THE RELATIONSHIP OF SPIRITUALITY AND SELF-HEALTH ASSESMENT IN PREDICTING POSTOPERATIVE PAIN AND ANALGESIC USE

By

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To my family.

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The purpose of this descriptive study was to investigate relationships between spirituality and self-heath with three postoperative outcomes after total hip or knee arthroplasty in the older adult.

A total of 115 subjects between the ages of 55 and 86 years of age (M = 67.8) who met the inclusion criteria were enrolled in this study. Forty-one were male and seventy-four were female. One question from the Spiritual Involvement and Beliefs Scale and one question from the Short Form-36 Health Survey were used to measure spirituality and self-health assessment. Operative site, average daily pain scores, median daily pain scores and analgesic medication use data were obtained from the patient's medical record for three days postoperatively.

Bivariate analysis found that those participants with a high degree of spirituality did not report less pain on days one ($r = 0.01$, $p = 0.92$), day two ($r = 0.02$, $p = 0.84$) or day three ($r = 0.03$, $p = 0.78$). They also did not use less analgesic medication during the

three postoperative days (r = -0.04, p = 0.69). However, those participants who self-assessed their health as good to excellent did have less pain on day one (r = 0.31, p = 0.00), day two (r = -0.29, p= 0.00) and day three (r = -0.22, p = 0.02). There was no reduction in analgesic medication use (r = -0.11, p = 0.25). An ANOVA regression found there was no relationship for a high degree of spirituality, a high self-health assessment and the use of less pain medication (F = 1.04, p = 0.38).

The study supported the hypothesis that older adults who rate their self-health as good, very good or excellent experienced less postoperative pain but this study did not support less pain medication use. Second, this research did not support the hypothesis that a participant's spirituality influences pain or analgesic medication use after arthroplasty surgery. Third, a high degree of spirituality and good health together did not make a difference in the amount of analgesic medication used for pain control.

The majority (81.7%) of the participants felt their health was good, very good or excellent. Second, most (67%) indicated they were highly spiritual and 70% felt that spiritual health contributes to physical health. Finally, the majority of the respondents believe in spiritual coping behaviors such as prayer, belief in an afterlife and a personal relationship with a greater power.

This research found that an individual who rates their self-health as good, very good or excellent has less pain after arthroplasty surgery, but this self-health assessment does not influence the use of pain medication. Although participants considered themselves "highly spiritual", their spirituality did not influence postoperative pain or pain medication use.

CHAPTER 1
INTRODUCTION

The increased number of aging persons has stimulated researchers to define the concept of aging as viewed by older adults in our society. Rowe & Kahn, (1998) define successful aging as the avoidance of disease and disability, social involvement and high level of cognitive and physical function. Success, according to their definition, includes few physical limitations, health, and the absence of chronic pain. Most adults over 55 yrs of age do not report problems with daily activities such as: walking, bending and stooping without assistance. In this age group, however, chronic pain can limit the level of functional activity. A chief cause of chronic pain and disability among adults over 55 is osteoarthritis

The experience of chronic pain in the elderly is both a physiologic and emotional experience. Although rooted in sensory stimuli, pain also has an important overlay from an individual's culture and experience (Porter, et al. 1996). Among all age groups pain can be defined as an experience with both a sensory and emotional component, but for the elderly adult, pain may signify a chronic condition that is not always managed effectively with drug treatment. The most frequent cause of chronic pain and total disability reported by the older adult is arthritis (Affleck, et al. 1999; Felson, 1988; Mobily, Herr, Clark, & Wallace, 1994; Praemer, Furner & Rice, 1999; Schlesinger, 2001).

The American Geriatrics Society suggests using both pharmocologic and non-pharmocologic methods to achieve a greater degree of pain relief (American Geriatrics

Society, 1998; Gagliese & Melzak, 1997). Non-pharmocologic methods of pain control include massage, acupuncture, and behavioral therapy. Keefe, et al. (2000) in a study of rheumatoid arthritis and joint replacement, found that effective coping strategies included praying, hoping and calming self-statements.

Research on the relationship of spirituality and health has gained increasing interest in the academic and popular press over the past 15 years. Most early research used retrospective data analysis to study the effects of religious affiliation, and hypertension, depression, mortality, and anxiety (Clark, Friedman, & Martin, 1999; Husaini, Blasi, & Miller, 1999; Koenig, George, Blazer, Pritchett, & Meador, 1993; Koenig, George, Meador, Blazer, & Dyck, 1994). They observed a positive correlation between church attendance and various correlates, such as hypertension, depression, anxiety, hospital length of stay, and mortality (Koenig, et al. 1993; Koenig & Larson, 1998; Meador, et al.1992).

Levin and Chatters (1998) suggest future quantitative studies to evaluate relationships between spirituality and health. Although older people may rely more on defensive coping strategies, the possibility that spiritual coping mechanisms may have a therapeutic effect has not been explored. Such spiritual coping mechanisms might include prayer, religious service attendance, and seeking a spiritual connection (Ellison & Levin, 1998; Koenig & Larson, 1998; Pargament, Smith, Koenig, & Perez, 1998). These studies suggest that older adults who use spiritual coping methods during stressful medical conditions have a more positive health outcome.

I wished to explore the effect of spiritual belief, spiritual behavior and health self-assessment on the response to postoperative pain. Towards this end I examined the

relationship between specific assessments of spiritual behavior, health self-assessment, to reports of pain report and the use of analgesic medications among a group of older adults recovering from hip replacements surgery.

Background and Significance

Chronic Pain in the Older Adult

Pain is defined as a noxious physical and emotional experience. Although similar for all age groups, elderly adults appear to have a higher incidence of chronic pain. The only measure of the presence and intensity of pain is the report of the person experiencing the pain (Ferrell, 2000). Nociceptor pain, including chronic pain, begins with the activation of special receptors and afferent fibers by peripheral stimuli usually associated with processes involving tissue damage and inflammation (Ekblom & Rydh-Rinder, 1998). Such pain may include musculoskeletal pain, ischemic pain, visceral pain, and myofascial pain. There is little empirical evidence that biological or physiological measurements correlates to the degree of pain expressed by the elderly individual (Gagliese & Melzack, 1997). In other words, to a large extent the 'experience' of pain is subjective.

Among the elderly, research indicates that more than 90% of the elderly experience pain in the musculoskeletal system (Anderson, Ejlertsson, Lenden & Rosenberg, 1993). Chronic arthritic joint pain begins in the upper extremities such as shoulders and then progresses to the lower extremity as an individual ages (Anderson, et al. 1993; Mobily , et al. 1994). This site of the pain can greatly affect severity of chronic pain as well as the degree of functional impairment.

Osteoarthritis and Chronic Joint Pain in the Older Adult

Osteoarthritis is the most frequent cause of end stage joint deterioration and chronic pain in the elder adult. In the early stage, there is only a pathologic loss of cartilage. As the disease advances joint cartilage and underlying bone are affected, with a total loss of cartilage and joint space. Joint cartilage serves two functions: 1) smooth frictionless surface movement of articulating bones, and 2) transmission of the weight bearing load. Additionally, extensive tissue inflammatory changes surround the affected joint and contribute to the limitation of joint range of motion and severe chronic pain (Schlesinger, 2001). Visible osteophytes or lateral outgrowths of bone in the joint margins add to an increased sclerosis of underlying bone that contributes to an additional increase in functional impairment (Felson, 1988; Schlesinger, 2001). This loss of the articular cartilage can be demonstrated radiographically as a joint space narrowing and occasionally, osteophyte formation. The most frequently affected joint locations are knees, hips, fingers, and spine (Praemer, et al. 1999).

Measurement of the impact of arthritis includes two parameters: disability or functional impairment and economic health care system impact. The adult person 65 years of age with arthritis may have more limitations of activity than those afflicted with other chronic disease states such as cardiac disease, diabetes, and cancer. It has been estimated that 50% of those persons 65 years of age and older experience activity limitation from the chronic pain of osteoarthritis (Mobily, et al. 1994). The failure of conservative medical management, such as medications and physical therapy, in the treatment of end stage joint osteoarthritis, has increased the demand for surgical total joint replacement.

Total Joint Arthroplasty in the Older Adult

The early 21st century has been declared the "Bone and Joint Decade" by 35 nations and 44 states. Currently, more than 425,000 total joint replacements are performed each year in the United States, and this number is expected to reach 702,000 by the year 2030 as the baby boomer generation ages (Praemer, et al. 1999). The increase in the number of aging Americans, the increase in the prevalence of arthritis for this age group, and the desire to remain active have added to the increase in demand for total joint replacement surgery (Healy, Iorio, & Lemos, 2001). Joint replacement surgery has been documented to improve pain, functional ability, social function, and quality of life for the recipient (Aarons, Hall, Hughes, & Salmon, 1996; McGuigan, Hozack, Moriarty, Eng, & Rothman, 1995; Norman-Taylor, Palmer, & Villar, 1996; Ritter, Albohm, Keating, Faris, & Meading, 1995).

These findings demonstrate that osteoarthritis among older adults is a major cause of chronic pain and functional impairment. Total joint replacement offers the older adult pain relief and improved functional ability, particularly when there is failure with conservative therapies.

Spirituality in Older Adults

Behavioral management of pain includes the strategy of active coping. Spiritual coping behaviors that include praying and church attendance have been recognized as active coping behavioral strategies used often by older adults (Koenig, et al. 1998). Burkhardt, (1989) defines the "spirituality" as the individual's belief in God or a higher power that is concerned with his or her striving to achieve a sense of harmony with self and others. Spirituality often involves a relationship with an organized religion, interrelationships with others, and the search for the meaning of life. Affiliation and/or

participation in organized religion, however, are not necessary to be considered spiritual (Burkhardt, 1989; Principe, 1983). Different authors have defined 'spirituality' in various ways. For the purpose of this discussion, I will use the "spirituality" to describe the way of life an individual chooses that involves a belief in God or a higher power, a belief in an after life, and a belief that a higher power influences life's events. I did not limit this study to 'spirituality' associated with any specific religion or sect.

There has been an increasing interest in the interrelationship of spiritual involvement, spiritual activity, and health outcomes among the elderly. Koenig, McCullough, and Larson (2001) give three reasons for this current interest. First, spirituality and religious affiliation continues to be a central part of people's lives despite advances in technology, education, and medicine. Second, the United States and other worldwide populations are aging due to a declining birth rate and greater longevity. In the future, social programs will have severe financial hardships in providing services for this population and religious groups may assist in providing some of these services. There is the possibility that spiritual coping may aid in the prevention of health problems and thereby assist in health care cost containment. Finally, there is a depersonalization in the health care delivery system. Individuals seeking medical care and treatment expect compassion with attention to their social, psychological, and spiritual needs. McFadden and Levin (1996) summarize recent gerontologic spiritual research as focusing on four areas of interest: "(a) multidimensional measures, (b) patterns, (c) predictors, and (d) psychosocial and health related outcomes of religious involvement in older adults and across the life course" (p. 350).

Summary

Many disciplines including medicine, psychology, and sociology have examined the relationship of coping and religious affiliation; coping and spiritual beliefs; religious attendance, and health outcomes like pain, depression, quality of life, mortality, and morbidity. This investigator believes that the degree of spirituality in the post-surgical older adult patient has not been considered in evaluating pain report and analgesic medication use. Achieving adequate pain control is a major goal of professional nursing care and utilizing spiritual coping may be an important addition in providing non-pharmocologic pain management.

Specific Aims

The purpose of this study is to explore whether a high degree of spirituality, and high scores for self-health assessment are correlated with postoperative pain and analgesic medication use in the acute hospital recovery phase. Currently, there is no evidence in literature that has examined these variables and their relationship with the use of postoperative pain medication after total joint arthroplasty. Prior research focused on relationships of long-term functional rehabilitation, quality of life and spiritual coping. Using two multidimensional instruments, I propose to address three important aims that will contribute to the relationship of spirituality, self-health assessment, pain report and analgesic medication use in the postoperative older adult joint arthroplasty patient.

First, using a multidimensional instrument, this study will investigate whether a high degree of spirituality is associated with less pain report and medication use in older individuals receiving primary hip or knee arthroplasty for osteoarthritis. It is the aim of this research to determine whether older adults receiving a hip or knee arthroplasty with a

high score for spirituality on the Spiritual Involvement and Beliefs Scale (SIBS) will use less analgesic medication postoperatively.

Second, the Short Form-36 Health Survey that measures general health assessment will be used to measure self-health in this research. It is the aim of this research to determine whether older adults with a high score for health self-assessment will use less analgesic medication after controlling for spirituality.

Finally, the responses for both spirituality and self-health together will be correlated with analgesic medication.

Hypothesis 1. Older adults with a higher degree of spirituality receiving a hip or knee arthroplasty for primary osteoarthritis will report less pain and receive less analgesic medication than those participants with a lower degree of spirituality after controlling for health self-assessment.

Hypothesis 2. Older adults with high scores on the self-health assessment tool will report less pain and receive less analgesic medication than those participants with low scores on the self-health assessment tool after controlling for spirituality.

Hypothesis 3. There will be significantly less analgesic medication used by those older adults receiving hip or knee arthroplasty who have a high degree of spirituality, and a high degree of self-health assessment.

Terminology

- Older adult: Age 55 or older
- Epidural: Medications administered to the epidural space surrounding the spinal cord.
- Extrinsic religious orientation: The pursuit of religious beliefs and religious practice to feel protected or gaining social status and approval.

- Femoral Nerve Sheath: Medication administered within the femoral nerve sheath by means of a catheter to anesthetize the femoral nerve.

