

**The Effect of Social Support on Functional Recovery and Well-Being in Post Joint**

**Arthroplasty Older Adults**

A Thesis

Submitted to the Faculty

of

Drexel University

by

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in partial fulfillment of the

requirements for the degree

of

Doctor of Nursing Practice

August 2009

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### **Dedication**

To the men and women who so willingly and enthusiastically agreed to allow me to follow them through the process of joint replacement surgery. The journey provided the sharing of experiences and demonstrated how individualistic the rehabilitation process is as well as the influential factors in outcomes. Thank you for your part in furthering research, attaining knowledge, and possibly affecting a positive recovery process of future joint replacement patients.

## Acknowledgements

As the journey began, so do the acknowledgements. A special thank you to Dr. Michael Dreher for his vision and perseverance in making a hybrid doctoral program an attainable reality. I know this is his passion and it so good to see and be a part of the successful fruits of his labor. To the very supportive doctoral faculty, a thank you for their continued guidance and encouragement. It was always good to know that they were there to offer assistance or a “pep” talk when needed. My success is their success.

My path to IRB approval at Abington Memorial Hospital came through collaboration with Dr. Diane Breckenridge, Associate Research Director at Abington and Kathleen Somogyi CIM, IRB Coordinator. Their assistance was much appreciated. Thank you to Danyelle Greene from the Compliance Office at Drexel University for her patience in fielding my calls in my eagerness to begin data collection.

Data collection, although time consuming and arduous, became very enjoyable through interaction with June Weise, RN, MHA, Human Motion Program Director at Abington Memorial Hospital as well as Linda Coutts RN and Megan Rafferty RN, nurse educators at the pre-surgical classes for joint replacement. These very supportive nurses were my “cheerleaders”, encouraging patient participation in my research. My sincere thanks for their assistance. Follow-up data collection at the Orthopedic Specialty Center (OSC) was completed with ease thanks to the accepting and welcoming nature of the staff. A special thank you to Barbara Finn RN, Clinical Research Coordinator at OSC, for her guidance and support through the enrollment process. My access to this patient population would not have been possible without the approval and support of Dr. Andrew Star, Chief of Orthopedic Surgery at Abington Memorial Hospital (AMH) as well as all of the skilled

orthopedic surgeons at AMH who supported my efforts to obtain data from their joint replacement patients. To the many out-patient physical therapy centers that I visited for post-op data collection, too numerous to individually acknowledge, I thank them for welcoming me and adjusting schedules to accommodate my data collection efforts.

A great deal of thanks goes to the Education and Research Council at Abington Memorial Hospital, Carol Chwal RN, MSN, Nurse Director, Professional Practice, and Barbara Wadsworth RN, MSN, MBA, CNO, Senior Vice-President Patient Services. Thank you for believing that I could make a difference and awarding me five thousand dollars in grant funds to support my research efforts.

Thank you to Dr. Joseph Glutting for his statistical expertise. His guidance and direction in determining the best statistical analyses of my data was very much appreciated. He sure works magic with numbers.

I honestly believe that the depth and completeness of my literature reviews is thanks to the efforts and expertise of Judy Young MLS, librarian at the Abington Memorial Hospital Dixon School of Nursing. If it's out there, Judy can find it!

To my Dissertation Committee, what can I say, they are the best. Dr. Linda Wilson, as chairperson, her availability and approachability was wonderful. It was comforting to know that she valued my questions and concerns and was always ready with the answers and guidance that I needed. The responses to my e-mails were so quick; it was like she knew that they were coming! Dr. Diane Breckinridge, I truly admire her expertise in the field of nursing research and thank her for instilling some of that quest for knowledge into me. Dr. Alice Poys, quiet and unassuming yet knowledgeable to the point that she commands attention when she speaks. I learned much by listening. Dr. Christina

Calamaro, my breath of reality, her confidence building skills always made me believe that I could do this. Dr. Steven Levin, it has been a pleasure working with him all of these years. I value his commitment to our patients to assure that they receive the highest quality of rehabilitative care. To all of you, I truly appreciate completing this journey with you by my side.

Finally, a most sincere and heartfelt thank you to my friends and co-workers. Thank you for being there for me and being so understanding and flexible when plans needed to be changed due to school commitments. To my family, I love you all so very much. Thank you for standing by me and supporting my efforts to complete doctoral education.

Sacrifices were made by all. Mom, thank you for all your prayers and all the candles that you have lit on my behalf. Mike, I don't know where I would be without his computer expertise. Many times when I had no idea what I was doing or "lost" a fifteen page paper I was sure that I saved, he were always there to save the day. Bob, simply, thank you for being you.

I somehow see the irony in using the concept of social support as a big piece in my research when the same concept was so influential to my success. Each and every one of you holds a piece of my degree through your support. Again, I say, thank you.

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## **Abstract**

### **The Effect of Social Support on Functional Recovery and Well-Being in Post Joint Arthroplasty Older Adults**

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Linda Wilson PhD, Supervising Professor

Projections by the United States Census Bureau indicate a continual rise in the population of older adults. As the number of older Americans increases at an unprecedented rate, there is concern that the proportion of those who are disabled may also be increasing. Increased dependency from chronic illness and aging may bring with it social and personal concerns in the areas of health care, community health services, and quality of life. For example, osteoarthritis is one of the most prevalent diseases in the United States today and its prevalence is expected to increase as the population ages. Direct and indirect costs of osteoarthritis are 120 billion dollars per year in medical treatment and lost wages secondary to functional disability. Surgical intervention for this disease process, such as joint replacement or arthroplasty, is rapidly becoming the treatment of choice for degenerative joint disease. Today, over 300,000 knee replacements and 120,000 hip replacements are performed annually in the United States. Additionally, managed health care criteria and changes in Medicare and private insurance reimbursement have greatly affected the way care is delivered to the older adult population following joint arthroplasty. A large percentage of joint replacement patients have now assumed responsibility for their recovery process. A shortened hospital stay with discharge to home requires a social support system in place to provide both the personal and professional assistance that these patients will require in the early stages of their recovery. This subjective, exploratory study assessed and measured social support and evaluated its impact on functional recovery and well-being in older adults post joint

arthroplasty. The central hypothesis of this study is that the presence of social support will positively impact functional recovery and well-being of older adults after joint arthroplasty. While social support, associated with the covariates of “living arrangements” and “age”, demonstrated a positive relationship with perceived well-being, no relationship was demonstrated with high or low levels of social support and functional recovery.

