitzes, Mossey, and Fernandez, 1995), but there are

other social variables that may also influence recovery of IADL after a hip fracture. Antonovsky's salutogenic approach has been used in the fields of medical sociology, nursing, social psychology and psychology for the past 10 years. The salutogenic approach may offer new information to learn more about the complexities of recovering IADL after a hip fracture.

### Operational Definitions

All unusual terms are included in the Glossary in Appendix A, but the main terms used in this study are also included in this section as operational definitions.

Antonovsky defined the first four operational definitions in his 1987 book

*Unraveling the Mysteries of Health*. The **sense of coherence (SOC)** is,

a global orientation that expresses the extent to which one has a pervasive enduring though dynamic feeling of confidence that 1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explainable; 2) the resources are available to one to meet the demands posed by these stimuli; and 3) these demands are challenges, worthy of investment and engagement (p.19).

**Generalized Resistance Resources (GRR)** are any characteristic of the person, the group, or the environment that can facilitate effective tension management (physical, biochemical, artifactual-material, cognitive, emotional, valuative-attitudinal, interpersonal-relational or macrosocial). **Generalized Resistance Deficits (GRD)** are any characteristic of the person, the group, or the environment that introduces inconsistency, under-or overload, and exclusion from participation in decision making. **Salutogenesis** looks for the origins of health or wellness, and focuses on the overall process of active adaptation to an inevitably stressor-rich environment

(Antonovsky, 1987). **Basic Activities of Daily Living/Personal Activities of Daily Living (BADL/PADL)** are self-care skills such as bathing, dressing, feeding, and toileting. **Instrumental Activities of Daily Living (IADL)** are skills such as shopping, meal preparation meal planning, housekeeping, yard work, and childcare. **Recovery after a hip fracture** is the participant's ability to return to her own home and perform personally salient IADL.

### Research Question/Hypotheses

The single research question that guided this study was "What social factors are related to recovery after a hip fracture?" This study attempts to answer that question using both quantitative and qualitative methods from a salutogenic perspective. The quantitative study attempts to measure Antonovsky's overall concept of sense of coherence (SOC) as well as two other concepts that could be considered as GRR. The specific GRR that were measured were (1) level of perceived social support and (2) level of perceived depression. Perceived social support was measured since it might have been a mitigating factor in the sense of coherence and depression. Performance scores on the AMPS (that measured IADL) were the dependent variables; the two independent variables were (1) the sense of coherence and (2) depression. The three hypotheses for the quantitative study were: (1) the higher a person's SOC, the higher her AMPS Process score; (2) the lower a person's depression score, the higher her AMPS Process score; (3) the lower a person's depression scores, the higher her AMPS Motor score. The qualitative study

focused on the participants' perspective of the factors they felt were related to their recovery after a hip fracture.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Causes and Predictors of Recovery After Hip Fractures

##### Osteoporosis

Osteoporosis is one of the most common and serious problems for older adults of both sexes, and the problem is expected to grow in the next 50 years (Youm et al., 1999). The World Health Organization defines osteoporosis as a systemic skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissue, leading to increased bone fragility and a consequent increase in fracture risk; osteoporosis is not a normal part of aging (Kushner, 1998). Fracture risk increases because of the decreased bone mass and disturbed microarchitecture of the bone (Bonjour, Burckhardt, Dambacher, Kraenzlin, and Wimpfheimer, 1997). Although in younger people, fractures usually heal without residual functional effects, both mortality and morbidity rates increase after a hip fracture for elderly people (Wolinski et al., 1997). For elderly people, hip fractures have been described as a "harbinger" for either the "end of the road" or the "beginning of the end," depending on the person's premorbid state of health (Cummings, Cooper, Lyons, and Karpf, 1997).

### Incidence of Hip Fractures

Hip fractures are one of the most common possible morbid events of osteoporosis. It is estimated that 90% of elderly white women's hip and vertebral fractures are attributed to osteoporosis (Riggs and Melton, 1995). Melton et al. (1997) studied elderly white women who had hip or vertebral fractures to determine characteristics that would suggest susceptibility to osteoporosis and a predisposition to hip fractures. If researchers are able to isolate a susceptibility and/or predisposition for hip fractures, they could possibly develop effective preventive treatments and decrease long term health care costs. Hip fractures are found to have more morbidities than other fractures and are significantly related to mortality, morbidity, decreases in functional status, and dependencies (Wolinsky et al., 1997). Since the costs, morbidity, and mortality are better defined and understood in hip fractures than they are in either vertebral, wrist or proximal humeral fractures, many studies have focused on the effects of hip fractures to learn more about the effects of osteoporosis (Johnell, 1997).

The risk of osteoporosis is higher among Caucasians and Asians than it is among African Americans (Kipersztok, 1997). A significantly increased risk of hip fracture in the United States begins at age 40 for White women when compared to Non-White women. At age 40-44, a White woman was 1.5 times more likely to fracture her hip than her Non-White counterpart who was the same age (Farmer, White, Brody, and Baily, 1984). White women age 65 or older have twice the

incidence of hip fractures as women of African American descent (National Osteoporosis Foundation, 2000).

Hip fractures in older adults are a common problem throughout the world. Worldwide statistics indicate that approximately 1.66 million people experienced hip fractures in 1990 (Kanis, Melton, Christiansen, Johnson, and Khaltsev, 1994). The incidence in the world varies however by gender, geography, race and age (Riggs and Melton, 1995). In some geographic areas, such as Poland, women are less likely than men to experience a hip fracture; the ratio in Poland is 1:6 for female:male (Lips, 1997). In most other countries, especially northern countries such as Iceland, Sweden and the United States, women are about twice as likely to experience a hip fracture as men (Cooper, 1997; Lips). Kanis et al. (1994) had contradictory findings, since their data indicated that hip fracture incidence was greater between people in different countries than it was between men and women in the same country.

The rate of fragility fractures in the United States and Sweden is about 25% higher than in Great Britain and central Europe (Donaldson and Cook, 1990; Cooper 1997). Statistics in Switzerland found similar rates there as in the United States (Bonjour et al., 1997). In northern Europe and North America, Caucasian populations are more likely than Black populations to experience hip fractures. When Black populations are compared across geographic locations, the incidence is substantially lower in South Africa than in northern Europe and North America (Cooper, 1997). Although the incidence of hip fractures varies throughout the world in relation to

gender and geography, the incidence increases exponentially with age throughout the world (Kanis et al., 1994).

The length of hospital stay for people in the United States after a hip fracture has decreased substantially since 1984 when the Medicare Prospective Payment System (PPS) was instituted. The number of days a person stayed in the acute care hospital after a hip fracture decreased from 21.9 days in 1981 (pre-PPS) to 12.6 days in 1986 (post-PPS). Recent decreases have not been nearly as dramatic, and further reductions in the hospital length of stay could possibly compromise care and inhibit long-term outcomes (Youm et al., 1999). Inpatient rehabilitation, skilled nursing home rehabilitation, general nursing home care, and home care costs are being seriously questioned to find the most cost-effective discharge site for positive outcomes (Intrator and Berg, 1998; Koval, Aharonoff et al., 1998; Sung, Bottomley, Echternach, 1999; Tinetti et al., 1997; Tinetti et al., 1999). It is important to learn as much as possible about variables that are related to a successful recovery after a hip fracture to insure that people have the necessary rehabilitation services for optimal long-term function.

#### Variables Related to Prognosis After Hip Fractures

When people are over the age of 60, the recovery after a hip fracture is distinctive from other acute medical illnesses since expected full recovery is not as rapid as the expected full recovery from other acute medical illnesses (Hansen, Mahoney, and Palta, 1999). Although there has been research in the past on functional recovery after a hip fracture, there was a recent call in the literature for



further studies to identify predictors of both positive and negative functional outcomes in order to better reevaluate the approaches that are currently used (Marottoli et al., 1994). As the population ages, the number of fractures will probably increase.

Therefore, current outcome information is needed in order to implement the most appropriate treatment approaches, discharge planning, and use of available health care resources in order to deal most effectively with people who have hip fractures in the future (Egol et al., 1997). There is also concern that in a managed care, cost-cutting environment, we need to be careful not to compromise long-term outcomes for shortsighted cost-saving measures (Lyons, 1997).

Lyons (1997) found the general factors that are associated with a positive recovery (regaining a functional status consistent with pre-fracture status) after a hip fracture include: (a) being under the age of 85, (b) male, (c) absence of dementia, and (d) absence of postoperative confusion. Egol et al. (1997) found that age of greater than 85 years, co-morbidities, and limited pre-fracture ADL, including limited ambulation, contributed to a poor prognosis after a hip fracture. Magaziner, Simonsick, Kahser, Hebel, and Kenzora (1990) found that greater contact with one's social network had a positive effect on a person's ability to regain her ability to walk after a hip fracture. High post-surgery depression scores were found to be associated with poorer recovery in both functional and psychosocial status (Mossey, Mutran, Knott, and Craik, 1989).

### Mortality

Multiple studies in the literature discussed the incidence of mortality after a hip fracture. Pagès, Cuxart, Iborra, Olona, and Bermejo (1998) linked immediate postoperative period mortality to dementia, gender and previous personal dependence. Marottoli et al. (1994) found an increased mortality rate in the six-month period following the fracture. Aharonoff, Kkoyal, Skovron, and Zuckerman (1997) followed 612 elderly patients who sustained a non-pathological hip fracture in a prospective, consecutive study. They found patient age > 85 years, pre-injury dependence in BADL, multiple co-morbidities, and the development of one or more in-hospital postoperative complications were positively related to mortality one year post hip fracture. Fox et al. (1998) found poor balance and a summary mobility score to be significantly related to mortality after adjusting for age, sex, race and co-morbidity. Katelaris and Cumming (1996) also found a significant mortality rate after one year, when 211 people who experienced hip fractures were compared to a cohort group of 201. They suggested that there are more variables than just pre-fracture health status that contributed to excess mortality after a hip fracture. The consensus was that mortality increases after a hip fracture, but the exact predicting variables have not yet been determined.

### Quality of Surgical Treatment for Hip Fractures

A person always wonders if she is receiving the best care possible after any morbidity. In a 5% national sample of Medicare claims study, Lu-Yao, Baron,

Barrett, and Fisher (1994) found little variation in treatment throughout the United States for people who had experienced hip fractures. Type of fracture and type of surgical repair have been examined by numerous researchers to determine the most effective treatment for specific fractures (Burns, Moskowitz, Ash, Finch, and McCarthy, 1997; Fritz, Hiersemann, Krieglstein, Friedl, 1999; Holt, Evans, Hindley, Metcalfe, 1994; Koval et al., 1995; Lyons, 1997; Mears, 1999; Millar and Hill, 1994; Rogers, Shackford and Keller, 1995; Young, Brant, German, Kenzora, Magaziner, 1997). Egol et al. reported (1997)

despite improvement in implant technology, operative technique, and rehabilitation protocols, outcomes for elderly hip fracture patients often fall short of expectations. The ability to regain one's pre-fracture level of function and independence is not realized even though the surgical management in terms of fracture healing or prosthetic replacement has been successful (p. 594).

These authors distinguished between variables surgeons do and do not have control over: they stated that the surgeons have influence over surgical timing, avoidance of iatrogenic (physician/hospital caused) complications, collaborative practice and recommending effective support networks. They had no control however, over variables such as patient age, co-morbidities, pre-fracture ambulation and functional abilities. They suggested that these latter variables were the stronger predictors of functional abilities after a hip fracture.

#### Current "State of the Art" Research for Hip Fracture Functional Recovery

Many of the large orthopedic centers in the United States have conducted extensive studies to find good predictors of functional outcomes and to create

protocols and procedures for the most effective medical treatments possible. This review of medical literature published from 1995-1999 is organized by findings of specific groups of medical researchers. The recent research was published by groups of researchers from: (a) Hospital for Joint Diseases Orthopedic Institute in New York City, (b) the National Institute for Aging in Baltimore, (c) the Department of Internal Medicine at Yale University, (d) the Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine, and (e) the University of Nottingham's Orthopaedic Group in the United Kingdom.

Koval, Egol, Zuckerman, Skovron, and Aharonoff, from the Geriatric Hip Fracture Research Group, Department of Orthopaedic Surgery, Hospital for Joint Diseases in New York City, have published extensively (1995-1999) on factors related to functional recovery after elderly patients experience hip fractures. This group has conducted retrospective chart reviews as well as prospective observations for samples of 300-500 patients at the Hospital for Joint Diseases Orthopaedic Institute. Data were collected at specific intervals by telephone interviews. Koval, Skovron et al.(1998) indicated that by one year post hip fracture, 73% of the 338 community dwelling, ambulatory elderly hip fracture patients had recovered to their pre-fracture BADL status, but only 48% had recovered to their pre-fracture IADL status. At one year post-fracture, the patient age of 85 or older was the only indicator they would isolate as a predictor of failure to recover pre-fracture IADL status. Predicting factors for recovery of pre-fracture status at all of the time periods (three, six, nine and 12 months) was less clear for IADL than for BADL.

This group recently linked malnutrition to poor outcomes after hip fractures. Malnutrition was found to predict longer lengths of stay in the hospital and an increased likelihood of mortality within one year (Koval, Maurer et al., 1999). This finding supported previous findings in the literature that linked malnutrition to poor recovery (Heaney, 1996) after a hip fracture. Simple and inexpensive lab tests that were administered routinely at hospital admission measured the patients' pre-fracture nutritional levels in these studies. Another study found that patients who had adequate nutritional support were less likely to die within six months after surgery than those who had not been monitored for nutritional support (Sullivan, Nelson, Bopp, Puskarich-May, and Walls, 1998). Involuntary weight loss has also been shown to be linked to an increased risk of frailty fractures in elderly women (Ensrud, Cauley, Lipschutz, and Cummings, 1997). This connection points to one of the possible complexities with recovery after a hip fracture. Since food preparation is an IADL and it is common to lose independence in IADL after a hip fracture, the loss of independence in IADL could lead to malnutrition, which would then have a negative influence on recovery.

Myers, Palmer, Engel, Warrenfeltz, and Parker (1996) from the National Institute on Aging at the National Institutes of Health, studied 50 consecutive patients who had hip fractures at each of two Baltimore hospitals (n=100). All patients were over 55 and were living in their own homes prior to the fracture. The findings from this study included specific rehabilitation protocols for people who fit into four specific categories that had the most negative outcomes. The four categories

were: (1) pre-fracture need for assistance with ADL, (2) age of 80 years or older, (3) male gender, and (4) pre-fracture urinary incontinence.

Fox, Hawkes, Magaziner, Zimmerman and Hebel (1996), from the Department of Epidemiology and Preventive Medicine at the University of Maryland School of Medicine in Baltimore, discussed factors that seemed to predict which older adults were likely to experience failure to thrive after experiencing hip fractures. They studied 252 patients who survived one-year post hip fracture and completed telephone self-report assessments at six and 12 months post fracture. They concluded that certain people exhibited signs and symptoms of failure to thrive and began to lose their functional abilities at about six months after their hip fracture. They found that these people all had high levels of glucose and carbon dioxide and low Bun and creatinine levels at hospital admission. This same group of researchers later studied 306 people 65 years or older who had hip fractures (Fox et al., 1998). They tested balance and gait at two months post hip fracture. They found that poor balance and gait were predictive of poor health outcomes for older people who had hip fractures. Poor balance but not poor gait was associated with increased hospitalizations for up to 24 months post fracture. Poor balance and poor gait were associated with nursing home placement after a hip fracture.

Gill, Williams, and Tinetti (1999), from the Department of Internal Medicine at Yale University School of Medicine in New Haven, CT, have looked at variables that contribute to people who live in the community developing functional dependence after experiencing a hip fracture. They cited baseline physical performance limitations,

cognitive limitations, and age as predictors for functional dependence after a hip fracture. This particular group has also studied the functional outcomes of systematic home-based physical and functional therapy, and home-based multi-component rehabilitation for older people after they experience a hip fracture (Tinetti et al., 1997; Tinetti, et al., 1999). These findings indicated that home based therapy was as effective as the systematic inpatient rehabilitation, but they noted that in this particular study, the people who received home based services received more intensive services than had previously been provided in home based care. This study did not demonstrate the cost-effectiveness of intensive therapy at a rehabilitation center, but it did suggest that intensive home-based services can be as beneficial as institutionally based services. This supports the concept that people do best when they return to their own homes as soon as possible after a hip fracture.

In many of the recent studies, pre-fracture independence status was found to be a significant indicator of post-fracture prognosis (Aharonoff et al., 1997; Broos, VanHaaften, Stappaerts, and Gruwez, 1989; Egol et al., 1997; Koval et al., 1995; Lyons, 1997; Myers, et al., 1996; Schurch et al., 1996; Young et al., 1997). Some of these studies referred specifically to pre-fracture ambulation independence (Broos et al.; Lyons), and others to living in the community prior to the fracture (Koval et al.).

### Activities of Daily Living

Several studies have examined pre-fracture ADL status, with different emphases. In one study, these were called Personal Activities of Daily Living (PADL) (dressing, feeding, bathing and toileting) (Young et al., 1997), but in other studies they

have been called Basic Activities of Daily Living (BADL) (Aharonoff et al., 1997). In all of the studies that examined pre-fracture independence levels, the more independent a person was prior to the fracture, the more likely it was that she would be independent after the fracture (Aharonoff et al.; Broos et al., 1989; Egol, 1997; Koval et al., 1995; Lyons, 1997; Myers et al., 1996; Schurch et al., 1996; Young et al.). Other than the pre-fracture status, there have not been any clear predictors for why some people regain their ADL and others do not.

Several studies have reported that IADL are the most difficult skills to regain after a hip fracture (Cooper, 1997; Hagsten and Soderback, 1994). Although good predictors of ability to recover BADL were found in other studies (Aharonhoff et al., 1997), studies have not indicated any good predictors of recovery of IADL for people younger than 85 who were independent in IADL prior to the fracture (Koval, Skovron et al., 1998). The 1993 Office of Technology Assessment Congressional Report *Hip fracture outcomes in people age 50 and over: Mortality, service use, expenditures, and long-term functional impairment* (as cited in Cooper, 1997), reported that one year after discharge from the hospital, 80% of the people who experienced hip fractures in the United States in 1990 had lost the ability to perform one or more IADL, and 60% required assistance for at least one BADL. The recovery process for the elderly after a hip fracture is a very complex phenomenon (Young et al., 1997) as are people's IADL. Because of the complexity and individuality of IADL, IADL may be one of the best outcome measures for recovery after a hip fracture.



### Measuring IADL

The concept of IADL, those activities of daily living that are instrumental to a person's life is complex and difficult to measure. The ADL that people self-reported as the most difficult for them to resume were, (a) hair washing, (b) making the bed, (c) buying food (d) driving, and (e) shopping (Cooper, 1997; Hagsten and Soderback, 1994).

The current literature had relied on self-reported data for measuring ADL, (both BADL and IADL), although there has been a call in the literature for more objective outcome data in acute curable diseases such as hip fracture (Borquist, Nilsson, Lindelow, Wiklund, and Thorngren, 1992). The objective data is not proposed to replace subjective information, but it would be used in addition to the individuals' subjective evaluations of their abilities. Self-reported ADL ratings have been accepted in the sociology literature as being reliable (Babbie, 1992 ), but several studies from the occupational therapy literature (where ADL is the focus of treatment) have reported that people over-rated their abilities in activities of daily living and self-care skills when their self-report scores were compared to therapists' ratings (Atwood, Holm, and James, 1994; Edwards, 1990). Jelicic, Kempen, and VanEijk (1996) have also cautioned against using self-reported ADL performance results from the elderly if depression is suspected, since elderly persons with depressive symptoms tend to underrate their ADL performance.

### Depression and Social Support

Mutran and Mossey have published several papers with other collaborators, citing the importance of psychosocial factors as variables affecting people's recovery after a hip fracture (Mossey et al., 1989; Mutran et al., 1995). They specifically wrote about the role social support and depression played in elders' ability to walk after a hip fracture. The effect that social support/networks had on people's recovery was supported by Magaziner, Simonsick, Kashner, Hebel and Kenzora (1990), but these variables are not included in the "current state of the art" research that was previously discussed. Egol et al. (1997) mentioned social support at the conclusion of their article, implying that it is a factor accepted as a strong contributor to optimal recovery:

Certain factors such as age, gender, associated comorbid medical conditions, and pre-fracture ambulatory and functional ability are independent of our efforts as physicians. Other factors, however, such as surgical timing, avoidance of iatrogenic complications, collaborative practice, and establishment of proper support networks can be affected by our interventions. (p. 598).

Rennemark and Hagberg (1997) supported the importance of social network patterns for well-being in older adults; Verbrugge, Reoma, and Gruber-Baldini (1994) discussed the importance of social contacts that were initiated early after an injury or illness in order to attain and maintain high functioning over a year. Houldin and Hogan-Quigley (1995) found that social involvement, mental alertness and emotional stability all positively affected recovery after a hip fracture. Borkan, Quirk

and Sullivan (1992) employed an injury narratives approach to study variables related to recovery after a hip fracture. They found that people who perceived themselves to be more autonomous, independent and connected to the world showed greater improvement in their ability to ambulate than those who did not exhibit those qualities.

Houldin and Hogan-Quigley (1995) called for hip fracture and the subsequent disabilities to be studied as a biopsychosocial rather than merely a physiological event. They also cited the negative effects that elevated depression and cognitive impairments had on recovery. Johansson and Skoog (1996) studied 385 people who were 85 years or older. They found a higher incidence rate of Alzheimer's disease/vascular dementia and hip fracture in females when compared to incidence rates for these conditions in males. They discussed two possibilities for this relationship between dementia and hip fractures: (1) dementia either contributed to the hip fracture, or (2) the anesthesia after the hip fracture surgery caused or exacerbated dementia.

Limited cognition, dementia, and post-surgical confusion have all been linked to poor prognosis (Lyons, 1997), and persons experiencing those conditions have been excluded by the majority of the functional recovery studies due to the poor prognosis associated with dementia (Koval et al. 1995). O'Brien, Grisso, Maislin, Chiu, and Evans (1993) and Advocaat and Bautz-Holter (1997) both found that severely confused patients exhibited higher rates of medical complications, institutionalization, mortality, and poor physical outcomes than their cohorts who were not severely confused. In contrast, Goldstein, Strasser, Woodard and Roberts

(1997) found that hip fracture patients who had cognitive impairments could still achieve positive outcomes as measured by the Functional Independence Measure (FIM) in self-care, sphincter control and locomotion. Strasser, Woodard and Roberts called for intensive post-fracture rehabilitation in the early stage of recovery, specifically tailored to cognitively impaired people, and further research to determine whether or not these gains are maintained over a period of time.

Two very recent studies have linked depression or mental distress to an increased fracture risk. Forsen et al. (1999) interviewed 18,000 Norwegian women over the age of 50 and then recorded the number of hip fractures that they incurred in the next three years. Controlling for age and medication use, they found that the women with the highest level of mental distress had a twofold-increased risk of hip fracture when compared with women who had the lowest level of mental distress. They speculated that the increased mental stress may have physiological effects. They also speculated that mental stress increased the blood levels of cortisol, which has been linked to bone loss; people under mental stress are therefore at an increased fracture risk. Whooley et al. (1999), followed 7,414 women prospectively for six years. They found an increased risk of falls in elderly women who were depressed, but they did not find any bone mineral density differences between those women who were depressed and those who were not. Liu, Anderson, Mittman, To, Axcell, and Shear (1998), attributed an increased risk of hip fracture in depressed women to the antidepressants they were taking. This finding was not supported throughout the field, with four letters to the editor questioning the medication's effect and suggesting that the depression itself increased the person's hip fracture risk rather than the

medication's side effects (Gambassi Lapane, Sgadari, and Bernabei, 1998; Sher, 1998; Szekely, 1998; Verlhac, Wolmark, and Forette, 1998).

Depression is widespread among elderly persons, is often undiagnosed or misdiagnosed, and is usually untreated (Birrer, 1998; Reynolds and Kupfer, 1999; Zisook, 1996). It is not a "normal" part of the aging process, but can cause significant problems for people as they get older (Reynolds and Kupfer, 1999). Gatz and Hurwicz (1990) found that adults over the age of 70 had less of a "hopeful outlook" than their younger counterparts. Lieberman et al. (1999) found that after a significant event such as a hip fracture or a stroke, it is common for elderly people to exhibit symptoms of depression at the beginning of their rehabilitation due to the recently acquired functional limitations. The depression symptoms usually diminish as the person's physical capabilities improve. Reynolds and Kupfer (1999) called for better front line recognition of depression in the elderly and the development of strategies for early treatment.

After older adults experience a hip fracture, they are at higher risk for depression; the depression then may limit their physical abilities. The mitigating effect that positive social support has on limiting depressive symptoms in both women and men (Zlotnick, Shea, Pilkonis, Elkin, and Ryan, 1996) offers a non-pharmacological approach to help people deal with the depression that is likely to occur after a trauma. Warner, Haug, Musil and Morris (1998) examined three elderly women's four-week health diaries and found that social support was extremely important to these women as they tried to continue with their functional activities in spite of their illness experiences. Roberto (1992) examined 101 women between the

ages of 65 and 94 after they experienced a hip fracture to learn more about their ability to cope with the fracture. The most frequently reported coping strategy of these 101 women was seeking social support.

### Why Are Some People Healthier Than Others?

The process of seeking social support could be considered one particular coping strategy that would be part of a person's repertoire of coping strategies and available resources. Seeking assistance from friends and family to cope with endemic, overloading stresses is usually considered an appropriate coping strategy. Support from friends and family is often helpful in minimizing the negative effects of a difficult situation. After an injury or illness, people would often enlist/allow friends and family to assist them physically and emotionally to deal with their current difficulties. Assuming that the support has a positive effect for them, they are less stressed than they would be without that support. Antonovsky (1979) found that these coping mechanisms are related to a person's actual health.

Antonovsky (1979) developed the concept of a salutogenic approach to health during a study in Israel of women's adaptation to menopause. One of the questions he had included in the survey for women born in central Europe between 1914 and 1923 was whether or not they had been in a concentration camp. Although the results showed that more of the women who had not been in the camps (51%) were emotionally healthy than women who had been in the camps (29%), Antonovsky noticed that 29% of the women who had been interred were emotionally and physically in good health, 25 years later.

Focus not on the fact that 51 is far greater than 29, but consider what it means that 29 percent of a group of concentration camp survivors were judged to be in reasonable mental health. (The physical health data tell the same story). To have gone through the most unimaginable horror of the camp, followed by years of being a displaced person, and then to have reestablished one's life in a country which witnessed three wars. . . and still be in reasonable health (p. xi).

His research question was "from whence the health?" asking a different question than had been asked in the past. He called this approach to the origins of health a "salutogenic" perspective, and these concepts have been included in the field of social epidemiology.

In order to better understand the phenomena he found in the relatively healthy women who had survived the concentration camps, Antonovsky (1979) designed a different study. He conducted in-depth interviews with 51 people who met two criteria: they all had (1) experienced severe trauma with inescapable major consequences (i.e., severe disability, loss of a loved one, difficult economic condition, concentration camp, or recent immigration from the Soviet Union); and (2) were judged (by an objective person familiar with recovery after a severe trauma) to be functioning remarkably well. The interview was based on the subjects' answers to the question of how they saw their lives. Three inseparable themes emerged from the data, which Antonovsky called the core components of the sense of coherence (SOC): (1) comprehensibility, (2) manageability, and (3) meaningfulness.

From these cores, Antonovsky created a scale, the "Orientation to Life" scale, that measured the sense of coherence (SOC) concept, to measure the meaningfulness, manageability, and comprehensibility that people felt in their lives. He then correlated the extent that people felt those concepts in their lives with their ability to

successfully manage difficulties. Antonovsky's hypothesis was that a person's sense of coherence predicted her coping outcomes when faced with difficult situations (Antonovsky, 1979) .

When looking for reasons that some people were able to cope with difficulties and not breakdown when others were not, Antonovsky (1979) credited forces in people's lives that he called generalized resistance resources (GRR). He defined GRR as "any characteristic of the person, the group, or the environment that can facilitate effective tension management" (p. 99). Examples of these GRR are physical, biochemical, artifactual-material, cognitive, emotional, valuative-attitudinal, interpersonal-relational or macrosocial characteristics of a person, group, subculture or society that are effective in combating or avoiding stressors. The GRR are distinct from Selye's (1956) three stages of general adaptation syndrome (GAS), since the purpose of the resistance stage in the GAS is to prevent the organism from entering the stage of exhaustion, and thereby preventing the stressor from ever contacting the organism (Selye, 1975) . This differs from Antonovsky's concept of the GRR, since the GRR do not protect the organism from the stressor, but instead allow the organism to overcome the effects of the stressor (Antonovsky, 1987) .

Strumpfer (1995) expanded Antonovsky's concept from salutogenesis to fortigenesis, supporting a new question, "from whence the strength?" from Antonovsky's own writings. He claimed that the effect of Antonovsky's GRR was more an indication of the origin of strength in general, rather than the focus of protecting the person from possible unhealthy effects of various stressors. He described the concept of GRR as going beyond health to providing inner strength to



the person, in the form of artifactual, cognitive, interpersonal or macrosocial characteristics. Strumpfer claimed that people's inner strength is the underlying component of their health.

Victor Frankl's (1959) also credited his inner strength for the ability to endure Nazi concentration camp hardships and to go on to lead a productive life. He stated,

. . . most men in a concentration camp believed that the real opportunities of life had passed. Yet, in reality, there was an opportunity and a challenge. One could make a victory of those experiences, turning life into an inner triumph, or one could ignore the challenge and simply vegetate, as did a majority of the prisoners" (p. 72).

Antonovsky (1987) used similar words to describe a person with a strong sense of coherence when confronted with a task that is meaningful to him or her: this person "will be motivated to see the task as a challenge, to impose structure, to search for appropriate resources" (Antonovsky, 1987 p. 182).

It may well be that one of the most effective ways a person with a strong SOC maintains his/her view of the world as coherent is to be flexible about the life areas included within the boundaries considered significant. Sensing that the demands in a given area are becoming less comprehensible or manageable, one can, temporarily or permanently, contract the scope of the boundary of concern (Antonovsky, p. 24).

If a person found that her current life situation had caused a change in one of the significant "spheres" of her life (inner feelings, interpersonal relations, major activity or existential issues), she would need to decide whether or not she wanted to change one of those spheres. She would have to decide whether the adjustment she would have to make was a challenge "worthy of the investment of energy" (p. 23).

Sullivan (1993) and Antonovsky (1994) discussed the concepts that make up the sense of coherence, and the difference between the sense of coherence and other

seemingly similar concepts. Antonovsky looked back on the three components, comprehensibility, manageability and meaningfulness, and reviewed their current relevance to other concepts in the literature. Antonovsky acknowledged the similarities of his concept of manageability (believing that one understood the problem and had the necessary resources to cope with the problem), with Bandura's 1977 construct of "self-efficacy." Bandura defined self-efficacy as a person's feelings of competency and effectiveness. If one assumes that feelings of self-efficacy would facilitate successful and appropriate coping behavior, then they would be similar concepts. Both concepts stress the need for coping to make sense; people are motivated to cope, because coping is emotionally beneficial (Antonovsky, 1994).

Sullivan (1993) saw similarities between the components of Kobasa's 1979 and 1982 use of the term hardiness (control, commitment and challenge) and components of Antonovsky's sense of coherence (manageability, meaningfulness and comprehensibility). Her distinction between an internal locus of control and manageability is the scope of control that a person has. Someone who has an internal locus of control sees the connection between her actions and events that actually happen; a person who feels manageability in her life would see events as being under "some kind of control" with the belief that she does participate in shaping the outcomes. Sullivan again differentiates between commitment and meaningfulness, by the scope of the two concepts. Commitment is a more enveloping concept of self worth that "prevents one from giving up under adversity" (p. 1777), while meaningfulness can be limited to at least some of the domains of life where the person's efforts are seen as worthwhile. Sullivan's last comparison between the

components of the SOC and the components of Kobasa's concept of hardiness is with challenge, placing it within Antonovsky's component of meaningfulness, and finding it theoretically very similar to that component.

### Empirical Findings

Empirically, researchers have tried to determine if there are any actual differences between the sense of coherence and other related concepts, specifically in relation to diagnoses or conditions. They have also looked at what the relationship is between the sense of coherence and other related concepts such as perceived well being, quality of life and coping abilities. Callahan and Pincus (1995) looked at the SOC in relation to patients with rheumatoid arthritis (RA). The sense of coherence components appeared to be different constructs than performing activities of daily living (ADL), global health status, and perceived learned helplessness. This study also found that when the variable of fewer years of formal education was adjusted for age, sex and disease duration, it correlated strongly with lower sense of coherence scores. This correlation with the sense of coherence is significant in understanding why patients with RA who have more formal education have less trouble performing ADL than patients with RA who have less formal education. Another finding from this study was that the scale that had only 13 of the original 29 questions, the SOC-13 scale, was as reliable for these subjects with RA as the SOC-29 scale ("Orientation to Life" scale originally developed by Antonovsky that contained 29 items).