- Intrinsic religious orientation: The motivation to live the goals set forth by religious tradition. The way of life often described as "living one's religion" and using religious practices. The person who has an intrinsic religious orientation may not be affiliated with a particular religious group.

- Medication Administration Record (MARS): Individual record of medication administered to a patient during inpatient hospitalization. Each dose of medication is recorded with the following data: medication name, dosage, time administered, name of staff administering medication.

- Opioid equi-analgesic conversion: All narcotic medication was converted to Morphine Sulfate IV equivalents.

- Patient controlled analgesia: Self-administered narcotic analgesia through an intravenous infusion.

- Religious affiliation: Participating in an organized religious group

- Spirituality: The way of life an individual chooses to live that internalizes a belief in a higher power. These life thoughts are separate from the body and may involve God, a belief in an afterlife, and belief that this higher power influences life's events.

- Spiritual behaviors: Praying, meditation and/or self-reflection, reading spiritual writings

- Visual Analog Scale (VAS): A pain rating scale adopted by Shands at the University of Florida to provide accuracy in a patient's pain. The scale is numeric, one = no pain and

- 10 = the worst pain of life. Patients are asked to rate their pain using numeric increments 0 to 10.

CHAPTER 2
REVIEW OF THE LITERATURE

This section deals with pertinent papers published during the past 20 years that address chronic pain, osteoarthritis, lower extremity arthroplasty, and spirituality coping among the elderly. The first section examines the prevalence of the chronic pain of osteoarthritis and arthroplasty (focal stimuli), age, gender, and race (contextual stimuli). The second reviews the relationship of spiritual coping to gender, race, age, and pain.

Presence of Musculoskeletal Chronic Pain and Arthritis Among Older Adults

Pain in the aged adult has become a focus of current gerontologic research. The elderly have more painful diseases that require more medical visits. The impact of musculoskeletal conditions on the elderly can be divided into two categories: 1) the physical and social impact of physical pain (limitations in mobility and social interaction imposed by these limitations), and 2) the monetary cost involved in the diagnosis and treatment of these disorders (Praemer, Furner, & Rice, 1992). Musculoskeletal disorders after age 65, regardless of gender or racial group, are the most frequently reported physical impairments, exceeded only by hearing disorders. Surgical intervention, following failed medical management, is expected to increase dramatically in the next twenty years (Praemer, et al.1999). Musculoskeletal functional limitation has a significant impact on the elderly.

Back and spine disorders are the most frequently reported category of dysfunction, followed by lower extremity disorders of the hip or knee. Although there are many forms of arthritis among the elderly, the two most common forms, those with the greatest public

health implications, are osteoarthritis and rheumatoid arthritis. The more prevalent of the two forms, osteoarthritis, is estimated to affect 20 million people in the United States (Praemer, et al.1999).

The Relationship of Background Contextual Stimuli and Pain

Age, Pain, and Osteoarthritis

Anderson, et al. (1993) found that 90% of individuals surveyed experienced chronic musculoskeletal pain. Chronic pain symptoms increased between ages 50-64 and then gradually declined. After age 60, however, the incidence of lower extremity pain increased. Compared to younger adults, lower joint pain doubled after age 65 (Anderson, et al. 1993; Gibson & Helme, 1995). In the Iowa study, Mobily, et al. (1994) observed a lower incidence of overall pain ($p < .0001$) among those over 85 years compared to younger age groups. They also found more than 86% of those surveyed experienced pain longer than 12 months. Their research is felt to be particularly accurate because of their large sample size and the longitudinal study design.

Several studies have examined the influence of age on pain sensitivity. Gibson and Helme ((1995) examined sensitivity to several different forms of experimental pain using a meta-analysis. Their data suggest a decline in thermal sensitivity after age 60, but do not show a conclusive difference, or change, in pain sensitivity or pain tolerance. An earlier study by Helme and Allen (1992) had found that the majority of those surveyed (79%) agreed that pain was a consequence of the aging process. However, less than half of these older adults reported pain. The authors concluded that older adults expected to experience pain as they aged and they did.

Additional research is needed to evaluate both the physiologic and psychological basis for pain among older adults. More effective management of pain in the older adult originates in a better understanding of differences and similarities in the pain response.

Gender, Pain and Osteoarthritis

Experimental research has not demonstrated a conclusive difference in pain perception related to gender. Using heat as a noxious stimulus in humans Paulson, Minoshima, Morrow, and Casey (1998) concluded there was a gender similarity in the cerebral and cerebellar activation, but anticipation of the stimulus was more intense in females.

Keefe, et al. (2000) measured pain, disability, and pain behavior among men and women with a mean age of 61.1 yrs. They reported significant gender differences in pain intensity, pain behavior, and physical disability associated with osteoarthritis. Women had significantly elevated levels ($F(1,166) = 4.41$, $P < 0.05$) of osteoarthritis pain. They measured pain behavior, which included stiff movement, rubbing affected joint, and flexing the joint, in relation to gender. In their analysis women exhibited more pain behavior than men ($F(1,162) = 5.54$, $P < 0.05$). In a recent study of pain and coping, Affleck et al. (1999) observed that women reported daily osteoarthritis pain and pain levels 73% greater than males with a similar arthritis diagnosis. Results of these studies have suggested that among the elderly, there is a difference in pain intensity related to gender. Further research is necessary to compare noxious pain stimuli, pain thresholds and intensity studied in younger populations to the older adult.

Age, Gender, and Osteoarthritis

Compared to males, females have twice the incidence of osteoarthritis. Until age 65, however, men report a greater occurrence of osteoarthritis. While men are more

likely to have shoulder, elbow and foot joint pain; women have finger, hip, ankle and wrist joint pain (Davis, Ettinger, Newhaus & Hauck, 1987). Although specific affected joint patterns have been identified as following a gender pattern, gender differences do not contribute to risk factors for the development of osteoarthritis (Davis, et al. 1987;Keefe, et al. 2000; Lawrence, et al. 1998).

Race, Pain and Osteoarthritis

Differences in cultural response to pain have been studied using two methods, non-experimental using observational methods, and laboratory experimental using painful stimuli and measuring the response. Zatzick and Dimsdale (1990) were unable to correlate cultural variations in pain response in their meta-analysis of pain stimuli and of pain response. They concluded, "there is no evidence suggesting that the neurophysiology detection of pain varies across cultural boundaries" (p.554). However, Bates, Edwards, and Anderson (1993) using observational methods to evaluate the differences in reported chronic pain intensity among seven diverse ethnic groups, found significant correlations. Additionally, they investigated specific sociodemographic, medical, and psychological variables that may predict an intra-ethnic group variation in pain intensity. Bates, et al. (1993) found that pain intensity did not vary among various ethnic groups because of differences in neurophysiology but was a result of the biocultural model of pain perception.

European whites have a greater incidence of osteoarthritis than Jamaicans, Blacks, South African Blacks, Chinese, and Indians (Felson, 1988). Rates for American Indians are intermediate. There is speculation that individuals of European white descent have a genetic developmental defect in both the knee and hip joints that facilitates the

development of osteoarthritis. This is supported by greater reporting of joint pain in whites when compared to blacks or other races (Praemer, et al. 1992).

Total Joint Arthroplasty

Prevalence

The first decade 21st century has been declared the "Bone and Joint Decade" by 35 nations and 44 U.S. states. The number of lower extremity joint procedures has increased; total knee replacements increased 40.2% during the years 1990 and 1996, while total hip replacements increased 15.5% for the same years (Praemer, et al. 1999). Currently more than 425,000 total joint replacements are performed in the United States, and this number is expected to reach 702,000 by the year 2030 as the baby boomer generation ages (Praemer, et al. 1999).

The leading reason for joint replacement surgery in the elderly is failure of conservative medical treatment for end stage arthritic joints. The increase in the number of aging Americans, and the increase in prevalence of arthritis for this age group along with a strong desire to remain active have continued to increase the demand for total joint arthroplasty (Healy, Iorio, & Lemos, 2001). Joint replacement surgery has been shown to improve pain, functional ability, social function, and quality of life (Aarons, et al. 1996; McGuigan, et al. 1995; Norman-Taylor, et al. 1996; Ritter, et al. 1995).

The goal of total joint arthroplasty is to recreate the motion of flexion, extension, adduction, and rotation of the joint that has lost range of motion. This surgical intervention demonstrates a ten-year success rate for 98 % of elderly individuals while relieving joint pain and correcting the joint deformity. For patients with bilateral knee joint end stage arthritis, bilateral joint replacements are often performed at the same time (Pellino, Preston, Bell, Newton, & Hansen, 2002).

Total hip arthroplasty (THA) is a surgical procedure that replaces a diseased joint with a synthetic joint using a synthetic acetabulum, femur, and polyethylene liner that are fixed to bone by cement or bone ingrowths. Total knee arthroplasty (TKA) involves replacing the femoral and tibia sides of the joint using a long or short stem fixated by cement. The goal of joint arthroplasty is to improve function with an artificial joint that improves range of motion and provides pain relief with few surgical complications (Brander, Mullarkey, & Stulberg, 2001). The decision making process in considering a candidate for total joint replacement is the degree of radiographic changes and the degree of functional impairment.

Gender and Arthroplasty

Although women have 1.5-2.0 higher incidence of osteoarthritis, men have more total knee arthroplasty than women. Katz, et al. (1994) suggests that gender differences in joint arthroplasty are difficult to evaluate because procedure rates are not reported by severity of disease. The authors evaluated functional status using a daily living scale that evaluates the ability to walk several blocks, climb stairs, or take part in vigorous activity. Greater functional impairment and the use of walking support were reported for most of the females. The authors suggest that males have earlier surgical intervention for functional impairment and pain. Praemer, et al. (1999) do report that the number of total knee replacements for men in 1996 was 1318/100,000 while for women in the same year it was 928/ 100,000. There is some evidence that suggests women delay surgical intervention out of fear of surgical failure, death or loss of function postoperatively. Postponing surgical intervention can also be because of distrust of physicians and hospitals, a reluctance to take risks and concern about caregiving responsibilities.

Conversely, males most reported concern is the length of rehabilitation time necessary for the return of joint function (Ritter, et al. 1995).

Race and Arthroplasty

The relationship between race and arthroplasty has been poorly studied. A recent study in a large county in Texas reported that Hispanics were under represented as recipients for hip replacement surgery (Escalante, Espinosa-Morales, Del Rincon, Arroyo, & Older, 2000). In their research, African Americans were also less likely than Caucasians to receive arthroplasty surgery. Extensive review of research literature on race and arthroplasty, however, revealed no evidence to suggest a disparity in race and arthroplasty.

In summary, the number of total joint replacements increases dramatically for both sexes after age 65 (Praemer, et al. 1999). The effect of this increase can be directly attributed to the incidence of joint osteoarthritis, chronic pain and functional impairment (Felson, 1988; Schlesinger, 2001). Women report greater functional impairment for all activities of daily living and delay arthroplasty for a longer period of time. It is unclear from previous research reasons for gender differences in osteoarthritis incidence or the delay for surgical intervention. Previous research only verifies the age related changes of osteoarthritis, functional impairment and the increase in total joint replacement surgery for the relief of pain and improvement in physical function.

Spiritual Coping

According to Lazarus, DeLongis, Folkman, and Gruen, (1985), “efficacy expectations and appraisals refer to cognitions: fear and distress refer to emotional states that includes cognitions” (p. 776). Stress is regarded as a complex variable and the individual in his/her personal environment reflects the processing of these variables.

Good health and the absence of chronic pain represent a person's stable environment. An individual's inability to maintain these environmental variables creates stress and fear. Through evaluating the stressors and using defense strategies, a coping process will be used to overcome the disruption in a person's environment (Lazarus et al, 1985). The older adult uses cognitive interpretation to identify stressful health changes and uses more defense strategies to cope. Diehl, Coyle, and Labouvie-Vief, (1996) found that compared to younger people; there was a difference in the use of self-restraint by older adults rather than aggression to cope with environmental stressors.

Religious behaviors such as prayer, religious service attendance and seeking spiritual connection, are part of the individual's practice of spiritual or religious coping (Ellison & Levin, 1998; Koenig & Larson, 1998; Pargament, et al. 1998). Researchers have studied the various spirituality concepts: 1) Religious doctrine; 2) Religious attendance; and 3) Religious affiliation.

Spirituality includes both the world of experience and the way of life a person lives that is guided by religious doctrine (Principe, 1983). It is the continuous process of integrating oneself in current and past experience and the effort of relating to others with trust and understanding. Spirituality links self with a power greater than the individual. It is most often associated with a religion that defines the divine and offers ways to relate to the sacred (McFadden & Gerl, 1990). Fowler describes the persons life spiritual development as a developmental psychological process that uses cognitive and emotional synthesis of a sense of meaning and purpose in the life journey (Shulik, 1988).

Interest in research involving the relationship of spirituality and health has been increasing over the past 15 years. Most existing research has focused on religious

affiliation and health status in hypertension, depression, mortality, and anxiety (Clark, Friedman, Martin, 1999; Husaini, Blasi & Miller, 1999; Koenig, et al. 1993, 1994). The examination of a possible therapeutic effect of spirituality in the postoperative joint replacement patient has not been explored. Levin and Chatters (1998) suggest that in order to establish a relationship between spirituality and health, research must use evaluate a measurable medical effect of spirituality or religion and aging. This research will hypothesize that a positive relationship does exist between the older adult's degree of spirituality and self-health assessment.