## Chapter 1: Introduction and Overview

### Introduction

The population of the world is aging. The United States Census Bureau (2004) projects that by the year 2030; adults 65 and older will constitute 20% of the population. Advances in medical science and improved lifestyles have significantly reduced mortality rates (Williams, Dunning & Manias, 2007). These projections result from the increase of the average life expectancy of males to a span of 75.4 years while their female counterparts can be expected to reach an average age of 80.5 years. As the number of older Americans increases at an unprecedented rate, there is concern that the proportion of those who are disabled may also be increasing (Freedman & Martin, 1998). The aging process gradually increases the vulnerability of the older adult to chronic illness, or comorbidities accompanied by its numerous challenges and losses (Hickey & Stillwell, 1992). Chronic illness is an escalating healthcare concern that has been described as the epidemic of the future (Lubkin & Larsen, 2002). Chronic illness is a debilitating health state resultant of a non-reversible disease process causing disability not easily corrected or treated (Lubkin & Larsen, 2002). The enduring, progressive nature of chronic illness results in increased health care costs from more frequent health care monitoring and long term care. Additionally, it is associated with deterioration, reduced functional status, physical and emotional pain and increased dependency (Lubkin & Larsen, 2002) (Hamel, Toth, Legedza & Posen, 2008). At least 80% of persons over 65 report one chronic condition; many have multiple conditions (Fowles, 1994) (Quinn, 2008). Nearly 50% of older adults are unable to perform some activities of daily living (ADL's) such as bathing, dressing, eating, toileting, transferring, and ambulation (Curtain & Lubkin,

1995) (Talkowski, Lenze, Munin, Harrison, & Brach, 2009). Additionally, 7.6 million older adults need assistance with daily activities including the preparation of meals, shopping, money management, and household cleaning and maintenance, the instrumental activities of daily living (IADL's) (Fowles, 1994) (Talkowski et al., 2009). Increased dependency resulting from chronic illness and aging brings with it social and personal concerns in the areas of health care, community and home health services, and quality of life issues (Blixen & Kippes, 1999). A clearer understanding of the extent to which changes in functional ability reflect changes in the underlying physiological capability of older Americans may offer insight into future patterns of disability, thereby facilitating research and planning of medical and social services and interventions for the older population (Freedman & Martin, 1998) (Talkowski et al., 2009).

The older adult population today is significantly different from that of just a decade ago. An active lifestyle after retirement is anticipated by older adults (Nilsson, Toksvig-Larsen & Roos, 2009). Besides functioning better, today's older generation is likely to be better educated. It is proposed that this increased education will be associated with beneficial changes in lifestyle, access to care, ability to comply with physicians' instructions and the ability to modify one's environment - all of which may contribute to the success of future public health initiatives aimed at older Americans (Freedman & Martin, 1998). Research has demonstrated the fact that physically fit and physically active individuals tend to have less functional limitations than their more sedentary counterparts (Huang, Macera, Blair, Brill, Kohl & Kronenfeld, 1998).

## **Background**

Osteoarthritis or degenerative joint disease is one of the most prevalent chronic illnesses in the United States today and its prevalence is expected to increase as the population ages. One-third of the American population, or approximately 70 million adults, are affected by osteoarthritis or chronic joint symptoms (CDC, 2005). The disease is associated with a long term course of degeneration of weight bearing joints such as knees, hips, and shoulders with cartilage wearing away, resulting in bone rubbing on bone. The progression of the symptoms of increased pain and increased limitation is a gradual process (Koyama, Miyashita, Irie, Takatori, Yamamoto, Karita, & Kazuma, 2007). Osteoarthritis is also the leading cause of disability in the United States, accounting for 17.5 % of all of those on disability. The total cost resultant of osteoarthritis is well over 120 billion dollars per year in medical treatment and lost wages (CDC, 2005). The joint pain, stiffness, and limited range of motion resultant from the disease affects the ability to perform activities of daily living (ADL's) such as bathing, dressing, eating, toileting, transferring, and ambulation (Koyama et al., 2007). Further affected by the pain and limitation of the range of motion are the instrumental activities of daily living (IADL's) which include preparation of meals, shopping, money management, and household maintenance. Individuals affected by degenerative joint disease begin to feel that they are becoming a burden to their family and friends (Koyama et al., 2007). Multiple modalities such as, oral pain killers, pain adhesive patches, Cox-2 inhibitors, chondroitin, glucosamine, anti-inflammatory drugs, steroid injections, and physical therapy are frequently used to treat the symptoms of osteoarthritis. When these modalities fail to work on pain relief, sleeping patterns suffer, and social isolation

increases. Surgical intervention, such as joint replacement or arthroplasty, is rapidly becoming the treatment of choice for degenerative joint disease in regard to relief of symptoms and cost-effectiveness (Koyama et al., 2007) (Hamel et al., 2008). Qualitative research focusing on total joint replacement and surgical delays places individuals into the following categories; “putting up and putting off” , “waiting and worrying” and “hurting and hoping” (Jacobson, Myerscough, DeLambo, Fleming, Huddleston, Bright & Varley, 2008). “Putting up and putting off” can last for years as individuals “put up” with joint pain and functional limitations and “put off” total joint replacement by modifying activities and using adaptive equipment (Jacobson et al., 2008). Some individuals keep hurting and waiting, hoping that the “band-aids” will work and things will get better or medical science will offer effective non-surgical alternatives. Moderate to severe osteoarthritis, diagnosed by radiographic evidence of joint damage, is the most common indication for total joint arthroplasty. The surgical procedure, completed under general or regional anesthesia, resurfaces the damaged bone and cartilage replacing it with synthetic materials (Jacobson et al., 2008). Candidates for joint replacement surgery have severe joint pain, stiffness, limping, muscle weakness, limited motion, and swelling of the affected joints. In addition, these individuals experience depression, stress, reduced productivity, reduced leisure activity, and decreased sexual desire and activity. Total joint arthroplasty has been successful in pain relief, improved physical function, and enhanced feelings of well-being (Montin, Kilpi, Suominen, & Lepisto, 2008). Almost all patients receive major benefits from total joint arthroplasty, although patients with lower functioning levels pre-operatively receive the greatest benefits from the procedure (Montin et al., 2008). These benefits are apparent within three months of surgery and

include pain relief, improved physical functioning, increased social interaction, psychological well-being, improved overall health, mental clarity, and vitality. The majority of patients proceed through surgery and recovery without complication. Following surgery, physical therapy and occupational therapy are used to restore motion and function with results lasting approximately fifteen years (Lucas, 2007).

The first attempts at joint replacement date back to 1891, when the first hinged ivory knee prosthetic was inserted by a German surgeon to replace a tubercular knee (Sheetty, 2003). The first actual hip replacement took place in England in the 1960's (Stinchfield, 1973). Today, over 300,000 knee replacements and 120,000 hip replacements are performed annually in the United States. Within the next 30 years, it is projected that the demand for total joint arthroplasty will increase by 40% (Sapountzi-Krepia, Psychogiou, Zafiri, Krepia, Fotiou-Kiosses, Avramika, & Sgantoz, 2007). A few years ago, adults over 75 years of age would not be considered candidates for joint replacement surgery since their lifespan would not allow long enough use of the new joint. Now this cohort has contributed an increased demand for joint replacement surgery (Landry, Jagial, Woodchis, Cooper & Cott, 2007). As the number of joint replacements continues to grow, the result will be a greater number of joint replacement revisions in future decades as the prosthetic devices begin to wear (Gillen, Berger, Lotia, Morreale, Siber & Trudo, 2007).