When Klang, Bjorvell, and Clyne (1996) studied the quality of life in-patients who had predialytic uremia, they found functional ability, anxiety and coping ability

were important dimensions. It was not surprising that the predialytic uremia patients reported a decreased sense of well being, higher levels of anxiety, and more functional disabilities when compared to a healthy reference group. The study found that the sense of coherence was negatively correlated with anxiety. Another finding of this study that related to the study with patients who have RA, was that patients who had less formal education scored significantly lower on the sense of coherence scale than people with a university education .

The sense of coherence has been found to be related to quality of life, perceived well-being and coping ability in people who required medical intervention. It was a unique variable in explaining the variance in 149 people who had coronary heart disease and had survived cardiac arrest. The sense of coherence was described as a strong independent predictor of "quality of life" after controlling for multiple predictors used in past research, including perceived social support, poor health vulnerability and self-esteem. The sense of coherence explained an additional 15% of the variance, raising the explained variance from 50% to 64% (Motzer and Stewart, 1996). The SOC score correlated positively ( $r=0.32$ ,  $p<0.01$ ) for 79 patients diagnosed with colo-rectal or gastric cancer when compared to their perceived well-being, as rated on the Health Index (HI) (Forsberg, Bjorvell, and Cedarmark, 1996). This seems to support Antonovsky's claim that the sense of coherence is related to people's perception of their health, but still allows the two concepts to be seen as separate variables that both give useful information about a patient. When Forsberg and Bjorvell (1996) studied patients with chronic diseases (gastro-intestinal cancer, ostomies due to Crohn's disease, or ulcerative colitis) using a sematic differential

scale to measure well-being rather than the HI, they found that cancer patients who had a stronger sense of coherence had better perceptions of their well-being than the patients who had a weaker sense of coherence. The SOC was used as an indication of successful coping capability for 85 patients who were followed over a five year time period after an anterior low-back fusion was performed in order to relieve chronic low-back pain. The SOC scale was found to be an especially good predictor of patients' ability to successfully cope with the surgery in patients between the ages of 35 and 50 years of age (Santavirta et al. 1996).

One study conducted in Sweden compared SOC scores taken prior to discharge and one month after discharge with the discharge sites (either home or institution) for 53 patients (mean age 82.8 years, SD=6.6 years) after orthopedic surgery. Higher SOC scores were found to be good predictors of the patient's ability to live at home following discharge from the hospital, even when controlling for mortality. The authors suggested that the high SOC scores are related to people's cognitive ability to understand and their ability to be motivated and capable of coping with the physical and mental problems they may encounter (Johansson, Hamrin, and Larsson, 1994) . This cognitive component is essential for both the SOC and the ability to live alone, but the SOC score may be an indicator of a person's cognitive and motivational potential after orthopedic surgery. The same authors found moderate temporal consistency (0.51) between SOC scores at discharge and SOC scores at one month post-discharge in a related study (Larsson, Johansson, and Hamrin, 1995).

Rena, Moshe and Abraham (1996) studied personality traits in 80 people who were coping with a disability that caused paralysis and 72 of their spouses. They found a significant correlation between the SOC and functional adjustments to disability in both people with disabilities and their spouses. They found the person's sense of coherence as more likely to predict a person's adjustment to a disability than the severity of the disability, as rated on the "Acceptance of Disability" scale (AD). Their findings suggested that people with a high sense of coherence are able to better manage their tension, and therefore better able to cope with the psychological, physical and social aspects of the disability. In the patients' group (80), the component of meaningfulness (their family was a reason to cope) was most significantly related to their functional adjustment. Other variables that correlated with the patients' SOC were anxiety and acceptance of disability and health. For the spouses' group (72), manageability (the belief that the disability situation can be managed) was the strongest component for predicting functional adjustment. The strongest correlates were marital satisfaction, work, and study.

In a recent study, Schnyder, Buchi, Morgeli, Sensky, and Klaghofer (1999) did not find any significant correlations between the SOC and scales that represented the World Health Organization's 1980 concept of "disability" (according to the ICDH-2 definitions, this would be activity limitations). The "disability" measurements that were used for people with rheumatoid arthritis and severe injuries following a life-threatening accident were the Health Assessment Questionnaire, the Short Form Health Survey Questionnaire (SF-36), a physical functioning scale, the Clinician-Administered Post-Traumatic Stress Disorder Scale, the Injury Severity

Score, and the Glasgow Coma Scale. This study involved 89 people who had rheumatoid arthritis and 112 people who had sustained severe injuries after a life-threatening accident. They found that the SOC correlated with the self-report scales that measure the ICDH concept of “handicap” (ICIDH-2 concept of activity participation) such as the SF-36 social functioning scale (0.33  $p=0.003$ ), the Hospital Anxiety and Depression Scale (-0.53  $p=0.000$ ), and the Symptom Checklist-90-R (-.44  $p=0.000$ ). They found that low SOC scores seemed to be associated with the participants’ perception that they had a “handicap”. These authors proposed that the SOC was a “mediator between disability and handicap, influencing the psychosocial effects of a given health problem.” (p. 109).

Wagenfeld, Baro, Gallagher and Haepers (1994) published other examples of the SOC score correlating positively with adaptive coping styles. In one article (Gallagher, Wagenfeld, Baro, and Haepers, 1994) they found that caregivers of people with dementia and non-dementia chronic illness who had strong SOC scores were more likely to cope in ways that were appropriate to the situation than were caregivers who had weaker scores. In another publication, these same authors credited the caregivers for “redefining the meaning of the situation, selecting realistic coping strategies, and avoiding potentially maladaptive or unhealthy behaviors” (Wagenfeld et al., p. 259). The personality traits of the people with strong SOC scores seemed to allow them to make whatever adjustments were needed, using different coping mechanisms in different situations.

Martensson, Pettersson, and Fridlund (1995) conducted such an intervention program with people diagnosed with fibromyalgia (FM) in Sweden. An OT and a

physiotherapist (PT) interviewed patients prior to and following an “ego-strengthening” intervention. Their study used a phenomenographic approach with 10 subjects. Individual interviews were conducted with semistructured questions, standardized for all patients, based on Antonovsky's components of the SOC scale. The phenomenographic analysis was conducted with substantial rigor, including trustworthiness and accuracy, and the authors reported saturation of the conceptions (no new concepts emerged) after one half of the interviews were analyzed. The ego-strengthening program involved classes (taught by the OT and PT) that were designed to improve the FM patients' GRR, SOC and thereby assist them in moving towards the health end of the health-ease/dis-ease continuum. The post intervention interviews showed that the following health conceptions were important to the subjects: (a) receiving confirmation, (b) gaining insight, and (c) gaining control. The intervention seemed to improve the patients' sense of manageability, comprehensibility and meaningfulness of the pain syndrome, and therefore lead them to improved health (Martensson, Pettersson, and Fridlund, 1995). These researchers seemed to find "significant" improvements in their patients' health, although it may not be considered a "major strengthening" of the participants' SOC (Antonovsky, 1994).

#### Sense of Coherence and Recovery After Hip Fracture

In a recent study conducted in Sweden, Johansson, Larsson and Hamrin (1998) studied 73 patients who were admitted from their own homes to an emergency hospital after they had experienced a hip fracture. The mean age of the participants



was 80.4 years. A confusion scale was administered prior to surgery. About seven days after the operation (while the person was still in the hospital), the confusion scale was re-administered along with a health assessment (Health Assessment Form) and a SOC scale. Since this study was conducted in Sweden, the "Orientation to Life" scale could not be used since there was no Swedish version available. In order to evaluate a person's SOC, the authors used a scale that was developed by one of the authors of this study (Larsson) and a colleague (Setterlind). They developed a scale that consisted of nine Likert-type items that were scored from "1" (weaker SOC) to "3" (stronger SOC). There were three items for each of the three component areas. The authors reported a 7.0 interscale correlation between this scale and Antonovsky's Orientation to Life Scale (1987) from an unpublished manuscript. The health assessment form and the SOC scale were re-administered one month after discharge. At four months after discharge, a quality of life index, a test of IADL (Standardized Practical Equipment) and the SOC scale were re-administered.

The researchers dichotomized the SOC scores; (high scores were those above the median, low scores those below the median) and divided the participants into high SOC and low SOC groups. They determined that the differences for age (78 vs. 84), co-morbidities (total of 35 disease classifications in 35 people in the low SOC group vs. total of 28 classifications in 32 people for the high SOC group), and type of hip fracture between the two groups were not statistically different by using the Levene test and pooled-variance *t* test. The majority of the participants were female and lived alone prior to the hip fracture.

Prior to admission, the participants in both groups were reported to be generally independent in personal care activities. The participants in the low SOC group had received more assistance for IADL (social activities, shopping, homemaking, etc.) than those with a high SOC. The low SOC group was reportedly significantly more incapacitated premorbidly in relation to chronic illness than the high SOC group (although it had been reported that there were no statistically significant differences in co-morbidities in the two SOC groups). At both pre-surgery and seven days after surgery, there was a statistically significant difference between the higher SOC and lower SOC participants' state of confusion while in the hospital. The higher SOC scored more favorably on the confusion scale and they also reported significantly fewer experiences of discomfort (related to elimination of urine, vision, mental status, and emotional status) while in the hospital. This difference in the scores on the confusion rating was noted to be significant ( $t/X_2=2.70$ ;  $p=.01$ ) between the low (N=35 confusion rating mean= 24.29, SD = 4.21) and high (N=32 confusion rating mean = 26.78 SD= 3.15) groups prior to surgery. Prior to discharge from the emergency hospital, the participants in the low SOC group (mean =26.49 SD=3.32) exhibited not only significantly more confusion ( $t/X_2 p=.0001$ ) than those in the high group (mean=28.91 SD=1.20), but the low group also reported more experiences of discomfort and more disability symptoms than their cohorts in the high SOC group.

At one month after discharge from the emergency hospital, the authors reported that the participants in the high SOC group required less assistance to live in their own homes than the lower SOC group, and also reported fewer experiences of emotional discomfort than the low SOC group. At four months after discharge, the

high SOC group reported a significantly higher quality of life index score than their low SOC counterparts. The quality of life was relatively higher between the two groups, although the high SOC group reported they now needed more assistance for social, shopping, domestic and person care activities than they had needed prior to the fracture. The low SOC group reported that they also needed increased assistance in these tasks; they additionally reported that they needed significantly more assistance in social activities and more assistance from the municipal services when compared to the high SOC group.

The authors concluded that after a hip fracture, people with a higher sense of coherence seemed to have a greater possibility of coping with the rehabilitation program and with daily activities than the group with a lower sense of coherence. This author questions that conclusion based on their dichotomous groupings of the SOC and age. The SOC groupings were based on a nine-item SOC scale that does not have any published validity or reliability measures. There is no confidence that this instrument really measured and discriminated between those with “good” or “poor” SOC. The age difference between the high SOC and low SOC groups was reported as not statistically significant, but mean age difference between the two groups was four years. That may not be a statistically significant difference according to the Levene and *t* tests, but at those particular ages, 78 to 82, those four years could make a significant difference in confusion and co-morbidities (Fulks and Molinari, 1995).

Fulks and Volinari (1995) reviewed literature regarding the distinction between the young-old and old-old. They found that when people 65-75 were

compared with people 10-20 years older (85 and older), people 85 and older suffer more from health problems, encounter more stress, are less satisfied with life, and rely more on extended family. The majority of the participants in the high SOC group (mean age of 78) are close to the 75-age range, and the low SOC group (mean age of 82) are closer to the 85-age bracket. The ranges from Fulks and Volinari's study suggested that there are significant changes that occur during the aging process between 75 and 85 years of age that effect health, stress and life satisfaction. The four years of difference between the means might actually have been significant if it were examined in the context of the aging process rather than as a difference of four years. The conclusions from this study may be more related to the negative effect that advancing age, co-morbidities and confusion can have on a person's ability to be independent than a persons' post-fracture SOC.

### Spirituality and Religiousness

Recent sense of coherence literature suggests that there are links between religious and spiritual variables, the sense of coherence, and health outcomes (Post-White et al., 1996). This research involved a triangulated qualitative/quantitative study of 32 adult cancer patients who were admitted to the oncology/hematology inpatient unit of a hospital over a two-month time period. A semi-structured, audio-taped interview with each participant was conducted at the hospital by either a chaplain resident or a nursing student. After the interview, the interviewers left self-report questionnaires on hope, spirituality, sense of coherence, quality of life, and demographics for the participants to complete on their own within 48 hours. Major

themes that emerged from this grounded study were meaning, affirming relationships, using inner resources, living in the present, finding meaning, and anticipating survival. The important subthemes in this study were faith, family, friends, and future. There was a strong correlation between hope and sense of coherence, but not between spirituality and hope (on the particular scale, the Herth Hope Scale, that was used). As the 32 individuals talked about “hope” the researchers determined that hope is a very complex concept that people define quite individually. Many of the major themes and important subthemes fit into Antonovsky’s category of GRR (affirming relationships, inner resources, faith, family, and friends). These findings support the salutogenic (origins of health) and even the fortigenic (origins of psychological strength) (Strumpher, 1995) perspectives that focus on how people deal with the stressors and tension in their lives. The resources they have available to them at any given time determines their place on the health-ease/dis-ease continuum.

Just as in the Post-White et al. (1996) study, the researchers found the concept of hope to be very complex, the concepts of religiousness and spirituality are equally complex concepts. Levine (1996) stated that “ Spirituality, as commonly conceived, may well exert protective effects on morbidity and mortality, but no one has yet successfully developed an operational definition or a usable, valid index” (p. 855). Levine’s review of current literature in 1996 attempted to diffuse seven common misinterpretations about epidemiological findings on religion that he stated were based on a lack of awareness of the natural history of disease. He refuted several statements about the positive relationships between religious involvement, prayer and health; Levine instead suggested that religious involvement (not spirituality) seems to

benefit, positively influence or be a protective factor for health. Religiousness and spirituality seem to be very complex concepts that some people believe make a difference in recovery from an illness or injury, but no one has been able to “put a finger” exactly on how this works.

Ellison’s 1991 review of the literature found four ways that religion may have positively affected well-being: (1) social interaction and support, (2) establishment of personal relationships with a divine Other, (3) provision of systems of meaning and existential coherence, and (4) promotion of involvement in religious organizations and changes in personal lifestyle. Chumblor (1996) found a correlation between individuals who reported a strong religious faith, specifically those with strong beliefs about divine power and existential certainty, and high levels of life satisfaction.

A recent report from the Fetzer Institute (Abeles et al., 1999) distinguished between religiousness and spirituality by distinguishing between the social interaction that is present in the two concepts. Religiousness is shared with a group, and therefore has specific behavioral, social, doctrinal, and denominational characteristics. Spirituality is more the individual beliefs that a person has about life’s meaning. Spirituality often calls a person beyond self, to a concern and compassion for others, but not necessarily through the social interaction of a religious group or affiliation. This report includes scales that were specifically designed to identify and measure domains that were specifically related to health outcomes. These new tools should prove very useful in future studies that examine the specific effect that religiousness and spirituality have on a person’s health and well being.

As evidenced in the early section of this chapter, medical research has searched extensively, without success, for clear and simple predictors of functional recovery after a hip fracture. There may not be clear and simple predictors since most people who have hip fractures are over the age of 60, and health becomes more complicated as they age. The possibilities of complexities that they may encounter include an increasing number of co-morbidities such as cognitive decline, physical limitations, and bereavement (Fulks and Molinari, 1995). The recovery process is not at all simple or consistent among people. Just as the salutogenic approach has been extremely successful in determining why some people stay on the health-ease end of the “health-ease/dis-ease” continuum after some illnesses, this study will attempt to answer whether or not the SOC is related to health/recovery after a hip fracture.

## CHAPTER III

### METHODS AND INSTRUMENTS

This chapter will discuss the procedures, methods, and instruments that were used in this study. Details of the quantitative study will be discussed, followed by a description of the qualitative study. The overall question in this study was “What factors are related to regaining IADLs after a hip fracture?”

#### Procedure

This study was conducted with the permission of Western Michigan University's Human Subject Institution Review Board, Bronson Methodist Hospital's Institution Review Board and Borgess Medical Center's Institutional Review Board. Please refer to Appendix B for permission from each of those boards to conduct the research.

#### Quantitative Study

##### Participants

There were 19 participants in the quantitative portion of this study. All of the participants had experienced a hip fracture 3-9 months prior to the research appointment, were over 60 years of age and were not experiencing dementia. All indicated a willingness to participate in this study and were willing to schedule an



appointment and sign the Informed Consent Form (Appendix C). One additional person was evaluated, but those results were not included in this study since during the ADL observation, the researcher determined that the person was experiencing moderate dementia

### Participant Recruitment

Participants were recruited at Bronson Methodist Hospital and Borgess Medical Center from both current and former patients. Each of the hospitals had its own recruitment procedure. An orthopedic resident from Michigan State University's Kalamazoo Center for Medical Studies also assisted in recruiting former patients as participants for the study.

### Current Patients

At Bronson Methodist Hospital, current patients were recruited during their acute hospital stay through written invitations that were signed by participating orthopedic surgeons; these invitations were distributed to all patients of participating physicians who met the participant criteria just prior to discharge by discharge planners. At Borgess Medical Center, the written invitation was signed by the researchers and the Director of Trauma Services; several days after admission to the hospital, the Trauma Nurse Coordinator gave these invitations to all patients who met the participant criteria by. Please refer to Appendix D for copies of invitations used for recruitment. People who were interested in participating in the research

completed the written invitation form and the hospital staff forwarded that information to the researcher.

### Former Patients

Two methods were used with former patients at Bronson Methodist Hospital. Early in the study they were recruited by written invitations from their physicians that were sent to their homes. The invitation packet the former patients were sent contained the written invitations and a pre-addressed stamped envelope. Former patients who agreed to participate wrote their names, telephone numbers and date of their hip fracture on their written invitations and returned them to the hospital personnel in the self-addressed envelope. The hospital personnel forwarded these completed invitations to the researcher. The second recruitment procedure was used for former patients from both hospitals. An orthopedic resident who had privileges at both hospitals, called former patients and invited them to participate using the written invitation as a script. Former patients who were interested in participating gave the orthopedic resident verbal permission to pass their names, telephone numbers and date of hip fracture on to the researcher.

### Scheduling the Appointment

All of the research appointments were scheduled with the former patient, not a caregiver. If there were any questions that the potential participant was experiencing dementia, a Dementia Screening was available to use. This screening is in Appendix E. The Dementia Screening was developed to be administered over the

telephone, talking with a caregiver of the person in question. Each of the participants was asked to schedule one appointment time for the researcher and an assistant to come to her home; she was also asked for directions to the home. As the former patient negotiated to make the appointment and gave directions to her home, the researcher looked for signs of confusion with time or directions. The Dementia Screen was not needed during the participant recruitment. Several people checked with spouses or adult children before making the appointment, but all were cognitively capable of planning a time for the researcher and an assistant to come to their homes.

At a minimum of three months and a maximum of nine months, the researcher and a student research assistant went to each participant's home to conduct the research protocol. The appointments lasted between one and two and one-half hours.

### Research Protocol

In order to administer the Assessment of Motor and Process Skills (AMPS) an occupational therapist must have taken a five day training session during which time her scores were compared to over 1,000 other raters' scores on standardized videotaped client observations. After the training, the therapist must administer the test to 10 people and then send her scores in to the AMPS Project for comparison to other raters for people with the same diagnoses as those she evaluated. At that time, the AMPS project assigns each rater a severity code that the rater uses for her individual AMPS computer program that adjusts the rater's scores according to

standardized criteria for rating. This process is called rater calibration. An occupational therapist who had been specifically trained and calibrated in the administration and scoring of the Assessment of Motor and Process Skills (AMPS) administered a structured observation where the participant performed two tasks that he/she chose from a list of standardized activities of daily living tasks. A student research assistant, who was trained in administering the interview questions and self-report questionnaires, verbally administered the interview, questionnaires and scales (Appendix F) following the activities of daily living observations. The researcher who had administered the AMPS was in another room scoring the AMPS while the student research assistant collected the self-reported data. The AMPS rater was in another room to attempt to control for evaluator bias; if the rater heard the participants' responses to the interview questions or the SOC, depression and expressive social support scales, it could potentially influence the rater's scoring.

Six student researchers assisted the principal investigator during the 13-month period of data collection. All of the research assistants had professional training in establishing rapport, data collection procedures, and appropriate interaction with older adults. All of the student research assistants were female undergraduate health and human service students (five occupational therapy students and one gerontology student) between the ages of 22 and 29. The student researchers had visual representations of the scale items in 14 point type that they displayed for the participants as they administered the items on the "Orientation to Life Questionnaire", the "Expressive Support Scale" and the "Center for Epidemiology Studies Depression Scale" (Appendix G). The researcher sent each participant a copy

of the participant's AMPS evaluation with all specific recommendations that were generated during the evaluation. Although the occupational therapy evaluation and subsequent recommendations would normally cost \$100-200, there was no cost to the participant.

### Instruments

#### Screening for Dementia

The Screening for Dementia was not used during this research study. This scale of Cognitive Status was created by researchers (Pearlin, Mullan, Semple, and Skaff, 1990) for their study of stress in caregivers of older adults. The questions in this screening tool are answered by a caregiver.

Reliability: Cronbach's alpha is .86.

Validity: used by multiple researchers for rating cognitive status of older adults (Wagenfeld et al., 1994).

#### Assessment of Motor and Process Skills

The Assessment of Motor and Process Skills (AMPS) were the dependent variable of the study. The AMPS is an objective, criterion-referenced instrument that allows an occupational therapist to evaluate a person's motor and process skills in the context of performing familiar tasks of her/his own choosing. The AMPS must be administered by an occupational therapist who has been specifically trained and calibrated in AMPS. The test is designed to measure a person's ability to perform

routine activities of daily living (ADL) by rating the quality and effectiveness of the motor and process skills during task completion (Fisher, 1999). This study used the objective measure of functional ability rather than a self-report scale since several studies have reported that people over-rated their abilities in activities of daily living (Edwards, 1990) and in self-care skills (Atwood, Holm, and James, 1994) when their self-report scores were compared to therapists' ratings.

There are a possibility of 63 task choices in the computerized version of AMPS 2.0 that was used in this study. The therapist targeted five potential tasks that matched the participant's self-reported ADL abilities. These specific tasks were targeted to allow the participants to demonstrate their optimal performance.

Participants chose two tasks from the choice of five for the AMPS observation. Task choice was an essential component of reliable use of this instrument since 40 % of the significant differences in ability scores on alternate forms reliability studies were attributed to poorly targeted task choices (when the participant did not have sufficient challenge, the scores were less reliable) (Kirkley and Fisher, 1999). The tasks most often used during this study were: (a) preparing a grilled cheese sandwich with pre-sliced cheese, (b) preparing a bowl of soup and serving it with crackers, (c) making a meat or cheese sandwich with one spread, and (d) preparing a bowl of dry cereal and serving it with a prepared beverage.

Participants were rated on 16 motor (i.e. stabilizes, aligns, manipulates, coordinates, etc.) and 20 process (i.e. initiates, terminates, sequences, inquires, adapts, accommodates, etc.) items as the occupational therapist observed them completing the tasks of their own choosing in their own homes. Scores were entered

into the AMPS computer program to obtain the logit ability measures for motor and process skills. The computerized scoring database that was used to determine the logit scores included 27,829 subjects from North America, the Nordic countries, the United Kingdom, Australasia (Australia and New Zealand), Holland, Israel, and Asia (Taiwan, Japan, and Hong Kong). The database included people with and without impairments, ages 3-90 (Fisher, 1999).

### Reliability

Test-retest reliability of the AMPS was .91 for the motor skills scale and .90 for the process skill scale when 17 older adults' scores (age range 67 to 97, mean age =81, SD = 8 years) on one AMPS observation session were compared with their scores at another session within a one-two week period. The subjects included both well persons as well as persons with neurologic, musculoskeletal, and cognitive disabilities (Fisher, 1999).

Alternate forms reliability was examined in 91 people's (well older adults and people over 16 years of age who had a physical or mental impairment) scores across four different AMPS tasks within a 7 day period. When tasks 1 and 2 were compared to tasks 3 and 4, the reliability coefficient was found to be at .91 for motor and .85 for process. Reliability coefficients dropped to  $r=.81$  and  $r=.71$  for motor and process respectively when ability measures for task 1 were compared to task 2 only. It is therefore important to observe at least two tasks for each AMPS observation in order to insure the optimal reliability (Fisher, 1999).

Inter-and intra-rater reliability has been calculated with over 2,610 calibrated raters, with 98% demonstrating a goodness-of-fit statistic indicative of acceptable fit to the Rausch measurement model through the mean square fit statistics (Fisher, 1999).

### Validity

Since the AMPS is the only instrument available that is designed to objectively measure a person's level of ability when completing IADLs (Fisher, 1999), there are no other instruments available to compare to determine concurrent validity for level of ability in IADL. Concurrent validity was examined with two global ADL instruments, the Scales of Independent Behavior (SIB) and the Barthel Index. When the AMPS scores for people who had developmental disabilities were compared with scores from two domains of the SIB, a correlation of  $r=.85$  was found between the AMPS Motor scale and the Motor Skills domain of the SIB, and  $r=.71$  between the AMPS Process score and the SIB Personal Living domain (Bryze, 1991). When the AMPS was compared to the Barthel Index with a heterogeneous sample of older adults, the correlations with the AMPS motor and process scale scores were  $r=.53$  and  $r=.54$ , respectively (Rockwood, Doble, Fisk, MacPherson, and Lewis, 1996). Concurrent validity was found to be fair-good for the AMPS as a global rating of ADL.

The AMPS was chosen for this study rather than other tests of ADL because it is one of the most highly respected evaluations in the field of occupational therapy (N. Gillette, personal communication, March 15, 1998). The AMPS Manual states



that it “yields information at the [WHO] level of participation” (Fisher, 1999 p. 25). Since the 1999 “level of participation” is the equivalent of the 1980 WHO term “handicap,” it was theoretically predicted that the SOC and the other social variables should be related to the AMPS scores since the SOC had been found to be a good predictor of recovery at the “handicap” level (Forsberg, Bjorvell, and Cedermark, 1996; Rena, Moshe, and Abraham, 1996; Schnyder, Buchi, Morgeli, Sensky, and Klaghofer, 1999). The AMPS was chosen for this study since it was an objective measure, but still theoretically related to a person’s perceived level of participation.

### Orientation to Life Scale

The Orientation to Life Scale that measures Antonovsky’s concept of sense of coherence (SOC), is a 29 item Likert scale that measures the overall process of active adaptation to a stressor-rich environment. The scale measured three constructs: meaningfulness, manageability and comprehensibility. The scale was read to the participants, but the participants had a copy of each item on the scale in front of them to give them a visual image of the continuum. The scale was developed through an extensive qualitative study to examine salutogenesis, a word coined by Antonovsky which means origins of health, referring to the ability to manage and maintain one’s health even in the face of adversity (Antonvosky, 1987).

### Reliability

Internal consistency and reliability of the instrument were demonstrated by Cronbach's alpha scores ranging from .84 to .93 (Antonovsky, 1987).

### Validity

When the Orientation to Life Scale was compared to a 22-item sense of coherence scale, it had a .639 correlation. This could be considered a test of criterion validity, although the other scale was also so new that it was tested with criterion that had not been previously validated; this test may more appropriately be termed concurrent validity by some readers. Discriminate validity was tested when the SOC scale was compared with a test with which it would be expected to have a negative correlation. When compared to the Sarason Test Anxiety Scale,  $r = -.212$  (Antonovsky, 1987). Scores from this scale were one of the independent variables in the study.

### Expressive Support Scale

This scale was created by researchers (Pearlin et al., 1990) for their study of stress in caregivers of older adults.

Reliability: Cronbach's Alpha rating: .87 (Pearlin et al., 1990).

Validity: used by multiple researchers for rating the level of expressive social support that older adults perceive (Wagenfeld et al., 1994).

The score from this scale was an independent variable in the study.

### Center for Epidemiology Scale of Depression

The CESD (Center for Epidemiology Scale of Depression) is a 20 item self-report scale that was designed to measure depressive symptomology (Radloff, 1979).

The score from this scale was an independent variable in the study.

### Reliability

**Internal Reliability:** Areal and Miranda (1997) found the scale to be a reliable instrument for people 18-70 when used as a scale, not as individual items. They reported alpha levels of 0.91 for older (age 55-70) Whites and Blacks, and 0.89 for older Hispanics, and alpha levels of 0.96 for Hispanics, 0.86 for Blacks, and 0.89 for Whites in younger people (18-54) in that same study. Test-retest reliability was found to be 0.61 when tested at a three month interval (Devins, 1988).

**Validity:** This scale was determined to be valid when used in research studies as a “rough indicator” of clinical depression since the results of the study found a modest relationship between self-reported symptoms of depression on the CES-D and the diagnosis of a major or minor depression (Myers and Weissman, 1980). It is accepted in the field as “By far the most commonly used and widely studied depression scale” (Moore and Schwartz, 1993, p. 47).

### Complex Recovery Necessitates Complex Methods of Study

The focus of this study was to determine what factors were related to participants' ability to recover after a hip fracture and return to their pre-morbid home in the community. The literature suggests that there are multiple variables that contribute to recovery (Koval et al., 1995; Koval, Aharonoff et al., 1998; Koval, Maurer et al., 1999). Because each person has her/his own living situation that preceded the fall, it is very likely that different variables may have differential effects

on different people, depending on the specifics of the situation (Patton, 1990). The multivariable effect can be taken into account with sophisticated scientific design methods, but very large data sets are necessary to control for the multiple variables (Newman and Benz, 1998). Due to staffing shortages and health care cost-cutting measures at the two local hospitals, the recruiting personnel at the two local hospitals were able to recruit only seven participants over a 12 month time period at one hospital and three over a five month time period at the other hospital. An orthopedic resident who had hospital privileges at both hospitals recruited the other nine participants through personal telephone calls.

Although several recruitment strategies were used over a year-long time period to obtain the most objective data and representative sample possible, the sample size was very small. Recruitment was initiated from the acute care hospitals so that all patients were invited to participate regardless of their potential for recovery, socioeconomic level, or degree of family support. This sample was not limited to those who received therapy at rehabilitation center, those that had adequate rehabilitation potential and support to go directly home after the acute care, or those with less potential and/or resources that received therapy at a Skilled Nursing Facility or a Nursing Home.

The data collection for this study was conducted over 18 months. After 10 completed data sets in 15 months of data collection, it was determined that the sample size for this study would not be large enough to control for the multiple variables that could effect people's recovery after a hip fracture. A qualitative component was added to the study to further explore the complex relationships between the

individuals and their recoveries. The qualitative perspective allowed the researcher to explore the constraints of each participant's everyday life, and how the participant incorporated her new abilities (and limitations) in her life through her IADL. This perspective allowed the researcher to better understand the participants' perspective in order to answer the question of what factors were related to a person's ability to recover after a hip fracture and return to her/his premorbid home in the community.

### Qualitative Study

Adding another method of inquiry in the midst of conducting the research is not uncommon, since "the practice of research is a messy and untidy business which rarely conforms to the models set down in methodology textbooks" (Bryman, 1992 p. 4). The qualitative portion of the study was conducted following the parameters of Lincoln and Guba's Naturalistic Inquiry (Lincoln and Guba, 1985) and Newman and Benz's Design Validity Criteria (Brannen, 1992; Newman and Benz, 1998).. The major criteria for determining the appropriateness of combining quantitative and qualitative methods were whether or not the methods were appropriate for the research question and theory (Brannen, 1992; Newman and Benz, 1998). The research question for this study is "what factors are related to recovery after a hip fracture?"

The quantitative portion of the study attempted to confirm the Antonovsky's salutogenic theory (Antonovsky, 1987), but the qualitative portion was instead a grounded theory exploration to determine what the participants viewed as the variables that contributed to their recovery after a hip fracture. Each participant was

asked the following two questions, and discussion followed for 45 minutes to 90 minutes: (1) "What has been the most difficult barrier for you to overcome since your hip fracture?" (2) "What has allowed you to overcome or cope with your barriers since your hip fracture?"

The grounded theory approach sought to enhance and expand on the variables cited in the literature as related to older adults' ability to return to their activities of daily living after a hip fracture. The researcher cannot claim to be un-biased toward Antonovsky's sense of coherence, but she attempted to examine the data with an open mind for the themes that would emerge.

### Sample

The qualitative sample was a purposive sample that sought to explore the participants' thoughts about the factors that contributed to their recovery after experiencing a hip fracture. The qualitative study was initiated after 14 of the 19 total data sets in the quantitative portion of the study had been completed. Since the quantitative study had sought to support a salutogenic approach to health, the median on the sense of coherence "Orientation to Life" score was used as the determining factor for inclusion in the qualitative portion of the study. The median score on the "Orientation to Life" scale was 166 after 14 data sets had been completed. The study then included people who scored above or below the median, since they were then representatives of the extremes rather than the norm of the participants in the study. The study was terminated after 12 qualitative interviews had been completed.