Spiritual Coping and Health

There has been no published research demonstrating a relationship between spiritual coping, health assessment, and post-surgical pain. Most empirical research has focused on the relationships of spiritual coping, spiritual beliefs, spiritual involvement and health outcomes in mental health, hypertension, depression, and anxiety. Matthews, et al. (1998) reviewed the relationships of religious factors that included religious attendance and mental health status. The focal areas of mental health status were coping and recovery from illness. The authors concluded in their review there was strong support for religious commitment and positive medical outcomes following serious illnesses e.g. heart disease, cancer. Pargament, et al. (1998) using a spiritual well being scale found there was a relationship between positive and negative patterns of religious coping in young and elderly age groups. They measured three diverse sample groups experiencing stressful life events. The first sample represented Oklahoma City residents who were evaluated for religious coping after the federal building bombing. The second sample involved college students who had experienced a significant negative event, such as a death of a friend or family problems. The third sample group was hospitalized

patients over the age of 55 with moderately severe medical illness. Although, the participants were of different ages and diverse life event stressors, a positive pattern of religious coping was found among the three groups. Those participants with positive religious coping patterns had less psychological anxiety and distress. Those individuals with negative religious coping were associated with greater emotional distress, e.g. depression, and reported poorer quality of life. Pargament and colleagues (1990), extended their religious coping research to more clearly identify the kinds of religious beliefs, and behaviors that are helpful to individuals as they cope with negative life events like death, illness, divorce and work related problems. Four separate themes of religious beliefs and behaviors emerged to further define spiritual beliefs and practice: 1) belief in a fair and loving God; 2) partnership with God is supportive; 3) positive outcomes come from using of religious rituals; and 4) search for spiritual and personal support through religious affiliation. Pargament, et al. (1990) explains nonreligious avoidance with descriptor items from personal narratives such as "tried not to think about it," "wished the situation would go away" (p. 818).

Using retrospective demographic data collection, early research that focused on religious affiliation and health status demonstrated positive relationships between religious affiliation and various health correlates, such as hypertension control, depression, anxiety, length of hospital stay and mortality (Koenig, et al. 1993; 1998; Koenig & Larson, 1998; Meador, et al. 1992). In a review of 20 empirical studies, Levin & Vanderpool (1990) concluded that religion is therapeutically beneficial in the control of hypertension. Koenig, et al. (1998) investigated the relationship of religious activities and blood pressure control among older adults dwelling in communities. They concluded

that religiously active adults displayed lower blood pressures and were more compliant with prescribed medication. Additionally, they observed a racial difference. The authors found that although black religious males had higher blood pressures than white religious males, they were more compliant with medication use for blood pressure control.

Recent research has examined spirituality and functional ability during rehabilitation. Kim, Heinemann, Bode, Sliwa, & King (2000) examined spirituality using an intrinsic Judeo-Christian scale of well-being and functional variables among patients in a rehabilitation hospital. Intrinsic religiousness is defined as the individual's internalizing a religious belief and living the belief. Individual spirituality scores though high were not associated with variables of functional recovery such as mobility, and self-care. Fitchett, Rybarcyk, DeMarco, and Nicholas (1999) found similar results in postoperative rehabilitation. There was a high degree of spirituality among their patients who rated their health as poor or very poor. Using a questionnaire that measures church affiliation, attendance, and spiritual behaviors, the authors were unable to confirm a relationship between self-health assessment, spirituality, and church activities. Pressman, Lyons, Larson, and Strain (1990) in a small study of postoperative female orthopedic patients found significant correlation between church attendance, personal importance of religion, degree of spirituality, and functional meters walked ($r=0.45$, $df = 27$, $p<0.05$). This research found that postoperative orthopedic subjects with strong religious beliefs and practices, and less depression had better ambulatory function at discharge. The spirituality score was not significantly correlated with ambulatory status independent of depression. The authors suggest that subjects who are spiritual respond more favorably to physical therapy because they are less depressed. Hodges, Humphreys, and Eck

(2002) investigated the effects of spirituality on spinal surgery recovery. Using a spirituality tool that evaluates intrinsic spirituality, they found these subjects to be highly spiritual (79%). The authors then compared preoperative and postoperative pain scores with postoperative functional ability. They found no correlation between a high degree of spirituality and pain scores or functional outcomes.

Spiritual research has investigated the possible relationships of pain, health and functional recovery. In each study, older adults have a high degree of spirituality on various measurement tools, but only one study reported a significant correlation that included a finding of less depression. The investigation of spirituality and health has not been evaluated using consistent measures of spirituality scales and postoperative population groups. Most current research has observed possible religious affiliation, spiritual beliefs and functional status.

Relationships between Spiritual Beliefs, Gender and Race

Few empirical studies have examined pain, gender, and racial relationships (Affleck, et al.1999). Research regarding utilization of health services demonstrated a positive correlation between utilization and religious attendance in elderly male patients 60+ years of age. Increased attendance at religious services prior to hospitalization correlated with a shorter hospital stay and fewer hospital admissions (Koenig & Larson, 1998).

Past research concentrated on religious coping behaviors, including religious affiliation, beliefs and involvement. Research findings suggest that many older adults use spiritual coping in various stressful health situations and that this coping has had a beneficial effect. Further investigation is needed using spiritual measures to examine if

there is a spiritual coping adaptive effect in the management of older adult postoperative pain.

Roy Adaptation Model-Based Research

In 1976, Sister Callista Roy's theory of an adaptation model for nursing was presented to guide nursing education in the United States. The theory was later revised to address the middle range or practice level theory relevant to patient care in nursing. In 1999, a new model of the Human Adaptive system was introduced to clarify the understanding of the various components of the theory and to extend it into clinical practice (Roy & Andrews, 1999). Roy defines the purpose of nursing practice as the promotion of the ability of human adaptive systems to adjust effectively to changes in the environment and to the individual's ability to modify their environment (Roy & Andrews, 1999). Roy's theory contains scientific and philosophical assumptions that describe successful human coping in changing environments. According to Roy, the adaptation of the human system is based on scientific assumptions that include: 1) meaning is necessary for person and environment integration; 2) thinking and feeling is necessary for awareness; 3) people have a commonality of patterns and relationships; 4) adaptation results from the integration people and their environment. Further, the adaptation concept includes Roy's philosophical assumptions: 1) relationships include a higher power and the world; 2) people use the ability of faith; 3) God is observed in diversity of creation, and is the destiny of creation.

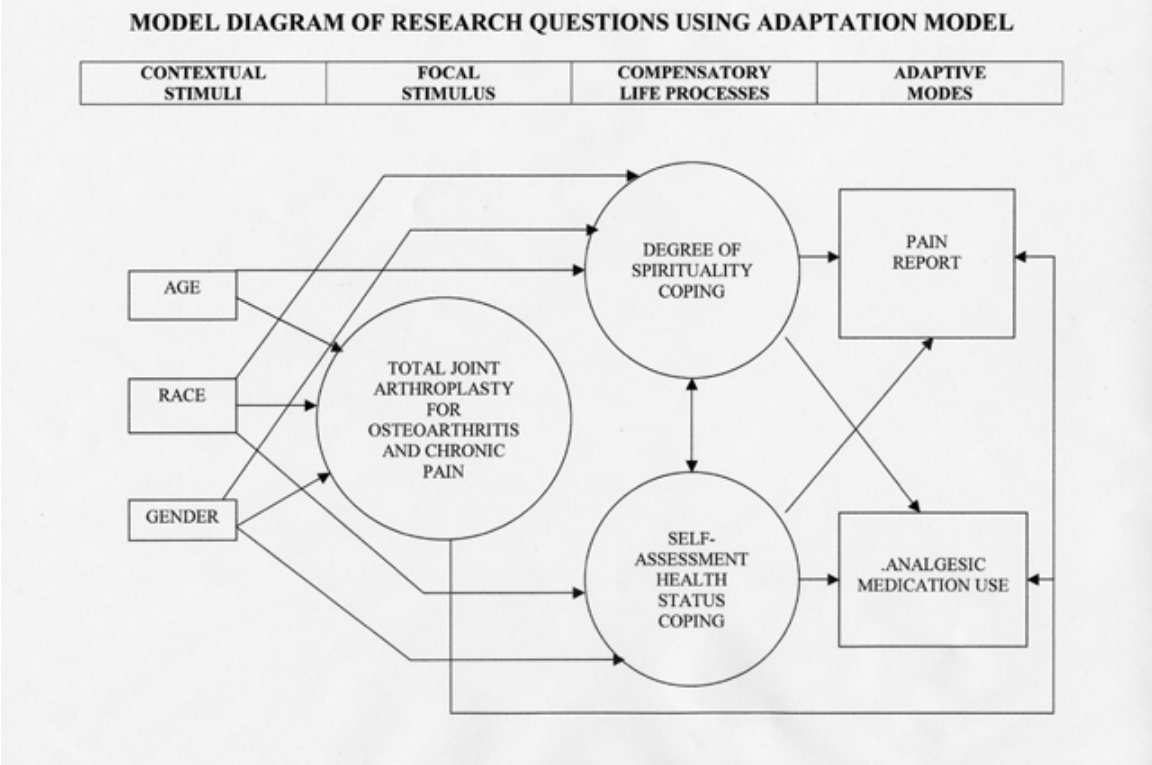

Figure 2-1. Model Diagram of Research Questions

Roy Adaptation Model Gerontologic Research

Roy describes the adaptive process as adjusting effectively to environmental changes using cognitive interpretation and coping processes to maintain an integrated life. In this model, compensatory life processes are spiritual coping and health self-assessment. These regulatory processes provide an adaptive response for less pain.

Roy's adaptation model has been used mainly with children and adults in a hospital environment. One gerontologic study has used the Roy adaptation model to evaluate a coping process and the concept of self-consistency. Roy believes the concept of personal self is a combination of self-consistency, the moral-ethical spiritual self and the self-ideal (Roy & Andrews, 1999). Zhan (2000) used the Roy Adaptation Model to study adaptation and coping with severe hearing loss in 130 elderly adults. Health status and coping data were analyzed for positive relationships between cognitive coping and self-

consistency. There was a positive correlation between those who rated their health as good or excellent and self-consistency. The variance in self-consistency was the result of cognitive coping processes. Three cognitive processes; clear focus and method, knowing awareness, and self-perception were most significant (36.97 ($p < .001$, $df = 5$).

There is support for the use of the Roy Adaptation Model in gerontological research to evaluate spiritual coping and adaptation to pain. Successful adaptation to environmental changes is necessary to return to good health and well being as people age.

Summary

Chronic pain in the aged adult is both a physical and emotional experience. Current research suggests that the use of pharmocologic and non-pharmocologic methods in the elderly may reduce chronic pain. However, some research findings suggest that the use of specific non-pharmocologic interventions such as spiritual behavior, religious attendance, and spiritual beliefs are inconclusive in providing relief from the negative effects of chronic illness and pain. This research study will evaluate relationships between spirituality and analgesic medication use after total joint arthroplasty in older adults.

Measurement of the degree of spirituality and health will evaluate the effectiveness of coping with postoperative pain in the older adult. This research will provide quantitative data to provide a framework for evaluating older adult's spirituality as an alternative non-pharmocologic intervention in postoperative pain management.

CHAPTER 3
METHODS

Research Design

This research examines the relationship of older adults' spiritual beliefs, and self-health assessment and analgesic medication use during the first three days after total joint replacement surgery. A correlational convenience design was used to investigate the questions in a sample of surgical candidates scheduled for hip and knee joint arthroplasty. Using the Roy Adaptation Model, this study examined relationships between total joint arthroplasty for osteoarthritis, chronic pain, the degree of spiritual beliefs, spiritual involvement, self-health assessment and the health outcome of postoperative analgesic medication use. Participants for this research came from a socially diverse area in North Florida.

Controls

Three orthopedic surgeons from the University of Florida College of Medicine, Department of Orthopedics performed all of the total joint arthroplasty. To control variations in general anesthesia technique, one supervising anesthesiologist planned each participant's anesthetic care. Participants chose his/her preferred method of postoperative pain control prior to surgery. Choices included regional anesthesia, Patient Control Analgesia (PCA), or PRN dosing. Preoperative patient education and anesthesia evaluation was done according to the standard of care established by the University of Florida College of Medicine.

Inclusion criteria:

1. 55 years of age or older
2. Primary hip or knee joint arthroplasty
3. Osteoarthritis of the hip or knee joint as demonstrated by radiographic exam and orthopedic surgeon's diagnosis as documented in the medical record
4. Failed medical management of chronic joint pain
5. Inclusion regardless of comorbidity status
6. Candidates for hip or knee arthroplasty

Power Analysis and Sample Size

An estimate of statistical power was determined using the G power computer software to calculate the required sample size. A total of 115 participants were consented and completed the study. The sample size was based on a formulation of 80% power, at least six independent variables, an effect size of 0.15 (R-squared= 0.13) with a significance of 0.05 for a two-tailed test. The G power computer software was used to calculate the required sample size (Erdfelder, Faul, & Buchner, 1996).

Procedures

The Principle investigator of this study contacted the chairman of the Orthopedic Department and presented a description of the study. The chairman then provided a signed letter of agreement acknowledging awareness of this study (See Appendix A).

In the original protocol, I planned control variation in surgical technique using only patients scheduled with one orthopedic surgeon. A total of 27 patients were enrolled from July, 2003 until January, 2004. During this enrollment period, however, the identified surgeon reduced the number of total joint surgeries he performed per month in order to fulfill administrative duties. In January, 2004, the investigator met with committee members to explore adding two additional surgeons in order to attain within a

reasonable length of time a number of subjects months adequate for a power analysis. After appropriated discussions, two additional orthopedic surgeons agreed to help. They were each provided a copy of the protocol and informed consent. A revision that included the two additional orthopedic surgeons was submitted and approved by the IRB in January, 2004.