Surgical intervention, although safe and successful, is not without a rigorous recovery period and the possibility of complications for the patient. It is vital that these individuals and members of their support systems are educated and prepared for the challenges of the

post-operative rehabilitation period, the ultimate goal being to return these individuals to their highest level of functional ability in the shortest time possible.

Managed health care criteria and changes in Medicare and private insurance reimbursement have greatly affected the way care is delivered to the older adult population following joint arthroplasty (Fielden, Scott, & Horne, 2003). A large percentage of joint replacement patients have now assumed responsibility for their rehabilitation based on innovative changes in managed health care and Medicare reimbursement which call for early patient discharge. Alternatives to inpatient care are necessary due to the increased demand for hospital beds and the high costs of maintaining patients in an acute hospital setting (Iyengar, Nadkarni, Ivanovic & Mahale, 2007). Organizations struggling to contain health care costs began to reduce length of stay, standardize care interventions to improve clinical outcomes with lower hospital readmission rates, and smooth care interfaces across the continuum of health care settings (Almada & Archer, 2009) (Vukomanovic, Popovic, Durovic & Krstic, 2008). Such innovative changes in the delivery of health care are not unique to this population. Problems plaguing the health care system of our country have necessitated a revamping and re-directing of health care delivery from newborn care to long term care (Fielden et al., 2003). What remains vital is that these changes are not resultant in negative patient outcomes.

Whereas these individuals once spent five days post-operatively on the orthopedic hospital floor followed by a two week intense in-patient rehabilitation stay, they now experience a three day orthopedic post-op stay with early discharge to home and out-patient rehabilitation two to three times per week. The continual decrease of hospital stay

is diverting post-operative rehabilitation service to noninstitutional, home-based care agencies (Chimenti & Ingersoll, 2007). Currently, in-patient rehabilitation is an option reserved for those individuals who undergo bilateral joint replacement, have several other chronic, co-morbid conditions, or who have the financial means to pay for their care themselves. Individuals who receive in-patient rehabilitation are now discharged to home following an average stay of five days. A shortened hospital stay with discharge to home requires a social support system in place to provide both the personal and professional assistance that these patients will require in the early stages of their recovery. The provision of personal and professional social support is critical to independence and well-being.

### **Purpose**

This exploratory study built on existing work, assessed and measured social support and evaluated its impact on functional recovery and well-being in older adults, post joint arthroplasty. The determination of patient outcomes following total joint arthroplasty can produce knowledge for use in clinical nursing for the purposes of patient and family education. Knowledge gained may also be influential for physical therapists and occupational therapists as they determine the plan of care for their joint replacement patients. The long term goal of this project was to improve, or perhaps modify the early discharge process for joint arthroplasty and improve long term health outcomes. The central hypothesis of this study is that the presence of social support will positively impact functional recovery and well-being of older adults after joint arthroplasty.

## **Hypotheses**

1. Evaluate the effects of social support on functional recovery in older adults following joint replacement surgery. The working hypothesis is that higher levels of social support will be associated with higher levels of functional recovery.
2. Evaluate the effects of social support on well-being in older adults following joint replacement surgery. The working hypothesis is that higher levels of social support will be associated with higher levels of well-being.

## **Chapter 2: Background and Significance**

### **Functional Recovery**

Aging can be related to a decline in fitness and in health (Stevens, Wagenmakers, Groothoff, Bulstra, van den Akker-Scheek & Zijlstra, 2007). Primary aging relates to changes affected by the aging process itself which are usually irreversible (Stevens et al., 2007). Secondary aging are the changes associated with age-related illness that are preventable or reversible (Stevens et al., 2007). Lifestyle behaviors influence secondary aging. Regular physical activity has been linked to improvements in health and fitness. Activity can be defined as “the execution of the task of action by the individual” (World Health Organization, 2002, p.10). Participation can be described as “the involvement in a life situation” (World Health Organization, 2002, p.10). Participation is further defined as an individual’s professional and family responsibilities. The ability to fulfill these daily activities allows for community integration. Activity or functional limitation is defined as “difficulties an individual has executing activities” (World Health Organization, 2002, p.10). Functional health has been viewed as a requirement for success in independent living (Hogue, 1984). A functional limitation is a decline in which the individual becomes dependent in daily activities (Landefeld, Palmer, Kowal, Kresevic, Fortinsky & Kowal, 1995). Activities of daily living are defined as those tasks required for personal care and include such abilities as bathing, dressing, eating, toileting, and transferring. Instrumental activities of daily living refer to the management of household tasks and the provision of food and shelter. Abilities include the management of money, household cleaning and maintenance, and the preparation of meals. Functional impairment or limitation can also be defined as a social limitation represented by dependence in the

instrumental activities of daily living (Johnson & Wolinsky, 1993). Theoretically, functional recovery is the ability of an individual to overcome the limitations of injury or the disease process (Johnson & Wolinsky, 1993). Nagi's (1991) model of disability provides the theoretical framework which depicts the factors and relationships that affect independence in the performance of roles and daily tasks. Nagi (1991) defines functional limitation at the level of the whole person, not specific body systems, and defines impairments at the system level. For example, the inability to walk one mile is a functional limitation; the lack of synovial fluid surrounding the knee joint, which can limit the distance walked, is an impairment. Functional limitation has been considered the inability to carry out normal tasks and roles, especially among older adults (Huang et al., 1998). Daily functional task limitations in chronic illness is expected to last three months or more and include both activities of daily living and instrumental activities of daily living (Dunlop, Lyons, Manheim, Song & Chang, 2004). Healthy People 2010 (CDC, 1998) has set a goal of helping to increase the healthy span of life for individuals. Specific goals for the sixty-five and older age group focus on the improvement of functional independence (Ebersole & Hess, 1998). The assessment of functional status is critical when caring for older adults. Normal aging changes, acute illness, worsening chronic illness, and hospitalization can contribute to a decline in the ability to perform tasks necessary to live independently in the community. The information from a functional assessment can provide objective data to assist with targeting individualized rehabilitation needs or to plan for specific in-home services such as meal preparation, nursing care, home-maker services, personal care, or continuous supervision. A functional assessment can also assist the clinician to focus on the person's baseline

capabilities, facilitating early recognition of changes that may signify a need for either additional resources or a medical work-up (Gallo & Paveza, 2006).

Activity limitation can be caused by the impairments that accompany total joint replacement and the need for adaptation to functional changes (Gillen et al., 2007).

Activity limitations may then result in participation restriction in life situations.

Subsequently, rehabilitation following total joint arthroplasty needs to focus on physical impairments as well as decreasing participant restriction and activity limitation (Gillen et al., 2007). Reintegration relates to “living life as normally as possible within the constraints of the disease or aftermath of trauma” (Wood-Dauphinee & Williams, 1987, p.491). Community reintegration interventions are essential for patient satisfaction for those individuals living with participant restriction and activity limitation secondary to major joint replacement (Gillen et al., 2007). Community reintegration is directly related to individual quality of life (Kalpakjian, Lam, Toussaint, Hensen & Merbitz, 2004). Quality of life improves as achieved goals come to match desired goals. Reintegration and community intervention are the ultimate goals of the rehabilitation process.