### Successive Phases of the Inquiry

Ten of the 12 qualitative interviews were completed at a second appointment, following the completion of the quantitative data collection. There were four participants who could have potentially completed the interview immediately following their quantitative appointment, but the researcher decided to reschedule due to the participant's appearance of fatigue after the two- hour quantitative appointment. However, two participants did complete their qualitative interview immediately after their quantitative appointment. In these two cases, the student researcher computed the SOC score from the quantitative phase to determine where the participant's score fit in the descriptive statistics for the SOC scale. If the score was above or below the median, the participant was invited to participate in the qualitative interview, and both of these participants agreed to continue with the qualitative interview immediately following the quantitative appointment. The other ten participants allowed the researcher to come back to their homes at another mutually convenient time for the interview.

### Instrumentation

The principal researcher was the one human instrument for the twelve qualitative interviews. The principal researcher was actively engaged in conversation with the participants during the interview, as she attempted to draw out the participants' stories and ideas to answer the general research question.

### Data Collection and Recording

Data collection was accomplished by the researcher taking copious notes during a face to face interview in the participants' homes. The note-taking system was recommended by Lincoln and Guba (1985) to keep the investigator alert, to diminish any problems from technical difficulties, and so the researcher could record her own thoughts during the process. It was also used in this particular study since the age of the participants ranged from 65 to 92, and the researcher determined that the use of technology may have intimidated these older adult participants. Fidelity was demonstrated during this study by the researcher keeping all of the original field notes and typed copies of each statement made; the researcher reproduced the exact data as it emerged in the field for a peer reviewer.

### Data Analysis

Immediately following the research appointments, the researcher typed the field notes into a word processing document set up in a table form. One sentence or thought was included in each cell of the table, and each cell was marked with the participants' identification number. These tables were cut and then pasted onto small index cards for the constant comparative analysis method. Each case was analyzed individually, incorporating both quantitative data and qualitative data to describe the complex configuration of processes within each case. After that analysis, a cross-case analysis was conducted where the cards were analyzed using a constant comparative method (Lincoln and Guba, 1985 ), looking for common themes across



the data sets. In Phase I, the cards were placed in piles on a large table, creating 21 categories in an open coding process (Strauss and Corbin, 1990). In Phase II, the cards were again reviewed and re-categorized into 42 categories to clarify the different phenomena in an axial coding process.

In Phase III, as the cards were reviewed, several new categories were created and others collapsed together, using the techniques described by Lincoln and Guba of filling in, surfacing, extension and bridging. This brought the total number of categories to 48. In Phase IV, the cards were redistributed, deleting 21 categories and adding three categories. In Phase V, the cards were again reviewed, the quantitative data again reviewed and incorporated for triangulation (Lincoln, 1985), and the cards reshuffled into 25 categories. When these 25 categories were defined in Phase VI, one was collapsed into another, leaving 24 categories. In Phase VII, when a visual display for the data was created, the categories were again collapsed, resulting in 12 categories that represented all of the data collected.

### Trustworthiness

#### Neutrality

The researcher was the only person besides the participant who was present at eight of the twelve interviews. One student research assistant was present at each of the two interviews that were conducted immediately following the quantitative appointments, and the participant's husband was in the same room or the next room during two of the interviews. Regardless of whether there were observers or not, the

researcher sought to maintain a neutral perspective in this study. She allowed the participants to talk about whatever they chose to talk about. The researcher asked follow-up questions to clarify the participants' statements, but allowed the participant to talk about the things that were important to her, even if the relevancy was not clear at the time. It is impossible not to bring personal biases to the research, but the researcher attempted to be open to the participants' individual perspectives that might shed light on factors related to recovery after a hip fracture. The researcher attempted to validate whatever comments the participant made, whether it was that the participant was afraid to use a walker because she might fall, or if the participant stated she needed to take risks and not "baby [herself]".

#### Prolonged Engagement On-Site

Each qualitative interview lasted a minimum of 45 minutes and a maximum of 90 minutes. Prior to the qualitative interview, each participant had spent at between 60 and 120 minutes with one of the researchers, either answering questions or completing the ADL evaluation. The shortest time spent with any participant was 90 minutes (45 minutes quantitative data collection and 45 minutes qualitative data collection). The time spent with the participants allowed the researcher to feel that she had a good grasp of the participant's unique situation in relation to difficulties experienced in overcoming barriers after a hip fracture. Several of the participants stated that they didn't think that they had very important or interesting things to tell the researcher, but stated that they were willing to spend the time if the researcher was willing to stay there to talk.

### Persistent (Consistent) Observation

The combined qualitative and quantitative portions of the study allowed the researcher to determine how consistent the participant's responses on the sense of coherence, social support, depression scale and interview questions were when compared to the narrative comments during the qualitative portion of the interview. The persistent observation allowed the researcher the opportunity to explain her questions to be sure the participants understood them so that she could get the most reliable information possible.

### Triangulation

The combined data collection methods provided extensive data for triangulation. Questions in the interview portion of the quantitative study were addressed comprehensively and the participants were allowed to explain the role that certain variables had in their lives during the qualitative portion of the study. As the qualitative data was analyzed, the quantitative data was consulted for participant consistency in both phases of the study. SOC, ESS and CES-D scores were recorded on the qualitative single-case analysis cards. The specific qualities or support that the participants described as assisting them or limiting them were recorded on the qualitative single-case analysis cards, and the data from both phases of data collection were compared to increase the researcher's understanding of each participant's individual situation. One participant had stated that she did not have any previous medical limitations or problems when she was asked that question in the quantitative

part of the study, but during the qualitative interview she talked about her previous open-heart surgery and arthritis. The participant's co-morbidity score was "0" in the quantitative study, but her actual co-morbidities were "2". The triangulation process allowed the researcher to better understand the participant since she had observed the participant in a structured setting and knew some basic information about the participant prior to the less structured interview.

### Member Checking

During the interview the researcher asked questions to clarify the information. At the conclusion of each interview, the researcher reviewed her notes out loud with the participant to verify that what she had recorded was in fact what the participant said and meant.

### Audit Trail

All of the field-notes were transcribed and copies of the original notes and transcriptions were kept in the qualitative data collection/analysis notebook. Every note card was coded so that any comment could be traced back to a specific participant, and each of the participants' comments could also be traced to the actual interview for the context of the conversation. As the data analysis was conducted and the categories emerged, each card was placed in a file with the category title. All of the categories that emerged at each phase of data analysis were recorded and kept in sequential order in the qualitative data collection/analysis notebook with all of the raw data. The single-case visual representations were also kept in the qualitative

notebook for future reference. This data collection audit trail was used during the peer de-briefing with Timothy Diamond, Ph.D. when the researcher explained the data analysis process and traced each step of the analysis through the paper audit trail.

### Interview Questions

Each interview began with the researcher asking the participant the following two questions: (1) "What has been the most difficult barrier for you to overcome since your hip fracture?" and (2) "What has allowed you to overcome or cope with your barriers since your hip fracture?" These questions were consistently asked at the beginning of the interview in that order. The participants consistently answered the first "barrier" question briefly (usually one or two words about one barrier or difficulty) and then began talking about why they felt they had recovered. The participants each discussed the qualities that helped them overcome or cope with the barriers or difficulties, or the people who assisted/supported them as they worked to overcome or cope with those barriers and to get back to their own homes.

The researcher often asked the participant to expand and describe the things that the participant had already mentioned. The researcher did not go back to the "barrier" question, and only mentioned barriers or difficulties if the participant had mentioned it in her conversation. The focus of the interview was not on the barriers, but rather on the qualities, forces, variables that allowed the participants to overcome or cope with their difficulties. During the last six interviews, the researcher did ask the participants if some of the categories that had emerged in the previous data collection were meaningful to the participant, but the questions were always about the

positive factors, not the barriers or difficulties. The researcher only asked the participants about their beliefs in God if the participant mentioned something that implied that she believed in God.

## CHAPTER IV

### QUANTITATIVE RESULTS

#### Hypotheses

The quantitative study used Antonovsky's overall concept of SOC as well as some other concepts that could be considered GRR, to attempt to explain the complex interaction that is involved when people regain their IADL after a hip fracture. The two specific questions in this part of the study included: (1) Does a person's SOC influence her ability to perform IADL? and (2) Does a person's level of depression inhibit her ability to perform IADL? There were three hypotheses for the quantitative study: (1) the higher a person's SOC, the higher her AMPS Process score; (2) the lower a person's depression score, the higher her AMPS Process score; and (3) the lower a person's depression scores, the higher her AMPS Motor score.

#### Frequency Distributions/Descriptive Statistics

The sample size for this study was 19. Because of the complexity of the recovery process after a hip fracture, this size was not sufficient for statistical analyses that could have confidently supported or rejected the hypotheses. The descriptive data and nonparametric correlations were reported to use as a pilot study for further research and to triangulate with the qualitative data for a comprehensive picture of the people who were participants in this study.

### Race

All of the participants in this study were Caucasian. Although the risk of osteoporosis is higher among Caucasians and Asians than it is among African Americans (Kipersztok, 1997), the 100% Caucasian sample was not representative of people in the United States who experience hip fractures.

### Age

The youngest participant of the 19 participants in this study was 62; the oldest participant was 92. The age breakdown is shown in Figure 1. Fulks and Molinari (1995) looked at the effects of the aging process in older adults. They created categories of 65-75 and over 85 in relation to health problems, stress, life satisfaction and need for family support. The data is classified using Fulks and Molinari's categories, with a 76-84 category added between the two they examined. Descriptive statistics for the age distribution are included in Table 1.

### Gender

The participants in this study were predominately female; there were 17 females and 2 males; 89% of the participants were female. Kannus et al. (1996) reported that 72% of the people who experienced hip fractures in 1990 were female. Even though the risk of White women fracturing a hip has been estimated at either double or triple that of men (regardless of race) (National Osteoporosis Foundation, 2000), males were under-represented in this study. The under-representation in this distribution was attributed to the self-selection process of the sample.





Figure 1. Age Distribution.

Table 1

Descriptive Statistics for Demographic Variables

Variable	Mean	SD	Median	Mode	Range	Skew	Kurt
Age	78.47	8.002	78	89	62-92	-0.22	0.45
Education	12.42	2.74	12	12	8-16	-0.18	-0.95
Months post fracture	4.684	1.34	5	5	3-8	0.783	0.512

### Level of Education

There was an eight-year span between the number of years of education the participants in this study had completed. Figure 2 showed the actual education

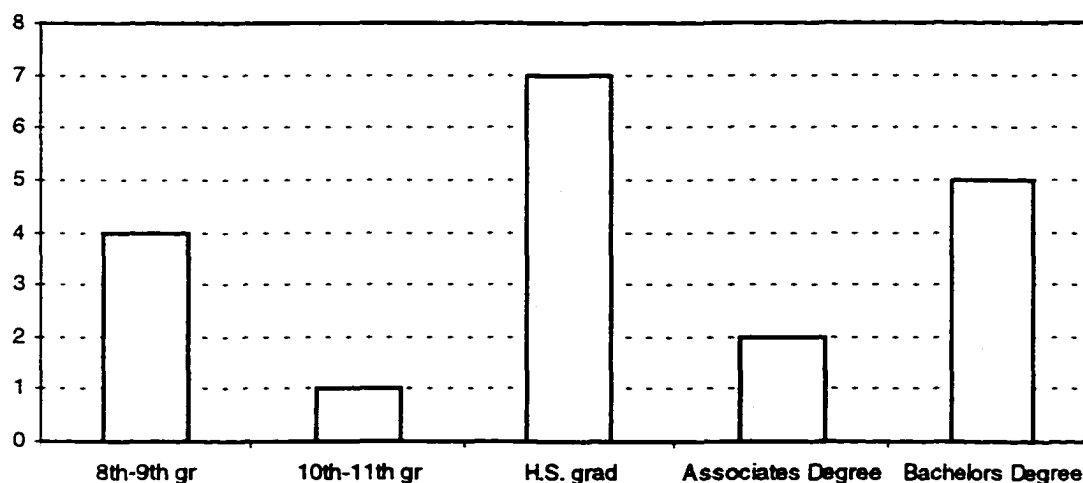


Figure 2. Level of Education.

breakdown of the 19 participants. Please refer to Table 1 for descriptive statistics for level of education. The percentage of participants in this study who had at least a high school education was 74% of the total number of participants. The U.S. Census Bureau (1997) reported that 66.7% of White people in the United States over the age of 65 had completed high school or more. This report stated that the level of education was a rough indication of economic and health status for older adults. Better-educated people were expected to be healthier longer and more financially secure. Low levels of education were associated with poverty. Since more than the expected number of participants in this study had completed at least a high school

education, this sample can be considered more affluent than average in the United States.

### Marital Status

The majority of the participants were widowed. The percentage of women in this study who were widowed (57%) was consistent with U.S. Census Bureau statistics (1997) for women in the 75-84 age group. Please refer to Figure 3 for the marital status distribution.

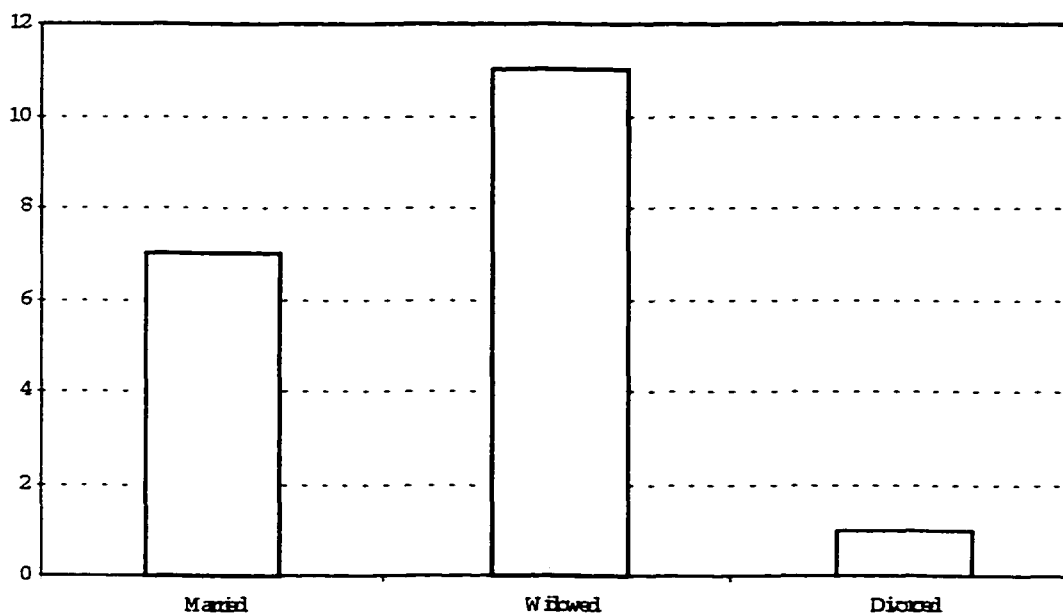


Figure 3. Marital Status Distribution.

### Living Situation: Prior to Hip Fracture and Current

All of the participants were living in their own homes or apartments at the time they were evaluated for this study. Of the nine participants who were living

alone, two were living in their “family” homes and seven were living in Senior Citizen apartments, a duplex shared by a family member, or in a retirement community trailer park. One participant who had lived alone prior to her hip fracture was living with her son and his family since the hip fracture. Figure 4 displays the participants’ living situations prior to the hip fracture and following the hip fracture.

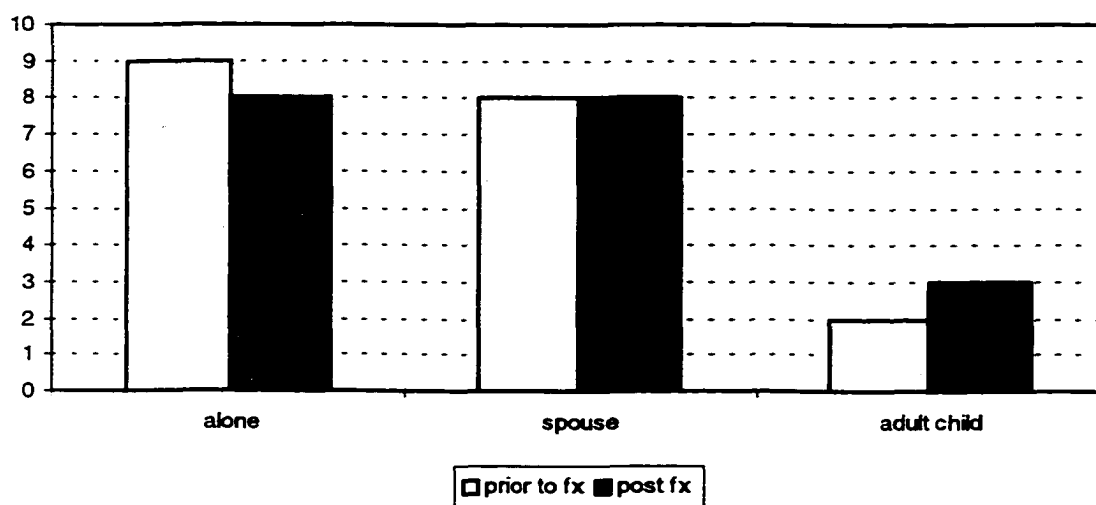


Figure 4. Living Situation Prior and Following Hip Fracture.

#### ADL and Ambulation Abilities Prior to and at Discharge Following the Hip Fracture

Ambulation, self-care and shopping status have been significant variables in the medical literature for predicting ability to functionally recover after a hip fracture. All of the participants were independent in self-care prior to their hip fractures. Table 2 summarizes the participants’ abilities in ambulation and shopping, pre- and post- hip fracture. More than 50% of the participants became more dependent in

Table 2

## ADL and Ambulation Abilities Prior and Post Hip Fracture

	Ambulate prior	Ambulate d/c	Shop prior	Shop post
Independent-- Community	11		11	5
Independent cane-- community	7		2	3
Assistance for transport only- Community indep ambulation			5	2
Independent walker in Community		7		
Independent walker in the home	1	10		
Wheelchair use only--home		2		
Moderate assistance community			1	5
Maximum assistance Community				2
Dependent community				2
<hr/>				
N=19				

shopping (an IADL) since their hip fractures. Ambulation abilities decreased immediately after the hip fracture, but had improved (evidenced by ambulation during shopping) at the time of the research evaluations. Only five of the 11 participants who were independent ambulators prior to the hip fracture were again independent ambulators in the community without an assistive device after the hip fracture. Problems regaining independence in shopping (an IADL) were observed in

this cohort, which was consistent with functional outcomes in recent literature (Egol et al., 1997; Koval et al. 1995). Overall, 13 participants were independent in shopping prior to the hip fracture (two had required the use of a cane, but were still independent); only eight were independent after the hip fracture. Three who needed assistance for transportation prior to the hip fracture now needed moderate assistance in order to shop. Two participants stated that they were not able to get out at all since the hip fracture (dependent in the community), and two reported that it was very difficult (maximum assistance in the community) for them to get out since the hip fracture. These changes in ability to shop since the hip fracture imply that there were significant residual problems after the hip fracture that affected IADL.

#### Discharge Site After Acute Care Hospital

Five of the participants were discharged directly to their own homes from the acute care hospital. Discharge site distribution is displayed in Figure 5. Several of these participants stated that their physician had recommended that they go to a rehabilitation center, but they decided to go home where they each had family members who could assist them. One participant who lived alone went to her daughter's home from the hospital, but 10 of the participants went to traditional rehabilitation programs at either a rehabilitation center or a skilled nursing home where they were on the rehabilitation wing and received intensive occupational and physical therapy. Two of the participants went to an assistive living center prior to going to their own homes after the hip fracture. One of these participants was the

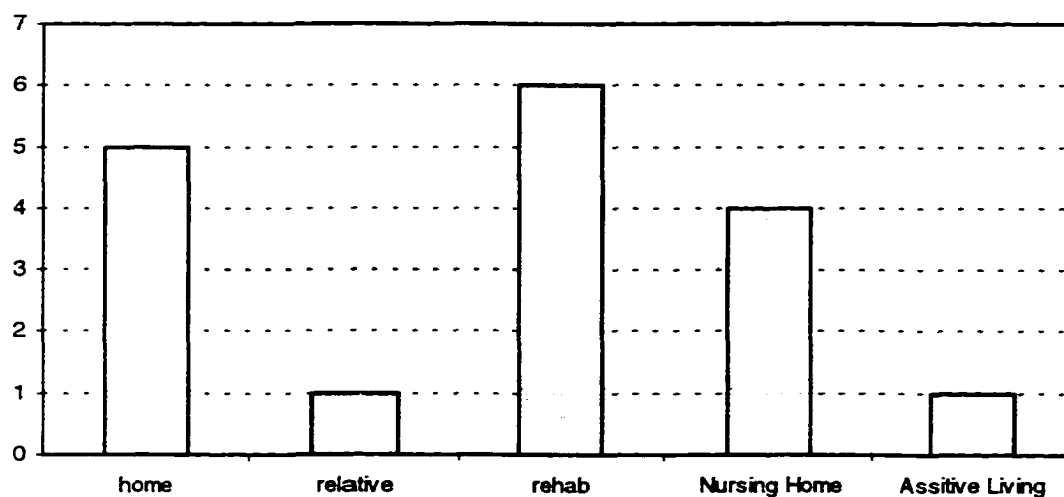


Figure 5. Discharge Site After Acute Care Hospital.

primary caregiver for her husband who had a debilitating condition; she and her husband both went to an assistive living center for three months after she was discharged from the acute care hospital. At the time of the research appointment, they were both living at home and “taking care of each other.”

#### Time (Months) Between Hip Fracture and Research Appointments

All of the quantitative evaluations were completed between three and eight months after the participants experienced a hip fracture. The distribution was displayed in Figure 6. This variable was examined in relation to the dependent variables of IADL, without any consistent relationship. The time since the hip fracture did not seem to be significant in the participants’ ability to perform IADL. The participants stated that their physicians had all told them that their hips were

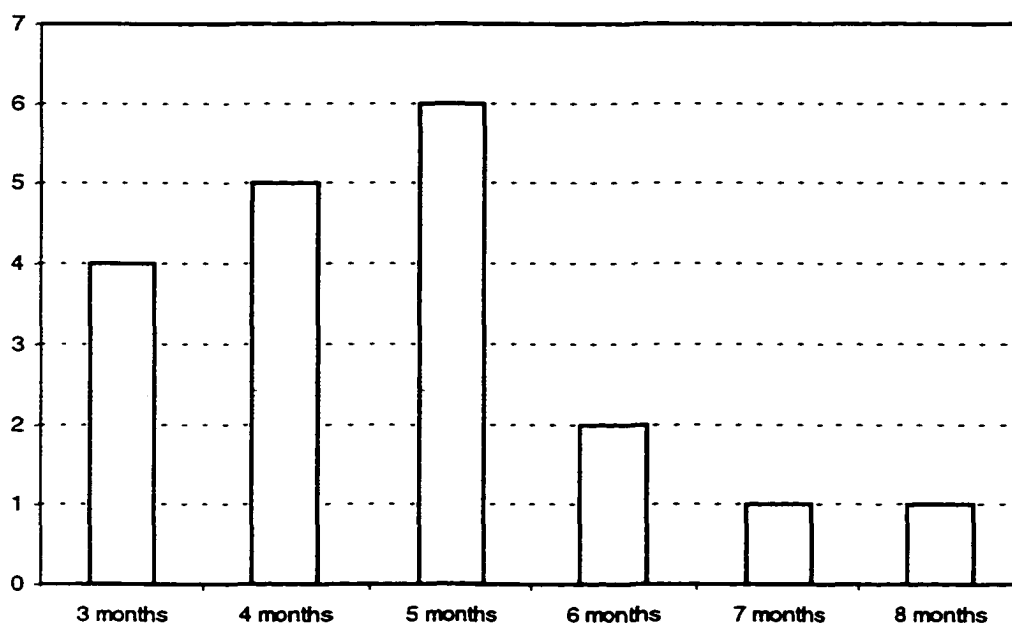


Figure 6. Months Post Hip Fracture.

“healed” at three months which is consistent with current literature (Egol, et al., 1997).

### Insurance Coverage

Over 72% of the participants in this sample who were age 65 or older had supplemental insurance policies in addition to the federally provided Medicare. Nationally, 65.8% of Medicare beneficiaries, age 65 and older have some form of supplemental private health insurance coverage, but in Michigan, the number was 78.4% (AARP, 2000). This sample was above the U.S. rate but slightly below the Michigan rate for carrying supplemental health insurance policies. Three participants reported that they received both Medicare and Medicaid coverage. Two of the



participants reported that Medicare was their only insurance. One of the participants reported she had a regular Medicare policy and the other had an HMO Medicare policy. The youngest participant was not yet on Medicare; she had private HMO coverage.

### Rehabilitation Services After Acute Care Hospitalization

In the current health-care environment where everyone is looking at how to save money, it is important to evaluate all aspects of rehabilitation to find the most cost-effective services while maintaining current levels of functional recovery. Figure 7 displays the location of occupational therapy (OT) and physical therapy (PT)

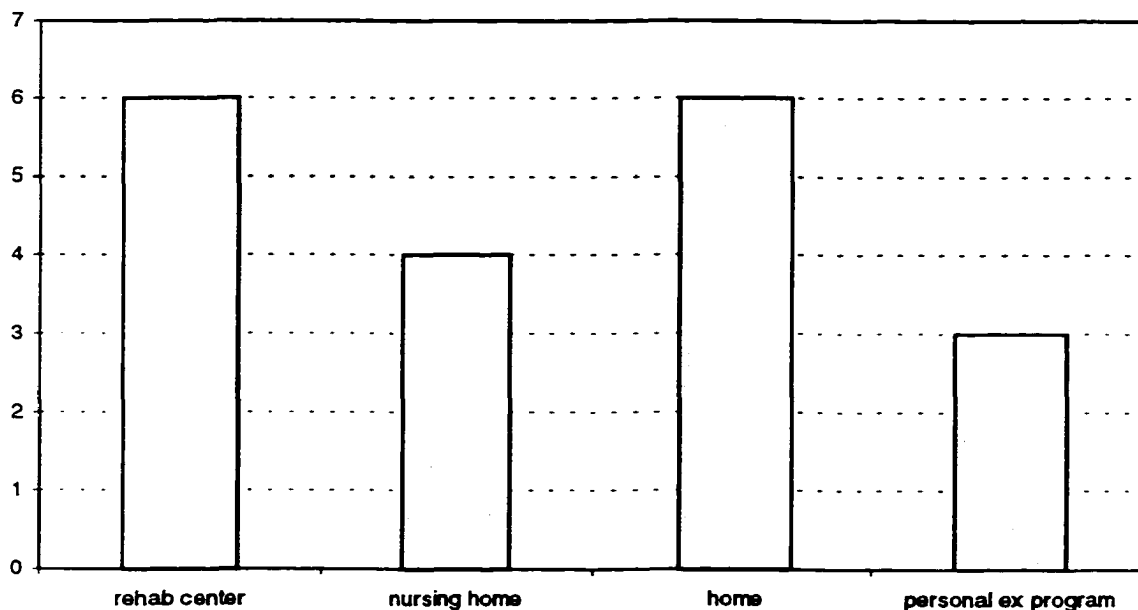


Figure 7. OT/PT After Discharge From Acute Care Hospital.

services after the person was discharged from the acute care hospital. The three participants who did not receive OT and PT all had personal exercise regimes that they followed religiously, and all three were discharged to very supportive home environments.

### Nutrition

Recent literature has shown a relationship between adequate nutrition and recovery after a hip fracture (Koval, Maurer et al., 1999). Eating is a very personal and individual experience, and it is more desirable for some people than others to prepare their own meals. The majority of the participants (12) reported that they prepared their own meals. The two male participants reported that their spouses prepared their meals; two participants reported that they had paid workers who prepared their meals, and three participants were receiving Meals on Wheels. The participants who received Meals on Wheels stated that they fixed their own breakfasts in the morning and then ate the “left-overs” or made themselves a sandwich at supper time. All of those who had Meals on Wheels stated that Meals on Wheels brought more food than they were able to eat every day. The IADL evaluation that was administered during this research included meal preparation, so each participant was observed preparing food in her own kitchen. There was an abundance of food in all of the participants’ homes. All of the participants reported that they did had enough to eat. Figure 8 displays the number of meals/snacks the participants reported eating each day. Malnutrition did not seem to be an issue for any of these participants. Three participants reported that they were on a special diet per medical advice, two

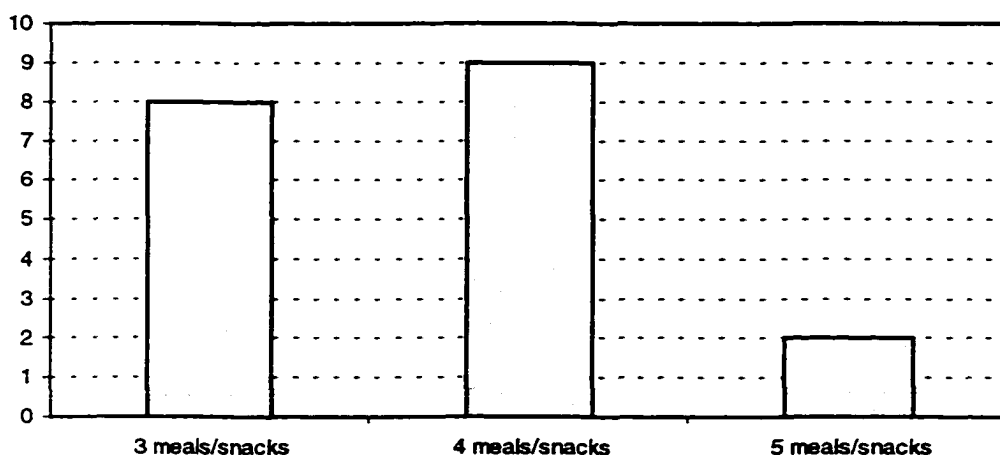


Figure 8. Number of Meals/Snacks Eaten per Day.

participants stated that they were on a special diet by a combination of their choice and medical advice, and three participants reported that they were on a special diet by personal choice. The majority (11/19) of the participants reported that they were not on any special diet. Weight loss was also a variable in the literature that correlated with poor prognosis after a hip fracture (Koval, Maurer, et al., 1999). Five of the participants in this study reported that they had an incidental weight loss or gain in the past year, one that she had lost weight on medical advice, but eleven participants reported that they had no change in their weight in the past year. All of the participants reported that they had more than enough food if they had Meals on Wheels or spouses who usually prepared the meals, they stated that they could prepare light meals for themselves.

### Smoking

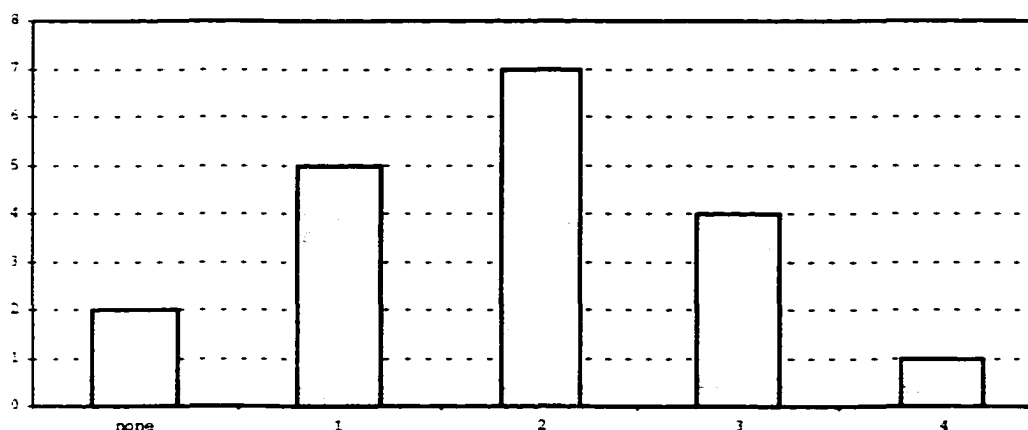
Two of the participants (one male, one female) reported that they smoked less than one pack of cigarettes per day. The other 17 participants denied smoking. Smoking has been linked to the development of osteoporosis; the sample size and cell size of the variable smoking were too small to determine whether or not it affected the participants' abilities to regain IADL.

### Co-Morbidities Present

The participants reported that they were experiencing other health conditions at the time of their hip fracture. The number of co-morbidities was computed after the participants were read a list of common systemic problems for older adults and were asked to state if they had any of the conditions listed, or if they had any other conditions that were not included in the list. Any condition they responded to or mentioned was scored as a co-morbidity. Please refer to Figure 9 for the distribution of co-morbidities. Co-morbidities become increasingly common as people get older. The number of co-morbidities was consistent with expectations for the participants' ages (Fulks and Molinair, 1995).

### Spirituality and Religiosity

Because of the recent rise in the literature that supports spirituality and religiousness as a variable in recovery, two questions were added to the interview. Each participant was asked if she considered herself a religious person, and then if



**Figure 9. Number of Co-Morbidities Present at Time of Hip Fracture.**

she considered herself a spiritual person. There were no operational definitions for these variables in this study. The participants were directed to answer the question according to their own definition of “spiritual” and “religious”. The religious question was asked immediately before the spiritual question. All of the participants except two (17/19) stated that they considered themselves religious. One of the two who said “no” stated that “now” she was not religious. Prior to her hip fracture she stated she had attended prayer meetings that were held weekly in her apartment building, but since her hip fracture she had not been back to the meetings. Besides the two participants who did not consider themselves religious, two additional participants stated that they did not consider themselves spiritual. One of these two participants asked the interviewer “Do you mean like the devil?” and the other “Do you mean like that new age stuff?” when they were asked if they considered themselves spiritual. Although 15 people stated that they considered themselves

religious and spiritual, 18 people talked about believing in God at some time during the entire research process.