Protection of Human Subjects

University of Florida Institutional Review Board (IRB) approval was obtained prior to participant enrollment or data collection (See Appendix B for final approval, revised approval and extension approval forms). A revision to include the additional orthopedic surgeons was submitted and approved in January, 2004. A final IRB extension was submitted June, 2004 to extend the research study from July, 2004 until July, 2005.

Method

Patients scheduled for surgery are scheduled in the pre-surgical center for an examination by an ARNP to determine their suitability for anesthesia. From this group the principal investigator identified potential subjects for study. Subjects who met the inclusion criteria and agreed to participate in the study were given a verbal description of the study, confidentiality assurance, and possible risks of their participation. Those patients who expressed willingness to participate completed two questionnaires. The questionnaires took approximately 20 minutes to complete during their pre-operative visit. The principal investigator and each subject signed a copy of the informed consent. A copy of the signed informed consent was given to the participant for their individual records. The principal investigator verbally asked each subject if they had additional questions regarding their participation in this research study prior to their discharge from the pre-surgical center.

A key containing the participant's name, and confidential code was developed. Informed consents and questionnaires were coded with the participant's confidential code and are kept in a locked file cabinet in the principal investigator's office.

Measures

Demographic data. Age, gender and ethnicity were coded using a coding key (see Appendix G). Demographic data was entered on an Excel spreadsheet after enrollment. There was no missing demographic data.

Preoperative Questionnaire Measures

Indicator of spirituality

The Spiritual Involvement and Belief Scale- (Revised (SIBS-R) Hatch, Burg, Naberhaus, & Hellmich (1998) evaluates a broad range of intrinsic spiritual content from ability to find meaning in life to spiritual writings. Designed for use with individuals of all religious and non-religious traditions that include Christian, Judeo, Hindu, Islam and Atheist. This instrument differs from other spiritual measurement tools in that it is not limited to individuals with a Judeo-Christian tradition.

For the purpose of this study one question was selected to evaluate participants' spirituality. Two groups were created using the response to the question, "How spiritual a person do you consider yourself?" Subjects were asked to rate themselves on a scale of 1 to 7 with 7 meaning "the most spiritual". Those groups who rated themselves 5, 6, or 7 were considered highly spiritual and coded as 1. Those who rated their spirituality as 1,2,3, or 4 were considered less spiritual and coded as 0

Indicator of self-health assessment

The Rand SF-36 Health Status Questionnaire measures physical functioning, social functioning, role functioning (physical problems) and role functioning (emotional

problems). Additionally, the instrument measures mental health, fatigue, pain, and general health.

One question, “In general would you say your health is”, was used to create two groups for the analysis. If a participant answered good, very good or excellent, their response was considered as a high self-health assessment and coded as 1. If their response was fair or poor, their self-health assessment was considered a low score and coded as 0

Questionnaire data. Using the patient’s confidential code all questionnaire data was entered using an excel spreadsheet. Missing data on questionnaires was entered as a dot.

Indicator of diagnosed osteoarthritis. A diagnosis of osteoarthritis was recorded by the orthopedic surgeon and is available in each individual participant’s medical record. The diagnosis was verified with the individual’s pre-surgical history and physical assessment.

Indicator of ethnicity

Ethnicity was obtained from the patient’s admission record. The admissions department routinely obtains ethnicity information during a patient’s initial interview prior to entering the hospital.

Postoperative Data Collection Procedures

Indicator of pain scores. Individual postoperative pain scores were obtained from the individual’s medical record. Daily pain scores were recorded and averaged for three days postoperatively. Additionally, a daily median pain score was recorded for this same interval. Pain was evaluated using the Visual Analog Scale (VAS) that evaluates pain intensity numerically using a 0 to 10 measurement (0= no pain, 10= worst pain). The

VAS instrument is used with all age groups and is the approved pain scale for use at Shands Hospital at the University of Florida.

Analgesic medication use. Medications dispensed during a patient's hospitalization are records in the Medication Administration Record (MARS). The MARS documents each dose of medicine administered by nursing personnel. This medication record contains the medication name, date, time, dosage and initials of hospital personnel administering the medication. Individual Medication Administration Records (MARS) were evaluated for the use of narcotic analgesic medication for every participant. . An Opioid equi-analgesic conversion table was used and all opiates were standardized to morphine sulfate equivalents. For example, 1.5 mg IV Hydromorphone = 100 mcg IV/SC Fentanyl = 20 mg P.O. Oxycodone = 10 mg IV Morphine (Pasero, Portenoy & McCaffery, 1999). Total IV Morphine Sulfate equi-analgesic conversion was recorded for each postoperative day for three days.

Regional anesthesia use. Regional anesthesia techniques such as epidural, Femoral Nerve Sheath Catheters, and Psoais Compartment Catheters provide postoperative pain relief by blocking nerve conduction with local anesthetics, thereby blocking the transmission of pain (Pasero, Portenoy, & McCaffery, 1999). The use of a local anesthestic provides a sensory and motor blockage. The epidural regional anesthesia technique occasionally requires the use of an opioid agent in addition to a blocking agent. The use of an opioid agent is recorded on a separate analgesic document in the patient's medical record. The placement location of regional anesthesia is recorded on a separate document located within the patient's medical record.

Medical record data. Medical record data collected included surgical site, anesthesia data, pain scores and analgesic medication used. A form was developed (see appendix) to collect data from the participant's medical record after discharge. Medical records were requested using a Request for Records review and Shands at the UF Research Chart Request forms. An average of 4-20 charts were requested each time; medical records usually required two weeks to be assembled. Several delays were experienced in obtaining medical records that included research medical records personnel vacation days, sick days, and incomplete delivery of records. One medical record has been lost. Two records are incomplete with medication records missing.

The Medical Record Department requires that all data and chart review must be preformed in the records department. Using the coding key, data was recorded on the case coding form. Pain scores were documented as average scores and median pain scores. All opioid medications were converted to Morphine Sulfate IV equi-analgesics and recorded. Surgical site, anesthesia type, regional anesthesia, general anesthesia were coded using the coding key.

Data Analysis

Data obtained in the postoperative period were entered on an Excel spreadsheet. Analysis used SPSS statistical software, Version 11 for Windows. Demographic data for spirituality, self-health assessment, age, gender, pain scores, and analgesic medication use were analyzed to generate descriptive statistics using mean scores and frequencies

The hypotheses were tested with analysis procedures using Pearson's correlation coefficient, T-Test and ANOVA with significance levels of 0.05. Correlations measure how variables are related and measure their linear association. Frequencies and mean scores were analyzed for all demographic data, age, gender, operative site, physician,

regional anesthesia and analgesic medication use. Individual survey questionnaire items were analyzed using frequency and percentage of individual participant response.

Summary

This chapter presented research design, sample inclusion, power analysis, methodology, and data collection procedures for this study. Data analysis methodology for research hypotheses was discussed.

CHAPTER 4
RESULTS

A description of the participants and the results of this descriptive study are presented in this chapter. The results are examined in relation to the three hypotheses. This study took place at Shands at the University of Florida. Subjects were recruited as a convenience sample that included only persons that met the inclusion criteria. Informed Consent and questionnaire data were collected in the pre-surgical anesthesia clinic. Demographic data, pain scores and medication use were obtained from the subject's medical record after hospital discharge. All data was computed using the SPSS statistical software, version 11 for Windows. Statistical significance was set at $p < 0.05$.

Sample Characteristics

A total of 126 potential subjects who met the inclusion criteria were approached to participate in the study. Eleven potential participants declined to participate. Three stated they were "tired of filling out paperwork", two did not want to participate in any research and one did not believe in spirituality. Five did not express a reason for refusing participation. None of the potential research participants expressed any fear of an adverse event by participating in this study. All subjects who agreed to participate signed an informed consent and completed the two questionnaires in the pre-operative anesthesia center. At the end of the study one subject's medical record was missing from the Medical Records Department and after a detailed search was considered lost. One subject's Medication Administration Record was missing from the medical record and

presumed lost. All other participants' medical records were complete at the end of the data collection period.

One hundred and fifteen subjects who met the inclusion criteria were consented. The mean age of the sample was 67.70 (SD = 8.23). Seventy- four (64.3 %) of the participants were female and 41 (35.7%) were males. The majority of the participants were Caucasian (n = 111), followed by Hispanic (n = 2) and African American (n = 1).

All participants were diagnosed with severe osteoarthritis and had failed conservative medical management. Right total knee arthroplasty was the joint replacement most frequently performed at 35% (n = 35), followed by left total knee arthroplasty at 27.8% (n = 32), right total hip arthroplasty 18% (n=18), left total hip arthroplasty at 13.9% (n =16), and bilateral total knee arthroplasty at 10.4% (n = 12).

Regional Anesthesia

Forty-six percent (n = 56) of the participants chose a femoral nerve sheath for post-operative pain control, while 25.2% (n = 29) chose an epidural, 3.5% (n = 4) chose a psoas compartment sheath, and 1.7% chose a continuous spinal. Patient controlled analgesia (PCA) was used by 67% (n = 77) of subjects. The PCA group includes some of the subjects who received a femoral nerve sheath. All other participants selected "as needed" analgesia for postoperative pain control.

Anesthesia Technique During Surgery

General anesthesia was administered to 100 participants (87%) followed by continuous spinal at 4.3% (n = 5), followed by managed anesthesia care at 2.6% (n=3).

Analysis of Data in Relation to the Hypotheses

Hypothesis 1

Hypothesis 1 stated that older adults with a high degree of spirituality receiving hip or knee arthroplasty for primary osteoarthritis would report less pain and receive less analgesic medication than those participants with a lower degree of spirituality after controlling for health self-assessment.

The Pearson Correlational analysis as shown in Table 3, demonstrated there was no significant correlation between spirituality response, self-health questionnaire response and the following variables: age ($r = -0.02$, $p = 0.84$), average pain scores day one ($r= 0.01$, $p = 0.92$), average pain scores day two ($r = 0.02$, $p = 0.84$), average pain scores day three ($r = 0.03$, $p = 0.78$) and analgesic medication use ($r = -0.04$, $p = 0.69$). A partial correlation coefficient controlling for the self-health assessment score was then analyzed (See Table 4) and there were no significant correlations between spirituality, and the variables: age ($r = -0.05$, $p = 0.60$), pain day one ($r = 0.53$, $p = 0.59$), pain day two ($r = 0.06$, $p = 0.53$), pain day three ($r = 0.06$, $p = 0.56$) and pain medication ($r = -0.02$, $p = 0.81$). Hence, Hypothesis 1 was rejected.

Hypothesis 2

Hypothesis 2 stated that older adults with a high score on the high self-health assessment tool would report less pain and receive less analgesic medication than those participants with a low score on the self-health assessment tool after controlling for spirituality.

The Pearson Correlation found there was a significant correlation as shown in Table 5 between the variable for health on the Short Form-36 Health Survey and age ($r = 0.23$, $p = 0.02$), average pain scores day one ($r = -0.31$, $p = 0.00$), day two ($r= -0.29$, $p =$

0.00) and day three (r = -0.22, p = 0.03). There were similar results for days one, two, and three and median pain scores. However, there was no significant correlation between the variables, analgesic medication use (r = -0.11, p = 0.23) or high spirituality (r = 0.13, p = 0.17) as shown in Table 5.

A Pearson Partial correlation for health assessment while controlling for spirituality was analyzed. There was a statistically significant correlation for the following variables: age (r = 0.23, p = 0.02), pain scores on day one (r = -0.31, p = 0.00), day two (r = - 0.29, p = 0.00), day three (r = -0.22, p = 0.02). There was no significance for less analgesic medication use (r = -0.11, p = 0.26) as shown in Table 6. The results confirmed Hypothesis 2 for pain, but rejected it for analgesic medication use.

Hypothesis 3

Hypothesis 3 stated that there would be less analgesic medication used in those older adults receiving hip or knee arthroplasty who had a high degree of spirituality involvement and beliefs and a high score on the self-health assessment tool.

An ANOVA regression was used to determine if there was an interaction between good to excellent health and a high degree of spirituality. The relationship was not significant (F = 1.04, p = 0.38). Further analysis a T-Test was used to determine if there was a difference in the average analgesic medication use between the high spirituality group and the good to excellent self-assessed health group (Ms = 7.63 and 8.49 respectively). Hypothesis 3 was rejected.

Additional Findings

For the purpose of this research, one question rating degree of spirituality was used from this scale. The SIBS tool was satisfactory and demonstrated a Cronbach Coefficient Alpha 0.94 Raw Score. Each participant completed the 39-item questionnaire and there

were a many positive responses to specific questions on the spirituality and beliefs scale. For example, on the item “spiritual health contributes to physical health,” 70.4% agreed or strongly agreed. Most participants considered themselves spiritual when asked to rate their spirituality on a scale of 1 to 7 (with “7” being the most spiritual). Participants used religious coping such as hope, personal relationship with a greater power than self, and a belief that prayer changes things. A high number of participants (77%) wanted others to pray for them during their illness. More than 70% of the respondents felt that spiritual health contributes to physical health. Additionally, 95 or 82.6% of the participants always or almost always make an effort to apologize when they do wrong to someone. Overall scores on the SIBS instrument reflected a positive relationship with a higher power, prayer, a belief in an after life, and continued spiritual growth (see Table 7).

Participants expressed difficulty with the SIBS questionnaire and often said, “this is too hard to answer” or, “ I have to think a lot”. However, no participant asked for clarification of a SIBS question.