### **Social Support**

Blixen and Kippes (1999) stress the importance of the role of social support in managing the long course of chronic illness. Three types of social support include; 1) emotional support involving comforting by physical affection or expressing concern for well-being; 2) guidance support involving giving knowledge of how to do something or suggesting some action; and, 3) tangible support involving the provision of housing, money, transportation, or physical assistance. Theoretically, social support is any exchange of resources between two or more individuals perceived by each to enhance the

well-being of the recipient (Blixen & Kippes, 1999). Social support includes behaviors such as attachment, problem solving, information, material aid, and education. Self-management (Blixen & Kippes, 1999), the most common educational intervention used for functional limitation in chronic illness, is the day-to-day tasks that a person must undertake to control or reduce the effect of disease on health status. It includes such behaviors as correctly using medication, managing acute episodes and emergencies and maintaining adequate exercise or activity with or without the use of assistive devices. Additionally, self-management involves using relaxation and stress reducing techniques, seeking information, using community services, adapting to work, managing relations with significant others, and managing emotions and psychological responses to the illness. The formal social support network consists of physical and occupational therapists, housecleaning services, and nutritional services. Informal social support includes spouse, children, and friends. The family can function as either an open or closed system. As an open system, this aspect of an individual's informal social support system can interact with other formal community systems for resultant positive patient outcomes. As a closed system, the family would be self-contained and resistant to outside influence and change which would create difficulty in a team or community approach to rehabilitation (Almada & Archer, 2009). Having a solid social network that can be relied on for assistance and emotional support can modify the negative effects of stress and protect patients from physical and emotional illness during a crisis (Cobb, 1976). During periods of physical limitation, families are the major source of instrumental and emotional support for older adults. Involvement with informal support network members plays an important role in the rehabilitation and recovery process. Researchers have

reported that the presence of a spouse and having social contacts outside the home are positively related to physical recovery (Ceder, Thorngren, & Wallen, 1980; Cobey, Cobey, Conant, Ulrich, Greenwald, & Southwick, 1976). In a study by Cummings (1985), older adults who had more social support reported a more complete recovery of function than those with fewer members in their social support network. Information is lacking on specific patterns of involvement of family and friends in relation to physical recovery.

Older adults with osteoarthritis struggle both pre-operatively and post-operatively with the need for dependence on others for physical and emotional support with striving to maintain independence (Jacobson et al., 2008). “Letting in” and “letting go” involve acceptance of the prosthetic joint as part of their body and accepting the loss of control associated with the early rehabilitation process (Jacobson et al., 2008). Receiving encouragement from others and establishing trust are essential for positive outcomes.

Marriage tends to increase life span and result in healthier lifestyles (Stephens, Franks, Druley, Fekete, Rook & Greene, 2009). Spouses provide a source of social control which is the attempt to regulate or influence the behavior of another through pressure or persuasion (Stephens et al., 2009). Persuasion is a motivating, encouraging behavior aimed at negative behaviors of a partner while pressure would be more of a negative, persistent attempt at change (Tucker, Orlando, Elliott, & Klein, 2006).

### **Well-Being**

The many theoretical definitions of well-being suggest that it is an intangible and amorphous concept with perception differing from person to person (Wilcock, Arend, Darling, Scholz, Siddall, & Snigg, 1998). Well-being can be defined in terms of an

individual's physical, mental, social, and environmental status with each aspect interacting with the other and each having differing levels of importance and impact according to each individual. A change in the different aspects of well-being of an individual may be reflected in an alteration of behavior or the performance of a task or activity (Sixsmith, Hine, Neild, Clark, Brown, & Garner, 2007).

Well-being refers to how well a person's life is going for that person. It describes what is non-instrumentally or ultimately good for a person. Well-being tends to be very individualistic in that self perception is the defining factor for how one views their "well-being" (Wilcock et al., 1998). A state of spiritual well-being parallels Maslow's definition of self-actualization. If older adults are self-actualized, they are no longer dependent on their social and economic surroundings for life satisfaction. They possess the ability to extend the self beyond boundaries of the immediate and achieve new perspectives and experiences involving a faith that positively affirms life (Leetun, 1996). Psychological well-being is not solely the absence of mental disorder. It is the state in which the individual can fulfill an active role in society, interacting appropriately with others and overcoming difficulties without major distress or disturbances in behavior. The impact of poor well-being can have devastating consequences for health and quality of life (Donaldson & Donaldson, 1998) (Sixsmith et al., 2007).

The primary indicator of health and well-being in the older adult is the ability to perform the activities of daily living (ADL) with relative ease. The presence of disease no longer completely defines the level of health of an aging person. It is now recognized that older adults are far less concerned about medical diagnosis than their ability to perform

necessary personal and household chores and go about their daily errands and social activities (Butler, 1987) (Young & Resnick, 2009).

Well-being can function as both a contributor to functional limitation and a factor in preventing the adaptation of individuals to the functional limitations that accompany their chronic illness (Dunlop et al., 2004). Well-being reflects an individual's emotional relationship with their environment, communicating qualities such as happiness, personal satisfaction, optimism, and morale. Well-being is not simply the lack of depressive symptoms. Positive affect seems to protect individuals against physical declines in old age, however this buffer action is not clear (Dunlop et al., 2004). Persons in a positive mood are more likely to engage in social relationships, be optimistic about their future, successfully cope with stressful situations, and feel in control of their lives. Similarly, those with high positive affect may act in ways to increase their social support, which beneficially protects health. Further exploration of the role of positive affect in maintaining physical functioning in old age may lead to the development of more comprehensive and effective ways to promote the continued independence of the older adult population (Ostir, Markides, Black, & Goodwin, 2000).

Well-being has frequently been associated as part of the umbrella concept of "quality of life" encompassing the functional, physical, emotional, social, and spiritual dimensions of a person's life. Health related quality of life (HRQL) is a term also used in health care literature to refer to the way individuals afflicted with chronic disease understand their quality of life throughout all dimensions in relation to their specific disease process. Outcomes of treatment or intervention effectiveness as well as cost

effectiveness are frequently measured by assessment of their effects on the lives of the patients and their families (Sapountzi-Krepia et al., 2007).

For some individuals dealing with the joint pain and functional limitation of osteoarthritis, the progression of symptoms affects how these individuals view themselves and their belief on how others view them (Jacobson et al., 2008). Some patients considered themselves active people forced into inactivity due to their symptoms. Feelings of well-being are affected as functional limitations constrict and control their lives (Jacobson et al., 2008). The effects of understimulation and social isolation associated with functional limitation and inactivity can result in psychological as well as psychoendocrine changes (Arnetz, Theorell, Levi, Kallner & Eneroth, 2003).