The response to these questions demonstrated the need for further study into how people view “religion” and “spirituality” in their lives, but the validity of these two questions was not sound (from the small sample size and the anecdotal comments during the interview) for a confident conclusion in this study. The religion and spiritual questions were dichotomous variables, but there were not enough responses in the 2x2 cell to use a Fishers’ Exact Test. The spirituality variable was not analyzed with the AMPS scores using the Kendalls’ tau b since spirituality was a dichotomous variable, and not appropriate for the Kendalls’ tau b (Pett, 1997).

#### Sense of Coherence

The mean SOC score (166) in this study was extremely high. SOC scores are shown in Table 3. Please refer to Table 4 for normative data on the 29 item group of Orientation to Life Scale. There were varying opinions in the literature on whether people’s view on life improved or declined as they aged (Fulks and Molinari, 1995; Larsson and Kallenberg, 1996). The mean and ranges from this study were higher than any other reported scores found in the literature. This may be attributed to the self-selection of the sample (only those who were interested in learning more about their abilities, interested in “helping” people in the future who had hip fractures, and those who were willing and able to help someone complete her data collection, agreed to participate in the study). The sample was skewed toward the side of very positive recovery (all were living back in their own homes), so one would expect

**Table 3**  
**Descriptive Statistics for Self-Report Scales**

	<b>Mean</b>	<b>SD</b>	<b>Median</b>	<b>Mode</b>	<b>Range</b>	<b>Skew</b>	<b>Kurtosis</b>
<b>SOC</b>	166	15.75	167	167	120-193	-1.18	2.848
<b>ESS</b>	28.42	3.066	29	31	22-32	-0.71	-0.58
<b>CESD</b>	26.89	5.647	25	21	21-43	1.381	1.976
<b>AMPS Motor</b>	1.468	0.47	1.54	1.54	.45-2.06	-0.56	0.159
<b>AMPS Process</b>	1.434	0.48	1.43	1.43	0.74-2.36	0.159	-0.94

high SOC scores, but the scores were higher than might even be expected for this group of well-educated older adults. The range and standard deviations of this sample were much more limited than any of the published ranges and standard deviations. This suggested that there may be an acquiesce response set phenomenon that occurred during data collection (Phillips, 1974), or these very high scores may have been an indication of the difficulty older adults reportedly have with expressing negative affect (Arean and Miranda, 1997).

**IADL Measurement: Assessment of Motor and Process Skills**

The dependent variables in this study were the Assessment of Motor and Process Skills (AMPS) scores. The participants' mean scores on these scales were below the published norms, (as illustrated in Table 5) for well older adults, age 60 to

**Table 4**  
**Normative Data From Studies Using the SOC Questionnaire**

<b>Population</b>	<b>N</b>	<b>Range</b>	<b>Mean</b>	<b>SD</b>	<b>Coefficient variation</b>	<b>Cronbach's alpha</b>	<b>Date</b>
<b>*Israeli army officer trainees-I</b>	117	98-196	158.65	17.02	.107	.882	1985
<b>*Israeli army officer trainees-II</b>	338	90-199	160.44	16.69	.104	.880	1985
<b>*Israeli army officer trainees-III</b>	228	109- 203	158.99	17.19	.108	.891	1985
<b>*Israeli health workers</b>	33	116- 190	151.42	17.50	.116	.910	1983
<b>*Edmonton health workers</b>	108	101- 192	148.63	17.15	.115	.881	1983
<b>*Nordic occupational health workers</b>	30	95-198	146.10	19.90	.136	-	1985
<b>**North Dakota college students upper decile</b>	300	-	1.68	5.70	-	-	1994
<b>Older Adults Post Hip Fracture</b>	19	120- 193	166	15.75	-	-	2000

Citations: \* (Antonovsky, 1987 p. 80-81)

\*\* (McSherry and Holm, 1994)



Table 5

**Mean ADL Motor and Process Ability Measures (Logits) Well Adults and Hip Fracture Participants**

	Well Adults	Hip Fracture Participants
	60 to 90*	62-92
	<i>n</i> =882*	<i>n</i> =19
Motor Mean	2.6*	1.468
Motor SD	0.7*	0.47
Process Mean	1.8*	1.434
Process SD	0.7*	0.48

\*Fisher, 1999

90. The means and the standard deviations for both means were less than the means and standard deviations for the norms for well older adults. This comparison indicates that the AMPS scores reflected older adults with impairments.

#### Relationships Between Dependent and Independent Variables

##### Relationship Between SOC and AMPS Process

To test Hypothesis # 1, the higher the SOC, the higher the AMPS Process score, Kendall's tau b (nonparametric) test was used since the independent variables were ordinal (SOC, CEDS, ESS) and the dependent variables (AMPS Motor and Process) were interval (Pett, 1997). The Hypothesis #1 was not supported. The correlation was in a negative direction between the SOC and the AMPS Process score

(-.162,  $p=.342$  two-tailed) at a very low significance. Kendall's tau b correlations are reported in Table 6. Theoretically, people who felt the world was meaningful, manageable and comprehensible, should have scored high on the AMPS Process scale, which measured efficiency, effectiveness and safety, when they completed tasks that were meaningful and necessary for them to do in their daily lives (IADL).

Table 6

Kendall's Tau b Correlations Between AMPS Scores and Independent Variables

	Sense of Coherence	Depression	Social Support
AMPS Process Correlation	-.162	-.163	-.043
AMPS Process Significance (2-tailed)	.342	.342	.804
AMPS Motor Correlation		-.247	-0.43
AMPS Motor Significance (2-tailed)		.149	.804

\* Significant at the .05 level.

The AMPS Process score reflected the efficiency, effectiveness, and safety that was demonstrated in completing those tasks. The participants in this study who scored high on the SOC did not necessarily demonstrate the most efficient, effective and safe procedures as they completed their tasks. All of the participants had residual physical limitations (from the hip fracture as well as from other co-morbidities) that would have been expected to affect the AMPS Motor test, but these participants also

scored lower on the Process items than was expected. The discrepancies might be attributed to the very strict scoring criteria that was used on the AMPS that the participants stated was not a concern to them (leaving crumbs on the counter after making a sandwich, leaving a plastic wrapper on the counter after making a grilled cheese sandwich, etc.), so the participants' concerns with those problems would not have been reflected in their psychosocial scale responses.

Subscales (meaningfulness, manageability and comprehensibility) of the SOC scale were not used since Antonovsky's factor analysis of his original Israeli national study (1979) did not show the component scores to be empirically stable. The SOC scale was constructed to have the components contributing collectively to the SOC concept, but not to stand alone. The items from each subscale share elements from the other facets of the factor analysis (Antonovsky, 1987). Because the subscale scores are considered theoretically unstable, they were not calculated or used for comparisons with other variables in this study.

#### Relationship Between Expressive Social Support and Other Variables

It was expected that Expressive Social Support (ESS) would affect people's SOC and depression scores (people would feel better about themselves and their lives if they felt more supported by their family and friends), and their AMPS Process scores would therefore be higher. No norms were available to compare this sample to other samples for mean and standard deviation comparisons. It was interesting to note that as the ESS scores increased, the AMPS Motor scores decreased. This can probably be explained by the fact that as people's abilities decrease, they become

more dependent on others to assist them. As people need others to assist them, their need for social support increases, and their feelings of that need and appreciation of that support would then increase as well. None of the correlations were significant for AMPS Motor or Process when correlated with ESS; these values are displayed in Table 6.

### Relationship Between Depression and AMPS Scores

Neither Hypothesis 2: the lower a person's depression score, the higher her AMPS Process score, nor Hypothesis 3: the lower a person's depression scores, the higher her AMPS Motor score were supported. The Kendall tau b correlations are displayed in Table 6. Both the Motor and Process scores decreased when correlated with the CED-S, but the correlations did not indicate any significance at the  $p < .05$  level (the correlations were .342 and .149 respectively). This may have been in part due to the difficulty older adults have with expressing negative affect (Araan and Miranda, 1997), but it may also be due to the lack of correlation between an objectively rated test (the AMPS Motor and Process Scores) and self-reported psychosocial scales (SOC, CES-D, and ESS). Hypotheses # 2 and #3 cannot be supported from these data sets.

Depression is linked in the literature to decreased functional abilities (Girard, Fisher, Short, and Duran, 1999; Holm, Rogers, and Kwoh, 1998), and specifically to decreased functional abilities in the elderly (Faynor-Ciha, 1995; Kempen, Verbrugge, Merrill, and Ormel, 1998; Laukkanen, Era, Heikkinen, Suutama, Kauppinen, and Heikkinen, 1994). IADL was linked to functional recovery in the medical hip

fracture research (Koval, Skovron et al., 1998). The AMPS is considered a valid and reliable instrument for measuring IADL (Fisher, 1999), and the CES-D is considered a valid instrument to screen for depression in older adults (Moore and Schwartz, 1993). Hypotheses # 2 and # 3 (that CES-D scores would be negatively related to the AMPS Motor and Process scores) were formulated because: (a) the literature suggests that there is a negative relationship between depression and functional abilities, (b) the CES-D is considered a valid and reliable instrument to screen for depression in older adults, and (c) the AMPS is considered a valid and reliable instrument to measure IADL (indication of functional abilities). The fact that this data set did not support those hypotheses may be attributed to various possibilities: (a) the data set was too small and skewed to demonstrate a significant correlation, (b) the variables compared measured different qualities (self-report vs. objective IADL rating), (c) the relationship does not exist in this sample that is more educationally and economically privileged, or (d) the relationship does not exist at this time (three-eight months after experiencing a hip fracture).

### Summary of Quantitative Results

It was hypothesized that there would be a significant relationship between the independent and dependent variables. Each of the instruments was chosen very carefully as the best tool to measure each of the concepts in this study, and there is theoretical support in the literature for the relationships. The salient factor in this study seemed to be the problem with comparing scores from an objectively rated instrument with subjectively rated scales.

One of the reasons that IADL are so difficult to measure and compare is that each person individually decides what is important for her to be able to do and what is not. The range of skills that people want to be able to do for themselves makes it difficult to make any comparisons in IADL, since there may be no commonalities between two people's choices of tasks. It is difficult to compare what one person wants/needs to do with what another wants/needs to do because each may choose different tasks. Because IADL are so individualized, the AMPS has been embraced by occupational therapists since it allows the participant to choose a task that is relevant to her; the AMPS software then calculates the difficulty level of that task in comparison to the difficulty level of other IADL tasks (through the many-faceted Rasch analysis). The AMPS is able to do the cross-tasks comparisons that are not possible otherwise.

It was hypothesized that the SOC would relate positively with the AMPS since the AMPS claims to measure activity participation, which has been found in the literature to be a related concept to one's orientation to life (SOC). Depression has been linked to functional abilities (Faynor-Ciha, 1995; Holm et al., 1998; Kempen, Verbrugge, Merrill, and Ormel, 1998; Laukkanen, Era, Heikkinen, Suutama, Kauppinen, and Heikkinen, 1994), so it was logical that it would be linked to functional ability with the AMPS. Even though the sample size was small and skewed, it might still be expected that the relationship between the variables would at least "approach" significance. Since the relationships between the independent variables and the AMPS had such high  $p$  levels (lacking significance), it suggests that

the AMPS may not have been a good instrument for comparison with the psychosocial scales.

Although the AMPS was described as a measure of activity participation (Fisher, 1999), it may instead be more of a measure of activity limitations. The World Health Organization acknowledges a significant difference between activity limitations and activity participation, and that difference might explain the lack of relationships between the independent and dependent variables. Although the AMPS had not been used previously in the literature to measure recovery after hip fracture, it was no doubt a good instrument to measure people's objective recovery. The AMPS scores are considered valid and reliable for IADL, but those scores may not measure what the participants define as a "positive" recovery. Participants may define a "positive" recovery with less stringent criteria than the criteria on which the AMPS scores were based.

Recovery after a hip fracture is a very complex process; the small sample size and the choice of instruments affected the lack of significant relationships between the variables. The relationship between spirituality, depression, social support and sense of coherence warrant further exploration to determine whether or not these factors contribute to a positive recovery after a hip fracture if the positive recovery is measured by another instrument than the AMPS.

## CHAPTER V

### QUALITATIVE RESULTS

#### Participant Description/Procedure

No study can be totally objective, and although every attempt was made to use a grounded theory approach to the qualitative portion of this project, the researcher's apriori disposition must be acknowledged. This disposition is apparent after someone read the review of the literature (Chapter II). The overall research question in this study involved the effect that people's SOC, depression, and social support would have on their ability to perform their IADL. This chapter will briefly review the qualitative process and then present the qualitative data analysis.

The sample for the qualitative portion of this study (n=12) was drawn from the 19 quantitative participants. The participants in the qualitative portion of the study were between 65 and 92 years of age; 11 were female and one was male. Seven were widows and five were married and lived with their spouses. One participant's husband died 10 days prior to her hip fracture. Five of the seven who were widowed lived alone; two had adult sons who also lived in the participant's home. Only two of the widowed participants still lived in their "family" homes. Three of those who were widowed and lived alone had moved out of their "family" homes at least two years prior to their hip fracture and now lived in a Senior Citizen apartment complex or in a duplex with family living on the other side of the duplex.



The participants were invited to participate in the qualitative portion if their scores on the Orientation to Life Questionnaire, that measured their SOC was above or below the current calculated median score for the sample. Two of the participants were evaluated immediately after their quantitative evaluation; the researcher invited each of them to participate in the qualitative interview after she was signaled by the research assistant that the participant qualified for the study (SOC scores above or below the sample mean) and the researcher determined that the participant did not appear fatigued. The two participants who were invited to participate directly after the quantitative interview both accepted. A second interview was scheduled for the other 10 participants. Since the quantitative data collection spanned a 14 month time period, the qualitative portion of the study incorporated the participants' perceptions of their recovery from a hip fracture after three to 15 months.

The qualitative portion of the study was analyzed following the procedure discussed in Chapter III. The researcher began every interview by asking the participants two questions: "What were the greatest difficulties you encountered after your hip fracture?" and "What helped you to overcome or cope with those difficulties?" The responses to these two questions were the springboard for the remainder of the interview. The researcher asked follow-up questions related to the participants' answers, asking for clarification and explanation of earlier statements. The researcher did not ask questions about things that the participants had not mentioned or alluded to in earlier statements during the interview (i.e. if the participant never mentioned God, religion, spirituality or a "Higher Power," the researcher did not ask the participant about that concept).

Initially the cases were analyzed from a cross-case perspective (Miles & Huberman, 1994) using a continuous data analysis (Lincoln & Guba, 1985) technique. Data categories were developed and refined (Lincoln & Guba, 1985) in a five stage process. During the sixth stage of data analysis, a visual data display was created (Miles & Huberman, 1994). Individual visual representations were developed for each case and then compared to the visual representation of the cross-cases analysis to insure that the cross-case analysis represented the collection of individual cases. Data category codes were again revised to match the visual representation of the data. Please refer to Figure 10 for definitions of the final category codes that emerged in the qualitative study cross-case analysis. These categories have been divided into three groupings: (1) the context: home, the experience of a hip fracture, and the confinement that automatically comes with that physical experience; (2) the forces that could push the person out of the home and into a more restrictive setting; and (3) the forces that hold the person up as she strives to stay on "Independence Road."

Data will only be reported in aggregate rather than single case format in order to preserve participant confidentiality. Discrepancies between qualitative and quantitative data will be discussed after the cross-case analysis has been presented.

### Cross-Case Analysis

Each of the participants' responses was individually translated into a visual representation of the data that specified the forces the participants stated that they must contend with to stay in their own homes (and not have to live in an assistive

## Definitions of Codes

1. *Age*: period of human life characterized by certain mental and physical development or decline.
2. *Co-morbidities*: problems that persist for the people in addition to the hip fracture.
3. *Experience of hip fracture*: people's descriptions of the hip fracture experience.
4. *Home*: feelings people have about returning to their premorbid living site.
5. *Medical advice*: people's reactions to their therapists' and doctors' advice and placements in facilities immediately after acute care.
6. *Medications*: medicine a person takes that was prescribed by a physician
7. *Physical status post hip fracture*: residual physical effects of the hip fracture
8. *Time*: indefinite and continuous duration regarded as that in which events succeed one another.
  
9. *Feelings*
  - *Caution/fear*: alertness or prudence to avoid a hazardous situation.
    - *Confinement*: being unable to go outside of the current living location.
  - *Dependence*: the state of needing someone or something for assistance
    - *Depression*: sadness, gloominess, feeling despondent, dejected or downcast.
    - *Frustrations*: feeling disappointed, thwarted, defeated, or unable to overcome obstacles.
    - *Impatience*: inability to suppress annoyance or restlessness in waiting
  - *Loss*: death of a spouse or child
  
10. *Occupation*: how people control and spend their time.
  - *Accepting limitations*: people's ability to change how they do things and to ask for help.
    - perceptions of wheelchairs, walkers, canes and other adaptive equipment
  - *Out of bounds*: concessions people have made in light of limitations
  - *Personal priorities*: those things that are personally important for a person
  - *Purposeful*: full of meaning and significance; being of service or helpful
  
11. *Personal Qualities*
  - *Believing things will be better*: people's underlying belief/hope that things will improve.
  - *Determination*: the act of coming to a decision or fixing or setting a purpose.
  - *Faith*: confidence or trust in God.
  - *Independence*: ability to complete tasks without assistance
  - *Motivation*: incentive, stimulus or prompt to act. (self and inspiration)
  - *Patience*: ability or willingness to suppress restlessness or annoyance with waiting
  - *Perseverance*: the act of continuing steadily in a course of action in spite of difficulty.
  - *Personality*: the sum total of the physical, mental and social characteristics of an individual
  
12. *Resources*: supplies, support or aid.
  - *Coping*: use of personal resources to resolve stress and solve problems.
  - *Material goods*: physical goods (food, shelter, money) needed for support
  - *Social support*: people who hold up or add strength to a person.

Figure 10. Definitions of Categorical Codes.

living center or a nursing home), and the qualities and forces that they felt allowed them to stay in their own homes. The individual case visual representations could not be included in this reporting of the results since permission was received to only present data in an aggregate form. The researcher and a peer debriefer compared the single-case visual representations to the cross-case analysis visual representation for consistency and inclusion. The peer debriefer stated that the visual representation of the cross-case analysis represented the collection of single case visual representations during his perusal of the raw data, the individual visual representations of each case, and the cross-case visual representation..

### “Independence Road”

As the cross-case visual representation developed during data analysis, a global representation of the concept of “Independence Road” developed. This included the qualities and conditions that the participants assumed were necessary/helpful in order for older adults to live in their homes, and to stay on “Independence Road” after an injury or illness such as a hip fracture. Please see Figure 11 for this global representation of the participants’ views of how people “stay on” or “get off” Independence Road as they age. “Independence Road” is the foundation on which the visual representation of the qualitative data was based. This figure shows three stages of development in relation to “Independence Road”: (1) baby, (2) young adult and (3) older adult.

When a baby is born, the baby has significant physical and cognitive limitations that keep the baby in a dependent environment. Someone else takes care

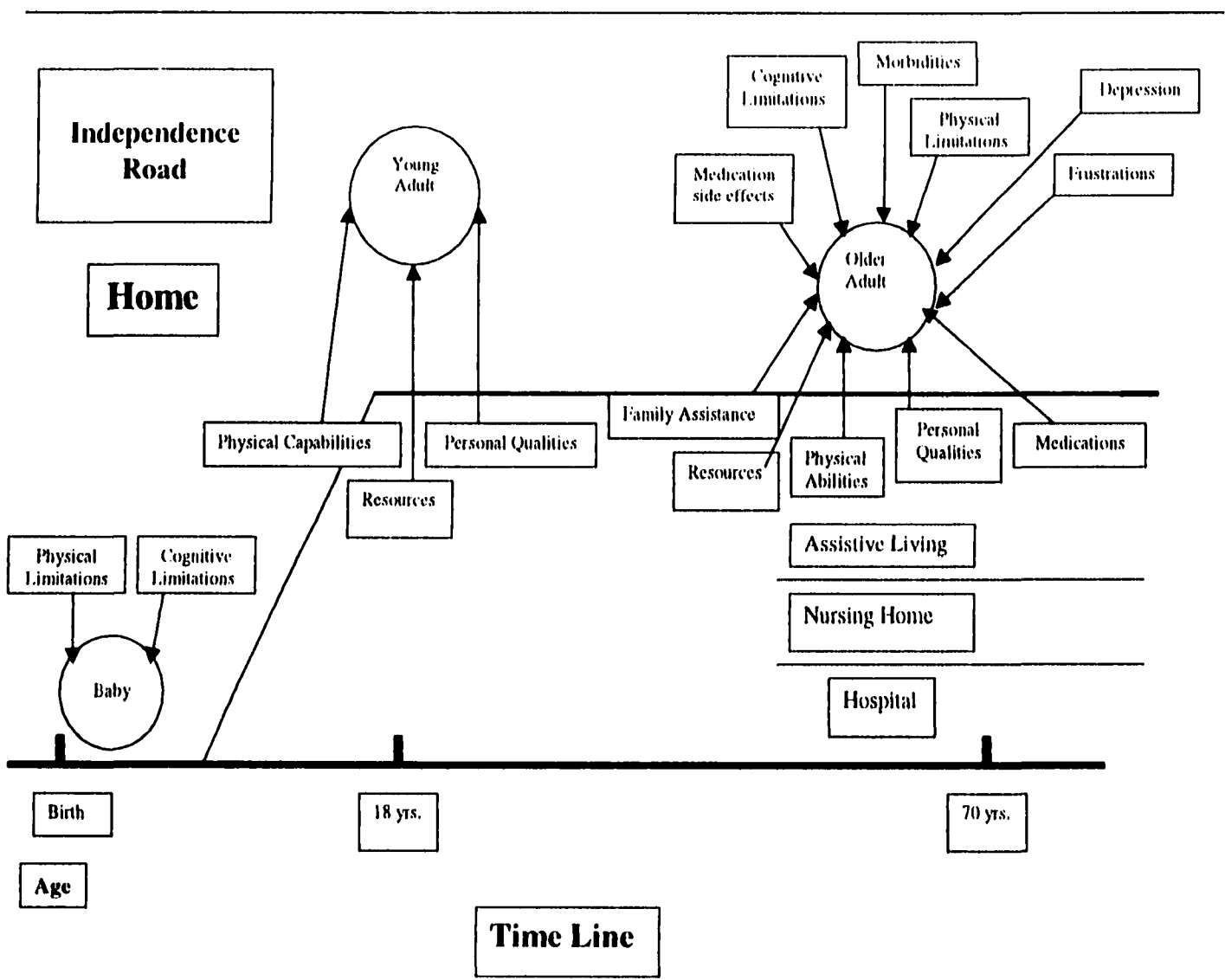


Figure 11. "Independence Road"--From Infancy to Young Adult to Older Adult.

of the baby, feeding the baby, changing the baby, and deciding when to do different tasks during the day. Someone else determines what happens and when it happens in the baby's life. As the baby grows, her physical capabilities increase, and eventually she is able to work to make money to pay for her own place on "Independence Road"; she is gathering the necessary resources to support herself. As the person has grown, she has also gained personal qualities that allowed her to take care of herself and to get the things done that needed to be done, to keep her place on "Independence Road." During a person's lifetime, she may need to leave "Independence Road" if she doesn't have enough money and must accept assistance from her parents. She may also at some point have a child, and not only take care of herself on "Independence Road," but also care for another person (baby).

After the person was 70-90 years old, she may have begun to lose some of the capabilities that had allowed her to live on "Independence Road" because of new morbidities that were affecting her, that might have created cognitive or physical limitations, depression, or frustration. The person may have to take medications for some of the morbidities, which may have side-effects that make it harder for her to live in her own home and take care of herself. The alternatives to being able to take care of herself, and stay on "Independence Road" are options such as Assistive Living Centers, Nursing Homes, and hospitals. Assistive Living centers may be the first stop if someone is pushed "off" the road. The nursing home and hospital require even less independence. The forces that worked within and for people to keep them on "Independence Road" and out of more dependent sites were the amount of family assistance that was available to them, their material resources, physical abilities,

personal qualities and medications.

Figure 11 is the participants' "speculation" about what was needed for people to be able to stay in their own homes as they age. Figure 12 is the visual representation of the data that demonstrates what problems these participants experienced, and what qualities and assistance they felt allowed them to get back on "Independence Road" after they experienced a hip fracture. The experience of the hip fracture took away some of their physical capabilities, and sent them directly to a hospital where they had to "work their way" back to their homes. This figure shows how they interpreted why they were able to get back on "Independence Road" after their hip fracture.

If participants lived with their spouses, several of the spouses may have provided the necessary assistance to allow the person to stay in her own home. One of the participants, however, was the primary caregiver for a spouse who had significant physical limitations. Some of the participants who were widowed had previously depended on adult children, grandchildren or nieces to assist them in their homes with IADL such as shopping, laundry, and driving, but after the hip fracture, all of the participants needed some assistance. The fact that the assistance was provided was extremely important to the participants since it allowed them to continue to live in their own homes.

#### Cross-Case Analysis Narrative

The cross-case analysis narrative will begin with a description of the concept of "home" (the focus of the participants as they talked about their recovery after a hip

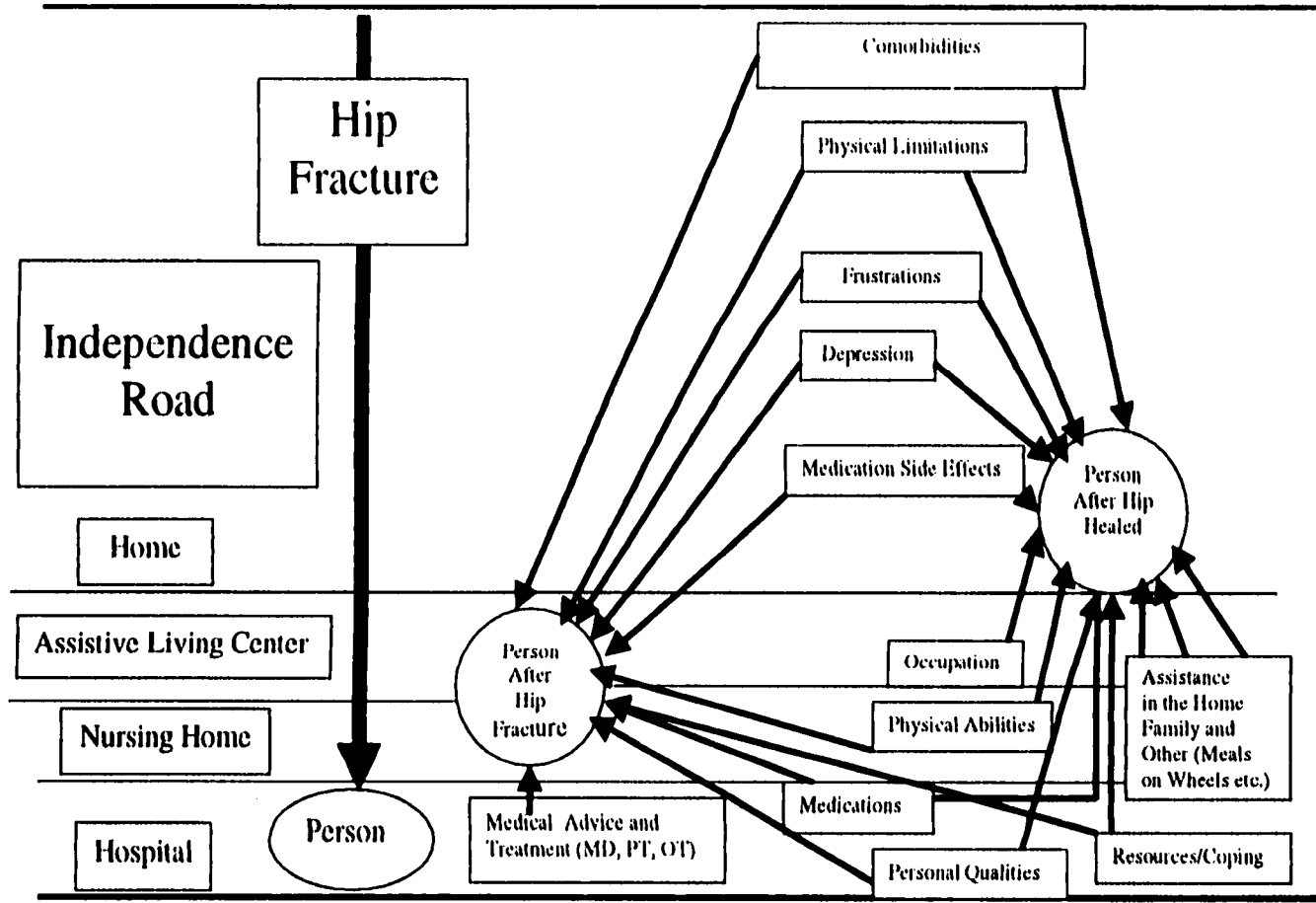


Figure 12. Cross-Case Analysis--"Independence Road" After Experiencing a Hip Fracture.



fracture) since going home was reportedly one of the most important motivators for recovery. This will be followed by a description of how several of the participants felt about their experience of fracturing their hips, the confinement that all of the participants experienced after the hip fracture, and the effect the participants felt that age had on the healing process. The narrative about the forces that participants either felt could push themselves or others away from returning to their own homes will then be discussed followed by the narrative of the forces, concepts or qualities that the participants felt allowed them to overcome or cope with their difficulties.

#### The Strong Motivation to Go Back Home: “Everything I Wanted Was at Home”

All of the 12 participants in this study had returned to their own homes within four months after their hip fractures; 11 of the 12 returned home within three months. From the participants’ statements, being in their own homes was important to their recovery; none of these people ever admitted that she had ever considered the idea that she would not be able to go home. Going home seemed to be the norm to them, but that was not the case for the majority of people who are over 60 years old who fracture their hips (Lyons, 1997). One participant, who was getting assistance in her home for meals, housekeeping and shopping, stated her views about being at home.

There is more incentive here at home [to recover from the hip fracture]. It is easier to get going at home. There is not much incentive at the care home to do things. I don't know how to explain that [why there is more incentive to do more at home]. Whatever gets done [at home] is to your benefit.

The fact that she was in her own home was important; it was less important that she was receiving assistance in order to be there. When she spoke of the contrast

between being at home (where she was dependent on others for meals and shopping) and her time at the skilled nursing home, she stated: "I feel better in my own home where you don't have to depend on help."

Another of the participants spoke of the difference between being at a rehabilitation center and being at home. "At home I could be more in control." The end goal of getting home became the motivator for therapy, since she had decided how she could manipulate the system in order to get home. "I knew I had to be nice to the therapists so they'd give me a good report so I could go home. Those therapists could see that at home I could be more in control." Being in control of her own time was one of the advantages of being at home. As another participant stated, "I like to do what I want to do when I want to do it."

All of the participants wanted to be home. One of the participants and her husband went to an assistive living center after she was discharged from the acute care hospital since he was in an advanced stage of a neurological disease and she was his primary caregiver. She stated, "I just wanted to get well so we [she and husband] could come home. It is easier being home in a lot of ways. It is wonderful to be home. We both feel that way." At the time of the data collection, all of the participants in the study were living safely in their own homes with varying levels of assistance.

As the data analysis process unfolded, the core motivation of being able to live in their own homes became the focus of the study. Although these two specific questions were never actually voiced by the researcher, all of the participants answered the following two questions during the interview: (1) "What were the things

that helped you to be able to go home and stay at home after your hip fracture?” and (2) “What were the things that you feel threatened your ability to go home and to stay at home?” There were various stages of independence in order for the participants to stay in their homes, but the focus was not on how independent a person was, but on the fact that she **was at home**. In a metaphorical way, the participants wanted to be on “Independence Road.” Getting towards the right side of the road (receiving assistance or changing how they did things or their expectations in order to stay at home) was acceptable, as long as they were still on “Independence Road.” There were forces that the participants were concerned with, that they felt have pushed others out of their homes, and might have even pushed themselves off that road into a more restrictive living arrangement if things had been a little bit different for them. The participants attributed their ability to stay in their own homes to positive qualities and forces that had so far successfully countered the limiting forces in their lives.