The Short Form-36 Health Survey

For the purposes of this research participant response to the question “In general would you say your health is: excellent, very good, good, fair, poor” was used for analysis. Participants answered the 11-item self-assessment tool that queried physical and emotional function. It is of interest that most were “limited a lot” for vigorous and moderate activities. Daily activities such as walking, bending, kneeling and stooping had the highest response for “limited a lot”. Simple activities such as dressing and bathing were least limited. The tool seemed easier than the SIBS for participants to complete and there were no missed questions.

Table 1. Frequency and Percent of Variables

Variable	Frequency	Percentage
Sex		
Male	41	35.7
Female	74	64.3
Ethnicity		
White	111	96.5
African American	1	.9
Hispanic	2	1.8
Operative Site		
No response	2	1.7
Left Total Hip Arthroplasty	16	13.9
Right Total Hip Arthroplasty	18	15.7
Left Total Knee Arthroplasty	32	27.8
Right Total Knee Arthroplasty	35	30.4
Bilateral Total Knee Arthroplasty	12	10.4
Orthopedic Surgeon		
Surgeon #1	81	70.4
Surgeon #2	23	20.0
Surgeon #3	11	9.6
Regional Anesthesia		
No Regional	22	19.1
No Response	1	.9
Epidural	29	25.2
Femoral Nerve Sheath	56	48.7
Psoas Compartment Sheath	4	3.5
Continuous Spinal	2	1.7
Spinal	1	.9
Patient Controlled Analgesia		
No Response	3	2.6
No PCA	35	30.4
PCA	77	67.0
Anesthesia Type		
No Response	2	1.7
GETA	100	87.0
Spinal	5	4.3
MAC	3	2.6
Continuous Spinal	5	4.3

Table 2. Summary Measures of Variables

Variable	N	Mean	Std. Dev	Minimum	Maximum
Age	115	67.70	8.23	55.00	86.00
Av. Pain Scores day 1	113	3.34	1.99	0	9.13
Av. Pain Scores day 2	111	2.28	2.04	0	7.20
Av Pain Scores day 3	106	2.24	2.15	0	9.20
Median Pain Scores day 1	113	2.97	2.67	0	9.75
Median Pain Scores day 2	111	2.01	2.31	0	9.00
Median Pain Scores day 3	105	2.11	2.38	0	9.00
Health Self-Assessment	115	0.82	0.39	0	1.00
Spirituality	111	0.69	0.46	0	1.00

Table 3. Pearson Correlation Coefficients-Spirituality and Variables with No Adjustments

Variables	r value	p value	n
Age	-0.02	0.84	111
Pain Day 1 (average)	0.01	0.92	109
Pain Day 2 (average)	0.02	0.84	108
Pain Day 3 (average)	0.03	0.78	103
Pain Day 1 (median)	0.01	0.91	109
Pain Day 2 (median)	-0.03	0.75	108
Pain Day 3 (median)	0.10	0.30	102
Analgesic Medication Use Day 1-3	-0.04	0.69	109

Table 4. Pearson Partial Coefficients-Controlling for Health Assessment

Variables	r value	p value	n
Age	-0.05	0.60	108
Pain Day 1 (average)	0.05	0.59	106
Pain Day 2 (average)	0.06	0.53	105
Pain Day 3 (average)	0.06	0.56	100
Pain Day 1 (median)	0.05	0.63	106
Pain Day 2 (median)	0.01	0.92	105
Pain Day 3 (median)	0.13	0.18	99
Analgesic Medication Use Day 1-3	-0.02	0.81	106

Table 5. Pearson Correlation Coefficients-Health Self-Assessment and Variables with No Adjustments

Variables	r value	p value	n
Age	0.23	0.02	115
Pain Day 1 (average)	-0.31	0.00	113
Pain Day 2 (average)	-0.29	0.00	111
Pain Day 3 (average)	-0.22	0.03	106
Pain Day 1 (median)	-0.26	0.01	113
Pain Day 2 (median)	-0.30	0.00	111
Pain Day 3 (median)	-0.21	0.04	105
Analgesic Medication Use Day 1-3	-0.11	0.23	113
Spirituality	0.13	0.17	111

Table 6. Pearson Partial Coefficients-Health Self-Assessment and Variables Controlling for Spirituality

Variables	r value	p value	n
Age	0.23	0.02	108
Pain Day 1 (average)	-0.31	0.00	106
Pain Day 2 (average)	-0.29	0.00	105
Pain Day 3 (average)	-0.22	0.02	100
Pain Day 1 (median)	-0.26	0.01	106
Pain Day 2 (median)	-0.30	0.00	105
Pain Day 3 (median)	-0.22	0.03	99
Analgesic Medication Use Day 1-3	-0.11	0.26	106

Table 7. Frequencies and Percentages for Self- Reported SIBS Questionnaire (N=115).

Answers reflect Agree or Strongly Agree scores only except for questions that are reverse score negatively worded items. These items were scored disagree or strongly agree.		Frequency	Percentage
(1)	I set aside time for meditation and/or self-reflection.	51	44.3
(2)	I can find meaning in times of hardship.	67	58.3
(3)	A person can be fulfilled without pursuing active spiritual life. (disagree/strongly disagree)	43	37.4
(4)	I find serenity by accepting things as they are.	53	45.0
(5)	Some experiences can be understood only through one's spiritual beliefs	64	55.6
(6)	I do not believe in an afterlife. (disagree/strongly disagree)	70	60.9
(7)	A spiritual force influences the events in my life.	70	60.9
(8)	I have a relationship with someone I can turn to for spiritual guidance.	69	60
(9)	Prayers do not really change what happens. (disagree/strongly disagree)	79	68.7
(10)	Participating in spiritual activities helps me forgive other people.	70	60.9
(11)	I find inner peace when I am in harmony with nature.	68	59.2
(12)	Everything happens for a greater purpose	70	60.9
(13)	I use contemplation to get in touch with my true self.	43	37.4
(14)	My spiritual life fulfills me in ways that material possessions do not. (This question is missed by 25 or 21.7% do to its position in the questionnaire)	62	53.9
(15)	I rarely feel connected to something greater than myself. (disagree/strongly disagree)	62	53.9
(16)	In times of despair, I can find little reason to hope. (disagree/strongly disagree)	80	69.6
(17)	When I am sick, I would like others to pray for me.	89	77.4

Table 7. Continued

Answers reflect Agree or Strongly Agree scores only except for questions that are reverse score negatively worded items. These items were scored disagree or strongly agree.		Frequency	Percentage
(18)	I have a personal relationship with a power greater than myself	81	70.4
(19)	I have had a spiritual experience that greatly changed my life	57	49.6
(20)	When I help others, I expect nothing in return.	98	84.2
(21)	I don't take time to appreciate nature. (disagree/strongly disagree)	70	60.9
(22)	I depend on a higher power.	70	60.9
(23)	I have joy in my life because of my spirituality	74	64.3
(24)	My relationship with a higher power helps me love others more completely.	69	60.0
(25)	Spiritual writings enrich my life.	61	52.1
(26)	I have experienced healing after prayer.	47	40.9
(27)	My spiritual understanding continues to grow.	74	64.3
(28)	I am right more often than most people. (disagree/strongly disagree)	34	28.0
(29)	Many spiritual approaches have little value.	62	53.9
(30)	Spiritual health contributes to physical health.	81	70.4
(31)	I regularly interact with others for spiritual purposes.	52	45.2
(32)	I focus on what needs to be changed in me, not what needs to be changed in others.	75	65.2
(33)	In difficult times, I am still grateful.	91	79.1
(34)	I have through a time of great suffering that led to spiritual growth.	51	44.3
The following questions were scored using only the response always or almost always			
(35)	When I wrong someone, I make an effort to apologize.	95	82.6
(36)	I accept others as they are.	75	65.2
(37)	I solve my problems without using spiritual resources.	25	21.7

Table 7. Continued.

Answers reflect Agree or Strongly Agree scores only except for questions that are reverse score negatively worded items. These items were scored disagree or strongly agree.	Frequency	Percentage
The following questions were scored using only the response always or almost always		
(38) I examine my actions to see if they reflect my values.	49	42.6
The following question was scored 1-7 with "7" being the most spiritual. Scoring for this question used response 5,6,7.		
(39) How spiritual a person do you consider yourself?	50	66.9

Table 8. Frequencies and Percentages Questions that Indicated Ratings for General Health, and Bodily Pain as Self-reported on the Short Form-36 Health Survey questionnaire (N=115).

Questions	Frequency	Percentage
(1) In general would you say your health is: response: excellent, very good, good	94	81.73
(2) Compared to one year ago how would you rate your health in general now?		
Much better	9	7.83
Somewhat better	18	15.65
About the same	61	53.04
Somewhat worse now	23	20.00
Much worse now	4	3.48
(7) How much bodily pain have you had during the past 4 weeks?		
No response	2	1.74
None	0	0
Very Mild	14	12.17
Moderate	36	31.30
Severe	46	40.00
Very Severe	17	14.78

Additional findings included the increased use of regional analgesic techniques during the last six months of this research. Concurrent research by another investigator enrolled some of these same participants receiving total knee arthroplasty in a study using femoral nerve sheath technique to treat postoperative pain. This investigator examined

the pain report outcomes for two of the most frequently used regional analgesia methods of postoperative pain control: epidurals and femoral nerve sheath catheters. Analysis of these two methods compared the mean pain scores on postoperative days one, two and three. Both techniques had lower mean scores for pain scores on days one, two and three when compared to no regional technique. The epidural provided the lowest mean score day one (M= 2.74) compared to the femoral nerve sheath on day one (M= 3.17). Those participants using PRN analgesia and no regional technique had the highest mean pain score on day one (M=4.25). On day two, the femoral nerve sheath provided the lowest mean pain score (M==1.82). On day three all of the regional analgesia had been removed, but the mean pain scores for those persons who received regional analgesia remained similar to days one and two. On all three days the PRN analgesia group had the highest mean pain score (Ms= 4.25, 2.90, and 2.94, respectively).

In summary, these findings demonstrated that participants in this study were in moderate to severe pain and had functional limitations preoperatively, but described themselves as in good to excellent health and very spiritual. The use of regional analgesia for postoperative pain control did lower pain scores for all days when compared to those who did not receive a regional technique.

CHAPTER 5
DISCUSSION

The purpose of this study was to examine the relationships between the degree of spirituality and high scores on a self-health assessment questionnaire with three postoperative outcomes after hip or knee joint arthroplasty. Specifically, this study examined the relationships between a high degree of spirituality, a high score for individual self-health assessment and pain report and analgesic medication use for three days after total joint replacement surgery. The hypothesized relational statements were based on the need for quantitative data collection measuring the relationships between spirituality, health assessment, pain report and analgesic medication use. There is no previous empirical research that has examined these relationships in the postoperative arthroplasty patient. The study sample consisted of 115 participants scheduled for hip or knee arthroplasty in a large Southeastern teaching hospital. This chapter will present a discussion of (1) research findings, (2) conclusions, (3) research strengths and weaknesses, and (4) implications for nursing practice.

Research Findings

This section will discuss sample characteristics, followed by study of findings as they related to the research questions.

Sample Characteristics

One hundred and fifteen older adults who were scheduled for hip or knee total joint arthroscopy consented to participate in this study. All of the participants were recruited from the pre-surgical anesthesia center of a large teaching hospital. In this convenience

sample, the participant ages ranged from 55 to 86. The average age was 67.70. There were 41 males and 74 females enrolled in this study. This finding is somewhat less than the 2:1 ratio females to males in osteoarthritis prevalence as reported by other researchers (Davis, Ellinger, Newhaus, & Hauck, 1987). Participants described their generalized body pain as severe or very severe (55%) during the four weeks prior to their scheduled surgery, but self-assessed their health as excellent, very good or good (81.73%). Anderson, et al. (1993) and Mobily, et al. (1994) reported similar pain report among older adults. This research found that functional abilities were severely limited for vigorous activity such as participating in strenuous sports, lifting heavy objects, vacuuming, playing golf walking several blocks, bending, stooping and climbing stairs while more moderate activities such as lifting groceries, bathing and dressing were "limited a little". Praemer, Furner, & Rice, (1992) and Salmon, et al. (2001) found similar functional limitations in osteoarthritis patients.

Ethnicity could not be examined due to the low numbers of African Americans and Hispanics enrolled in this research. Felson (1988) similarly found that greater numbers of European whites have osteoarthritis than other ethnicities and this may account for the differences observed in this study. Only one African American and two Hispanics were enrolled in this research. Socioeconomic status may have been a factor in the low number of other ethnic groups seeking joint replacement. However, socioeconomic status was not considered in this research.

Spirituality, Pain Report and Analgesic Medication.

The first research question examined the relationship of a high degree of spirituality, postoperative pain scores and analgesic medication use. One research

question was used from the SIBS questionnaire. Two groups of participants were created using one research question from the SIBS questionnaire. Those with high scores for spirituality were considered highly spiritual. The majority (69.4%) of the respondents were highly spiritual. A partial correlational analysis was used to identify a relationship between a participants' high spirituality and the variables, age, pain report for three days and analgesic medication use postoperatively, controlling for self-assessed health. There was no relationship for spirituality and the variables. Therefore, hypothesis 1 was rejected. Participants who have a high degree of spirituality did not tend to have less pain and did not tend to use less analgesic medication postoperatively. Although there was a high participant response to spirituality, the possibility of spiritual coping did not tend to influence pain or pain medicine use after joint replacement surgery.