### **Summary of Background and Significance**

The population of the world is aging. The aging process gradually increases the vulnerability of the older adult to chronic illness accompanied by its numerous challenges and losses (Hickey & Stillwell, 1992). Increased dependency from chronic illness and aging brings with it social and personal concerns in the areas of health care, community health services, and quality of life (Blixen & Kippes, 1999).

Osteoarthritis is one of the most prevalent diseases in the United States today and its prevalence is expected to increase as the population ages. Osteoarthritis limits everyday activities and is the leading cause of disability in the United States. The total cost resultant of osteoarthritis is well over 120 billion dollars per year in medical treatment and lost wages (CDC, 2008). Joint arthroplasty is rapidly becoming the treatment of choice for degenerative joint disease. A shortened hospital stay following surgery with discharge to home requires a social support system in place to provide both

the personal and professional assistance that these patients will require in the early stages of their recovery. Based on the theoretical and operational definitions of functional recovery, social support, and well-being, this research demonstrated the projected impact of these three primary variables in the recovery process of older adults having joint arthroplasty. A clearer understanding of the extent to which changes in functional ability reflect changes in the underlying physiological capability of older Americans may offer insight into future patterns of disability, thereby facilitating research and planning of medical and social services and interventions for the older population (Freedman & Martin, 1998). This need is compounded by government policies that aim to keep older people living in the community and the disappearance of inter-generational relationships. Well-being is thus an important concept in the philosophy underpinning social support and the clinical practice on which it is built. It is important for those individuals that are part of the social support network addressing the needs of the older adult population to consider what understandings of well-being are in play in the way that they construct their practice and explore whether there is congruence between understandings of well-being held by health practitioners and the clients with whom they deal. If the concept is not well understood and incongruence exists, then well-being may be an elusive goal of clinical practice. Health care professionals need to be clear about what well-being is before they can effectively enable their clients to work toward it. Furthermore, given the increasing numbers of older adults, it is even more imperative to understand what well-being is for older people. Successful “agers” are robust, resilient individuals who remain physically, mentally, and socially active and who are determined to remain independent and control their future (Gattuso, 2003). Sloane (1984) refers to this population as the

“well-derly.” Inherent in the aging of America is the need for maintenance of the highest levels of health, vitality, and independence. Dunn’s (1959) concept of high level wellness works toward maximizing the potential of which the individual is capable within the environment where he is functioning. This sense of personal autonomy enhances psychological well-being (Campbell & Aday, 2001). Remaining alert to opportunities for promoting a personal sense of coherence as well as a sense of new possibility affords hope, integrity, dignity, and confidence, enhancing the well-being and quality of life in the older adult ( Cutillo-Schmitter, 1996) (Young & Resnick, 2009).

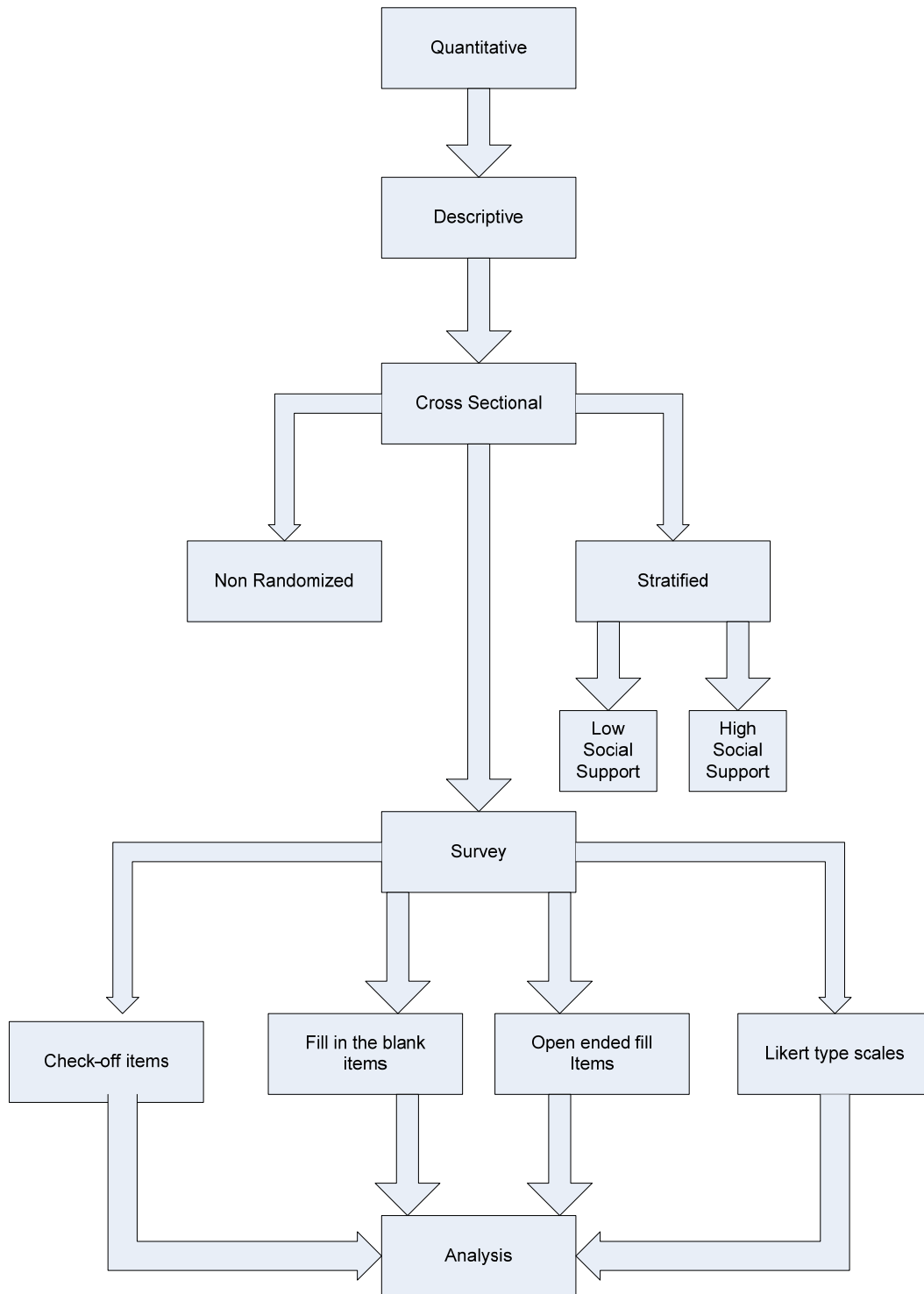
As the world’s population is aging, it is becoming more and more evident that these individuals are seeking a quality to their life as opposed to quantity. Further research will enhance our knowledge of the concept allowing us to make contributions that will add life to the years rather than just adding years to the life.