#### Forces That Can Push a Person Out of Her Home

##### The Experience of a Hip Fracture: “You Wouldn't Think a Hip Fracture Could Almost Take Your Life Away”

The participants had diverse responses to how difficult it was for them to recover from a hip fracture. Some of them suggested that they had significantly more trouble recovering than others had. Statistics from the literature support the feeling that the experience of fracturing a hip can literally take your life away (Lyons, 1997) because people experienced such significant loss of abilities that they did not feel like they were really “living” (i.e. if they had to move to a nursing home) after that. That

feeling was not the case for the majority of the participants in this study. The participant who made the statement about the hip taking her life away spoke with the researcher for the qualitative portion of the study 15 months after her hip fracture. She had been recovering well over a year from the fracture. She did not expand on the statement when she was asked to elaborate, but she did make other statements that supported her feelings. "I can't name one thing that hasn't changed, that isn't hard for me to do... I can't do what I used to--no way." This participant obviously was having residual problems she attributed to the fracture.

Another (one of the oldest) participant in the study also felt the hip fracture significantly limited her abilities still at five months after the fracture. When she was asked if anything had helped in her recovery, she stated "not really." She seemed surprised at how difficult things were for her when she stated, "it seems like I should come back faster than I have--everything should be better. Hip fracture--I never had one before." From this statement, she seemed to think that if she knew more about hip fractures, she'd understand her recovery process better. One of the participants supported this idea, that she thought that having prior experience with hip surgery was a benefit to recovering after the second surgery, "I knew what to expect." Another participant who had a previous hip fracture and surgery did not agree that the second time was easier.

Age seemed like a variable that could have possibly contributed to a person's recovery after a hip fracture. This has been substantiated in the literature (Fulks and Molinari, 1995) and was suggested by the quantitative findings of this study. Three participants mentioned that they felt their age contributed to the speed of their

recovery. One was the oldest participant in the study, the other was exactly at the mean age for the qualitative portion of the study. Some of the participants stated that “Maybe a person has slowed down when they are older. Maybe that is why they don’t want to do as much,” and “Now it is harder now. It don’t seem like I’m improving as fast as I should. I know a lot of things enter into it. I know I’m not as young as I used to be either.” The oldest participant in the study made those two statements; there were four years age difference between her and two participants who also stated that they felt age was a limiting factor. There is certainly the potential for age to inhibit a person’s functional abilities, but it did not seem to be the major factor according to other participants’ discussions. The youngest participant in the study stated that although “the hip is going to get well on its own, it takes time for the healing.” The majority of the participants felt they were pretty much over their hip fracture limitations after “a couple of months.”

#### Other Health Problems: “I Don’t Blame All My Problems on My Hip”

The majority of the participants (eight of the 12 participants) had other conditions (co-morbidities) that they felt were physically or emotionally limiting them from safely, efficiently and effectively completing their ADL. At the time of the interviews (three-fifteen months later), most stated that the activities of daily living problems they were having were related to other health/stress conditions in their lives, rather than the hip fracture. Related conditions and situations that the participants reported were Parkinson’s disease, diabetes, visual impairments, arthritis, cardiac conditions, colon surgery, depression prior to the hip fracture, and a

husband's death 10 days prior to the fracture. There was no way that the participants could effectively isolate only the limitations they attributed to the hip fracture, but most felt that the other conditions limited them more than the hip fracture after a three month time period.

Feelings of Confinement: "You Just Get Sick of the Television"

Several of the participants talked about how difficult it was for them when they "couldn't get out and go like [they] wanted." One participant explained her thoughts with the statement, "If I just had to sit around here [home] all the time--that would be bad for me." Although this participant was one of the oldest of the participants, three months after her surgery, she was no longer "confined." "As soon as he [doctor] said I could drive, I went. I like to go." She stated that she has a valid drivers' license, but limited herself to driving locally, (she does not drive to Kalamazoo [urban area] by herself) and she did not drive at night because she was afraid of having car trouble in the dark.

The participant who talked about getting sick of the television lived in an apartment complex for senior citizens. She could wheel herself down to craft activities, prayer meetings, a few stores and a recycling area. She stated "I feel better after I go out. You feel better when you are out of this place [apartment]." Although it was not easy for her to get out, she talked about how she "made [herself] go anyway. I told myself, 'Oh go on, turn that way, go to the 6th floor and turn left.'" Although she stated she used to be religious and used to enjoy the prayer meetings on

Tuesday mornings, she had not been to those meetings since she fractured her hip because it was so difficult to get there in her wheelchair.

She and one other participant considered anyone “lucky” who had a car. Both had sold their cars prior to their hip fractures, when they moved from their family homes to apartments. The oldest participant in the study stated that “it is just frustrating to be tied down to home. You can't come and go as you want to.” She stated that she used to enjoy going out shopping to Target, but “ I haven't been there since my hip fracture [four months]. It is hard walking around--I get so tired.” She stated that her granddaughter comes and takes her out to the beauty shop every week to get her hair done. “That's always been very important to me. My mother and father were both beauty operators. My mother was a beautician and my father was a barber.”

The perceived confinement issue was different for people who were living with family members (spouses or adult children) and those who were living alone. One woman who lived with her husband stated “we enjoy being home--we don't feel we have to be going somewhere every night. At night we are ready to stay home.” One of the youngest participants was unable to drive because of limitations related to diabetes, not the hip fracture. She stated that it was very hard for her to give up her freedom to drive and go when and where she wanted to go, but her husband and friends were usually available to take her wherever she wanted to go. None of the participants who lived with spouses or family members complained that they felt confined.

Just having to use a wheelchair instead of a walker can lead to feeling confined because of difficulty getting out of the home, but one of the participants felt that she was better off using the wheelchair instead of her walker in her small apartment.

It [walker] is too much trouble to use here. I go into the kitchen, and then I just sit in the wheelchair and eat right by the cupboard. It would be too much trouble to take the walker in there.

She admitted that she would use the walker at home only if someone was there with her (a therapist), but there were very few people whom she stated she trusted enough to allow to assist her. "I take the walker to [her daughter's] house. I hold onto her husband to get up the stairs. That's the only place I try to use it." She further described her son-in-law as a very big and strong man who would not let her fall. "I wasn't brave enough to walk much. I'm scared [to use the walker without someone there]. Once you go through that [hip fracture], you don't want to go through it a second time." Needing to use a wheelchair to go out rather than a walker seemed to create some problems for her, since one of the reasons that she stated that she didn't go out of her apartment often because of the wheelchair. She stated that she did not go to the prayer hour in her building anymore because "I am afraid I'd have to get there and wheel myself out."

This same participant also stated that one of her favorite grandsons would offer to take her out, but his "car is too small for the wheelchair," and she wouldn't be able to go out shopping because, "They don't have wheelchairs in all the stores. People steal them." "Being in the wheelchair makes it hard. The girls [daughters] will ask 'Do you want to come over mom?' I'll say 'No, not today.' I have to drag



that thing along.” The physical limitation of needing the wheelchair seemed to increase her feelings of confinement, and then increase her feelings of loneliness. “I go out, but very very seldom--once in a blue moon. The wheelchair is hard for them to handle.”

This participant did not perceive that she was limiting herself, however. From her perspective she was “careful.” She stated that “a lot of people baby themselves. Me, I'm different I like to be up and more limber.” From her perception, she was moving at her full capacity, taking care to not re-injure herself. One of the other participants also stated that she did not want to fall again and end up in a wheelchair.

#### The Need for Adaptations: When You Have to Change the Way You Do Things

The confinement described above was frustrating, but there were many other frustrations as well. The participants were frustrated when they were not able to maintain the former routines, activities, schedules and standards they had prior to the hip fracture. One of the participants talked about how frustrated she was when it took her 15 minutes to get from the car to her chair when she first came home from the hospital. Participants also stated that it was frustrating when they were not able to do things they had always counted on doing, like taking a bath when they wanted to, doing work in the yard, and doing everyday things for themselves and their spouses.

Depression: “Because I Haven't Been Depressed, I Think That Has Helped Me to Do Better”

The literature strongly supports the fact that older adults are likely to become depressed, and that depression will affect their ability to take care of themselves (Magaziner et al., 1990; Mossey et al., 1989; Mutran et al., 1995); the relationships in the quantitative portion of the study also supported that finding. Very few of the participants in the qualitative portion of this study admitted having any depression themselves, but they made comments such as “I don't have time to be depressed”, and “Because I haven't been depressed, I think that has helped me to do better.” One participant talked about her past depression when she stated “Whether you are injured or not injured, being depressed must be dreadful. You don't care for nothing. Luckily mine [times of depression] never lasted long.” Another participant stated “If somebody is depressed all the time and gives up, and then thinks what is the use, it would be hard.” Participants brought up depression independently. The researcher did not ask them whether or not they had felt or feel depressed if they had not intentionally mentioned it themselves.

Two of the 12 participants stated that they were on anti-depression medication. One of these participants was still using a wheelchair for her activities of daily living, but the other was using a cane in her home, and going up and down the stairs to do laundry. This second participant had actually been in an acute care hospital being treated for depression when she fell and broke her hip.

You know I was depressed before I fell. I was in the hospital for depression when I fell. My depression wasn't under control until I came home. I got more depressed when I was at the care center [nursing home]. I was

depressed the whole summer. But not now. I intend to keep my medications going so I don't get depressed again.

She continued her story with how the depression started.

There was a lot going on when my depression came on. My husband had to go into a nursing home. That's when it started. I was married over 50 years. It was real hard when he was in the nursing home.

This participant was able to explain some of her feelings when she was depressed. "Really, I think the worst thing for me [when depressed] was not caring about my physical hygiene. I didn't want to see anyone then. My daughter came from Houston. She was the only one I wanted to see." In another statement she expanded on having no interest in taking care of herself. "When I was depressed, I didn't even want to brush my teeth or cook anything." Although this participant talked about how her medication had helped keep her depression under control, there were still things that she talked about as being important to her in which she was not yet participating (since the hip fracture). Although she spoke at length about the importance faith and prayer had in her healing, she stated, "I have not been going to Church recently. I was attending until the depression came." This participant talked about how her depression did not get under control until she went home from the nursing home after the hip fracture. "It was boring [being in the nursing home]. It was depressing. The people there are so bad, both physically and mentally. I was very depressed. Even my minister said it was depressing to go to the Church services there."

The other participant who talked about being on medication for depression stated "I used to get real nervous. It was terrible." When asked if she ever still felt

depressed, she stated, "Lately I have not been depressed. Sometimes on Sundays about 4:00 I get lonesome."

Fighting Off Depression: "I Haven't Got Time."

One participant stated that she never has felt depressed. "I haven't got time. There is no reason to. I have such a wonderful husband and he is such a help." All of the participants had been married during their lives. Only five of the participants in the qualitative portion of the study had spouses who were still alive. One of the participants talked about the time when her husband died (over 20 years ago). "I still cry when I think of the day my husband passed away. It was in October. He was working on the garden and he had a heart attack. It was one of the worst days of my life." She was not one of the participants who stated that she was on medication for depression, or talked about being sad, lonely or depressed. From the comments she and several of the other participants made, it was an extremely depressing time when their spouse died, but they did not consider themselves depressed.

The majority of the participants did not state that they felt they were depressed, and did not mention any medication they were on for depression. The participants stated that the feelings of confinement after the hip fracture, losing a husband, and their decreased abilities were very difficult to deal with, but most of them did not admit to those feelings or frustrations ever growing into depression. They all acknowledged, however, that if they were depressed, it would make things much harder. One stated "I've never been that type that feels sorry for myself. Shoot, if I was like that, I wouldn't be doing anything." Another stated "I would not

let the depression get to me,” or “I’m just not one who’s ever been depressed.” They seemed to be trying to ward off depression because of their perceptions of how difficult things could be if they were depressed.

Medications: “They [Medications] Both Make Me Feel So Funny”

People take medications to improve how they feel; the negative side effects of drugs can be so difficult to handle that some people consider the side-effects worse than the benefits. One of the participants talked about some of the side effects she felt she was having that were due to her medications. “Last Saturday and Sunday I was very weak. For three hours. You don’t feel good. Just like you want to lay down. I really do think it is that [medication].” The same person talked about how “Those pills make my mouth so dry,” and how happy she was that “nothing took place that was bad” from a drug she had taken in the past, but was no longer taking. Negative side effects of medications could inhibit some people’s ability to take care of themselves, and therefore to live in their own homes.

“I Have a High Pain Tolerance. I Think that Helps Too”

There are numerous physical problems that inhibit people’s ability to perform their ADL, but pain can be one of the most debilitating. One participant stated “I’ve been lucky. I haven’t had any pain. Sometimes I have twinges, but to suffer, I haven’t.” Pain did not seem to be a significant problem for the majority of the qualitative participants, but several mentioned pain in passing. One of the participants who was also dealing with the effects of diabetes, stated, “My pain isn’t a

sharp pain, it is a dull ache. You can tolerate that.” Although not specifically using the word pain, another of the participants talked about a difficulty that was no doubt related to pain from standing for more than several minutes. “Just doing the few dishes I have to do, it is hard standing at the sink to get those done.”

The only participant who talked of pain more than in passing was the participant who used a wheelchair in her apartment, and was interviewed 15 months after her fracture. There seemed to be numerous places on her lower extremity that were intermittently painful. “Right here [points to shin] the pain is bad. It just feels like pricks. Both heels feel pain sometimes too. I have pain in my hip sometimes too.” The pain seemed to be periodic for her, “It didn't hurt last night. When it hurts, it hurts!” “Sometimes my heel hurts--it wakes me up.” This participant could still “feel where they operated” (on her fractured hip) and pointed to her leg where the scar remained. She stated, “Sometimes I can feel it [hip]. I don't know how to explain it.” She finished that part of the conversation with the statement, “I'm lucky that I have no more pain than I have--that's because I'm very careful.”

#### Residual Physical Limitations: “I Can't Get Any Distance Without the Walker”

Residual physical limitations can inhibit a person from doing the things necessary to take care of oneself at home. One participant stated that it was difficult for her to get some of the things she needed in her home since she could not bend over well since the hip fracture. Another participant stated that she got “more tired now.” She explained that “I have to use more strength getting around. I just can't get up and do what I want to do. I can't get any distance without the walker.” As she

continued to talk about using the walker, she stated, "I think to get up and do something, but I have to stop to get the walker going and then get my body going." Several of the participants stated that it was hard to cope with the physical limitations that persisted after the hip fracture, even if they no longer needed to use a walker or wheelchair. "The physician said I should always have a cane [due to severe osteoporosis]. Sometimes I forget it. I always take a cane when I go on a walk. Sometimes I just hang onto my husband. When I'm in familiar places, I don't use it. You can't use a cane when you are raking leaves [smile]." One woman who was ambulating without a cane stated that she still hadn't "really overcome the limp yet," and asked if she was impatient because of her desire to walk without limping.

It was not just the physical limitations from the hip fracture that limited people and their abilities to take care of themselves. One participant who also had diabetes stated, "I won't be back to normal. I think the diabetes caused the hip to break. I don't have strength in my leg anymore." Others had physical limitations due to arthritis, Parkinson's disease, and for one an unexplained limitation in fine motor skills. As people age, they may experience more and more difficulties, and the physical manifestations of those difficulties will make it harder for them to stay on "Independence Road."

### **Forces That Helped Keep People in Their Homes**

Each of the 12 participants felt they were vulnerable to each of the previously described forces, but none of the participants was so affected by those forces to force their families to move them out of their homes in order to be sure they were safe.

The participants had ideas about why they were able to do as much as they were for themselves, and those comments have been organized into categories. The participants felt they were able to take care of themselves in their own homes (in some cases with significant assistance), in spite of their limitations because of various forces or qualities in their lives. These forces and qualities include medications, medical advice, time to heal, personal qualities (determination, faith, motivation, believing things will get better, independence, personality traits, and perseverance), available resources (social support and material goods), and their daily occupations.

Medications: “I Intend to Keep My Medications Going So I Don’t Get Depressed Again”

Although medications can have negative side effects, the two participants who were taking anti-depression medication were extremely positive about the effects medication had on their ability to live at home. One of the participants stated, “[it] makes me feel--how do I say it--I wouldn’t say happy. I feel different. Maybe like happier or something.” She compared it to a stronger drug she had previously been on and she stated that this second drug was “more soothing.” This same participant also received a vitamin B-12 shot every month. “That makes me feel better and more happier or something. I’ve got this here [points to shoulder, referring to the B-12 shots] for the rest of my life. Those help me to feel good.” This same participant was also on pain medication. She stated that she took “some pain medication that really works,” and she was happy that she was able to sleep 10-11 hours a night. “I think some of the medication helps with that.”



Because many of the participants had other problems besides the hip fracture, they were also taking medications for some of these other conditions. One participant who was taking an experimental drug for Parkinson's said "they [doctors] don't know if that helps the Parkinson's or not, but I think it does." One participant who had osteoarthritis and rheumatoid arthritis stated that she was receiving cortisone shots that were helpful, and that she also took Tylenol. She felt both the cortisone and Tylenol helped her deal with the arthritis pain.

Following Medical Advice: "Do What They Tell You To Do. That Is the Best Thing"

Although most of the participants' comments dealt with following the therapists' advice, one of the older participants stated that it was important to follow the physician's advice. "I think older people [>80] would be doing better than younger people [60 - 70]. They [older people] do what they are told. If you pay for it [doctor's advice] do what he tells you. If you are not going to do what he tells you, don't spend your money to ask him."

Three of the participants talked about how they were anxious to get back to their own personal exercise programs, but they also followed the advice of the therapists while they were in the hospital. The tendency of this particular group seemed to be to go beyond the therapists' recommendations once they got home. "I followed the advice of the physical therapist who gave me my therapy in the hospital. I have instructions for exercises to do at home. I did my exercises and kept pushing myself until it hurt." Another of the older participants stated "I did my exercises just

like [PT] told me. They said to do them 2-3 times a day, but I did them 5 times a day. They said not to overdo it, but I made myself do extra.” Another stated that “It takes me one hour to do the PT exercises every day. I take a sheet and lie on my bed. I have my portable phone there with me. I turn on the stereo. The nurse [visiting nurse] said I should break it up and do it twice a day for 1/2 hour at a time.” She admitted however, that she likes to do the whole hour at once.

Even though one participant went beyond the expectations of the therapist for exercising, she reportedly followed the therapist's advice for the use of a walker or cane. She stated that she “walked with a walker until they told me I could use a cane. I did just like they told me to do.” Only one of the participants reported that she did not use a cane although her physician had recommended she do so. She stated that she sometimes forgets her cane and she sometimes holds onto her husband. All of the other participants stated that they were following the physician or therapists' directions for using devices for walking.

The majority of the participants' statements reflected that they had positive experiences with their physicians and therapists. One participant even credited her physical therapist with helping her get out of her depression by suggesting that she follow a daily routine, similar to the routine she followed when she was in the nursing home. One of the participants described both her OT (occupational therapist) and PT (physical therapist) as wonderful. Another participant recalled the tip she learned in therapy of “good things go up and bad things go down” to help her remember to lead with her uninvolved leg when she went up the stairs, and to lead with her involved [fractured hip] leg when she went down stairs. A third participant

stated that she had learned how to go up and down stairs and that she “went up and down just like they said.”

The participant who was using her wheelchair in her apartment reported that she had some negative experiences with one therapist. She stated that the therapists from a home health agency came to help her walk. “One girl, I admit I didn't like. She wanted me to walk to the elevator.” She also mentioned a therapist who had her “walk to the table and back.” After 15 months post fracture time, none of the therapists had been successful in having her use her walker in her apartment when they were not there. This seemed to reflect more on the participant (who was afraid of falling again) than on the quality of therapy she received.

“Going to the Care Center Was the Hardest Thing, but It Was the Best Thing for Me”

Therapy in the rehabilitation center or skilled nursing home was seen as a positive experience for the participants. Without a doubt, at the time, all of them would have preferred to be home, but since they were back in their own homes at the time of the interview, they could see the positive aspects of the intensive time for therapy. One participant stated, “I recommend going to the residential (inpatient) therapy for awhile. You get a lot more intense therapy and you get more time for them to fill you in. You are there with other people. There are people who are worse off than you and that tends to make you feel grateful.” Another participant said, “It was a good thing for me. I was there for 5 weeks. The PT really pushed me a little bit. My roommate thought it was too hard, but I didn't think it was.” This same participant (who was in a skilled nursing home rather than inpatient rehabilitation

center) said “Going to therapy was the most fun of the whole day.” The extended and intense time for therapy seemed to be helpful to several of the participants. One stated, “the therapists did a thorough job of talking about how to cope with situations in the home.”

The social interaction at inpatient therapy (rehabilitation center or skilled nursing home) was seen as a positive experience. “It was nice to get together for exercises, games and eating together.” When this same participant described group therapy, she stated “We were in the big room. They get people together in a circle to do the exercises. It varied your activities. It wasn't so blah.” The fact that there were many therapists and people there seemed to help one participant to be motivated to complete her exercises. “They made you do your exercise. They kept at you to do it.” Another participant seemed to agree with this concept when she stated “I think it was helpful to feel my body getting stronger.” Even the participant who chose not to use her walker much in her apartment, talked about how motivated she was to work at the skilled nursing home. “They were always timing me [at the skilled nursing home] to see how many steps I could take. Sometimes I'd go as far as they wanted to go just to show off.” One wonders if when this participant was in her own home (living alone) she was less motivated to work on her walking because there was no one there to appreciate her accomplishments.

**Determination: “I Never Considered Not Being Able to Get Up and Go Again”**

During the qualitative analysis, the personal qualities that the participants described fell into six sub-categories: (1) determination, (2) faith or believing things

will be better, (3) independence, (4) perseverance, (5) personality, and (6) motivation, with several different concepts falling into each of those categories. Some of these categories that were very hard to actually tease apart, were (a) hope, (b) determination, (c) helping oneself, (d) believing you will get better, and (e) having a positive attitude. All of these words describe a pro-active approach that the participants had about their experiences. They took action in their lives rather than just resisting negative things that happened to them. The actual word “determined” was used more often than some of the other phrases, such as “not giving up.” All of the participants described instances where they were determined to do things for themselves, and they did those things despite the consequences. One participant described how

By the end of the night, I had gone up and down the stairs umpteen times. But if there is something downstairs that I want, I will get myself down there to get it, even if I have to drag myself back up those stairs.

This participant was safe to go up and down the stairs, and she did so the night before the interview to get her Christmas decorations so she could start decorating. She found herself making several trips since there were more things that she wanted and she was determined to get her Christmas decorations up.

This group of participants spoke extensively about not giving up. One participant described the process she goes through every Sunday in order to get ready to go to Church with her niece and her family: “I use one of those things [stocking aid]. I think how am I going to do that? But I kept working on it. I think how will I get dressed for Church? I just keep working on it and I do it.” Another participant stated that “you have to have it [determination] in you. If you don't have it, you will

go downhill.” Another participant stated “You can't be a person who gives up. You have to stick with it.” One participant described it as “you just can't give up. You have to be determined.” Another participant foresaw serious consequences for giving up when she stated, “If I were to give up, in a few years, I'd be in a nursing home.” This same participant also said, “It has to do with personality. If you're not a fighter and you are willing to give up, it may not be so good.”

One of the participants gave an example of how she was determined to learn something over 50 years ago, and she felt it was that same determination that kept her going today. She told a story about when she was 17 years old.

I decided I wanted to play golf, but I was poor as a churchmouse. I cleaned house for a man who had some clubs. I asked him if I could borrow the clubs and he said yes. I dragged the clubs all the way to the course (I had to walk of course) and then I hired a caddy because I didn't know where the holes were. It felt good. I decided I wanted to do it [learn to play golf] and I did it.

She compared her recovery from her hip fracture to learning to play golf. She had always done the things she set out to do.

This same participant had another story about herself when she was younger and she wanted to learn how to hunt.

When I was a young girl, I decided I wanted to hunt. I didn't own a gun or know anything about hunting, but whenever I met a boy I was always looking for someone who knew how to hunt. I told one boy that I hunt. He asked me if I'd like to go. I said, yes, I'd like to go. I didn't have a gun, so I went to a gun store and I went up to the counter and I said, 'I want to buy a gun.' The clerk said what kind, and I said 'I don't know what kind, but I wanted a hunting gun.' I had made up my mind I wanted to do it, and when I did it, that gave me great satisfaction. I felt I was on top of the world.

This was the attitude she brought to her recovery. She made up her mind she would get around at home, and she was doing it.

One participant described that what a person needed to get better was to have “hope.”

People need to have hope. People will get better if you have hope that something is going to be better. People right now in India are walking through water and mud with hope of getting food. People need to have hope. I don't know how they did it. People who live through bombings and deaths of everyone they know.

Another participant also stated that “hoping for the best” helped her to feel better. A third participant said she was “determined [she] was going to get better.” She then qualified the statement with, “At least I hope I am.”

The determination to do things for themselves was important to several participants. “I was determined even though it is hard.” This participant added to that comment, “When you feel good, it gives you more determination to do better.” Another participant stated “determination is definitely important. When I didn't want to do my exercises, I was determined that I needed to do them.” The determination theme was a very strong one with this group of participants. The descriptions of the concepts were different, but the ideas the same. One participant put it this way, “I want to do things myself. You have to make yourself do some things. If I didn't make myself do things, maybe I wouldn't be so determined.”

Helping oneself and “programming” themselves to do well was another way participants described the personal qualities they felt kept them from having to live in a nursing home. “Sometimes you have to help yourself.” Another participant stated, “I don't get sick and give up. I just keep going.”

### Faith in God: “It Helps You Get Through the Rough Places”

As participants tried to explain how their faith facilitated their healing and their ability to live at home, several themes emerged. All but one of the participants in this portion of the study stated that their faith was helpful in overcoming obstacles with their hip fractures. The one person who did not mention her faith as being beneficial did mention during her interview, “I used to go to prayer hour every Tuesday morning. That minister we got, he and I got to be good friends. I haven't been since I fell and broke my hip.” When she was asked why she didn't go to prayer hour anymore, she answered, “I'm afraid I'd have to get there and wheel myself out.” This participant answered the question in the quantitative questionnaire that she did not consider herself a religious or spiritual person. She had qualified her question at the time with “not now”.

Two other participants reported that they were not currently attending Church services, but they still considered themselves religious; one of these two considered herself spiritual and the other did not. Each person had her own reasons for not currently attending Church. One of the participants had not been back to Church since her depression, but she reported that she still kept in close contact with people from her Church, but the other stated “I am Catholic. I believe in God. It helps you get through the rough places.” When the interviewer specifically asked her about whether or not people from her Church were supportive during her recovery, she stated, “I don't go to Church. I went more when I was younger. I guess I don't go



because of my dissatisfaction with the personnel in the Church. I guess I'm old fashioned.”

### Prayer: “I Got Better Because I Prayed”

As participants tried to explain how their faith facilitated their healing and their ability to live at home, several themes emerged. These themes were prayer, struggle being part of the faith process, the assurance of faith, and God's order in the world.

Six of the ten participants who felt their faith positively influenced their recovery, specifically talked about how prayer facilitated their healing. One participant (who was not currently attending Church services) stated, “Prayer has made the most difference. Praying every day.” Another stated, “I feel so many people praying for me. That was a big factor.” One participant was very clear about who she credited for her healing. She stated, “the number one reason I got better was because of God and the Lord Jesus Christ.” Her comment on prayer was very simple: “I got better because I prayed.” Yet another participant included in her advice to someone who had a hip fracture, “You have to have hope and prayers that you will be back doing what you want to do.”

### Faith Sometimes Requires a Struggle

Several participants talked about being tested by God, or growing from struggling with problems. One participant stated, “If you think that just because you say you are a Christian that you won't have any trouble in life you are wrong! The

Lord tests you. The Lord wants to see what you do when you have troubles.”

Another participant talked about her faith and her current situation as “This is what I’ve got, and I might as well make the best of it. Maybe I’m being tested.” One of the other participants talked about her “struggle” in a different way. “I think having a faith that calls you to be of service has something to do with the struggle to get better and the belief that you will get better. God sustains us when we need a boost or kick in the pants or whatever.” The last participant who talked about this concept stated, “Even though I don’t see it, there’s a reason the Lord gave it [hip fracture] to me, I guess.”

#### Assurance: “Something to Hold Onto”

Another theme was the assurance that faith gave the participants. One participant described it as “something to hold on to. I think it makes a difference. It is a feeling like everything is going to be OK.” Another participant stated it in a different way, “I have nothing to worry about. I have a home that I will go to that is better than here. When you die you can be more alive than you are now.” This same participant quoted scriptures, hymns and religious analogies throughout her interview. She stated, “I have nothing to fear--I have complete trust in Him.” Another participant’s statement spoke of her belief that her faith was beneficial in her recovery process. She stated, “if you didn’t have [faith] it would be too bad.” The last participant who talked about this theme included trusting God in the advice she would give to someone who had a hip fracture, “Trust God to bring you out of it--to heal.”

**God's Plan: If the Good Lord Wanted Me to Do It, I Suppose I Could"**

The last theme related to faith or religion dealt with God's plan for the participants and their ability to find the support they needed. One participant stated, "I always felt you will never be given more than you can handle. If you need help, help will be given from above. Maybe from a neighbor, who knows. The world runs in wondrous ways." Another participant worded it differently, "If the Good Lord wanted me to do it, I suppose I could."

**Motivation: "I Think I'm Doing Well Because of My Love of Life. There Are Too Many Good Things Yet I Want To Do"**

From the statements made by the participants, it seemed they were motivated by an inner drive to do things for themselves and for others, and were inspired by other people. The motivation that they got from doing the things they do every day will be discussed in the last section of this chapter.

One participant stated, "You need that inner drive of doing as much as you can." Another stated that she got out of bed because "there are things around the house you want to get done. Sometimes I'm tempted to stay in bed, but not for very long. I feel I have to get up and get moving." Another participant described how "Yes, it [hip] will heal, but you have to do it [get going] yourself." One of the participants stated, "You need to explain to people that it is up to you [person who had a hip fracture]. You [person] are the one who decides how far you [person] are going to come. You [person] can either give up or go on." This same participant talked about the need to go beyond just getting out of bed. "You have to get yourself

up and out of that chair, too.” One of the participants stated that sometimes God motivated her. “I get a kick in the pants or a boost all the time.” One participant talked about how motivated she was to get well because of other people “Half of it [getting up and about] is for other people. The other half--on my own I want to keep going. I wanted to get back with people. My niece brought her grandchildren in and they hugged me. I thought, ‘I’ve just got to get well. I love those children so much!’”

Inspiration: “Now Chris Reeves--Wow, if He Can Smile Like That, I Sure Can Smile, Too”

Several of the participants talked about how seeing others overcome obstacles gave them strength to keep going themselves. One stated, “I am inspired when I know of other people who’ve overcome difficulties and handicaps.” Another stated, “As we came out of Church Sunday morning, a woman came out with crutches. I thought, Oh, that must be hard to do. Well, if she can come with crutches, I can come with this [walker].” Some other things that inspired the participants were the Christmas carols that were playing on the radio, the author of a book one participant was reading, and knowing that there were others in the similar situations.

Adequate Resources: “I’ve Always Felt That I Had the Things I Needed”

Participants felt that it was important to their recovery and their ability to stay in their own homes, that they had the physical and psychological resources they needed. One participant stated, “I have enough to cover it [expensive medication]. I am lucky. The security is good. If this [medication] is what I need to keep me going,

that is important.” Another participant agreed that “Money is another thing that is important. You always want to have enough.” Even though both felt secure, they both mentioned that they hoped they did not get too many more medical bills (implying that big medical bills could wipe out their “cushion”). This particular group of participants were all living in safe, comfortable homes or apartments. There was never a concern by the researcher that a participant did not have all the resources that she needed. Because of the “comfort” of these older adults, they were not a good representative sample of older adults in the United States. All of the participants had Medicare insurance, with the majority having a supplemental policy to the basic policy. None of the participants ever stated that she was concerned about having enough of any resource. All of the participants who talked about their doctors were very pleased with them. One participant talked about how she likes to be sure “I have everything I need. I keep deodorant everywhere. I have it in the bathroom, the bedroom, and the dining room. I’m always sure that there is some I can reach to use.” This participant also had strategically placed pens throughout her apartment, showing the researcher where they were in case she ever needed them. This same participant talked about how her daughters do her grocery shopping for her, and become very concerned if they do not get her something that she needs.

[daughter] had to bring over some groceries last week because I was running low on coffee. She was really upset (because the participant was so low on coffee). I said, [daughter's name], I know what happened--I put in on the side when I made my list (the previous week), and then I ran out of space when I copied the list for you. Before you get a chance to explain, they get upset. I was OK. I had my instant coffee I could use.”

This participant also stated, "My children work very hard to be sure that I have everything I need."

Adequate food was another area that participants spoke of being thankful about. One stated, "I've always been blessed by good food, even when I was growing up. We always had good food and good milk. It was simple but good and nourishing." This same participant also stated, "It makes a big difference if you nourish your body properly." Another mentioned that "good food" was important to her recovery. When she was asked to explain what she meant by "good food," she stated, "Good soup, salads--I love anything you can put in a salad. I eat a lot of bananas." She went on to describe other foods she ate and that she thought were important to her recovery. A third participant stated that although "I never paid too much attention to my diet, I eat the things that are good for me. I've always been fairly healthy." All of the participants stated at times during the interview that they had plenty of food. Seven fixed their own meals safely (as measured by the AMPS in the quantitative portion of the study) and the other five had varying degrees of assistance for meal preparation. All of the participants were able to fix themselves simple meals; two depended on Meals on Wheels for the main meal of the day. One participant did some of her own meal preparation, but also bought prepared meals from a frozen food company, and one was beginning to allow her son who lived with her to do more of the cooking since she was losing her vision.