Health Self-Assessment, Pain Report and Analgesic Medication Use

It was hypothesized that participants who consider themselves healthy will report less pain and use less analgesic medication postoperatively. The health variable "In general would you say your health is: excellent, very good, good" was used to identify those participants with a high score on health assessment. Of the participants, 81.7% rated their health in this positive way. Correlation analysis found that persons who considered themselves healthy tended to have less pain on each day postoperatively but they did not tend to use less pain medication. Therefore, there was no association between high health scores and less pain medication use. Further analysis using a partial correlation controlling for the spirituality variable, found similar results; a healthy assessment was related to less pain for the three days postoperatively and had no relationship with the amount of pain medication.

In summary, participants who rated self-health as good, very good or excellent tended to experience less pain during the first three days postoperatively. However, these same participants did not tend to use less pain medication. Research question 2 was accepted for less pain, but rejected for less pain medication use.

Impact of Health Assessment and Spirituality on Pain Reports and Analgesic Medication Use

Lastly, it was hypothesized that participants who considered themselves to be very spiritual and healthy would use less analgesic medication during their postoperative recovery. A regression analysis was used to determine possible interactions between health assessment and spirituality and analgesic medication use. There was no relationship between the variables and pain medication. A further T-Test was used to determine if there was a difference between the high spirituality and the high self health assessment groups in analgesic medication use. The T-Test found no mean difference between the two groups.

Therefore, Hypothesis 3 was not accepted. Those participants who self-rated their health as good, very good or excellent *and* considered their spirituality as high did not tend to experience less pain or use less pain medication than did the other research participants.

Conclusions

Although participants reported moderate to severe bodily pain and a decrease in functional activity on a health questionnaire, they considered themselves to be healthy. There was a relationship between self-health and pain for the first three days after surgery. It demonstrated that how a person views their health contributes to the amount of pain they experience after joint replacement. Additionally, less pain experienced did

not mean less pain medication used. There has been no previous research evaluating relationships between how healthy an individual feels and the amount of pain medication used after surgery. Previous research that has evaluated health status has been with individuals who were in "poor health" with long-term disability after surgery.

Most participants considered themselves to be highly spiritual and used spiritual coping methods such as hoping, praying and dependence on a higher power. There is no previous research that has examined the spirituality and postoperative pain or pain medication use after joint replacement surgery. Previous research that evaluated spirituality, health assessment and functional recovery used a very different patient population. The only similarity was a high degree of spirituality among the older adult rehabilitation patients (Fitchett, et al. 1999; Kim, et al. 2000; Pressman, et al. 1990). In my research, most reported that they used spiritual coping methods and behaviors such as participation in spiritual activities, spiritual writings and prayer. They also believe their spiritual health contributes to their physical health. The majority of the participants in this research used these spiritual coping methods. However, there was no evidence that high self-evaluation for spirituality influenced pain or pain medication use after total joint replacement surgery.

Strengths and Limitations

Although this research had strengths, it was limited in its methodology. Primarily it was a convenience sample of pre-operative total joint arthroscopy patients. This research was impaired by the use of regional anesthesia by the majority of the participants. These patients received more regional anesthesia techniques for pain control postoperatively than most other surgical patients. Regional analgesia is an effective technique in the treatment of post-operative arthroplasty pain. Pain report and

medication use for this group of patients were affected by the use of the regional anesthesia techniques. It was not possible to control for the increase in regional analgesia techniques during this investigation.

There was an uneven distribution of males and females. This was to be expected, but did not approach the 2:1 ratio for osteoarthritis found in previous research. There was no ethnic diversity found in this research and this finding does not represent the ethnic distribution in the geographic region.

Implications for Nursing Practice and Future Study

There is evidence from this study that these patients requiring total joint replacement for osteoarthritis have a high degree of spirituality and perceive their health as good to excellent. They use spiritual coping and behaviors such as prayer, spiritual activities, and belief that spiritual health influences physical health.

Second, they feel their health is good to excellent regardless of their functional limitations or pain. This self-assessment of good health contributed to less pain after total joint surgery, but did not lessen the need for pain medication.

It is important that the clinician recognize that the postoperative patient is multidimensional in their self-health and their spirituality. This quantitative study did not support the hypothesis that spirituality decreases pain or pain medication use. This research did find a relationship between self-assessed good health and decreased pain, but did not find a relationship in less pain medicine use. This research contributes to the body of literature evaluating spirituality and health in the older adult.

Future research should include postoperative function and pain using longitudinal data collection. Assessing joint arthroplasty subjects pre-operatively, one month postoperatively and at the end of the one-year recovery period would provide long-term

data on the relationships between spirituality, self-health assessment, pain and physical function. Correlating functional longitudinal data with spirituality and health assessment would provide more pertinent information without interference from postoperative regional analgesia.

The implications of this study for nursing practice are that the findings of this study support the use of spirituality and spiritual behaviors by the majority of the participants. Good to excellent self-health assessment did change the amount of pain these participants reported after surgery. Nurses should be more at ease in assessing a patient's spirituality and self-health. Nurses do have to recognize that how a patient evaluates self-health may be important in reducing postoperative joint arthroplasty pain.

In summary, evaluating the participants' spirituality and self-health assessment found interesting relationships between postoperative pain and analgesic medication use. Second, these research findings have implications for further future nursing research.

APPENDIX A
LETTER OF AGREEMENT

UNIVERSITY OF FLORIDA

College of Medicine
Department of Orthopaedics and Rehabilitation

PO Box 100246
Gainesville, FL 32610-0246
Phone: (352) 392-4251
Fax: (352) 392-8637

July 25, 2003

R. Peter Iafrate, Pharm.D.
Chairman, IRB - 01
Box 100173

Re: Project 259-2003 "Effects of Spiritual Beliefs and Involvement and a Positive Self-Health Assessment in Predicting Post-Operative Analgesic Medication Use in Total Joint Arthroplasty in the Older Adult"

Dear Peter,

I am aware of Patricia McNally's study on the effects of spiritual beliefs and its relationship on post-operative analgesic medication in total joint arthroplasty. She and I have had multiple conversations about the study and the implementation of it.

I appreciate the work and diligence of your group.

All the best.

Sincerely,

Peter F. Gearen, M.D.
Associate Professor and Interim Chairman
Department of Orthopaedics and Rehabilitation

PFG/kl

cc: Ms. Linda Kephart Fallon
Coordinator, Research Programs
Box 100173

APPENDIX B
INFORMED CONSENT 08-19-03 TO 07-15-04

IRB# 259-2003

Informed Consent to Participate in Research
and Authorization for Collection, Use, and
Disclosure of Protected Health Information

University of Florida
Health Center
Institutional Review Board
APPROVED FOR USE
From 08\19\03 Through 07\15\04

You are being asked to take part in a research study. This form provides you with information about the study and seeks your authorization for the collection, use and disclosure of your protected health information necessary for the study. The Principal Investigator (the person in charge of this research) or a representative of the Principal Investigator will also describe this study to you and answer all of your questions. Before you decide whether or not to take part, read the information below and ask questions about anything you do not understand. Your participation is entirely voluntary.

1. **Name of Participant ("Study Subject")**

   _____

2. **Title of Research Study**

   Effects of Spiritual Beliefs and Involvement and a Positive Self-Health Assessment in Predicting Postoperative Analgesic Medication Use in Total Joint Arthroplasty in the Older Adult

3. **Principal Investigator and Telephone Number(s)**

   Patricia Anne McNally
   352-281-7452

4. **Source of Funding or Other Material Support**

   University of Florida

5. **What is the purpose of this research study?**

   You are being asked if you are interested in participating in this study because you are

scheduled for joint replacement surgery. This study is being done to see if there is a relationship between your spiritual beliefs and your health evaluation and your need for pain medicine. The purpose of this study is to measure the amount of pain medication you use for the first three days after your surgery.

6. What will be done if you take part in this research study?

You will be asked to participate in this study after you have been scheduled with Dr. P. Gearen for hip or knee replacement surgery. Through your participation in this study you will be asked to complete two survey questionnaires. These survey questionnaires will take approximately 20 minutes to complete. You do not have to answer all of the questions if you do not want to answer all. The purpose of this study is to explore relationships between spiritual beliefs, spiritual involvement, a personal health evaluation and the amount of pain medication use after joint replacement surgery. Your medical record will be examined for three days after surgery to determine the amount of pain you report after surgery and the amount of pain medication you use. Other information examined from your medical record will include your age, sex, diagnosis, location of joint replacement and anesthesia given to you during your surgery. The Principal Investigator will code all of your information with confidential code numbers. All of your data will kept in a locked secure file.
All of your care will be normal procedures that are part of the treatment for all patients having total joint replacement surgery. There will be no differences in your treatment while you are part of this study.

7. What are the possible discomforts and risks?

There will be no possible risks for you as a participant in this study. You may experience discomfort in answering questions regarding your spirituality.
Throughout the study, the researcher will notify you of new information that may become available that may affect your decision to remain in the study.

If you wish to discuss the information above or any discomforts you may experience, you may ask questions now or call the Principal Investigator or contact person listed on the front page of this form.

8a. What are the possible benefits to you?

There are no benefits to you as part of this study.

8b. What are the possible benefits to others?

If this study should show a relationship between spiritual beliefs, spiritual participation, personal health evaluation and pain medication use, other studies may be done to develop alternative ways to treat patients in the future.

9. If you choose to take part in this research study, will it cost you anything?

There will be no charge to you for being part of this study.

10. Will you receive compensation for taking part in this research study?

You will not be paid for taking part in this study.

11. What if you are injured because of the study?

If you experience an injury that is directly caused by this study, only professional consultative care that you receive at the University of Florida Health Science Center will be provided without charge. However, hospital expenses will have to be paid by you or your insurance provider. No other compensation is offered.

12. What other options or treatments are available if you do not want to be in this study?

You are free to choose not to take part in this study. If you chose not to take part in this study, your joint replacement surgery will continue and you will receive the same level of care. If you do not want to take part in this study, tell the Principal Investigator or her assistant and do not sign this Informed Consent Form.

13a. Can you withdraw from this research study?

You are free to withdraw your consent and to stop participating in this research study at any time. If you do withdraw your consent, there will be no penalty, and you will not lose any benefits you are entitled to.

If you decide to withdraw your consent to participate in this research study for any reason, you should contact Patricia Anne McNally at (352) 281-7452.

If you have any questions regarding your rights as a research subject, you may phone the Institutional Review Board (IRB) office at (352) 846-1494.

13b. If you withdraw, can information about you still be used and/or collected?

If you withdraw from the study, the principal investigator would like to continue to keep and use the information that you completed using the questionnaires, pain scores, pain medicine and other information obtained from your medical record. If you refuse to let the Principal Investigator continue to keep and use this information, it will not be used.

13c. Can the Principal Investigator withdraw you from this research study?

You may be withdrawn from the study without your consent for the following reasons: You did not qualify to be in the study because you do not meet the study requirements. Ask the Principal Investigator if you would like more information about this.

14. How will your privacy and the confidentiality of your protected health information be protected?

Data will be gathered and maintained using confidential codes to protect your identity. Patricia McNally, the Principal Investigator, will gather medical data obtained from your medical record. All data and information will be kept in a locked file in the office of Patricia McNally, the Principal Investigator. Patricia McNally will assign all confidential code numbers. Access to your file will be restricted to the principal investigator.

If you participate in this research, your protected health information will be collected, used, and disclosed under the terms specified in sections 15 – 23 below.

15. If you agree to participate in this research study, what protected health information about you may be collected, used and disclosed to others?

To determine your eligibility for the study and as part of your participation in the study, your protected health information that is obtained from you, from review of your past, current or future health records, from procedures such as physical examinations, x-rays, blood or urine tests or other procedures, from your response to any study treatments you receive, from your study visits and phone calls, and any other study related health information, may be collected, used and disclosed to others. More specifically, the following information may be collected, used, and disclosed to others:
Complete past medical history to determine eligibility criteria listed in informed consent
Questionnaires that you have completed
Medical records about your joint replacement surgery
Medical records about pain medication use after surgery
Medical records about pain reported
Medical records about anesthesia used during surgery

16. For what study-related purposes will your protected health information be collected, used and disclosed to others?

Your protected health information may be collected, used and disclosed to others to find out your eligibility for, to carry out, and to evaluate the results of the research study. More specifically, your protected health information may be collected, used and disclosed for the following study-related purpose(s): to determine if your self-health assessment and spiritual beliefs and spiritual participation are related to your pain after surgery.

17. Who will be authorized to collect, use and disclose to others your protected health information?

Your protected health information may be collected, used, and disclosed to others by

- the study Principal Investigator, Patricia A. McNally
- Dr. Peter Gearen, Chairman, Department of Orthopedics, Shands at UF
- other professionals at the University of Florida or Shands Hospital that provide study-related treatment or procedures
- The University of Florida Institutional Review Board

18. Once collected or used, who may your protected health information be disclosed to?

- US and foreign governmental agencies who are responsible for overseeing research, such as the Food and Drug Administration, the Department of Health and Human Services, and the Office of Human Research Protections
- Government agencies who are responsible for overseeing public health concerns such as the Centers for Disease Control and Federal, State and local health departments

19. If you agree to participate in this research, how long will your protected health information be collected, used and disclosed?

Your protected health information will be used and disclosed forever.

20. Why are you being asked to authorize the collection, use and disclosure to others of your protected health information?

Under a new Federal Law, researchers cannot collect, use or disclose any of your protected health information for research unless you allow them to by signing this consent and authorization.

21. Are you required to sign this consent and authorization and allow the researchers to collect, use and disclose (give) to others of your protected health information?