## **Chapter 3: Design and Methodology**

### **Overall Approach and Rationale**

An exploratory design was used to examine the perceived social support of older adults following total joint replacement surgery and the relationship that social support had to functional recovery and well-being. Descriptive surveys were used to collect interval ratio data. This approach allowed for the accumulation of data through a self-report survey method on the variables of social support, functional recovery, and well-being. This study was innovative in that it is the first to critically evaluate the individual contribution of social support on functional recovery and well-being on a common, but expensive surgical procedure. Further, this surgical population, up until the past few years, was receiving treatment in a hospital or rehabilitation setting. Older adults are now recovering in their homes, relying on themselves or their social support network for assistance. This study will add to the body of research concerning the changes in health care delivery and the effects these changes have on the older adult population post joint replacement surgery. The results of this study shall contribute to the evidence base of whether the current plan of care for joint replacement patients is demonstrating positive outcomes or resulting in complications which lengthen the recovery time and requires re-hospitalization, thereby producing increased cost implications.

# Research Design



**Figure 1: Research Design**

### **Site Selection**

An Institute within a 666-licensed bed Mid-Atlantic Tertiary Health Care Hospital was chosen as the site for participant enrollment for this research study due to the high volume of joint replacement surgery completed at the facility. This Institute was the first teaching hospital in Pennsylvania and the 22nd hospital in the nation to receive the prestigious Gold Seal of Approval and Disease Specific Certification from the Joint Commission on Accreditation of Healthcare Organizations in recognition for innovation and excellence in the specialty of hip and knee joint replacement. Last year, over 1,100 joints were replaced at this institution. Orthopedic surgeons at this institution teach new techniques to other orthopedic surgeons in the country and have assisted in the development of new instrumentation to advance the mini-incision trend in surgery. The latest techniques are being done at this institution, frequently long before others, including the anterior approach to hip replacements, surface replacements, and computer-assisted surgery.

Post-operative data collection was completed at an Orthopedic Center affiliated with this institution and where the participants were seen for surgical follow-up and area physical therapy facilities where the participants were seen for out-patient physical therapy and occupational therapy.

### **Population Sample**

A convenience sample, (n= 125), was recruited from pre-operative classes for joint replacement candidates at the Institute based on statistical power analysis. The sample size was representative of the population and provided a scientific basis to calculate power. Using a two sample comparison of means, approximately 63 individuals

were recruited to a group of either high social support or low social support. To allow for possible loss of patients, 132 patients were included in the enrollment period. Of those recruited, seven were not included in the study. One participant developed gout, post-operatively, which severely affected mobility and pain in the acute rehabilitation period. One participant's date of surgery was changed due to pre-operative infection. Five participants were unable to be contacted post-operatively due to changes in contact information. The following inclusion and exclusion factors were used for enrollment;

#### Inclusion criteria

- ✓ 55 to 95 years of age
- ✓ Elective total joint replacement

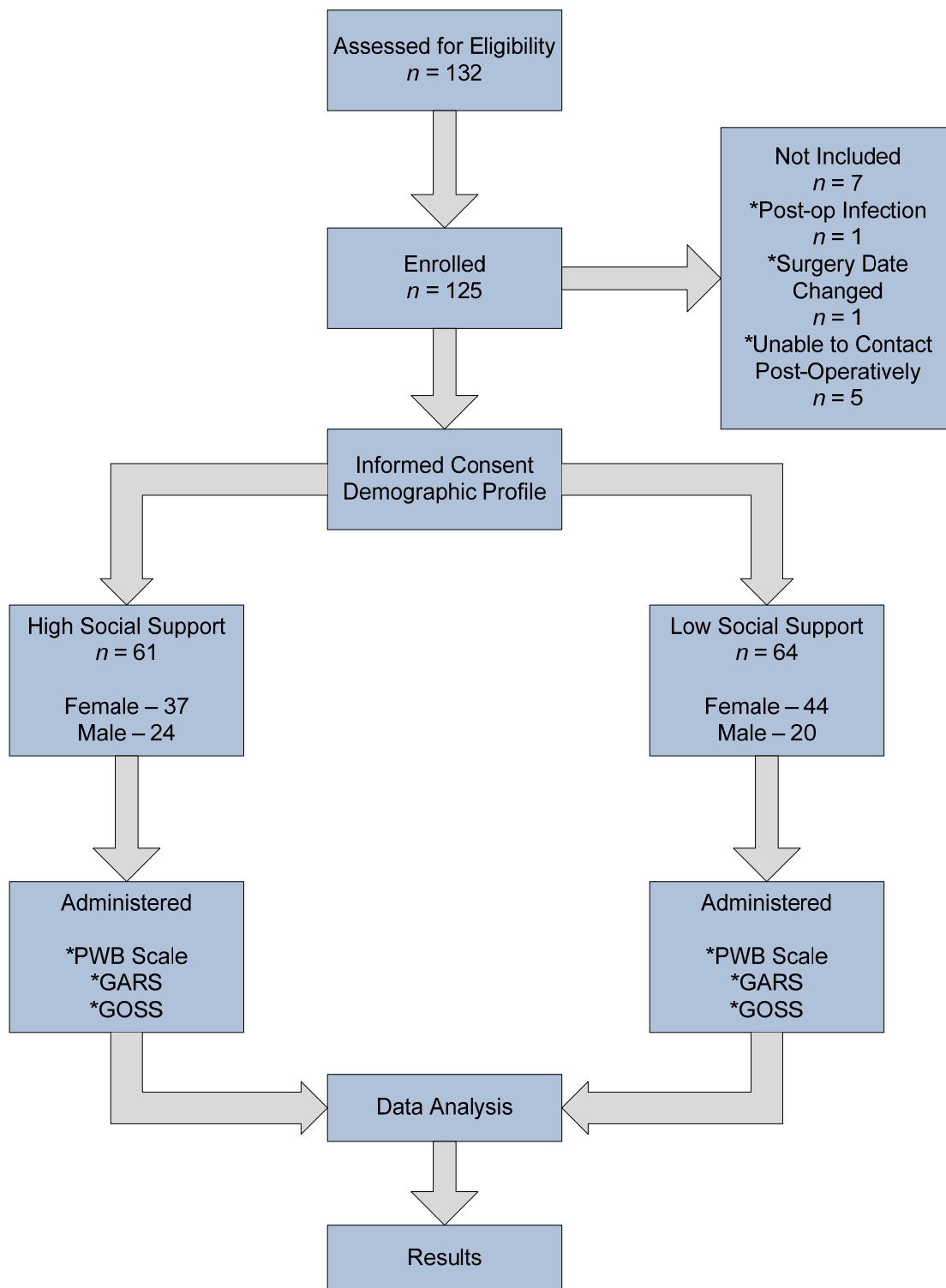
#### Exclusion criteria

- ❖ Pre-existing medical conditions that result in functional limitation (i.e., stroke, multiple sclerosis)
- ❖ Post-operative complications (i.e., infection of prosthetic device, deep vein thrombosis (DVT))
- ❖ Hemiarthroplasties
- ❖ Revisions of total joint arthroplasties
- ❖ Emergency total joint arthroplasty

## Methods

An interview schedule developed for this study consisted of three major parts: 1) demographic information, 2) items and scales that measure functional abilities, and 3) items and scales that measure psychosocial variables potentially related to the recovery process. (Figure 2) The Groningen Orthopaedic Social Support Scale (GO-SSS) was used to measure personal perceived and instrumental social support (van den Akker-Scheek, 2004). The Perceived Well-being Scale (PWB) was used to assess physical and psychological well-being (Reker & Wong, 1984). The Groningen Activity Restriction Scale (GARS) was used to measure functional ability with the activities of daily living and the instrumental activities of daily living (van den Akker-Scheek, 2004). These instruments have been previously used in the United States with reported reliability and validity (Van den Akker –Scheek, 2004) (Reker & Wong, 1984). The study employed a descriptive, cross-sectional research design.