### Expressive Social Support

All of the participants talked extensively about the people who had helped them to overcome their difficulties after their hip fractures. For the participants who were currently married, they spoke of supportive spouses. For widowed participants who had adult children, they spoke of their daughters and sons. Widowed participants with grandchildren or grandnieces and nephews spoke of how important those children were to them, and some of the participants spoke of very close friends who had become extremely helpful since the hip fracture. Many of the participants also mentioned support from their Church families through this healing process as well. Each of these participants (even those who were on the “high” end of the independence scale) received support that helped them to be able to live in their own homes. All of the 12 participants talked about how helpful family and friends were for them. One of the participants who received extensive institutional support (Meals on Wheels and a paid chore provider) still depended on her daughter to assist her with her baths and a granddaughter to take her to the beauty shop every week.

#### “I Have a Very Supportive Husband Who Was Willing to Help Out”

The five participants who were married all spoke about how important it was for them to have supportive spouses. There was not one universal description of what a supportive spouse was, since each participant seemed to have her own specific needs that the spouse fulfilled. Some of the participants talked about how their

spouses helped them out physically. One participant stated, "When I came home from the hospital, my husband did everything for me." One participant spoke of her spouse as having "a lot of patience. He will do things for me. If I can't do something, I ask him or he just does them for me." Doing everything was not necessarily what all of the participants wanted, however. Another participant was happy that her "husband was willing to allow [her] to do things that were important for [her] to do."

Several of the participants also talked about the emotional support their spouses offered. One participant was appreciative that her spouse was supportive of her limiting her activities because of her physical limitations. She stated, "[spouse] was the major person to convince me that it [work around that house] doesn't have to be done. [spouse] didn't care if the shutters weren't painted this summer. [spouse] did some of the things himself." One participant was thankful that her spouse was "always in control." The spouse was present during the interview and stated that he "tried to help her monitor what she was doing [so that she did not do too much and overdo it]. This was the same spouse that the participant said told her "everyday that [she] was the most beautiful person in the world." One participant whose husband was extremely physically limited himself stated, "We depend on each other. I depend on him, he on me. As long as the Good Lord lets it be that way, we're happy." There was no "blueprint" for a perfect spouse. It seemed to depend on what was needed when.



**Supportive Adult Children: “It Would Be a Lot Harder if They Weren’t So Supportive”**

All of the 12 participants had either a spouse or adult children (sons/daughters/nieces) who assisted them with their IADL. Most of the tasks the adult children completed for them were shopping and cleaning. One daughter went beyond helping with IADL and also assisted with her mother’s baths. “My daughter comes over to give me a bath whenever I want it. I call her up and tell her I want to take a bath.” This same daughter and her husband “help out with grocery shopping. They do little things I need done around here that I can’t do.” This participant felt there was a limit on what she could ask the daughter to do, however. The participant talked about how cluttered her bedroom was because she had never gotten around to getting rid of some of the things she had brought with her when she moved from her family home to this apartment. When she first moved into the apartment the boxes were stored under her bed, but after her hip fracture the bed arrangement had to be moved, so the boxes were now all around her bedroom. She stated that this bothered her, but she could not do anything about it because she did not feel she could ask her daughter to help her put things away because “My daughter has enough stuff of her own.” It seemed that this participant felt she was receiving as much support as she could from her daughter, and she could not ask for any more. Things seemed to be very difficult overall for this participant. She was one of the oldest of the cohort; she had difficulty just getting up and down from her easy-boy chair to use her walker, and got tired very quickly when she was up in her kitchen fixing her food.

In some cases where the participants did not report having good supportive friends and they were widowed, the adult children seemed to be even more important because the daily contact with their adult children was the participants' only social contact. The two participants who did not consider themselves religious or spiritual (who were also widowed) were the two participants that exhibited the most signs of loneliness. One participant described the people at her Church with the analogy "Just a little bit of honey helps the medicine go down. Isn't there a song like that? Going to Church and people helping me is the honey. When I stand up, the lady beside me gets my arm so I can sit down easy."

"In the Church, It Is All for One Another"

In the quantitative interviews, nine of the 12 participants considered themselves religious and spiritual, and eleven of the participants considered themselves religious. The two who considered themselves religious but not spiritual asked questions during the interview about the interviewer's definition of spiritual. One asked if spiritual meant devil worship, and the other asked if it was referring to "New Age." The standard answer during the interview for these questions was to encourage the participant to answer the question "Do you consider yourself a spiritual person?" according to her own definition of the word. Two of the participants seemed to hold negative connotations of the word spiritual, and did not consider themselves spiritual according to that "negative" definition.

Eight of the participants stated that they currently attended Church or a prayer service. One stated that she had not been back to Church since her hip fracture, but

that “several friends [from her Church] were helpful with their prayers and visits.” Another participant who did not currently attend Church (but still considered herself religious), stated, “I don’t go to Church. I went more when I was younger. I guess I don’t go because of my dissatisfaction with the personnel in the Church. I guess I’m old fashioned.” Two of the participants who did attend Church were not negative about support from Church members, but did not feel that the support from Church was a major factor for their recovery after the hip fracture. Again, there was not a “blueprint” for the perfect way for Church members to be supportive. One participant stated, “The people [at Church] are very considerate. Sometimes people almost worry too much. They can overdo it. I just tell them ‘I’ll be there. It just takes me longer.’ I feel like telling them to leave me alone.”

Others felt that support from Church members was extremely important to them. One stated, “I feel like a queen at Church. I think ‘Boy, this is great!’ They say things to me like ‘You’re looking so good. Your hair is beautiful.’ I say you can have snow on your roof but you still have fire in your furnace.” Another participant was appreciative of assistance offered at her Church. “Many people at Church have been supportive. They are supportive not only in their prayers and concerns, but also asking what they can do to help.”

It was not just the prayers that were perceived as being helpful; just the idea that other people were praying for her seemed to be helpful in and of itself to one of the participants. “People from Church called and sent cards. They kept telling me: ‘We’re praying for you! I had people from other Churches praying for me. The pastor came to the hospital several times. The pastor kneeled on the floor and said

my name, 'We love you so much. We are all praying for you.' That encouraged me." One woman stated that when she was able to get out again after her hip fracture, going back to Church was the first place she went.

**Friends: "If You Could Have Friends Like I Have, You Can Be Sick"**

The participant who made this statement talked mainly about one woman who had become quite helpful after she fractured her hip.

One gal, I think she thinks I'm her mother. She called this morning and said 'If you make an appointment to get your car fixed in Kalamazoo, I'll go with you.' She knew that I needed to get that fixed and so she said she'd go with me. She knows I don't like to go to Kalamazoo alone. We go out for lunch when we go to get the car fixed. We really have fun. .. Our husbands were friends. We were casual friends. After this happened, she said I'm going to do this or that. She was always right there. Sometimes you might think she's overdoing it, but oh, well. This gal's husband is great too. He cuts my lawn and won't take a cent. They call me to go out to dinner a lot. Sometimes he lets me treat and sometimes he says he wants to treat. They are not hurting at all for money. So sometimes I treat and sometimes I let him treat.

Without the assistance for such things as driving at night or driving in Kalamazoo, this participant may not have been able to remain living in her family home which was out in the country. This woman had also talked about her adult son who was very helpful, but who lived about 40 minutes away. He also did many things around her house for her; she was very appreciative of the assistance she received from both her son and her friends.

One participant stated, "Supportive people are very important. People in the family and other people not in the family as well. One participant who can no longer drive because of her vision limitations stated, "I have a good friend that takes me shopping. We sometimes go to the mall. We shop in the same stores. Sometimes we

split up some, but we're never too far apart." One woman talked about the "cards, letter and pictures" that people sent her (emotional support) that cheered her up. Another participant stated that "We have a lot of support. More than a little bit! One neighbor brings the mail everyday (physical support). It works out well." Both the emotional and physical support that these friends were providing was in some of the cases, enough to allow the participants to remain in their homes.

"It Is a Pleasure To Have [grandson's talking bird] With Me"

Not all of the participants had supportive friends, and several admitted to being lonely sometimes. When one participant was asked if she had friends, she stated, "Some, but very few. That is of my own doing. I don't like back biting and I don't like gossip, so I don't have many friends in this building because that is most of what goes on here." This particular woman did talk about her grandson's bird that he would bring to her home most every Sunday so she could visit with the bird while the grandson went shopping. When she was asked if she was the "bird-sitter" she stated, "No, it is a pleasure to have [the bird] with me."

Later in the interview she talked about two of her immediate neighbors to whom she enjoyed talking, as if she did not want the researcher thinking that she did not have any friends. This particular woman seemed to get extensive support from her daughters and her daughters' families (grandchildren and the grandson's talking bird). Talking to the grandson's bird was extremely enjoyable for her. The bird may have supplied some of the social support she was not receiving from friends. She also talked extensively about the craft projects her grandchildren had made for her

and the stuffed animals they had given her that were all around her apartment. She too received and appreciated both emotional and physical support, and this support seemed to be critical to allowing her to remain in her own apartment rather than having to move to a more restrictive environment (assistive living or nursing home).

**Social Connectedness: “I Am Very Thankful for the Telephone”**

As the participants became less mobile (having to stay at home more, it being more difficult to go out with a walker or cane, or not being able to visit family who lived out of town as often), they seemed to be extremely appreciative of the telephone that did allow them to stay in contact with their friends and family. One participant stated, “I am very thankful for the telephone. We have a lot of friends. They give us a lot of help. They have been just great.” Another stated, “My phone is very important to me. People call me.” Another participant stayed in contact with friends from her Church by telephone since her son could only drive during the day and she was only able to go to Church on Sunday morning, not on Sunday evenings and Wednesday evenings. “I talk to people from Church and have fellowship over the phone, and then we get together at the service on Sunday mornings.”

The telephone was also very important to stay in touch with family members who lived out of town. One participant stated, “Even my family that doesn’t live close. They have been supportive. We talk on the phone.” Another participant stated that the majority of the support she received was from family. “I also got a lot of calls from other members of my immediate family who don’t live in the area who

couldn't come help." The telephone seemed to be a lifeline that even with physical limitations and some of their visual impairments, they could still use independently.

#### Adaptation: Putting Things "Out-of-Bounds"

As the participants talked about things to which they had adapted to since the hip fracture, they seemed to have thrown many aspects of their IADL "out-of-bounds" as they redefined the boundaries of things that were important to them and things that were not. Although some of the participants talked about how it was "hard for [them] to give things up," most had decided that they were going to have to change the way they did some things now that they had more physical limitations than they had previously.

Two participants had to change some things about the way they did laundry. Neither chose to give up doing laundry, they just changed some of the logistics. One stated,

I had to give up hanging out the laundry. I like to hang up the sheets. They smell so good after they've been hung outside. It is hard for me to give things up, but some things are not worth fighting. This same participant also now has her husband carry the laundry baskets downstairs for her. "It is easier for him. I can still do it, but it is harder for me. I'm afraid of falling down the steps." Another participant had always had a laundry chute so she did not have to carry the laundry down the stairs, but after she finished the laundry she now waits for her son to get home from work to carry the baskets upstairs and she also lets him put the blankets away on a high shelf. She knew she was not safe going up the stairs, carrying her cane and a laundry basket or standing on a ladder to put the

blankets up on a shelf. She stated, "I have my son put them [blankets] on the shelves. I'm not tall and I don't climb on ladders."

Several participants had previously included gardening as part of their IADL, but realized that they now had to not only make some adjustments, but give some things up completely. Two talked that they would not be gardening in the future, and one had to give it up temporarily right after the fracture. One stated

I can't bend over to plant flowers anymore, but I don't worry about it. I knew I couldn't do it. My son won't do it--he's not interested, so I don't care. My neighbors have beautiful flowers across the street I can look at. I can adjust to the limitations. Some things are not important enough to take a risk. I don't want to fall again.

Another just stated that "I can't keep up with all those flower beds. I can get down and get up on that stool, but by the time I do that a few hundred times in the day, my hip hurts." She did not have a substitute plan, but just knew she would not be able to keep up the gardening she had done in the past.

One participant was unable to do the yard work at all one summer, so a daughter and son-in-law paid for a lawn service to take care of the yard as she healed. She stated, "At first I was upset about my daughter and son-in-law footing the bill for the lawn work, but then I said, OK, I'll let them do it. I needed to get rid of feelings of guilt. I had to tell myself 'Maybe I'll have a chance to repay them somehow in the future.' That's what I kept thinking. And I have been able to do that."

Some things were much easier to give up than others. One participant stated, "I can't run the snowblower, but that is OK with me. I never liked to do that anyway. [someone else] will have to do that. I don't mind giving that up at all." Another of the participants no longer climbs ladders. She stated, "I can't climb ladders. Well, I



can climb them, but I'm not supposed to." That did not seem to be a sacrifice for her. This participant seemed to value her safety over the ability to get up on the ladder. Two participants were not concerned that they had given up their shopping and bill paying to family members. One stated, "It was hard for me to give it [paying bills] up for awhile, but what a relief it is. She [niece who took over the job] was a school teacher--she is so efficient." This same participant who had also given up doing her own house cleaning stated, "Sometimes I ask myself, 'Am I going to have to sit back?'" This questioning lasted only momentarily, however, before she was talking about how it was helpful for her to have her niece clean for her because her niece needed the money she paid her to do the cleaning. Again, family was providing IADL support to allow the participant to stay in her own home, by decreasing the physical demands that the participant needed to encounter daily.

One of the participants was no longer able to cook because of her limited vision. She was now letting her adult son who also lived in her home cook. "Now I let him cook. That's OK. I look forward to my kids helping me out." The participant also stated that when she needed something, she would "just wait until someone waits on me to get me the things I need." It did not seem to be an issue that there were things she could not do and had to depend on others to do for her. This participant had given up other things as well, but was not concerned or complaining about that fact. "I've given up sewing and reading except for the Bible. I like to go away, but I can't go anymore unless someone brings me. I can't go shopping. I can't see what to buy. I never go anywhere by myself." This participant was one of the older participants in the study. She seemed to be content with what she was able to

do, and that she was able to live at home, and was not at all concerned that there were many things that she could no longer do. Another participant answered, “No. You have to be realistic,” when she was asked if she felt depressed that since the hip fracture she had to have assistance to be able to stay in her home.

### “I Had to Realize That Some Things Won’t Get Done”

I can’t do anything about it--I just accept it. You know that prayer--God grant me the ability to change the things I can, accept the things I can’t change, and the wisdom to know the difference. That helps. It is hardest to know the difference. Some things you can’t change.

Another participant told a story about spiders that were living between her kitchen window and the outer window.

I have that dirty kitchen window over there. I saw last spring that there were some spiders in between the two windows. I couldn’t get that window down, so I just had to wait for someone to come and help me do it. Both my son and my friend knew that I wanted to get that clean, but neither ever got around to it. One day this fall, my son finally got it done. There were a lot of dead gnats in there. There were some spiders still alive. I put them outside. I hope they survived. When my son was here, he cleaned the window inside and out. I know my limitations. The spiders were my entertainment.

She knew that she was not safe to climb up on a ladder to clean the window, but instead of getting upset about that dirty window (that was there for five-six months), she decided that she would make the spiders her entertainment. She was very happy when it was finally cleaned, but she didn’t waste her time and energy being upset. She knew her limitations. She said several times “There’s no use getting upset.” She also said, “I hated it if someone saw the spiders, but I figured it was better to have spiders in there than to hurt myself. I just said to myself, ‘Oh well, I can’t do anything about it [spiders]. They’ll just have to be there.’”

These are examples of how the participants have adapted their IADL to fit their physical abilities since the hip fracture, and in some ways literally “threw things out-of-bounds,” redefining what was important to them. “There is no use getting upset.” Another participant stated it a little differently. “I try to find a way to compensate. I get frustrated, then I find a way to get around it or decide I just can’t do it.” Another strategy to deal with new limitations for things that the participants were not ready to throw out-of-bounds was for them to create ways to solve their problems within their abilities.

**Compensating: “I Made Up My Mind That Whatever It Takes, I Would Do”**

One participant talked about how she had to position herself just right to pick things up on her right [hip fracture site] side. Another takes a pillow in the car to sit on so that she does not sink so low. One participant changed the way she gets dressed. Another uses a stocking aid to put on her socks. One participant uses her “big tongs” (a long handled reacher) to pick things up off the floor, and another reads a large print Bible. One participant needed to be able to get herself into bed in order to go to the assistive living center (discharge preference) after the acute care hospital. If she qualified for the assistive living center, she and her husband could both go there until she was strong enough to go back home to take care of him. If she couldn’t, she would have to go to a rehabilitation center or skilled nursing home and he would have to go to a respite center where he would receive 24-hour care until she was able to care for him. “The girls at the hospital gave me a gadget that helped me

pick up my leg. With that, we could do everything we needed to to go there. The equipment makes a huge difference.”

Several of the participants had failing eyesight besides their hip fracture. One stated, “I’ve always ironed his [husband’s] shirts. I can’t see what I’m doing half of the time. If I miss a sleeve, he tells me and I iron that sleeve or he irons it himself.” Just the fact that she completed the task herself was an accomplishment, even if it had to be “touched-up.”

Another participant stated that she compensated for poor eyesight by feeling where things are, but also found other ways to compensate in order to complete the IADL that were important to her.

When they resurfaced the street out here, they didn’t bring the asphalt all the way to the mailbox. The mail truck had to drive on the yard and make some deep ruts in the yard. I decided I wanted to move the mailbox closer to the street. It took me two hours to move it, but I took my time--I kept moving and working on it. It might have taken someone else half the time, but I didn’t care.

This same participant talked about compensating for not being able to stand and dig a hole by kneeling and digging the hole. Again, she stated that it took longer, but that did not matter. One of the other participants stated that she thought it was important that she could “Say that it is all right if it takes more time. I can still say I did it, whether it took twice as long or not.” The fact that things now took more time was a very common comment. One participant stated, “Things take longer. I just have to adjust to that. I have time on my hands. I have time.”

### Personal Priorities in Instrumental Activities of Daily Living

Each of the participants in this study had her own priorities, needs, and ideas about what she wanted/needed to be able to do. One of the participants needed to be able to be the primary care-giver for her husband who had a debilitating disease; if she were capable of doing certain things in their home, they could both be at home instead of having to go to an assistive living center. Several other participants had spouses who were very willing and capable of helping them to do whatever they needed, but who also allowed them to do what they could (even if it needed to be redone later). The necessities and priorities of these participants varied even among the participants who were widowed. Some had family who did everything they needed, others had paid workers who came in to give assistance, and another had a friend who helped out in some things.

Several of the participants stated that it was very important to them that they were able to resume their exercises after their hip fractures. This was not at all important for others. When one of the participants was asked what she enjoyed so much about her daily exercise program she stated,

Being able to move this old body and not hurt or run out of breath. When I finish exercise I don't have any aches and pains. It strengthens me and increases my stamina. It keeps me strong enough to do things outside.

Another of the participants had been doing a physical exercise routine for over 30 years. She did not get any OT or PT after she was discharged from the acute care hospital, but she religiously resumed her own exercises when her physician told her it

was safe. Another of the participants stated that getting outside and walking was very important to her, but she had not been able to get out to do that yet. She wasn't sure why, she just hadn't. That had become one of the things she decided she could temporarily let go of. The other three participants were not willing at this point to let go of their exercise routines.

One of the participants was as concerned with caring for her pets as she was with taking care of herself. Her husband stated that he had to repeatedly intervene to keep her from doing too much for the pets before she was "healed." When she was asked about things that were important to her, she stated, "We have made some arrangements so that if something happens to me, the [pets] will be taken care of. The neighbor over there will come in and take care of the [pets]." None of the other participants spoke of their pets at all, but the pets were extremely important to this participant. One of her daily IADL was going outside several times a day to feed the pets.

"Keep[ing] yourself up" was something that was very important to one of the participants. Her only outing every week--the only time that she even went out of her home--was with her granddaughter to the beauty shop to get her hair done. "I go to the beauty shop every week. I've always tried to do that. That's always been very important to me. My mother and father were both beauty operators. My mother was a beautician and my father was a barber." It seemed unusual that "going to the beauty shop" every week would be such an important IADL for this particular participant (since she had so much difficulty just getting up from her chair), but she stated that it was one of her personal priorities. The most important thing to another

of the participants was “children, laughter, good food and knowing people care about you.” Spending time with children was one of this participant’s IADL. She talked about how she was going to the elementary school down the street the next day for a Senior Citizens’ Christmas Program and dinner. It was very important to her to be able to go to that program. To another, the most important thing was her grandchildren. To that participant, being able to visit with her grandson and the grandson’s bird was an IADL. These examples of “personal priorities” reinforce the complexity of recovery of IADL after a hip fracture. The personal priorities are individual, and not necessarily related to the person’s capabilities. Each person had her own preferences, and her own way to carry out the task.

### Feeling Useful

Many of the participants stated that it was very important for them to feel useful. To one of the participants, the most important thing was “taking care of my husband and my home. I have a strong mission and purpose. I am needed--that makes a difference.” Feeling useful had brought one woman out of depression earlier in her life. “My niece had a two year old at the time [her husband died]. She left him with me and I took care of him every day. That helped.” Another stated that

My goal is to help people. Doing for others is good therapy for everyone. You can see you’ve been useful. It makes you feel good and hopefully makes them feel good. When I was down [recovering from the hip fracture] I did not feel useful. I didn’t like that so much. As soon as I could, I was back helping at the gift shop and doing things at Church.

Part of feeling useful is to do things that a person feels need to be done and are important that she do. One of the participants stated, “It is important to do the

things that I feel I can do.” She stated that she appreciated that her daughters let her “bumble around” in their kitchens when she went to visit them. She also stated, “If I didn’t do the cooking there wasn’t much for me to do all day. I do the cooking and the ironing.” For many of the participants, feeling useful involved interacting with and helping other people.” One participant however, felt useful taking care of herself, “I want to be able to take care of myself so I don’t get worse. I don’t like to be taken care of. I’ve always been very independent.” Taking care of herself was very challenging for this particular participant, and seemed to be the extent of what she could hope for at that time.

Doing work around the house and keeping busy were very important to most of the participants. “I’ve got to keep busy” was a common theme. “I have a very strong desire to be more active” was another comment, and “You have to keep busy and have things to do. That is important. During the day I like to keep busy.” One participant who was challenged in being able to take care of herself, stated, “I have to keep moving or I’ll be like the rest of the people [in the care home]. I’ll be down—I won’t get going.”

Many of the participants talked about the homemaking tasks (both indoors and outdoors) that were important for them to do, but they also talked about things they liked to do to occupy their time besides “work”. Some of these activities included reading the Bible, doing crossword puzzles, singing a song that names the states, playing cards with neighbors, listening to her husband read, and playing Scrabble. One participant didn’t have anyone to talk to one Sunday after she read the paper, so she “cut up an old pair of pajamas into rages and polished up [her]



wheelchair. See how nice it looks.” She found a way to occupy her time, doing something useful that she could appreciate the rest of the week.

The feelings of usefulness and meaning in the participants’ lives didn’t end with their ability to physically do things around their homes. One participant talked about how she felt she was helping her niece out by allowing her to clean:

Before I fell, I was doing my own cleaning. Now my niece does that for me. I pay her so much per hour. I felt kind of bad at first, but now it is a relief. She is 62 years old and she used to work in a retirement home and nursing home. I go out with my other niece to get my hair done, and while I’m gone she (niece who cleans) is cleaning my house. All my life I did my own cleaning. I also cleaned for my mother and my aunt... I took care of all of them (nieces) when they were little. My brother said ‘Let them do it. You used to take care of them.’ So I do.

She had helped her nieces in the past, and she could help this one niece again, by paying her to clean her house. She didn’t feel so bad about not being able to clean since she was doing something useful for her niece by paying her to clean.

### Attitude

Many of the participants felt a positive or optimistic attitude was important to them in overcoming and coping with their difficulties. One of these participants talked about her long-standing belief that “it is just as easy to smile as it is to frown.” Another participant stated that “You don’t have to look far to find someone so much worse than you are.” One stated that she had to “take charge in [her] life.” Another “I try to be an optimist. I try to look on the bright side.” One participant talked about how she fought off despondency. “They say you get despondent as you grow

older--it hasn't been the rule in my case. I fight it [despondency] off. I have too many good things I want to do."

### Resourcefulness and Resources

Of all the previously mentioned themes that ran through the data, resourcefulness was the most common. It was that resourcefulness that kept each of these people in their homes instead of nursing homes. Even the two participants who had the most physical limitations and lived alone had coping strategies to help them get through the tough and lonely times. "You just deal with it. You just do the best you can." It is obvious from this group of participants that the "best they can" was better than the "best" many others have been able to do. All of these participants had the resources they needed to meet and overcome the challenges they faced. They all had family or friends to assist them, cognitive capabilities, adequate resources (money, food and shelter), and some inner characteristics that kept them going, even during tough times.

### Summary

The responses to the two very short questions: "What was hardest for you after your hip fracture?" and "What allowed you to overcome or cope with those difficulties?" stimulated very complex and personal responses. There were themes that ran through the data, and there are some threads or "factors" that these 12 participants felt were related to their recovery, but one of the most significant themes from this data was how different the participants' lives were for those 12 people.

Some participants spent the majority of their time talking about their grandchildren and showing the researcher all of the stuffed animals or craft projects the grandchildren had given her. Another participant told jokes and sang songs she remembered from her past as she stressed how important laughter was for her. One spent the whole interview witnessing her faith to the researcher, and then called the researcher a month later to ask if the researcher had any questions about anything the participant had talked about [her faith]. This particular participant had taken on a new occupation. She could no longer go to the jail or the homeless shelter as a volunteer to witness her faith. Now she could witness her faith to the health care workers who came to her home. This was an occupation that she could still do--and she could use the telephone to continue that witness even though the researcher would not be back.

These participants were extremely resourceful in meeting the challenge of their hip fracture. They were also, however, a very privileged group of older adults. They had all of the physical and emotional resources they needed to live on their own. Many older adults in the United States and throughout the world are not this fortunate. By learning more about the qualities that allowed these participants to overcome their difficulties after a hip fracture, we may be able to provide needed support and intervention for others who are not so fortunate.

## CHAPTER VI

### DISCUSSION

Given the limitations of the quantitative data (small sample size, skew, and complexity of the dependent variable, IADL), the focus of this discussion will be on the qualitative data analysis. The qualitative data supported the literature review and hypotheses from the quantitative study. The concepts of (a) SOC, (b) social support (c) GRR, (d) fluid boundaries, (e) adaptation, and (f) the importance of occupation in people's lives were major themes that emerged from the qualitative study.

#### Complexity of the Hip Fracture Experience

The hip fracture experience for the participants in this study was an extremely complex experience because of the physical changes and bereavement that were occurring simultaneously for the participants. One of the participants fell only ten days after her spouse's death; they had been married for over 60 years. Her situation is very different from the participant who had lived alone since her spouse died over 20 years ago. Now both of these participants were widows, and would fall into the same quantitative category, but their personal experiences and needs at this time were very different. These kind of differences were apparent in the qualitative data analysis, but not in the quantitative data analysis.

If two people have similar falls, the damage to their hips may be very different, depending on the amount of osteoporosis that is present. Even if their

injury and repairs were similar, and even if their physical recovery seemed similar, their IADL could be very different, and each would have her own priorities and focus for recovery. In any of these scenarios, the people's emotional needs are different, depending on their premorbid emotional status, living situation, and social support network (family and friends).

The experience that participants who are widowed have after a hip fracture is very different from the experiences of participants who were living with the spouses who took care of their every need and made sure that they did not "over-do" anything when they began their recovery. The experience of those married participants was very different from the experience of the participant who was the primary caregiver for her spouse who had physical limitations. Both she and her spouse had to go to an assistive living center to live until she was physically strong enough to take care of both of them at home.

The qualitative data analysis allowed the researcher to look at the unique needs of each of the participants who would fall into the same grouping in a quantitative study (either "married" or "widowed"), although the needs of the individual women within these groupings was very different. This is not to say that there would not be many similarities for the women in the same groups, but the qualitative analysis allowed the researcher to understand the complexities of the hip fracture experience at a deeper level than was possible from the quantitative study. The richness of this data forced this researcher to look at how variable "generalizability" can be, even within such a specific category as married or widowed.

### What Is “Good” Functional Recovery After a Hip Fracture?

The medical research has searched extensively for good predictive factors for functional recovery after a hip fracture. This study attempted to meet this challenge of incorporating a standardized format that would allow comparisons between participants' abilities by using the AMPS as the dependent variable. The ability to perform IADL tasks was very consistent with the “functional recovery” that was described in the literature. The AMPS was one of the most reliable instruments available, requiring extensive rater training and calibration for reliability, and using a complex computer software program to score the ratings according to the task difficulty and the rater's unique severity. The AMPS used a multi-faceted Rausch analysis to rate each of the standardized tasks for motor and process difficulty; people did not have to perform the same ADL tasks from the AMPS in order to compare their performances. Even with that ability to rate the participants' ability on individually selected tasks according to their safety, effectiveness and efficiency, there were not any significant relationships between the AMPS and any of the scales. The AMPS met the criterion of measuring the person's ability to do things that were important to her.

One of the problems in this study may have been that what seemed like the best mechanism to measure “functional recovery” was an objective standardized instrument that used criteria that were not valued by the participants. The evaluation criteria from the objective instrument were not reflected in the participants'

subjective rating scales. What one participant judged as “good enough”, being what she considered “realistic,” was measured on the AMPS as “deficient.”

The “functional recovery” that the medical researchers were striving to predict wasn’t a clear cut variable that can easily be operationally defined to measure and compare. The AMPS is the best standardized instrument currently available to measure IADL, but because of the standardization process of the AMPS, the participants’ own priorities and standards could not be taken into account. The test is an extremely well designed standardized test, but it was not able to take a person’s lowered expectations into account.

Given the choice, one of the participants chose to remain a wheelchair user rather than push herself to learn to use her walker because she stated that she didn’t feel safe using the walker. She didn’t want to fall again, and she felt too unsteady when she had tried to use the walker in the past. She was quite content using the wheelchair in her own home, and she acknowledged that the use of the wheelchair limited her ability to go out into the community. Her family came to her--they surrounded her with their artwork and stuffed animals; these were reminders of how much they [her grandchildren] loved her. Who is to say that her “functional recovery” is not optimal for her?

### **Social Factors and Recovery After a Hip Fracture**

Recent literature suggests that depression and the sense of coherence correlate with recovery after a hip fracture (Johansson, Larsson, and Hamrin, 1998; Mossey, Mutran, Knott, and Craik, 1989; Mutran, Reitzes, Mossey, and Fernandez, 1995), but

that was in comparison with other self-rated scales rather than with an objective scale. All of the instruments (SOC, CES-S, ESS and AMPS) are well-respected tools, but there did not seem to be a relationship between the objectively rated scales and the self-reported scales, suggesting that the objective and subjective ratings measure different concepts.

Although the sample size was extremely small, the lack of relationships between the social variables and the IADL seemed significant in and of itself. All of the social variable scales were self-report questionnaires. If there was a simple relationship between subjective well-being and objective safety, effectiveness and efficiency, that should have been apparent, even with the small sample size. What was not anticipated when the study was designed was that although the new “boundaries” seemed to affect the subjective ratings on the self-report questionnaires, the objective abilities didn’t change because of those subjective decisions. There is no way to reflect the participants’ change in boundaries with the AMPS. If a participant accepted new, less complex “boundaries,” it is reasonable that the AMPS Process score would go down, since the AMPS ability scores are based on the complexity/difficulty of the tasks chosen.

The research questions involved social support, depression, spirituality/religiousness and orientation to life. The qualitative data supported that each of these variables played a significant role, or the participants felt that those variables could have played a significant role (i.e. depression, not having friends, etc.) in their recovery after a hip fracture. The largest amount of data was in the qualitative study areas of social support (predominately family, but also friends),



religiousness and hope (predominately current but some prior participation, all in traditional Judeo-Christian churches), and personal qualities such as determination, positive attitude, and adapting to new situations. The personal qualities that the participants described as assisting them to overcome or cope with difficulties supported Antonovsky's concepts of SOC and GRR.

### Qualitative Support of Sense of Coherence Components

The three components of the sense of coherence, (1) meaningfulness, (2) manageability, and (3) comprehensibility were all supported through the qualitative data in this study.

#### Meaningfulness

The importance of doing things that were useful, purposeful, and meaningful were mentioned by several of the participants. Other participants may not have stated those exact words, but talked about how they were motivated to do more things at home than they were in the nursing home since when you are at home, "Whatever gets done is to your benefit." The things at home had more meaning for the participants because the things they did at home were things that needed to be done to allow them to stay in their homes. One participant stated that it was important to her recovery that her husband allowed her to "do the things that were important for [her] to do." Another participant felt meaningfulness in the fact that although she was not cleaning her own house now, she was paying her niece to clean for her, and her niece could "really use the money."