No, and your refusal to sign will not affect your treatment, payment, enrollment, or eligibility for any benefits outside this research study. *However, you cannot participate in this research unless you allow the collection, use and disclosure of your protected health information by signing this consent/authorization.*

22. Can you review or copy your protected health information collected, used or disclosed under this authorization?

You have the right to review and copy your protected health information. However, you will not be allowed to do so until after the study is finished.

23. Is there a risk that your protected health information could be given to others beyond your authorization?

Yes. There is a risk that information received by authorized persons could be given to others beyond your authorization and not covered by the law.

24. Can you revoke (cancel) your authorization for collection, use and disclosure of your protected health information?

Yes. You can cancel your authorization at any time before, during or after your participation in the research. If you cancel, no new information will be collected about you. However, information that was already collected may be still be used and disclosed to others if the researchers have relied on it to complete and protect the validity of the research. You can cancel by giving a written request with your signature on it to the Principal Investigator.

25. How will the researcher(s) benefit from your being in this study?

In general, presenting research results helps the career of a scientist. Therefore, the Principal Investigator may benefit if the results of this study are presented at scientific meetings or in scientific journals.

26. Signatures

As a representative of this study, I have explained to the participant the purpose, the procedures, the possible benefits, and the risks of this research study; the alternatives to being in the study; and how the participant's protected health information will be collected used and disclosed:

_____ _____

Signature of Person Obtaining Consent and Authorization Date

You have been informed about this study's purpose, procedures, possible benefits, and risks; the alternatives to being in the study; and how your protected health information will be collected, used and disclosed. You have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. You hereby authorize the collection, use and disclosure of your protected health information as described in sections 14-24 above. By signing this form, you are not waiving any of your legal rights.

_____ _____

Signature of Person Consenting and Authorizing Date

APPENDIX C
INFORMED CONSENT 01-29-04 TO 07-15-04

IRB# 259-2003

Informed Consent to Participate in Research and Authorization for Collection, Use, and Disclosure of Protected Health Information

University of Florida
Health Center
Institutional Review Board
APPROVED FOR USE
From 1/29/04 Through 7/15/04
CJQ

You are being asked to take part in a research study. This form provides you with information about the study and seeks your authorization for the collection, use and disclosure of your protected health information necessary for the study. The Principal Investigator (the person in charge of this research) or a representative of the Principal Investigator will also describe this study to you and answer all of your questions. Before you decide whether or not to take part, read the information below and ask questions about anything you do not understand. Your participation is entirely voluntary.

1. **Name of Participant ("Study Subject")**

   _____

2. **Title of Research Study**

   Effects of Spiritual Beliefs and Involvement and a Positive Self-Health Assessment in Predicting Postoperative Analgesic Medication Use in Total Joint Arthroplasty in the Older Adult

3. **Principal Investigator and Telephone Number(s)**

   Patricia Anne McNally
   352-281-7452

4. **Source of Funding or Other Material Support**

   University of Florida

5. What is the purpose of this research study?

You are being asked if you are interested in participating in this study because you are scheduled for joint replacement surgery. This study is being done to see if there is a relationship between your spiritual beliefs and your health evaluation and your need for pain medicine. The purpose of this study is to measure the amount of pain medication you use for the first three days after your surgery.

6. What will be done if you take part in this research study?

You will be asked to participate in this study after you have been scheduled with Dr. Gearen, Dr. Myers, or Dr. Vlasak for hip or knee replacement surgery. Through your participation in this study you will be asked to complete two survey questionnaires. These survey questionnaires will take approximately 20 minutes to complete. You do not have to answer all of the questions if you do not want to answer all. The purpose of this study is to explore relationships between spiritual beliefs, spiritual involvement, a personal health evaluation and the amount of pain medication use after joint replacement surgery. Your medical record will be examined for three days after surgery to determine the amount of pain you report after surgery and the amount of pain medication you use. Other information examined from your medical record will include your age, sex, diagnosis, location of joint replacement and anesthesia given to you during your surgery. The Principal Investigator will code all of your information with confidential code numbers. All of your data will kept in a locked secure file.

All of your care will be normal procedures that are part of the treatment for all patients having total joint replacement surgery. There will be no differences in your treatment while you are part of this study.

7. What are the possible discomforts and risks?

There will be no possible risks for you as a participant in this study. You may experience discomfort in answering questions regarding your spirituality.

Throughout the study, the researcher will notify you of new information that may become available that may affect your decision to remain in the study.

If you wish to discuss the information above or any discomforts you may experience, you may ask questions now or call the Principal Investigator or contact person listed on the front page of this form.

8a. What are the possible benefits to you?

There are no benefits to you as part of this study.

8b. What are the possible benefits to others?

If this study should show a relationship between spiritual beliefs, spiritual participation, personal health evaluation and pain medication use, other studies may be done to develop alternative ways to treat patients in the future.

9. If you choose to take part in this research study, will it cost you anything?

There will be no charge to you for being part of this study.

10. Will you receive compensation for taking part in this research study?

You will not be paid for taking part in this study.

11. What if you are injured because of the study?

If you experience an injury that is directly caused by this study, only professional consultative care that you receive at the University of Florida Health Science Center will be provided without charge. However, hospital expenses will have to be paid by you or your insurance provider. No other compensation is offered.

12. What other options or treatments are available if you do not want to be in this study?

You are free to choose not to take part in this study. If you chose not to take part in this study, your joint replacement surgery will continue and you will receive the same level of care. If you do not want to take part in this study, tell the Principal Investigator or her assistant and do not sign this Informed Consent Form.

13a. Can you withdraw from this research study?

You are free to withdraw your consent and to stop participating in this research study at any time. If you do withdraw your consent, there will be no penalty, and you will not lose any benefits you are entitled to.

If you decide to withdraw your consent to participate in this research study for any reason, you should contact Patricia Anne McNally at (352) 281-7452.

If you have any questions regarding your rights as a research subject, you may phone the Institutional Review Board (IRB) office at (352) 846-1494.

13b. If you withdraw, can information about you still be used and/or collected?

If you withdraw from the study, the Principal Investigator would like to continue to keep and

use the information that you completed using the questionnaires, pain scores, pain medicine and other information obtained from your medical record. If you refuse to let the Principal Investigator continue to keep and use this information, it will not be used.

13c. Can the Principal Investigator withdraw you from this research study?

You may be withdrawn from the study without your consent for the following reasons:

- You did not qualify to be in the study because you do not meet the study requirements. Ask the Principal Investigator if you would like more information about this.

14. How will your privacy and the confidentiality of your protected health information be protected?

Data will be gathered and maintained using confidential codes to protect your identity. Patricia McNally, the Principal Investigator, will gather medical data obtained from your medical record. All data and information will be kept in a locked file in the office of Patricia McNally, the Principal Investigator. Patricia McNally will assign all confidential code numbers. Access to your file will be restricted to the Principal Investigator.

If you participate in this research, your protected health information will be collected, used, and disclosed under the terms specified in sections 15 – 24 below.

15. If you agree to participate in this research study, what protected health information about you may be collected, used and disclosed to others?

To determine your eligibility for the study and as part of your participation in the study, your protected health information that is obtained from you, from review of your past, current or future health records, from procedures such as physical examinations, x-rays, blood or urine tests or other procedures, from your response to any study treatments you receive, from your study visits and phone calls, and any other study related health information, may be collected, used and disclosed to others. More specifically, the following information may be collected, used, and disclosed to others:

- Complete past medical history to determine eligibility criteria listed in informed consent
- Questionnaires that you have completed
- Medical records about your joint replacement surgery
- Medical records about pain medication use after surgery
- Medical records about pain reported
- Medical records about anesthesia used during surgery

16. For what study-related purposes will your protected health information be collected, used and disclosed to others?

Your protected health information may be collected, used and disclosed to others to find out your eligibility for, to carry out, and to evaluate the results of the research study. More specifically, your protected health information may be collected, used and disclosed for the following study-related purpose(s):

- to determine if your self-health assessment and spiritual beliefs and spiritual participation are related to your pain after surgery.

17. Who will be authorized to collect, use and disclose to others your protected health information?

Your protected health information may be collected, used, and disclosed to others by:

- the study Principal Investigator, Patricia A. McNally
- Dr. Peter Gearen, Chairman, Department of Orthopedics, Shands at UF
- other professionals at the University of Florida or Shands Hospital that provide study-related treatment or procedures
- The University of Florida Institutional Review Board

18. Once collected or used, who may your protected health information be disclosed to?

Your protected health information may be given to:

- United States and foreign governmental agencies who are responsible for overseeing research, such as the Food and Drug Administration, the Department of Health and Human Services, and the Office of Human Research Protections
- Government agencies who are responsible for overseeing public health concerns such as the Centers for Disease Control and Federal, State and local health departments

19. If you agree to participate in this research, how long will your protected health information be collected, used and disclosed?

Your protected health information will be collected until the end of the study. This information will be used and disclosed forever since it will be stored for an indefinite period of time in a secure database.

20. Why are you being asked to authorize the collection, use and disclosure to others of your protected health information?

Under a new Federal Law, researchers cannot collect, use or disclose any of your protected health information for research unless you allow them to by signing this consent and authorization.

21. Are you required to sign this consent and authorization and allow the researchers to collect, use and disclose (give) to others of your protected health information?

No, and your refusal to sign will not affect your treatment, payment, enrollment, or eligibility for any benefits outside this research study. *However, you cannot participate in this research unless you allow the collection, use and disclosure of your protected health information by signing this consent/authorization.*

22. Can you review or copy your protected health information collected, used or disclosed under this authorization?

You have the right to review and copy your protected health information. However, you will not be allowed to do so until after the study is finished.

23. Is there a risk that your protected health information could be given to others beyond your authorization?

Yes. There is a risk that information received by authorized persons could be given to others beyond your authorization and not covered by the law.

24. Can you revoke (cancel) your authorization for collection, use and disclosure of your protected health information?

Yes. You can cancel your authorization at any time before, during or after your participation in the research. If you cancel, no new information will be collected about you. However, information that was already collected may be still be used and disclosed to others if the researchers have relied on it to complete and protect the validity of the research. You can cancel by giving a written request with your signature on it to the Principal Investigator.

25. How will the researcher(s) benefit from your being in this study?

In general, presenting research results helps the career of a scientist. Therefore, the Principal Investigator may benefit if the results of this study are presented at scientific meetings or in scientific journals.

26. Signatures

As a representative of this study, I have explained to the participant the purpose, the procedures, the possible benefits, and the risks of this research study; the alternatives to being in the study; and how the participant's protected health information will be collected, used, and disclosed:

_____ _____

Signature of Person Obtaining Consent and Authorization Date

You have been informed about this study's purpose, procedures, possible benefits, and risks; the alternatives to being in the study; and how your protected health information will be collected, used and disclosed. You have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. You hereby authorize the collection, use and disclosure of your protected health information as described in sections 15-24 above. By signing this form, you are not waiving any of your legal rights.

_____ _____

Signature of Person Consenting and Authorizing Date

APPENDIX D
INFORMED CONSENT 07-16-04 TO 07-15-05

IRB# 259-2003

Informed Consent to Participate in Research and Authorization for Collection, Use, and Disclosure of Protected Health Information

University of Florida
Health Center
Institutional Review Board
APPROVED FOR USE
From 7/16/04 Through 7/15/05
CJQ

You are being asked to take part in a research study. This form provides you with information about the study and seeks your authorization for the collection, use and disclosure of your protected health information necessary for the study. The Principal Investigator (the person in charge of this research) or a representative of the Principal Investigator will also describe this study to you and answer all of your questions. Your participation is entirely voluntary. Before you decide whether or not to take part, read the information below and ask questions about anything you do not understand. If you choose not to participate in this study you will not be penalized or lose any benefits that you would otherwise be entitled to.

1. **Name of Participant ("Study Subject")**

   _____

2. **Title of Research Study**

   Effects of Spiritual Beliefs and Involvement and a Positive Self-Health Assessment in Predicting Postoperative Analgesic Medication Use in Total Joint Arthroplasty in the Older Adult

3. **Principal Investigator and Telephone Number(s)**

   Patricia Anne McNally
   352-281-7452

4. **Source of Funding or Other Material Support**

   University of Florida

5. What is the purpose of this research study?

You are being asked if you are interested in participating in this study because you are scheduled for joint replacement surgery. This study is being done to see if there is a relationship between your spiritual beliefs and your health evaluation and your need for pain medicine. The purpose of this study is to measure the amount of pain medication you use for the first three days after your surgery.

6. What will be done if you take part in this research study?

You will be asked to participate in this study after you have been scheduled with Dr. Gearen, Dr. Myers, or Dr. Vlasak for hip or knee replacement surgery. Through your participation in this study you will be asked to complete two survey questionnaires. These survey questionnaires will take approximately 20 minutes to complete. You do not have to answer all of the questions if you do not want to answer all. The purpose of this study is to explore relationships between spiritual beliefs, spiritual involvement, a personal health evaluation and the amount of pain medication use after joint replacement surgery. Your medical record will be examined for three days after surgery to determine the amount of pain you report after surgery and the amount of pain medication you use. Other information examined from your medical record will include your age, sex, diagnosis, location of joint replacement and anesthesia given to you during your surgery. The Principal Investigator will code all of your information with confidential code numbers. All of your data will kept in a locked secure file.

All of your care will be normal procedures that are part of the treatment for all patients having total joint replacement surgery. There will be no differences in your treatment while you are part of this study.

7. What are the possible discomforts and risks?

There will be no possible risks for you as a participant in this study. You may experience discomfort in answering questions regarding your spirituality.

Throughout the study, the researcher will notify you of new information that may become available that may affect your decision to remain in the study.