## Flow Chart of Patients in Study



**Figure 2 - Flow Chart of Patients in Study**

Prospective participants were approached by the Primary Investigator (PI) at the pre-operative education classes for patients scheduled for joint replacement surgery. The pre-operative education classes are held twice weekly at the hospital and are free of charge. Patients and family members are encouraged to attend the classes although they are not mandatory. The purpose and aims of the study were explained at that time. Patients expressing interest in participating were given additional information by way of the study brochure (Appendix A). Emphasis on confidentiality as well as the right to withdraw their voluntary participation at any time without any discrimination, delay of surgery or negative effect on their treatment was reinforced. During this phase of the study 132 patients offered voluntary consent to participate in the study. These participants had previously signed surgical consent forms indicating their competency. On completion of all survey forms, a \$25.00 American Express gift card was given to each participant in appreciation for their participation.

Following informed consent (Appendix B), study participants were given a demographic profile (Appendix C) to complete. Measurement of social support, well-being and functional recovery was done two to three weeks post-operatively using instruments previously tested for reliability and validity and with permission of the authors. Privacy and confidentiality was maintained by using private office space for data collection. The participants were contacted by phone post-operatively to set the time and place of post-operative data collection. Final participant contact took place at out-patient physical therapy sessions or post-operative visits with the surgeon where the final survey forms were completed and the participants received the American Express gift card for their participation.

**Table 1: Data Collection Points & Measures**

Location	Pre-operative education classes - Two weeks Preoperatively	Physical therapy classes Post-operative surgical follow-up visits - Two to Three Weeks Postoperatively
<b>Data Collected</b>	<ul style="list-style-type: none"> <li>• Demographic profile</li> <li>• Consent form</li> </ul>	<ul style="list-style-type: none"> <li>• Perceived Well-Being Scale</li> <li>• Groningen Activity Restriction Schedule</li> <li>• Groningen Orthopedic Social Support Scale</li> </ul>

### Reliability and Validity

#### *Demographic Data Form*

The purpose of this form was to obtain basic demographic data on the participant while also gaining information on the home environment of the participant in relation to the participant's ability to achieve functional independence in the home setting. Social support was evaluated with response to questioning on the demographic data sheet and provided the information needed to place the participants in either the high social support or low social support grouping. Tasks such as help with exercises, providing meals, shopping, providing transportation, household chore completion, and decision making were addressed. Those individuals expecting to receive the most assistance with these tasks were placed in the high social support group. Those individuals expecting to receive assistance with fewer numbers of tasks were placed in the low social support group.

#### *Social Support Measurement*

The Groningen Orthopaedic Social Support Scale (GO-SSS) was used to measure personal perceived and instrumental social support (van den Akker-Scheek, 2004). This is a self-report tool that has been previously used in the total joint arthroplasty population

with reported success. The survey consists of twelve items with seven measuring perceived social support and five measuring instrumental support. Reliability of the Groningen Orthopaedic Social Support Scale can be considered satisfactory with a Cronbach's alpha of 0.89. Analysis of construct validity by means of factor analysis yielded two factors; perceived social support and instrumental social support. A Pearson's correlation between these subscales was moderate ( $r = 0.61$ ) and statistically significant. Concurrent validity can be considered satisfactory with a Pearson correlation of 0.72 ( $p < .001$ ) between the Groningen Orthopaedic Social Support Scale and the control group. The survey is scored on a four- point Likert scale: (1) indicating never or rarely, (2) now and then, (3) regularly, and (4) often. The time burden for this questionnaire is approximately fifteen minutes. The Groningen Orthopaedic Social Support Scale can be considered suitable for measuring social support. It can be used to help the nursing staff determine if a patient's need for social support is met, and to advise family and friends based on the results. The questionnaire can also be used to establish the role of social support as a factor in supportive interventions after a shortened hospital stay (van den Akker-Scheek, 2004). Communication with the author resulted in the granting of permission to use the tool for this study.

#### *Functional Recovery Measurement*

The Groningen Activity Restriction Scale (GARS) was used to measure functional ability with the activities of daily living and the instrumental activities of daily living (van den Akker-Scheek, 2004). This is a self-report tool used previously in the older adult and rheumatoid arthritis population with reported success. The Groningen Activity Restriction Scale is a general disease independent instrument for measuring

disability. It can be used to monitor a patient over time and to identify potential interventions. In (Szilasiova, Macejova, Kovarova, Nagyova, Trejbal, Pramuk & Beresova, 1998), the GARS was a reliable, practical, and simple scale of functional ability of patients with rheumatoid arthritis which can be used for the accurate description of the disease severity and for evaluation of the degree of functional ability. The validity of the GARS and the ADL and IADL scales was explored by assessing the scale's association with several other instruments measuring physical problems and subjective health. (Suurmeijer, Doeglas, Moum, Briancon, Krol, Sanderman, Guillemin, Bjelle & van den Heuvel, 1994). The authors found a significant correlation ( $p < .001$ ) with the control Health Assessment Questionnaire (HAQ). The instrument is an eighteen-item survey scored on a four point Likert scale with scores ranging from eighteen to seventy-two. Higher scores indicate greater disability. Permission was obtained to use the tool in this study.

#### *Well-Being Measurement*

The Perceived Well-being Scale (PWB) was used to assess physical and psychological well-being (Reker & Wong, 1984). This is a self-report test applicable for use in the older adult patient. The Perceived Well-being Scale consists of fourteen items with six measuring psychological well-being and eight measuring physical well-being. Psychological well-being includes such items as happiness, joy, peace of mind and the absence of fear, anxiety or depression, while physical well-being measures health and vitality and the absence of physical discomfort. Physical well-being and psychological well-being correlates positively with happiness and negatively with depression and physical symptoms. The overall internal consistency reliability coefficient or the











Perceived Well-being Scale was 0.85. The test-retest correlation over a two year period was 0.79 (Reker & Wong, 1984). Respondents rate each item on a seven-point Likert scale ranging from “strongly agree” to “strongly disagree.” Total scores range from 16, indicating lowest well-being to 112, indicating highest well-being.

### **Data Collection**

Data collection was completed by the PI in a three-month time frame using the tools and collection sites listed above. (Table 1) The PI was present at the time of survey completion by the participants and was available to answer questions and address concerns.