### Manageability

The participants talked extensively about how important it was for them to be independent. One participant stated “I want to be able to take care of myself so I don’t get worse. I don’t like to be taken care of. I’ve always been independent.” Another talked of how important it was to be in an environment where you could do things. They all felt they could manage better at home, and they used their adaptive equipment to be able to do things that were difficult for them (i.e. big tongs to pick things up off the floor and stocking aid to put on socks). It was important to them that they be able to live in their own homes and do as much for themselves as they could. They wanted to be able to manage things for themselves, and do things when they wanted to do them.

### Comprehensibility

The participants were very vocal and open about their faith in God, and the positive effect they felt their faith has had in their lives. Participants would say things like “If the Good Lord wanted me to do that, I guess I’d be able to do it”, and “I always felt you will never be given more than you can handle. If you need help, help will be given from above. Maybe from a neighbor, who knows. The world runs in wondrous ways.” The majority of these participants felt very strongly about the comprehensibility of the world. Although they had encountered their share of difficulties in their lives (the participant who made the last statement talked about the difficulties she experienced when her husband was a prisoner of war in World War

II), they trusted God to not give them more than they could handle, and to provide what they needed when they needed it. The world made sense to most of these participants.

### Generalized Resistance Resources (GRR)

Probably the strongest support in the qualitative data was for the concept Antonovsky called generalized resistance resources. As the participants talked about the qualities that allowed them to overcome or compensate for the difficulties they encountered after their hip fracture, the list of qualities fit very closely with Antonovsky's definition of GRR: characteristics of the person, the group or the environment that facilitate effective tension management. All of the qualitative data analysis categories of personal qualities and resources fit as GRR. The participants felt they had enough money, enough food, good medical advice, good therapists, and support from family and friends that helped them to recover. The GRR could possibly account for the difference between those people who end up in a nursing home after a hip fracture, and those that are able to go back to their own homes. The GRR can be husbands, wives, daughters, sons, grandchildren, people at Church, a grandson's talking bird, a new-found friend, or just the determination to get back home, to do things for oneself, and to do things for others.

### Fluid Boundaries/Adaptation

These two concepts are described in the literature, and the participants demonstrated examples of how they had adapted their expectations to their new

abilities (and limitations) and had new and revised expectations for themselves. There were many things they could no longer do, and some things they could not do as well as they had previously. They were able to let go of those things that were unsafe for them now, and turn the focus around to allow themselves to maintain their positive attitude. One of the prime examples of the fluid boundaries/adaptation was the participant who could not clean the spider webs out of her kitchen window, so she watched the spiders for her entertainment. She was so very relieved when her son finally got around to cleaning her window. She had asked him repeatedly to clean it--it wasn't that she had asked once and he forgot. She had even asked another friend repeatedly, but both were busy when they were visiting and it took about six months to get someone to clean that window for her. She had fluid enough boundaries to let go of having to have a clean window. She adapted to what she would have once called "dirt" and allowed it to become her entertainment. There wasn't anything she could do but enjoy the spiders while she waited for someone else to clean her window, so that is what she did.

The participants' SOC scores as a whole and individually were very high in comparison to any norms available. As the participants talked about how they had thrown some things "out-of-bounds" it was clear that their perceptions of their abilities were different from the AMPS ratings of their disabilities. Schnyder et al. (1999) claimed that the SOC acted as a mediator between disability and handicap, which seems to explain what the participants may be experiencing. On the objective AMPS, they were much more "disabled" than they perceived themselves to be--they may not be able to do some things, but they had decided that it didn't matter that they

couldn't do those things. Now, if they had not been able to return to their homes, that may have cut into the central "core" that Antonovsky claimed isn't fluid. One wonders what kind of consistency there would be between interviews if any of these interviews had taken place in a nursing home rather than in their own homes. One wonders if they would have been able to adapt at all or as well if they were not able to be in their own homes.

### Importance of Occupation in Daily Lives

The participants all talked extensively about how important it was for them to do the things that they were capable of doing, and that needed to be done. One participant stated, "If I didn't do the cooking, there wouldn't be anything for me to do." The role of our everyday tasks adds meaning and purpose to our lives. All the participants talked about the things they could do, even if it was tearing up old pajamas into rags and shining up a wheelchair. That may not sound very exciting to many people, but that was a very purposeful task for this participant, and one she was proud to show the researcher several days later. Allowing people to do the things that they want to do, and assisting them in that process has a very healing effect. If we are not able to do those routine, seemingly mundane tasks that we do everyday, life can get much more difficult. Even the participant who gave up cleaning and now paid her niece to do the cleaning, felt a sense of purpose and meaning. She doesn't do the cleaning or laundry now, but she still washes out her own undergarments and blouses, and puts her own dishes away. She is still taking care of herself, and she is

taking care of her niece at the same time, paying her some money that is useful for the niece.

### Significance of the Qualitative Analysis

The qualitative portion of this study generated extensive information about the importance of social factors in older adults' recovery after a hip fracture. We are at a point in medical care and technology that we expect excellent quality of care and technological improvements with time, and we usually get that excellent quality. Our tendency may be however to expect the medical community to "fix everything" when some of the variables are actually outside of the medical community's control. This study demonstrated how important some very "mundane" things are for people. It was important to the participants to go back their own homes to recuperate. They needed people around to help them when they got home, grandchildren to send them things to hang on their walls, and to be allowed to "bumble around" doing the things that they wanted to do. These were the very important variables in an "optimal" recovery after a hip fracture for these participants. The medical community can certainly facilitate and encourage social support after a hip fracture, but the families and community support networks need to get actively involved with older adults to effectively improve tertiary prevention of hip fractures.

## Limitations of the Quantitative Study

### Sample

There are some significant limitations in the quantitative study. The sample size was too small to demonstrate any significance for relationships between the variables or to make any generalizations from the findings. Besides being small, the sample was skewed towards the positive end of a recovery continuum and was not representative of gender or race in the United States. The sample was also not representative of the diminished physical abilities that often occur after a hip fracture and force people to live in more restrictive environments (assistive living centers, nursing homes, or with family members). All of the participants in this study were able to return to their premorbid residences within four month of their hip fracture; in all 19 cases, that meant their own homes or apartments. The participants all stated that they had adequate material resources and were not making choices between food and medications. This sample was not necessarily representative of the older adults in the United States.

All of the participants were volunteers. Although the recruitment procedure involved inviting every eligible patient, the participation involvement seemed overwhelming for some of the patients who initially agreed to allow the researcher to call them, but then decided that they did not want to participate in the study. When they were called to set up appointments, several potential participants stated that they were too busy to schedule a time for the research appointment, and several stated that

they were too tired to be evaluated. The sample therefore was a very small, self-selected sample of people who were willing to “help someone out” who was trying to do research to “help out” people who have hip fractures in the future.

### Instruments

The AMPS Motor and Process Scales were chosen as the dependent variables for this study since they are objective measures of IADL. There was a call in the literature for more standard assessments for better comparison, and there had not been any good predictors of the ability to recover IADL after a hip fracture. Although this scale met the standardized criteria and has been demonstrated as a valid measure of IADL, the inclusion of this instrument created some problems for the study. Several potential participants stated that they were not comfortable in having the researcher “watch” them do things in their kitchens. One potential participant stated that she felt the evaluation was more geared to people who had strokes than people who had hip fractures. Several other participants were unable to get up to do anything for themselves, and were not therefore able to complete any of the IADL tasks. Several participants indicated a willingness to talk on the phone for a few minutes to talk about how they were doing, but did not want someone coming to their homes.

With such a small sample size, using a small sample statistic, such as Fishers’ Exact Test is often recommended. That test was not used in this study because of the skewness of the data. Since the AMPS Motor, AMPS Process, SOC, ESS, and CES-D score frequencies did not lend themselves to obvious and logical dichotomous



divisions (“high” and “low” scores), the data could not be assigned in such a way as to assure that there were more than five responses in each cell.

The researcher’s and interviewers’ effect on the participants’ reactions must also be acknowledged. An acquiescent response set phenomena may have been elicited in the data collection phase. Prior to data collection, each participant signed the Informed Consent, which stated the purpose of the study: “to learn why some people have more trouble recovering after a hip fracture than others.” This might have predisposed the participants to answer the questionnaires in ways that presented themselves as people with “positive attitudes” who would be most likely to have the optimal recovery. The participants may have rated themselves more positively in these questionnaires than a peer would rate them, since the items were related to the respondent's view of herself. The validity of self-reported responses in this type of questionnaire may not be as high as it might be if the respondent has no investment (self-esteem or gain) in the results of the research (Phillips, 1971).

Studies also demonstrated that the respondent's answers to any questions are affected by: interviewer/respondent interaction that includes the effect of sex, age and social status, the expectancy and modeling effects of the interviewer and the social distance between the two (Phillips, 1971). The researcher was an energetic middle-aged Caucasian middle-class female health care worker; all of the interviewers were attractive, energetic, Caucasian middle-class health care students between the ages of 22 and 29. The researcher and interviewer may have unconsciously created a “positive attitude” climate for the interview where participants felt a social desirability (Borkenau and Ostendorf, 1989) pressure to match. Additional problems

regarding self-reported data include the fact that the data is limited by what the respondents chose to remember (and that may be distorted by inaccurate memories), and included only what the respondents were able and willing to report (Phillips).

Another variable that may have inadvertently predisposed the participants to positive responses was the idea that they were participating in an experience that was meaningful to the researcher, as well as to people who have hip fractures in the future. This would therefore increase the meaning they felt in their own lives, and which could possibly inflate their self-reported scores. Kessenich, Guyatt, and Rosen, (1998) reported that merely participating in osteoporosis clinical trials significantly increased 105 elderly women' self-reported health-related quality of life. Depression scores may have also been elevated since the participants could perceive that the researcher and interviewer were at the participants' homes for one to two hours "visiting".

The last limitation in the quantitative study is the complexity of the dependent variable. Other researchers have been unsuccessful thus far in finding good predictors for a functional recovery in IADL after a hip fracture. Although a case has been made that one of the problems in this study may be related to the combination of subjective and objective instruments, this problem may also be related to the complexity of evaluating IADL.

### Limitations of the Qualitative Study

The sample limitations and the pre-disposing attributes of the researcher and interviewers are consistent for the qualitative portion of this study. The 12

participant subset of the 19 participant quantitative study was skewed towards middle-class, Caucasian, “financially comfortable” females, and the researcher’s energetic disposition may have predisposed them to socially desirable responses. The time since the participants’ hip fracture for the qualitative study varied from three months to 15 months. This time lag could have affected their ability to remember how difficult things were when they fractured their hip since the perspective of time can minimize problems that were present. The qualitative interviews were not audiotaped (to limit the participants’ discomfort and intimidation by the process), but several of the participants spoke very slowly to allow the researcher to take accurate notes. The tendency to speak slowly and pause between statements may have inhibited more fluid discussion than if the interviews had been audiotaped.

#### Directions for Future Research

The qualitative portion of this study strongly suggests that psychosocial factors affect an older adult’s recovery after a hip fracture, but this sample was small and homogeneous. More studies are needed to better understand and determine if there are specific social variables that are more important than others to different groups of people, and to learn how we can use that information to improve hip fracture rehabilitation. The limited sample size and characteristics of this study suggested that information is needed about many other groups of older adults that were not represented (or were under-represented) in this study. Some of the groups that warrant further study include (a) males, (b) larger number of people in different age groups (i.e. 65-75, 76-85 and people over the age of 85), (c) people who live in

urban vs. rural settings, (d) people who do not go back to their own homes within four months after a hip fracture, (e) “Church-attenders” vs. “non-Church-attenders,” and (f) people from other cultures. Studies that explore different avenues of providing social support would be helpful, as well, to learn if community support systems can provide social support in the absence of available support systems.

The participants in this study all had adequate financial resources, food, and insurance, and all had either family or friends (or both) who provided social support and assistance. It would be interesting to look at how people fared after a hip fracture who did not have all of these resources such as family (husband, children or siblings), safe housing, prepared meals, adequate medical care, and adequate medications. In order to learn more about the effect that culture plays on recovery, it would be interesting to include people from other cultures to learn more about how they would interpret the hip fracture experience and how other cultures provide social support.

These ideas for future research are all based on learning more about one group of people so researchers can generalize those findings to other people. Another way to approach this topic, however, would be from the personal priority-individual perspective or narrative study. Learning ways to individualize treatment and support after people experience a hip fracture could prove very beneficial if this could be done in an efficient and cost effective manner. Because recovery after a hip fracture is complex, we may need better methods to evaluate what is important to a person, and then find ways to provide the support that is needed in a cost-efficient manner through the social support networks, whether they are family-based or community-based. Because of the rich data that was generated from the qualitative study, further

**qualitative studies are recommended in order to learn more about people's recovery after hip fractures, and the complexity of that process.**

## CHAPTER VII

### CONCLUSION

This research provided new insights regarding what one group of older adults who had hip fractures considered important in their recovery. The particular participants in this study had very strong ideas about what contributed to their recovery and were able to communicate those ideas to the researcher, even if they initially felt they didn't have much to offer. Several of the participants began the interview with a comment such as, "I don't know what I have to say, but I don't mind talking to you if you have the time and want to talk to me." In several instances, it was those participants who although they were physically limited by using a walker and had difficulty getting out of a lazy-boy chair, still kept some semblance of control in their lives because they were participating in at least one activity that was personally meaningful to them. One participant didn't seem to mind that she had to give up cooking her own meals and cleaning her bedroom. What she hadn't given up was going to the beauty shop every week, because it was important to her to "look [her] best." Another had given up volunteer/outreach activities with her church, but she still attended on Sunday mornings, and had "fellowship over the phone" during the week with fellow church members. She didn't mind that her son would be taking care of her now. She was looking forward to this time, because she had taken care of him for years.

### Significance to Sociology

The results of this study are significant to sociology since these participants reported that social support was an extremely important part of their lives. What was significant about the social support that these participants described in their lives was that they all received support from family and friends whom they trusted. One woman had Meals on Wheels come in, but only her daughter could come in to help her with her bath. Another also had Meals on Wheels and had a health care worker come in to assist with her bathing, but she had hired her own daughter as her chore provider because she didn't like the chore provider from the agency. These participants had extensive family support to provide the care they needed, and the family to take paid positions when possible. There are currently many people who do not have that kind of family support, and if predictions are true (Peterson, 1999), there will be fewer people in the future to potentially provide this type of support as the baby boom generation ages.

Our current alternative to family care is institutional care for older adults where they have 24 hour supervision. It is very hard to feel the same kind of trust in their caregivers that the participants in this study felt, when people are placed in an institution that happened to have an empty bed at the time the person needed it. One could argue that nursing homes are large social support systems, but most are support systems without the capability of meeting the individual and personal needs of the person because of all of the external demands on the facility. Most institutions are not designed for people to choose a compatible person as a roommate or caregiver.

Beds are filled when they become available, and although personal preference may be taken into account whenever possible, that is not usually the case. The good of the whole nursing home is often times the focus rather than the good of the one person. In an institution, one can easily lose her personal identity and any sense of purpose she might otherwise be able to hold onto if she were to stay in her own home.

This dilemma poses a significant opportunity to the field of sociology to help create a social system that can provide support to older adults as they experience more health problems and are unable to care for themselves in their own homes. Our current “nursing home” concept does not meet the need to provide individualized social support while preserving quality of life. The care provided in the nursing home certainly assists with “managing” the person’s physical needs, but it does not facilitate making life more “manageable” for the person. Assistive Living centers and Senior Citizen housing can better meet the individuals’ needs, but older adults often prefer to stay in their family home of 20-60 years rather than to go live somewhere that they can “be taken care of.” The balance between autonomy and safety is difficult, and this “solution” is no easy fix. Sociologists have the specialized understanding of social systems that is needed to help create this new “system” to better meet the needs of older adults as they age and become less capable to care for others and themselves (Gallagher, et al., 1994). This is a difficult task, to accommodate an older person’s social needs while insuring her safety, but is an opportunity for a potential partnership between sociology, health care providers and policy makers to make a difference in older adults lives. Those lives may be our own.



## Significance to Occupational Therapy

When people are outside of their own homes, it is difficult to find purpose and meaning. One participant talked about how grateful she was that her daughters let her “bumble around” in their kitchens when she visited. At home there is always something to pick up, clean up, rearrange, sort, or wash. Once people leave their homes, it is much harder for them to find purpose and meaning when they no longer have all their “things” around to pick up, cleanup, rearrange, sort, or wash. When a person does not feel like she has a purpose in life (something that someone depends on her to do), it is harder to find meaning and reasons to continue living. Without the meaning and reasons to continue living, other health problems often occur.

This research offers an opportunity for occupational therapy to regain its focus on the healing use of occupation as we attempt to create a new system to better care for our older adults as they age. Occupational therapists have a unique perspective that makes them ideally suited to join the partnership to create a better system to allow older adults to maintain the highest quality of life possible. Occupational therapists are specialists in helping people to do what they need/want to do everyday. This includes teaching methods to complete both BADL and IADL, as well as adapting the environment to allow the people to participate as fully as possible in those activities that are important to them. Occupational therapists are specialists in adapting the environment, both physically and socially, to allow people to participate as fully as possible in activities that they choose.

While this needed “system” is in process of being created, however, occupational therapists have the opportunity to help people find meaning and purpose through their daily occupations wherever they are, even when they are in a nursing home. Preventive health programs based on OT have been effective in managing the health risks that occur with aging (Clark et al., 1997), and those types of programs can be implemented throughout the community at all levels of care. Senior Citizen Community programs are usually open to these kinds of programs, but they are also needed in Assistive Living Centers, Senior Citizen Apartments, and even in the nursing home. There is a significant need for people to find more meaning and purpose, and occupational therapists are able to help people do that through the therapeutic use of occupation.

The other significance to occupational therapy is new information about the AMPS when compared to self-reported scales that are accepted as instruments to measure activity participation. The AMPS is a very respected and useful tool. It has substantial validity and reliability that make it an excellent choice for an evaluation instrument when one is looking for a culturally-relevant standardized assessment of IADL. From the comparison in this study between the AMPS and the SOC, CES-D, and ESS, the AMPS seems to measure a very different concept than the other scales. When the AMPS scores were compared to the qualitative data, the AMPS seemed to more accurately measure the World Health Organization’s (WHO) concept of activity limitation rather than activity participation. The choice of possible tasks to complete helps to make the assessment personally relevant, but the externally created standards for safety, effectiveness and efficiency are not consistent with a person’s perception

of her activity participation, since she may have different criteria for safety, effectiveness and efficiency. As we are all attempting to better understand the WHO's recently released terms, this research offers an insight that could prove helpful for choosing appropriate instruments in the future.

### Significance to Antonovsky's Sense of Coherence

Antonovsky created the concept of SOC from the data he gathered in a qualitative study. His purpose was to better understand a phenomenon that he encountered in a large quantitative study. He wanted to understand how some women were able to maintain their health, in spite of terribly adverse conditions in their pasts. From his qualitative study, he learned more about what he came to call the SOC, and created a Likert scale called the "Orientation to Life" Scale to measure this concept. This scale has been translated into over 10 languages, and in 1993, Antonovsky reported that it had been used by 113 persons or teams in 20 countries (1994). Numerous researchers have found the scale to be valid and reliable, and it has been successful for gathering data for large data sets. Because this study had a very small data set, the scale did not demonstrate the relationship that was hypothesized. This study did demonstrate that the components of the SOC may be better understood through the use of qualitative study that allows the researcher to better understand how all of the components work together and what resources the person has available (GRR) to "fuel" her SOC. The focus on the individual's perception of the social process in her life can help us to better understand how to

reinforce the social system to allow people to individually develop more effective coping mechanisms.

### Summary

It was important to the participants in this study to be at home, to have family and friends to help them out as they needed it, and to adapt themselves to their current capabilities in order to stay as active as possible. These three areas of focus all fall under the term Antonovsky called generalized resistance resources (GRR), that allow people to see the obstacles in front of them as challenges, and to gather up whatever resources they need to meet those challenges.

It was important for all of the older adults that participated in this study to return to their homes after their hip fracture. They stated that they liked being in control of their time, knowing where their things were, and benefiting from completing their daily tasks. When they were at home they had useful things to do, which was very important to them. No one would argue that being home is important, but what the professionals may not hear is what the person wants to be able to do for herself at home. Many older women don't care if they cook or clean anymore. They did that for more years and they don't mind someone else doing that for them now. Others stated they would feel useless if they could not do the cooking.

People will be on the health-end of Antonovsky's continuum if they feel they have meaning in their lives, have a situation that is manageable (with assistance from family/friends/community support), and feel that the world makes some sense. These participants' comments grounded Antonovsky's theoretical concepts, with the

specifics of meaning, manageability, and comprehensibility. Although large studies can offer conclusions that can be generalized to others in similar situations, this study looked at the individuals, and found that some of those generalizations that are based on very large sample sizes may not actually fit the individuals.

It is less costly to have people stay in their own homes as long as is safely possible, but there are support systems that must be in place to offer people optimal rehabilitation prospects. Manageability supports must be in place to allow people to live safely. These supports may be as impersonal as Meals on Wheels, or as personal as a daughter coming in to give her mother a bath several times a week. It also might be a grandson bringing his talking bird to spend time with his grandmother, or a husband bringing one of his shirts back to his wife because she missed a sleeve when she ironed it. The support needed varies among the individuals, in part because of the individual's particular needs.

As the life span increases around the world, we must find better solutions to care for people as they age. We need to increase older adults' quality of life as they live out increased life spans. There will be more people who could potentially fall and fracture their hips, but hip fractures are only one of the possible morbidities that may occur as people age. As the baby boom generation ages, there will be fewer working adults available to assist with care in the home. Although spouses may also be living longer, the spouses may be too weak or fragile to do some of the care that needs to be provided at home. Institutional care is expensive and usually not an older adult or family's first choice for care. Many people feel "forced" to use institutional care because they do not feel they can provide the support that is needed to keep the

older adult safely in a less restrictive living environment. As a society, we need to look at how we can assist families in providing the support that their loved ones need, whether that is with Meals on Wheels, home modification programs, or transportation not only to medical appointments but also to a limited number of “social” appointments as well.

We must improve our primary prevention programs to prevent as many falls as possible, but there is still much more to learn in the tertiary prevention area about recovery after a hip fracture to make rehabilitation as effective as possible. We need to determine where the most effective rehabilitation can occur for specific types of people, and then use and improve those methods to decrease the long-term health care costs and to increase the fracture survivor’s quality of life.

Besides wanting to be at home, these participants also indicated that social support was a very important factor for them in their recovery. It takes social support (family, friends or commercial/community) to allow people to live at home after a hip fracture, but the long-term cost savings are great. This will be a challenge to keep social support levels high as the population changes. We are moving toward the time when we will have more older adults with more time available to them and in need of some meaningful ways to spend that time. We will also have fewer younger adults to provide the emotional, financial and physical care that they will need. We need to develop appropriate peer support and assistance (from older adults themselves) to help to meet the challenges we will face.

The participants also talked extensively about their need to adapt their standards, expectations, and routines in order to safely perform their ADL. The

participants needed good problem-solving skills and good coping skills, to creatively solve the problems that arose. People who have difficulty adapting and changing may need some experiences focused on learning how to adapt and change their expectations and standards in order to insure their safety. This ability to adapt was one of the core coping abilities observed during this research. There is no set “cook-book” for how to respond, but each situation must be evaluated and the person must use appropriate coping strategies for that situation in order to truly adapt to the environment. This is the hallmark of a strong sense of coherence.

The participants in this study had very high SOC scores. This group of individuals seemed as though they would be able to mitigate whatever came to them because of their GRR. In comparison to many other older adults, their material resources were adequate; it was however, their internal resources that allowed them to adjust their boundaries, and adapt to their current situations. This particular group of people can be considered lucky; they had adequate GRR to eventually go home after their hip fracture. That is not always the case. One can speculate that there must be people in nursing homes who have high SOC, but this study was unable to confirm that speculation because of the sample limitations. This study was examined factors that were important one group of people who were able to go back to their own homes after a hip fracture from a salutogenic perspective. We learned what factors were important to these people who were still “success” stories, even after experiencing a hip fracture. I hope we can use this information to help others in the future.

**Appendix A**  
**Glossary of Terms**



## GLOSSARY

- ADL:** activities of daily living
- Adapting:** altering life and self to accommodate to physical losses and to reunify body and self accordingly.
- Basic Activities of Daily Living (BADL):** the basic/personal skills that one does to take care of oneself, such as dressing, bathing, toileting, eating, etc.
- Comprehensibility:** extent to which one perceives the stimuli that confront one, deriving from the internal and external environments, as making cognitive sense, as information that is ordered, consistent, structured, and clear, rather than as noise--chaotic, disordered, random, accidental, inexplicable.
- Fortigenesis:** perspective that looks for the origins of psychological strength in general.
- Generalized Resistance Deficits (GRD):** any characteristic of the person, the group, or the environment that introduces inconsistency, under- or overload, or exclusion from participation in decision making.
- Generalized Resistance Resources (GRRs):** any characteristic of the person, the group or the environment that can facilitate effective tension management. GRRs can be physical, biochemical, artifactual-material, cognitive, emotional, evaluative-attitudinal, interpersonal-relational or macrosocial.
- Iatrogenic:** caused by a diagnosis, manner or treatment by a surgeon or physician.
- Instrumental Activities of Daily Living (IADL):** activities of daily living that go beyond the basic personal care such as toileting, bathing, dressing and eating. IADLs include food preparation, meal planning, shopping, outside housework, inside housework, driving, taking the bus, etc.
- Manageability:** the extent to which one perceives that resources are at one's disposal which are adequate to meet the demands posed by the stimuli that bombard one.

**Meaningfulness:** being involved as a participant in the processes shaping one's destiny as well as one's daily experience.

**OT:** occupational therapy

**PT:** physical therapy

**Pathogenesis:** a perspective that looks for the cause of illness.

**RA:** rheumatoid arthritis

**Salutogenesis:** a perspective that looks for the origins of health or wellness. This perspective focuses on the overall process of active adaptation to an inevitably stressor-rich environment.

**Sense of coherence:** a global orientation that expresses the extent to which one has a pervasive enduring though dynamic feeling of confidence that a) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explainable; b) the resources are available to one to meet the demands posed by these stimuli; and c) these demands are challenges, worthy of investment and engagement.

**Stress:** the state of the organism in response to failure to manage tension well and to overcome stressors.

**Stressors:** life experiences that create confusion in the person's life, such as inconsistency, under-or overload. There are three types of stressors: 1) chronic stressors, 2) major life events, and 3) acute daily hassles.

**Tension:** response of the organism to stressors.

**WHO:** World Health Organization

**Appendix B**  
**Human Subjects Institutional Review Board Approval Letters**

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WESTERN MICHIGAN UNIVERSITY

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Date: 12 October 1999

To: Morton Wagenfeld, Principal Investigator  
Debra Lindstrom-Hazel, Student Investigator for dissertation

From: Sylvia Culp, Chair *Sylvia Culp*

Re: Changes to HSIRB Project Number 98-01-03

This letter will serve as confirmation that the changes to your research project "Hip Fracture: Factors Related to Level of Disability" requested in your memo dated 28 September 1999 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 22 January 2000

Human Subjects Institutional Review Board



Kalamazoo, Michigan 49008-3899

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**WESTERN MICHIGAN UNIVERSITY**

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Date: 22 January 1999

To: Morton Wagenfeld, Principal Investigator  
Debra Lindstrom-Hazel, Student Investigator for dissertation

From: Sylvia Culp, Chair *Sylvia Culp*

Re: Extension and Changes to HSIRB Project Number 98-01-03

This letter will serve as confirmation that the extension and changes to your research project "Hip Fracture: Factors Related to Level of Disability" requested in your memos dated 30 November 1998 through 19 January 1999 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 22 January 2000

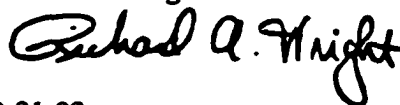
Human Subjects Institutional Review Board

Kalamazoo, Michigan 49008-3800

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**WESTERN MICHIGAN UNIVERSITY**

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**Date: 5 March 1998****To: Morton Wagenfeld, Principal Investigator  
Debra Lindstrom-Hazel, Student Investigator****From: Richard Wright, Chair****Re: HSIRB Project Number 98-01-03**

This letter will serve as confirmation that your research project entitled "Hip Fracture: Factors Related to Level of Disability Six to Nine Months Later" has been approved under the full category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

**Approval Termination: 5 March 1999**

1521 Gull Road  
Kalamazoo, MI 49001-1640  
(616) 226.7000

May 6, 1999

**BORGESS**  
Medical Center

Debra Lindstrom Hazel, Ph.D.  
Assistant Professor  
Department of OT  
Western Michigan University  
1201 Oliver Street  
Kalamazoo MI 49008

Protocol: Hip Fracture Outcome Study  
Consent form: dated 5/6/99

Dear Dr. Lindstrom Hazel:

The Institutional Review Board of Borgess Medical Center reviewed the above-named protocol at their meeting in December. Based upon that review and your personal presentation, the Committee agreed that the protocol met our standards of research and further agreed to approve the study and consent form for use in this institution.

The approval is granted with the understanding that any changes in the protocol are promptly reported to the Committee; that changes in the approved protocol cannot be initiated without Committee review and approval unless there are immediate hazards to human subjects; and that all unanticipated or serious problems involving risks to human subjects are also promptly reported to the Committee.

Approval for this protocol is granted for a period of one year. Thereafter, approval is extended only after the Committee has received an annual review of the study. Therefore, we ask that at the end of one year, you send the Committee a summary of the activity you experienced during your research. We do this in order for us to know that the research was carried out as planned, and that patient benefit outweighed the risk. A copy of each signed consent form is required. You may send this information to the Borgess Research Institute.

If you have any questions in this regard, please feel free to contact me.

Sincerely,



Geoffrey Rogers, MD, Chairperson  
Institutional Review Board

GR/js

*Member of  
Sisters of St. Joseph Health System  
Ann Arbor, Michigan*

**BMH1148 - Amendment#1 Hip fracture: Factors related to level of disability six to nine months later Wagenfeld-Lindstrom**

At the June 2, 1998 Meeting of the Expedited Review Committee Meeting BMH1148 was approved as submitted.

1. The Expedited Review Committee determined the continuing review interval for this study to be set at 12 months.
2. Before this protocol can be implemented i.e., prior to a drug being given or a procedure undertaken, all changes must be made and a corrected signed copy of the protocol and informed consent filed with the BMH Human Use Committee Chairman (or designee). The clinical investigator is required to receive approval from the BMH Human Use Committee prior to initiating any changes in approved research during the period for which BMH Human Use Committee approval has been given.

Robert H. Hume M.D.  
Robert H. Hume, M.D., Chairman  
Bronson Methodist Hospital  
Human Use Committee  
252 East Lovell Street  
Kalamazoo, MI 49007  
(616) 341-7988

2 June 98  
Date

cc: Wagenfeld-Lindstrom



**Appendix C**  
**Informed Consent Forms**

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date:

JAN 22 1999

*x Sylvain Coup*  
 HSTRB Chair

## INFORMED CONSENT

### **Hip fracture: factors related to level of disability**

Western Michigan University

Principal Investigator: Morton O. Wagenfeld, Ph.D.

Co-Principal Investigator: Debra Lindstrom Hazel, Ph.D. cand., OTR

Co-Principal Investigator: Michele R. Holevar, MD

### NATURE AND PURPOSE OF THIS STUDY

I have been invited to participate in a research project titled "Hip fracture: factors related to level of disability." I understand that the researchers hope to determine what factors are related to minimizing the level of disability in older persons who had hip fractures two to nine months ago. I further understand that this study is Debra Lindstrom Hazel's dissertation project. Debra is conducting this research in hopes of finding out why some people have more trouble recovering from a hip fracture than others do. Participants in this study are persons 60 years old or older who had a hip fracture two to nine months ago. There will be 50-150 volunteers involved in this study.

### EXPLANATION OF PROCEDURES TO BE FOLLOWED

My consent to participate in this research indicates that I agree to allow an occupational therapist (OT) to observe me while I perform two tasks of my own choosing, either at my own home or WMU's Unified Clinics. I also agree to answer a set of questions that another person will ask me about my outlook on life, my medical history and information about myself. The total time that I will spend as a participant in this research is about two hours.

5-6-99

Borgess Medical Center  
 Institutional Review Board  
 Approved 5-6-99

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date.

JAN 22 1999

x *Sylvia Lupp*  
 HSIRB Chair

### POTENTIAL RISKS

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except as otherwise specified in this consent form. I understand that it is possible I might injure myself as I perform one of the tasks, but I will not be asked to perform any novel or unusual task; I will only be asked to demonstrate how I currently perform a task. I understand that Michele R. Holevar, Morton O. Wagenfeld and Debra Lindstrom Hazel are not responsible for any injury I would incur while demonstrating how I perform a routine task. I will choose tasks that I know I am safe in performing.

### POTENTIAL BENEFITS

The benefit for me is that I will receive an OT evaluation and recommendations to improve my personal safety, efficiency and effectiveness in completing activities of daily living. The knowledge gained from this study may also benefit people who have hip fractures in the future. If the OT decides to stop the OT evaluation because of safety concerns, I will still receive general OT recommendations.