If you wish to discuss the information above or any discomforts you may experience, you may ask questions now or call the Principal Investigator or contact person listed on the front page of this form.

8a. What are the possible benefits to you?

There are no benefits to you as part of this study.

8b. What are the possible benefits to others?

If this study should show a relationship between spiritual beliefs, spiritual participation, personal health evaluation and pain medication use, other studies may be done to develop alternative ways to treat patients in the future.

9. If you choose to take part in this research study, will it cost you anything?

There will be no charge to you for being part of this study.

10. Will you receive compensation for taking part in this research study?

You will not be paid for taking part in this study.

11. What if you are injured because of the study?

If you experience an injury that is directly caused by this study, only professional consultative care that you receive at the University of Florida Health Science Center will be provided without charge. However, hospital expenses will have to be paid by you or your insurance provider. No other compensation is offered. Please contact the Principal Investigator listed in Item 3 of this form if you experience an injury or have any questions about any discomforts that you experience while participating in this study.

12. What other options or treatments are available if you do not want to be in this study?

You are free to choose not to take part in this study. If you chose not to take part in this study, your joint replacement surgery will continue and you will receive the same level of care. If you do not want to take part in this study, tell the Principal Investigator or her assistant and do not sign this Informed Consent Form.

13a. Can you withdraw from this research study?

You are free to withdraw your consent and to stop participating in this research study at any time. If you do withdraw your consent, there will be no penalty, and you will not lose any benefits you are entitled to.

If you decide to withdraw your consent to participate in this research study for any reason, you should contact Patricia Anne McNally at (352) 281-7452.

If you have any questions regarding your rights as a research subject, you may phone the Institutional Review Board (IRB) office at (352) 846-1494.

13b. If you withdraw, can information about you still be used and/or collected?

If you withdraw from the study, the Principal Investigator would like to continue to keep and use the information that you completed using the questionnaires, pain scores, pain medicine and other information obtained from your medical record. If you refuse to let the Principal Investigator continue to keep and use this information, it will not be used.

13c. Can the Principal Investigator withdraw you from this research study?

You may be withdrawn from the study without your consent for the following reasons:

- You did not qualify to be in the study because you do not meet the study requirements. Ask the Principal Investigator if you would like more information about this.

14. How will your privacy and the confidentiality of your protected health information be protected?

Data will be gathered and maintained using confidential codes to protect your identity. Patricia McNally, the Principal Investigator, will gather medical data obtained from your medical record. All data and information will be kept in a locked file in the office of Patricia McNally, the Principal Investigator. Patricia McNally will assign all confidential code numbers. Access to your file will be restricted to the Principal Investigator.

If you participate in this research, your protected health information will be collected, used, and disclosed under the terms specified in sections 15 – 24 below.

15. If you agree to participate in this research study, what protected health information about you may be collected, used and disclosed to others?

To determine your eligibility for the study and as part of your participation in the study, your protected health information that is obtained from you, from review of your past, current or future health records, from procedures such as physical examinations, x-rays, blood or urine tests or other procedures, from your response to any study treatments you receive, from your study visits and phone calls, and any other study related health information, may be collected, used and disclosed to others. More specifically, the following information may be collected, used, and disclosed to others:

- Complete past medical history to determine eligibility criteria listed in informed consent
- Questionnaires that you have completed
- Medical records about your joint replacement surgery
- Medical records about pain medication use after surgery
- Medical records about pain reported
- Medical records about anesthesia used during surgery

16. For what study-related purposes will your protected health information be collected, used and disclosed to others?

Your protected health information may be collected, used and disclosed to others to find out your eligibility for, to carry out, and to evaluate the results of the research study. More specifically, your protected health information may be collected, used and disclosed for the following study-related purpose(s):

- to determine if your self-health assessment and spiritual beliefs and spiritual participation are related to your pain after surgery.

17. Who will be authorized to collect, use and disclose to others your protected health information?

Your protected health information may be collected, used, and disclosed to others by:

- the study Principal Investigator, Patricia A. McNally
- Dr. Peter Gearen, Chairman, Department of Orthopedics, Shands at UF
- other professionals at the University of Florida or Shands Hospital that provide study-related treatment or procedures
- The University of Florida Institutional Review Board

18. Once collected or used, who may your protected health information be disclosed to?

Your protected health information may be given to:

- United States and foreign governmental agencies who are responsible for overseeing research, such as the Food and Drug Administration, the Department of Health and Human Services, and the Office of Human Research Protections
- Government agencies who are responsible for overseeing public health concerns such as the Centers for Disease Control and Federal, State and local health departments

19. If you agree to participate in this research, how long will your protected health information be collected, used and disclosed?

Your protected health information will be collected until the end of the study. This information will be used and disclosed forever since it will be stored for an indefinite period of time in a secure database.

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_____ _____

Signature of Person Obtaining Consent and Authorization Date

You have been informed about this study's purpose, procedures, possible benefits, and risks; the alternatives to being in the study; and how your protected health information will be collected, used and disclosed. You have received a copy of this Form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time.

You voluntarily agree to participate in this study. You hereby authorize the collection, use and disclosure of your protected health information as described in sections 15-24 above. By signing this form, you are not waiving any of your legal rights.

_____ _____

Signature of Person Consenting and Authorizing Date

APPENDIX E
THE SHORT FORM-36 HEALTH SURVEY—SPIRITUAL INVOLVEMENT AND BELIEFS SCALE

The Short-Form-36 Health Survey

Instructions: This survey asks for your views about your health.

Answer every question by circling your response. If you are unsure about how to answer a question, please give the best answer you can.

Question 1	Excellent	Very Good	Good	Fair	Poor
In general would you say you health is:	1	2	3	4	5

Question 2	Much Better Now	Somewhat Better Now	About the Same Now	Somewhat Worse Now	Much Worse Now
Compared to one year ago, how would you rate your health in general *now*?	1	2	3	4	5

Question 3 - The following items are about activities you might do during a typical day. Does *your health* now limit you in these activities? If so, how much?

Activities	Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited At All
a. Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	1	2	3
b. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	1	2	3
c. Lifting or carrying groceries	1	2	3
d. Climbing several flights of stairs	1	2	3
e. Climbing one flight of stairs	1	2	3
f. Bending, kneeling, or stooping	1	2	3
g. Walking more than a mile	1	2	3
h. Walking several blocks	1	2	3
i. Walking one block	1	2	3
j. Bathing or dressing yourself	1	2	3

Question 4 During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities *as a result of your physical health*?	Yes	No
a. Cut down on the amount of time you spent on work or other activities	1	2
b. Accomplished less than you would like	1	2
c. Were limited in the kind of work or other activities	1	2
d. Had difficulty performing the work or other activities (for example, it took extra effort)	1	2

Question 5 During the *past 4 weeks*, have you had any of the following problems with your work or other regular daily activities *as a result of any emotional problems* (such as feeling depressed or anxious)?	Yes	No
a. Cut down on the amount of time you spent on work or other activities	1	2
b. Accomplished less than you would like	1	2
c. Didn't do work or other activities as carefully as usual	1	2

Question 6	Not at All	Slightly	Moderately	Quite a Bit	Extremely
During the *past 4 weeks*, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?	1	2	3	4	5

Question 7	None	Very Mild	Mild	Moderate	Severe	Very Severe
How much *bodily* pain have you had during the *past 4 weeks* ?	1	2	3	4	5	6

Question 8	Not at All	A Little Bit	Moderately	Quite a Bit	Extremely
During the *past 4 weeks*, how much did *pain* interfere with your normal work (including both work outside the home and housework)?	1	2	3	4	5

Question 9 - These questions are about how you feel and how things have been with you *during the past 4 weeks*. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the *past 4 weeks* --

	All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little of Time	None of the Time
a. Did you feel full of pep?	1	2	3	4	5	6
b. Have you been a very nervous person?	1	2	3	4	5	6
c. Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
d. Have you felt calm and peaceful?	1	2	3	4	5	6
e. Did you have a lot of energy?	1	2	3	4	5	6
f. Have you felt downhearted and blue?	1	2	3	4	5	6
g. Did you feel worn out?	1	2	3	4	5	6
h. Have you been a happy person?	1	2	3	4	5	6
i. Did you feel tired?	1	2	3	4	5	6

Question 10	All of the Time	Most of the Time	Some of the Time	A Little of the Time	None of the Time
During the *past 4 weeks*, how much of the time has your *physical health* or *emotional problems* interfered with your social activities (like visiting with friends, relatives, etc.)?	1	2	3	4	5

Question 11 How TRUE or FALSE is *each* of the following statements for you?	Definitely True	Mostly True	Don't Know	Mostly False	Definitely False
a. I seem to get sick a little easier than other people	1	2	3	4	5
b. I am as healthy as anybody I know	1	2	3	4	5
c. I expect my health to get worse	1	2	3	4	5
d. My health is excellent	1	2	3	4	5

2) Spiritual Involvement and Beliefs Scale (39 item version) (Hatch, et al, University of Florida)

How strongly do you agree with the following statements? Please circle your response.

	Strongly Agree	Agree	Mildly Agree	Neutral	Mildly Disagree	Disagree	Strong Disagr
1. I set aside time for meditation and/or self-reflection	7	6	5	4	3	2	1
2. I can find meaning in times of hardship.	7	6	5	4	3	2	1
3.A person can be fulfilled without pursuing an active spiritual life.	7	6	5	4	3	2	1
4.I find serenity by accepting things as they are.	7	6	5	4	3	2	1
5.Some experiences can be understood only through one's spiritual beliefs.	7	6	5	4	3	2	1
6.I do not believe in an afterlife.	7	6	5	4	3	2	1
7.A spiritual force influences the events in my life.	7	6	5	4	3	2	1
8. I have a relationship with someone I can turn to for spiritual guidance.	7	6	5	4	3	2	1
9.Prayers do not really change what happens.	7	6	5	4	3	2	1
10.Participating in spiritual activities helps me forgive other people.	7	6	5	4	3	2	1
11.I find inner peace when I am in harmony with nature.	7	6	5	4	3	2	1
12. Everything happens for a greater purpose.	7	6	5	4	3	2	1
13.I use contemplation to get in touch with my true self.	7	6	5	4	3	2	1

14. My spiritual life fulfills me in ways that material possessions do not.	7	6	5	4	3	2	1
	Strongly Agree	**Agree**	**Mildly Agree**	**Neutral**	**Mildly Disagree**	**Disagree**	**Strong Disagr**
15.I rarely feel connected to something greater than myself.	7	6	5	4	3	2	1
16.In times of despair, I can find little reason to hope.	7	6	5	4	3	2	1
17.When I am sick, I would like others to pray for me.	7	6	5	4	3	2	1
18.I have a personal relationship with a power greater than myself.	7	6	5	4	3	2	1
19.I have had a spiritual experience that greatly changed my life.	7	6	5	4	3	2	1
20.When I help others, I expect nothing in return.	7	6	5	4	3	2	1
21.I don't take time to appreciate nature.	7	6	5	4	3	2	1
22.I depend on a higher power.	7	6	5	4	3	2	1
23.I have joy in my life because of my spirituality.	7	6	5	4	3	2	1
24,My relationship with a higher power helps me love others more completely.	7	6	5	4	3	2	1
25.Spiritual writings enrich my life.	7	6	5	4	3	2	1
26.I have experienced healing after prayer.	7	6	5	4	3	2	1
27. My spiritual understanding continues to grow.	7	6	5	4	3	2	1
28. I am right more often than most people.	7	6	5	4	3	2	1
29. Many spiritual approaches have little value.	7	6	5	4	3	2	1

value.

	Strongly Agree	Agree	Mildly Agree	Neutral	Mildly Disagree	Disagree	Strong Disagr
30. Spiritual health contributes to physical health.	7	6	5	4	3	2	1
31.I regularly interact with others for spiritual purposes.	7	6	5	4	3	2	1
32.I focus on what needs to be changed in me, not on what needs to be changed in others.	7	6	5	4	3	2	1
33. In difficult times, I am still grateful.	7	6	5	4	3	2	1
34.I have been through a time of great suffering that led to spiritual growth.	7	6	5	4	3	2	1

Please indicate how often you do the following:

	Always	Almost Always	Usually	Some-times	Not usually	Almost never	Neve
35.When I wrong someone, I make an effort to apologize.	7	6	5	4	3	2	1
36.I accept others as they are.	7	6	5	4	3	2	1
37.I solve my problems without using spiritual resources.	7	6	5	4	3	2	1
38.I examine my actions to see if they reflect my values.	7	6	5	4	3	2	1

39. How spiritual a person do you consider yourself? (With "7" being the most spiritual.)

1 2 3 4 5 6 7

Scoring instructions:
Reverse score all negatively worded items (3,6,9,15,16,21,28,29,37)
i.e. Strongly Agree = 1, Agree = 2, ... Strongly Disagree = 7
or Always = 1, Almost Always = 2, ... Never = 7

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BIOGRAPHICAL SKETCH

Patricia Anne McNally was born in Waterloo, New York. She graduated from St. Mary's Hospital, School of Nursing, Rochester, New York. Pat attended the University of Florida and received a Bachelor of Science in Nursing in 1981. A Master of Science in Nursing degree with a specialization in adult and women's health was received from the University of Florida in 1999. Ms. McNally's current nursing specialty area is the pre-surgical center at the University of Florida. She is a member of Sigma Theta Tau, the International Honor Society for Nursing.

Ms. McNally's nursing career has included emergency department staff nursing, charge nursing, nursing and business administration, and currently advanced nurse practitioner. She resides in Gainesville, Florida. Pat is the mother of three adult children and the "Mamasita" to three young grandchildren.