### CONFIDENTIALITY

I understand that the information that I provide is confidential. I understand that my name will not appear on any papers on which this information is recorded. The forms will all be coded and Debra Lindstrom Hazel will keep a master list with the names of participants and the corresponding code numbers. I understand that if the hospital where I received my surgery is collaborating in this study, the results of my participation will be shared with that hospital for outcome studies. Once the data are collected and analyzed, the master

Borgess Medical Center  
 Institutional Review Board

5-6-99

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date

JAN 22 1999

x *Sylvia Lupp*  
 HSIRB Chair

list will be destroyed. All other forms will be retained for three years in a locked file in WMU's Department of Occupational Therapy; these forms will be destroyed at the end of three years' time.

### VOLUNTARY PARTICIPATION/ RIGHT TO WITHDRAW FROM THIS STUDY

I understand that I may refuse to participate or quit at any time during the study without penalty. I can say I want to quit and leave the facility immediately, or if it is in my home, the researchers agree that they will leave promptly if I ask them to do so.

### CONTACT PERSONS

If I have any questions about the study, I can contact Dr. Michele Holevar at (616) 226-6917, Morton O. Wagenfeld at (616) 387-9252 or Debra Lindstrom Hazel at (616) 387-7239. For any questions about research subjects' rights, I may contact the Institutional Review Board at Borgess Medical Center, Dr. Geoffrey Rogers, at (616) 226-4879, the chairperson of the Western Michigan's Human Subjects Institutional Review Board at (616) 387-8293, or Western Michigan University's Vice President for Research at (616) 387-8298.

I understand that Debra Lindstrom Hazel will send me the results of her study if I provide her with a large, self-addressed stamped envelope.

5-6-99

Borgess Medical Center  
 Institutional Review Board  
 Approved: 5-6-99

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date:  
 JAN 22 1999  
*Sylvia Culp*  
 HSIRB Chair

**CONSENT**

I HAVE READ THE INFORMATION ABOVE AND HAVE HAD THE STUDY FULLY EXPLAINED TO ME. ANY QUESTIONS THAT HAVE OCCURRED TO ME HAVE BEEN FULLY ANSWERED BY THE OCCUPATIONAL THERAPIST IN CHARGE OF THE STUDY. I VOLUNTARILY GIVE MY CONSENT TO TAKE PART IN THE STUDY ABOUT VARIABLES RELATED TO RECOVERY AFTER A HIP FRACTURE. BY SIGNING THIS FORM I HAVE NOT WAIVED ANY OF THE LEGAL RIGHTS WHICH I WOULD OTHERWISE HAVE AS A PARTICIPANT IN A RESEARCH STUDY.

Participant's Signature \_\_\_\_\_ Date \_\_\_\_\_  
 Print Name \_\_\_\_\_

Witnessed by \_\_\_\_\_ Date \_\_\_\_\_  
 Print Name \_\_\_\_\_

Consent form discussed with patient, all questions answered, and form signed:  
 Signature \_\_\_\_\_ Date \_\_\_\_\_  
 (person who explained the form )

This consent has been reviewed with me after the evaluation.

Participant's Signature \_\_\_\_\_ Date \_\_\_\_\_

This consent document has been approved for use for one year by Western Michigan University's Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of all pages. Subjects should not sign this document if the corners do not show a stamped date and signature.

Borgess Medical Center  
 Institutional Review Board  
 Approved 5 6 99

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date:

JAN 21 1999

*x Sylvain Culp*  
 HSIRB Chair

Western Michigan University  
 Principal Investigator: Morton O. Wagenfeld, Ph.D.  
 Co-Principal Investigator: Debra Lindstrom Hazel, Ph.D. cand., OTR  
 Bronson Methodist Hospital  
 Collaborating Investigator: Mark Noffsinger, MD  
**Hip fracture: factors related to level of disability**

I have been invited to participate in a research project titled "Hip fracture: factors related to level of disability." I understand that the researchers hope to determine what factors are related to a minimizing the level of disability in older persons who had hip fractures two to nine months ago. I further understand that this study is Debra Lindstrom Hazel's dissertation project. Debra is conducting this research in hopes of finding out why some people have more trouble recovering from a hip fracture than others. Volunteers in this study are persons 60 years old or older who had a hip fracture six to nine months ago. There will be 50-150 volunteers involved in this study.

My consent to participate in this research indicates that I agree to allow an occupational therapist (OT) to observe me while I perform two tasks of my own choosing, either in my own home or at WMU's Unified Clinics. I also agree to answer a set of questions that another person will ask me about my outlook on life, my medical history and information about myself. The total time that I will spend as a participant in this research is about two hours.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken; however, no compensation or treatment will be made available to me except as otherwise specified in this consent form. I understand that it is possible I might injure myself as I perform one of the tasks, but I will not be asked to perform any novel or unusual task; I will only be asked to demonstrate how I currently

JAN 21 1999

x *Sylvia Culp*  
HSIRB Chair

perform a task. I understand that Morton O. Wagenfeld, Debra Lindstrom Hazel, Western Michigan University, my physician and Bronson Methodist Hospital are not responsible for any injury I would incur while demonstrating how I perform a routine task. I will choose tasks that I know I am safe in performing.

The benefit for me is that I will receive an OT evaluation and recommendations to improve my personal safety, efficiency and effectiveness in completing activities of daily living. The knowledge gained from this study may also benefit people who have hip fractures in the future. If the OT decides to stop the OT evaluation because of safety concerns, I will still receive general OT recommendations.

I understand that the information that I provide is confidential. I understand that my name will not appear on any papers on which this information is recorded. The forms will all be coded and Debra Lindstrom Hazel will keep a master list with the names of participants and the corresponding code numbers until the data analysis is completed; after the data analysis is completed the master list will be destroyed. I understand that the results of my participation will be shared with Bronson Methodist Hospital for their own outcome studies. There is a possibility that the records stored at Bronson Methodist Hospital may be inspected by the Food and Drug Administration. The actual data collection forms will be retained for three years in a locked file in WMU's Department of Occupational Therapy; these forms will be destroyed at the end of three years' time.

I understand that I may refuse to participate or quit at any time during the study without penalty. I can say I want to quit and leave the facility immediately, or if it is in my home, the researchers agree leave promptly if I ask them to do so. If I have any questions about the study, I can contact Debra Lindstrom Hazel at (616) 387-7239,

WESTERN MICHIGAN UNIVERSITY  
 H. S. I. R. B.  
 Approved for use for one year from this date:

JAN 21 1999

*Sylvia Lulp*  
 HSIRB Chair

Morton O. Wagenfeld at (616) 387-9252 or my physician. For any questions about research subjects' rights, I may contact Robert H. Hume, MD, Chairman, Bronson Methodist Hospital Institutional Review Board at (616) 341-7988, or the chairperson of the Western Michigan's Human Subjects Institutional Review Board at (616) 387-8293 or the Vice President for Research at (616) 387-8298. My signature below indicates that I understand the requirements of the study and agree to participate.

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner of all the pages. Subjects should not sign this document if the corners do not show a stamped date and signature.



**Appendix D**  
**Invitations to Participate**

Dear Patient:

Borgess Medical Center's Trauma Services and Western Michigan University's Department of Occupational Therapy would like your help in a research study pertaining to patients that have recently had a broken hip.

In order to participate in this research, you will need to agree to allow an occupational therapist to observe you while you perform two daily living tasks either at your home or at Western Michigan University's Unified Clinics. You will receive a copy of this evaluation and recommendations for improved function and safety at no charge to you. You would also need to agree to answer a set of questions that another person will ask you about your outlook on life, medical history and information about yourself. The total time that you would spend as a participant in this research is about two hours. This evaluation will be scheduled 2- 6 months after your injury. If you would like to participate in this study, please mark 'yes' below and fill in your telephone number, the date of your injury and the best time to reach you. After you return this form you will be contacted to schedule an appointment.

This study is confidential and your privacy will be maintained.

\_\_\_\_\_ Yes! I am willing to participate in this study.

Name

\_\_\_\_\_ (please print)

Telephone Number

\_\_\_\_\_

Best time to reach me is

\_\_\_\_\_

Date of Hip Fracture

\_\_\_\_\_

\_\_\_\_\_ No, I do not want to participate in this study.

Thank you for your time,

Michele R. Holevar, MD, FACS, FACEP  
Director of Trauma  
Trauma Services  
Borgess Medical Center

Morton O. Wagenfeld, Ph.D.  
Professor of Sociology and Community Health Services  
Western Michigan University

Debra Lindstrom Hazel, Ph.D. cand., OTR  
Assistant Professor  
Western Michigan University

**Borgess Medical Center  
Institutional Review Board**  
Approved: 5-6-99 *JS*

Lindstrom-Hazel  
Hip Fracture Study

Trauma Care Unit  
Bronson Methodist Hospital  
252 East Lovell Street  
Kalamazoo, MI 49007

Name  
Address  
Address

Dear . . .

Bronson Methodist Hospital and the Orthopedic Surgeons, in conjunction with Western Michigan University, would like your help in a research study pertaining to patients that have recently had a broken hip.

You will be asked to perform two activities of daily living and be evaluated by an occupational therapist while you perform these functions. This evaluation would be scheduled approximately 6 months after your injury. You will receive recommendations for improved function and safety at no charge as well as a copy of this evaluation. This evaluation is worth \$100-\$200. If you would like to participate in this study, please mark 'yes' below and fill in your telephone number and the best time to reach you. After you return this form you will be contacted to schedule an appointment.

This study is confidential and your privacy will be maintained. If you are interested in participating, please complete the information below and return this letter in the enclosed self-addressed, stamped envelope.

\_\_\_\_\_ Yes! I am willing to participate in this study.

Telephone Number \_\_\_\_\_

Best time to reach me is \_\_\_\_\_ :

\_\_\_\_\_ No, I do not want to participate in this study.

Thank you for your time,

\_\_\_\_\_  
Mark Noffsinger, MD (or the attending orthopedic surgeon that cared for the patient)

**Appendix E**  
**Dementia Screening Procedure**

Lindstrom-Hazel  
Hip fracture

### Screening for Dementia

If the person who had the hip fracture is not able to schedule his/her own appointment, or if the scheduler suspects from the telephone conversation that the person may have moderate or severe dementia, the scheduler will ask to speak to someone else to schedule the appointment. If the scheduler does need to talk to a caregiver, family member or friend, the following script will be followed:

Before I schedule \_\_\_\_\_ for an OT evaluation, I'd like to ask you some questions about \_\_\_\_\_'s memory and the difficulty (he/she) may have doing some things. Is it difficult for \_\_\_\_\_ to:

- A. Remember his/her home address
- B. Remember words
- C. Understand simple instructions
- D. Find his/her way around the house
- E. Speak sentences
- F. Recognize people that he/she knows?

- If the relative/caregiver answers yes to any of these questions, the person is not a candidate for this study and the scheduler will say: "Thank you very much for your time in speaking with me. \_\_\_\_\_ is not a candidate for this research project. Would you like us to send you a copy of some general suggestions and recommendations that Debra Lindstrom Hazel has developed for people who had a hip fracture/replacement six months or more ago? Where would you like me to mail these recommendations?"
- If the relative/caregiver answers no to all of the questions, the scheduler will set up appointments for the OT evaluation and interview.

**Appendix F**  
**Data Collection Packet**

Interviewer Code \_\_\_\_\_

Participant Code \_\_\_\_\_

Date of Interview \_\_\_\_\_

1. Gender \_\_\_\_\_
2. What year were you born? \_\_\_\_\_
3. What is the highest level of education you completed? \_\_\_\_\_
4. Are you married? \_\_\_\_\_
5. Where did you live before you fractured your hip? \_\_\_\_\_
6. Who did you live with before? \_\_\_\_\_
7. How did you get around (walking) before? \_\_\_\_\_
8. Did you need any help dressing before? \_\_\_\_\_
9. Did you need any help shopping before? \_\_\_\_\_
10. How did you fracture your hip? \_\_\_\_\_
11. What type of surgery did you have? \_\_\_\_\_
12. Did you have any complications from your surgery?  
What kind? \_\_\_\_\_
13. When were you discharged from the hospital? \_\_\_\_\_
14. Where did you go after the hospital? \_\_\_\_\_
15. How did you ambulate when you left the hospital? \_\_\_\_\_
16. Where do you live now? \_\_\_\_\_
17. Who lives with you now? \_\_\_\_\_
18. Do you get out in the community? \_\_\_\_\_
19. Do you need any assistance with dressing now? \_\_\_\_\_
20. Who provides the assistance? \_\_\_\_\_
21. What kind of insurance do you have? \_\_\_\_\_
22. Did you receive OT and PT after you were discharged  
from the acute care hospital?  
Where? \_\_\_\_\_
23. Do you consider yourself a religious person? \_\_\_\_\_
24. Do you consider yourself a spiritual person? \_\_\_\_\_
25. Who prepares your meals? \_\_\_\_\_
26. Are you on a special diet? \_\_\_\_\_
27. How many meals/snacks do you eat a day? \_\_\_\_\_
28. Have you had a recent weight loss or gain? \_\_\_\_\_
29. Do you smoke? \_\_\_\_\_ how much /day? \_\_\_\_\_

## Hip Fracture

## Data Collection Questionnaire

30. What kind of medical problems did you have when you fell?
- |  |  |
|--|--|
| <input type="checkbox"/> diabetes mellitus                     | <input type="checkbox"/> congestive heart failure    |
| <input type="checkbox"/> cardiac arrhythmia                    | <input type="checkbox"/> ischemic heart disease      |
| <input type="checkbox"/> valvular heart disease                | <input type="checkbox"/> previous CVA                |
| <input type="checkbox"/> renal disease                         | <input type="checkbox"/> cancer                      |
| <input type="checkbox"/> Parkinson's disease                   | <input type="checkbox"/> hypertension                |
| <input type="checkbox"/> chronic obstructive pulmonary disease |  |
| <input type="checkbox"/> peptic ulcer disease                  | <input type="checkbox"/> peripheral vascular disease |
| <input type="checkbox"/> seizure disorder                      | <input type="checkbox"/> syncope                     |
| <input type="checkbox"/> need for ongoing anticoagulation      |  |

31. FIM Score at D/C \_\_\_\_\_

32. FIM Score Current \_\_\_\_\_

How much assistance and what equipment do you need for:

eating? \_\_\_\_\_

grooming? \_\_\_\_\_

bathing? \_\_\_\_\_

upper body dressing? \_\_\_\_\_

lower body dressing? \_\_\_\_\_

toileting? \_\_\_\_\_

Total  
Avg.

33. Orientation to Life (sense of coherence) \_\_\_\_\_

34. Expressive Support Scale \_\_\_\_\_

35. Center for Epidemiology Depression Scale \_\_\_\_\_

36. AMPS Motor Score \_\_\_\_\_

37. AMPS Process Score \_\_\_\_\_



## AMPS SCORING FORM

### DEMOGRAPHIC DATA

CLIENT: \_\_\_\_\_ EXAMINER: \_\_\_\_\_

CLIENT ID: \_\_\_\_\_ AGE: \_\_\_\_\_

ETHNICITY:

WHITE/EUROPEAN: \_\_\_\_\_ BLACK/AFRICAN: \_\_\_\_\_ HISPANIC/BRAZILIAN: \_\_\_\_\_

ORIENTAL/SE ASIAN: \_\_\_\_\_ MIDDLE EASTERN: \_\_\_\_\_ NATIVE AMERICAN: \_\_\_\_\_

PACIFIC ISLANDER: \_\_\_\_\_ OTHER: \_\_\_\_\_

GENDER: MALE \_\_\_\_\_ FEMALE \_\_\_\_\_

MAJOR DIAGNOSIS: \_\_\_\_\_

SECONDARY DIAGNOSIS: \_\_\_\_\_

DATE OF EVALUATION: \_\_\_\_\_

TASK OBSERVATION NUMBER: 1: \_\_\_\_\_ 2: \_\_\_\_\_ 3: \_\_\_\_\_ 4: \_\_\_\_\_

TASK#: \_\_\_\_\_ TASK: \_\_\_\_\_

SCORING FORMAT: DIRECT OBSERVATION \_\_\_\_\_ VIDEOTAPE \_\_\_\_\_

MOBILITY AIDS: NONE \_\_\_\_\_ WHEELCHAIR \_\_\_\_\_ WALKER \_\_\_\_\_

CANE \_\_\_\_\_ OTHER (SPECIFY) \_\_\_\_\_

CLIENT'S OVERALL FUNCTIONAL LEVEL:  
CONSIDERING EVERYTHING YOU KNOW ABOUT THE CLIENT, HOW WOULD YOU JUDGE THE CLIENT'S OVERALL FUNCTIONAL ABILITY?

\_\_\_\_ THE CLIENT CAN/COULD LIVE INDEPENDENTLY IN THE COMMUNITY

\_\_\_\_ THE CLIENT NEEDS/SHOULD HAVE MINIMAL ASSISTANCE/SUPERVISION TO LIVE IN THE COMMUNITY

\_\_\_\_ THE CLIENT NEEDS/SHOULD HAVE MODERATE TO MAXIMAL ASSISTANCE TO LIVE IN THE COMMUNITY

### ITEM RAW SCORES

COMPETENT = 4    QUESTIONABLE = 3    INEFFECTIVE = 2    DEFICIT = 1

#### POSTURE

Stabilizes    4 3 2 1

Aligns    4 3 2 1

Positions    4 3 2 1

#### MOBILITY

Walks    4 3 2 1

Reaches    4 3 2 1

Bends    4 3 2 1

#### COORDINATION

Coordinates    4 3 2 1

Manipulates    4 3 2 1

Flows    4 3 2 1

#### STRENGTH AND EFFORT

Moves    4 3 2 1

Transports    4 3 2 1

Lifts    4 3 2 1

Collapses    4 3 2 1

Grips    4 3 2 1

#### ENERGY

Endures    4 3 2 1

Paces    4 3 2 1

Attends    4 3 2 1

#### USING KNOWLEDGE

Chooses    4 3 2 1

Uses    4 3 2 1

Handles    4 3 2 1

Heeds    4 3 2 1

Inquires    4 3 2 1

#### TEMPORAL ORGANIZATION

Initiates    4 3 2 1

Continues    4 3 2 1

Sequences    4 3 2 1

Terminates    4 3 2 1

#### SPACE AND OBJECTS

Searches/Locates    4 3 2 1

Gathers    4 3 2 1

Organizes    4 3 2 1

Restores    4 3 2 1

Navigates    4 3 2 1

#### ADAPTATION

Notifies/Responds    4 3 2 1

Accommodates    4 3 2 1

Adjusts    4 3 2 1

Benefits    4 3 2 1

Here is a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please tell me the number which expresses your answer, with number 1 and 7 being the extreme answers. If the words under 1 are right for you, tell me 1; if the words under 7 are right for you, tell me 7. If you feel differently, tell me the number which best expresses your feeling. Please give only one answer to each question.

1. **When you talk to people, do you have the feeling that they don't understand you?**

1	2	3	4	5	6	7	
7	6	5	4	3	2	1	_____
never						always have this	<b>reversed</b>
had this feeling						feeling	

2. **In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:**

1	2	3	4	5	6	7	_____
surely wouldn't						surely would	
get done						get done	

3. **Think of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them?**

1	2	3	4	5	6	7	_____
you feel that						you know them	
they're strangers						very well	

4. **Do you have the feeling that you don't really care about what goes on around you?**

1	2	3	4	5	6	7	
7	6	5	4	3	2	1	_____
very often						very seldom or never	<b>reversed</b>

5. **Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?**

1	2	3	4	5	6	7	
7	6	5	4	3	2	1	_____
never happened						always happened	<b>reversed</b>

6. **Has it happened that people whom you counted on disappointed you?**

1	2	3	4	5	6	7	
7	6	5	4	3	2	1	_____
never happened						always happened	<b>reversed</b>

7. **Life is:**

1	2	3	4	5	6	7	
7	6	5	4	3	2	1	_____
full of interest						completely routine	<b>reversed</b>

8. **Until now your life has had:**

1	2	3	4	5	6	7	_____
no clear goals or purpose at all						very clear goals and purpose	

9. **Do you have the feeling that you're being treated unfairly?**

1	2	3	4	5	6	7	_____
very often						very seldom or never	

10. **In the past ten years your life has been:**

1	2	3	4	5	6	7	_____
full of changes without your knowing what will happen next						completely consistent and clear	

11. **Most of the things you do in the future will probably be:**

1	2	3	4	5	6	7	_____
7	6	5	4	3	2	1	
completely fascinating						deadly boring	<b>reversed</b>

12. **Do you have the feeling that you are in an unfamiliar situation and don't know what to do?**

1	2	3	4	5	6	7	_____
very often						very seldom or never	

13. **What best describes how you see life:**

1	2	3	4	5	6	7	_____
7	6	5	4	3	2	1	
one can always find a solution to painful things in life						there is no solution to painful things in life	<b>reversed</b>

14. **When you think about your life, you very often:**

1	2	3	4	5	6	7	_____
7	6	5	4	3	2	1	
feel how good it is to be alive						ask yourself why you exist at all	<b>reversed</b>

15. **When you face a difficult problem, the choice of a solution is:**

1	2	3	4	5	6	7	_____
always confusing and hard to find						always completely clear	

16. **Doing the things you do every day is:**  
 1 2 3 4 5 6 7  
 7 6 5 4 3 2 1  
 a source of deep pleasure and satisfaction a source of pain and boredom **reversed**
17. **Your life in the future will probably be:**  
 1 2 3 4 5 6 7  
 full of changes without your knowing what will happen next completely consistent and clear
18. **When something unpleasant happened in the past your tendency was**  
 1 2 3 4 5 6 7  
 "to eat yourself up" about it to say "ok, that's that, I have to live with it," and go on
19. **Do you have very mixed up feelings and ideas?**  
 1 2 3 4 5 6 7  
 very often very seldom or never
20. **When you do something that gives you a good feeling:**  
 1 2 3 4 5 6 7  
 7 6 5 4 3 2 1  
 it's certain that you'll go on feeling good it's certain that something will happen to spoil the feeling **reversed**
21. **Does it happen that you have feelings inside you would rather not feel?**  
 1 2 3 4 5 6 7  
 very often very seldom or never
22. **You anticipate that your personal life in the future will be:**  
 1 2 3 4 5 6 7  
 totally without meaning or purpose full of meaning and purpose
23. **Do you think that there will always be people whom you'll be able to count on in the future?**  
 1 2 3 4 5 6 7  
 7 6 5 4 3 2 1  
 you're certain there will be you doubt there will be **reversed**

24. **Does it happen that you have the feeling that you don't know exactly what's about to happen?**
- |            |   |   |   |   |   |                      |       |
|------------|---|---|---|---|---|----------------------|-------|
| 1          | 2 | 3 | 4 | 5 | 6 | 7                    | _____ |
| very often |   |   |   |   |   | very seldom or never |       |
25. **Many people--even those with a strong character--sometimes feel like sad sacks (losers) in certain situations. How often you have felt this way in the past?**
- |       |   |   |   |   |   |            |          |
|-------|---|---|---|---|---|------------|----------|
| 1     | 2 | 3 | 4 | 5 | 6 | 7          | _____    |
| 7     | 6 | 5 | 4 | 3 | 2 | 1          | reversed |
| never |   |   |   |   |   | very often |          |
26. **When something happened, have you generally found that:**
- |  |   |   |   |   |   |  |       |
|--|---|---|---|---|---|--|-------|
| 1  | 2 | 3 | 4 | 5 | 6 | 7  | _____ |
| you overestimated or underestimated its importance |   |   |   |   |   | you saw things in the the right proportion |       |
27. **When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:**
- |  |   |   |   |   |   |  |          |
|--|---|---|---|---|---|--|----------|
| 1  | 2 | 3 | 4 | 5 | 6 | 7  | _____    |
| 7  | 6 | 5 | 4 | 3 | 2 | 1  | reversed |
| you will always succeed in overcoming the difficulties |   |   |   |   |   | you won't succeed in overcoming the difficulties |          |
28. **How often do you have the feeling that there's little meaning in the things you do in your daily life?**
- |            |   |   |   |   |   |                      |       |
|------------|---|---|---|---|---|----------------------|-------|
| 1          | 2 | 3 | 4 | 5 | 6 | 7                    | _____ |
| very often |   |   |   |   |   | very seldom or never |       |
29. **How often do you have feelings that you're not sure you can keep under control?**
- |            |   |   |   |   |   |                      |       |
|------------|---|---|---|---|---|----------------------|-------|
| 1          | 2 | 3 | 4 | 5 | 6 | 7                    | _____ |
| very often |   |   |   |   |   | very seldom or never |       |

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**Orientation to Life Score**

(Antonovsky, 1987)

**Thinking about your friends and family, please indicate the extent to which you agree or disagree with the following statements.**

4=strongly agree

3=agree

2=disagree

1=strongly disagree

A. **There is really no one who understands what you are going through.** \_\_\_\_\_  
 4            3            2            1            reversed  
 1            2            3            4

B. **The people close to you let you know that they care about you.** \_\_\_\_\_  
 4            3            2            1

C. **You have a friend or relative in whose opinion you have confidence.** \_\_\_\_\_  
 4            3            2            1

D. **You have someone who you feel you can trust.** \_\_\_\_\_  
 4            3            2            1

E. **You have people around you who help you to keep your spirits up.** \_\_\_\_\_  
 4            3            2            1

F. **There are people in your life who make you feel good about yourself.** \_\_\_\_\_  
 4            3            2            1

G. **You have at least one friend or relative you can really confide in.** \_\_\_\_\_  
 4            3            2            1

H. **You have at least one friend or relative you want to be with when you are feeling down or discouraged.** \_\_\_\_\_  
 4            3            2            1

---

**Expressive Support Scale Score** \_\_\_\_\_

Expressive Support Scale (Pearlin, et al., 1990)

**There are times when one feels good and behaves well, and other times when we do not feel good about ourselves. Following is a list of ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.**

1=rarely <1 day/week

2=some of the time 1-2 days/week

3=occasionally 3-4 days/week

4=most of the time 5-7 days/week

- |     |   |          |
|-----|---|----------|
| 1.  | <b>I was bothered by things that usually don't bother me.</b>                                 | _____    |
| 1   | 2 3 4   |          |
| 2.  | <b>I did not feel like eating; my appetite was poor.</b>                                      | _____    |
| 1   | 2 3 4   |          |
| 3.  | <b>I felt that I could not shake off the blues even with help from my family and friends.</b> | _____    |
| 1   | 2 3 4   |          |
| 4.  | <b>I felt that I was just as good as other people.</b>  | _____    |
| 1   | 2 3 4   | reversed |
| 4   | 3 2 1   |          |
| 5.  | <b>I had trouble keeping my mind on what I was doing.</b>                                     | _____    |
| 1   | 2 3 4   |          |
| 6.  | <b>I felt depressed.</b>  | _____    |
| 1   | 2 3 4   |          |
| 7.  | <b>I felt that everything I did was an effort.</b>  | _____    |
| 1   | 2 3 4   |          |
| 8.  | <b>I felt hopeful about the future.</b>   | _____    |
| 1   | 2 3 4   | reversed |
| 4   | 3 2 1   |          |
| 9.  | <b>I thought that my life had been a failure.</b>   | _____    |
| 1   | 2 3 4   |          |
| 10. | <b>I felt fearful.</b>  | _____    |
| 1   | 2 3 4   |          |
| 11. | <b>My sleep was restless.</b>   | _____    |
| 1   | 2 3 4   |          |

1=rarely <1 day/week  
 2=some of the time 1-2 days/week  
 3=occasionally 3-4 days/week  
 4=most of the time 5-7 days/week

12.	<b>I was happy.</b>				
1	2	3	4		<b>reversed</b>
4	3	2	1		
13.	<b>I talked less than usual.</b>				
1	2	3	4		
14.	<b>I felt lonely.</b>				
1	2	3	4		
15.	<b>People were unfriendly.</b>				
1	2	3	4		
16.	<b>I enjoyed life.</b>				
1	2	3	4		<b>reversed</b>
4	3	2	1		
17.	<b>I had crying spells.</b>				
1	2	3	4		
18.	<b>I felt sad.</b>				
1	2	3	4		
19.	<b>I felt that people disliked me.</b>				
1	2	3	4		
20.	<b>I could not get going.</b>				
1	2	3	4		

**CES-D Score** \_\_\_\_\_

Center for Epidemiology Scale of Depression



## Hip Fracture

## Data Questionnaire Scoring Key

<b>1. Gender</b> 1=Female 2=Male	<b>2. Record year person was born.</b> Calculate age in years
<b>3. # of grades completed</b> 3=3rd grade 8=8th grade 12=HS grad 14=Associates/Tech. Degree 16=Bachelors Degree 18=Masters Degree 21=Doctoral	<b>4. Married?</b> 1=married or significant other 2=single 3=divorced 4=widowed
<b>5. Living location prior?</b> 1=own home/apt. 2=relative's home 3=nursing home 4=assistive living center 5=adult foster care home 6=senior citizen housing 7=other	<b>6. Lived with whom before?</b> 1=independent 2=spouse 3=relative (i.e. sibling/adult child) 4=friend 5=paid worker 6=other
<b>7. Walked before hip fx?</b> 1=independent community 2=cane for community only 3=walker/crutch--community 4=independent household 5=cane for household 6=walker/crutches in house 7=nonfunctional ambulator	<b>8. Assist in dressing prior hip fx?</b> 1=no 2=yes—minimal (shoes, fasteners) 3=yes—moderate (bra, pants, etc.) 4=yes—significant help/dependent
<b>9. Assist for shopping before?</b> 1=no 2=yes—assistance for transport 3=yes—min assist in store (reaching) 4=yes—mod assist in store (paying/loading/pushing cart) 5=yes—significant help/dependent	<b>10. How was hip fractured?</b> 1=environmental hazard 2=physical or cognitive decline 3=other
<b>11. Type of surgery?</b> 1=total hip (prosthetic) replacement 2=internal fixation 3=uncertain to type	<b>12. Surgery complications?</b> 1=pneumonia 2=septicemia 3=decubiti 4=delirium 5=>1 complication 6=other
<b>13. Discharge date:</b> Record # of months post discharge from date of interview— 15 or more days, round to next month	<b>14. Discharge site:</b> 1=own home/apt. 2=same as previous to fx, but not own home 3=relative's home 4=rehab center 5=skilled nursing/sub-acute 6=nursing home 7=adult foster care home 8=other

## Hip Fracture

## Data Questionnaire Scoring Key

<p>15. Ambulate leaving hosp?  1=independent community  2=cane only in community  3=walker/crutches in community  4=independent household  5=cane in household  6=walker/crutches in house  7=nonfunctional ambulator</p>	<p>16. Lives now?  1=own home/apt.  2=relative's home  3=senior citizen/retirement  4=assistive living center  5=nursing home  6=adult foster care home  7=other</p>
<p>17. Who lives with you now?  1=independent  2=spouse  3=relative (i.e. sibling/child)  4=friend  5= paid worker  6=other</p>	<p>18. Out into the community now?  1=independent in community  2=indep in community: cane/walker  3=indep in community w/c  4=assist for transportation only  5=moderate assist in community  6=dependent in community  7=other</p>
<p>19. Dressing assistance now?  1=no  2=yes—minimal (shoes, fasteners)  3=yes—moderate (bra, pants, etc.)  4=yes-significant help/ dependent</p>	<p>20. Who provides the help?  1=none needed  2=spouse  3=relative (sibling/adult child, etc.)  4=friend  5=paid worker  6=other</p>
<p>21. Insurance?  1=Medicare HMO  2=Medicare non HMO  3=Medicare with supplemental  4=Medicare/Medicaid  5=Private Insurance non HMO  6=Private Insurance HMO</p>	<p>22. OT/PT after acute care?  1=no  2=yes in rehab center  3=yes skilled nursing/sub-acute  4=yes in home  5=yes other</p>
<p>23. Religious?  1=yes  2=no</p>	<p>24. Spiritual?  1=yes  2=no</p>
<p>25. Who prepares meals?  1=self  2=spouse  3=family member  4=paid worker  5=Meals on Wheels  6=neighbor</p>	<p>26. Special diet?  1=no  2=yes by personal choice  3=yes—medical advice/low salt  4=yes--medical advice/low fat  5=yes--medical advice/ diabetic  6=yes--advice/combo  7=other</p>
<p>27. # meals/snacks/day?   Record combined #</p>	<p>28. Wt. loss/gain since hip fx?  1=no  2=yes per medical recommend  3=yes—incidental loss/gain</p>
<p>29. Do you smoke?  1=no  2=yes &lt;1 pack/day  3=yes 1-2 packs/day  4=yes &gt; 2 packs/day</p>	<p>30. Co-morbidities (read list)   Record # of problems reported</p>
<p>32. Current FIM--Self-Care</p>	
<p>7=independent  6=independent with equipment  5=supervision required</p>	<p>4=minimal assistance (&lt;25%)  3=moderate assistance (26-50%)  2=maximal assistance (51-75%)  1=dependent (&gt;75% assistance)</p>

**Appendix G**  
**Large Type Visual Aid**

<sup>1</sup>  
When you talk to people, do you have the feeling  
that they don't understand you?

1  
never have  
this feeling

2

3

4

5

6

7

always have  
this feeling

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