The demographic profile (Table 2) in regard to the questioning of the activities of daily living and the instrumental activities of daily living that the participants projected to receiving assistance allowed for the placement of 24 males and 37 females in the high social support group. This brought the total to 61 participants in the high social support group. This same focus on questioning allowed for the placement of 20 males and 44 females in the low social support group bringing the total to 64 participants in the low social support group. Over twice as many women than men were in the low social support group. With women living longer lives than men, more women would be left living alone as widows (Freedman & Martin, 1998). Participants ranged in age from 55 to 90 with the mean being 69.5 years for the high support group and 66.2 years for the low support group. Women outnumbered men by a total of 81 to 44 (Figure 3). Research studies have demonstrated that more women undergo joint replacement than men (Sapountzi-Krepia et al., 2007). Attempts to allow for cultural diversity were not as successful as anticipated. The majority of the participants in both groups were non-

Hispanic white. The high support group totaled 58 non-Hispanic white participants or 95.1% while the low social support group totaled 60 or 93.8% non-Hispanic white participants. Non-Hispanic black participants totaled six with two in the high social support group and four in the low social support group. There was only one Hispanic participant in the study and he placed in the high social support group. The participants that had a previous joint replacement amounted to 32 while those participants that had no prior joint replacement totaled 93. Of all the participants surveyed, 75.9% had stairs in their place of residence which could create some difficulties with ambulation and mobility. Significant health history was not a responsive variable as 59.9 % indicated no significant health history and self-rated their health as good to excellent. More individuals lived with a spouse or family member (68.5%) than lived alone (31.5%). These explanatory variables served as covariates in the data analysis process.

Gender Specific Breakdown of Joint Replacement									
Hip		Bilateral Hip		Knee		Bilateral Knees		Shoulder	
									
14	17	1	0	23	42	6	21	0	1

**Figure 3: Gender Specific Breakdown of Joint Replacement**

Table 2: Demographic Profile

### Demographic Profile

Gender	Significant Health History
<b>Male:</b> 44	<b>Yes:</b> 50
<b>Female:</b> 81	<b>No:</b> 75
Race / Ethnicity	Lives Alone
<b>Non-Hispanic white :</b> 118	<b>Yes:</b> 40
<b>Non-Hispanic black :</b> 6	<b>No:</b> 85
<b>Hispanic:</b> 1	
Previous Joint Replacement	Joint Replaced
<b>Yes:</b> 32	<b>Hip:</b> 31
<b>No:</b> 93	<b>Knee:</b> 65
	<b>Bilateral Hip:</b> 1
	<b>Bilateral Knee:</b> 27
Stairs in the Home	<b>Shoulder</b> 1
<b>Yes:</b> 95	
<b>No:</b> 30	

### **Data Analysis**

All data was managed by the Primary Investigator. The PI consented all participants and collected all data. Data collection tools contained numbered subject identifiers to ensure confidentiality. Data collection was projected to enroll one hundred twenty-eight participants in a three month period. Following data collection, all data was downloaded to a secure computer. Storage was on a password-controlled computer program in a locked office. Data cleaning, statistical analysis and manuscript production occurred in the last two months of the sixth month project. Data was analyzed using SPSS-PC 16.0 computer software (Cary, NC) to test the two research hypotheses; 1) that higher levels of social support will be associated with higher levels of functional recovery and 2) that higher levels of social support will be associated with higher levels of well-being. Descriptive statistics were computed for all demographic variables. The primary method of statistical data analysis used was binary logistic regression.

### **Protection of Human Subjects**

IRB approval for the study was received from the 666-licensed bed Mid-Atlantic Tertiary Health Care Hospital where the primary investigator was employed, carried out the research, and where the patients received their joint replacement surgery. IRB approval was also obtained from the Institutional Review Board at Drexel University, where the PI is a Doctoral Student. All participating patients voluntarily provided written informed consent. The risks related to this study included, fatigue, pain, or emotional upset. Informed consent was obtained from each participant by the PI in accordance with terms set forth by the IRB. Informed consent was obtained following recruitment at the joint replacement education classes at the Institute. Prior to signature, the participant had the opportunity to discuss procedures, purposes and aims of the study, along with

anticipated risks. The participant also had ample time to ask questions. A copy of the consent was given to each participant and one was retained for study records. Participant confidentiality was assured by using numbered identifiers on the collection tools.

#### *Human Subject Involvement and Characteristics of Subjects in this Study*

Adults with total joint replacement made up the research sample. Adults included a combination of men or women of ethnic background reflective of the patient population meeting inclusion criteria.

#### *Potential Risks*

The participant risk was minimized in addressing fatigue, negative feelings and pain. Fatigue due to a time burden of a thirty-minute completion time for the three surveys was addressed by the researcher. The researcher offered rest periods and beverages so no participant felt the stress of fatigue. In addressing participants negative feelings concerning perceived social support, functional recovery, or well-being, the researcher secured the services of a psychiatric clinical nurse specialist who is licensed as a therapist, available by phone, to speak with any participant requesting this service following emotional distress. To prevent post-operative pain or discomfort from sitting for the time period required to complete the surveys, the researcher allowed for temporary termination or rescheduling of data collection in the event of adverse participant reaction.

#### *Potential Benefits of the Proposed Research to the Participants and Others*

Participants were aware that the results of the study would provide no direct benefit to them but have the possibility of affecting the recovery process of future joint arthroplasty patients. Information obtained from data analysis had the potential to direct

the extended rehabilitation of the participants based on the success or failure of their current rehabilitation plan. The information obtained will also allow for the evaluation of the current discharge planning for patients following total joint replacements to determine if the needs of this population are adequately being met. Participants were given access to a blog site set up specifically for this study at *newjoints.blogspot.com*. Study results were posted upon completion of the study.

#### *Women and Minority Inclusion in Clinical Research*

No exclusions exist in regard to women or minorities. Efforts were made to recruit comparable numbers of men and women of varied diversity.

#### *Recruitment of Children*

Total joint replacement is not an indication for children.

#### *Compensation*

A \$25.00 American Express gift card was given to each subject meeting inclusion criteria in appreciation for their participation following completion of the surveys.

#### *Data and Safety Monitoring Plan*

All data were collected by the PI in the hospital, physical therapy, or physician office setting. The PI reviewed all data collection sheets and entered the data into a secure computer program removing any identifiers. Subject completed surveys remained locked during the duration of the study. Reviewing and updating occurred on a regular basis to maintain the integrity of the material. SPSS-PC 16.0 computer software was used by the statistician to analyze the data.

#### *Vertebrate Animals*

The study is restricted to human subjects only,

## Chapter 4: Results

### Explanation of Variables

Results from multivariate statistical analyses are generally superior to outcomes from univariate analyses because they better capture the full network of correlations among independent and dependent variables (Stevens, 2002; Tabachnick & Fidell, 2007). Therefore, data were analyzed using a direct-entry (standard), binary logistic regression analysis (MRA).

The response (i.e., dependent) variable was social support. The value “1” represented high social support and “0” denoted low support. Consequently, the analysis predicted the outcome of high social support inasmuch as logistic regression analyses always predict the “1” value of a response variable (Hosmer & Lemeshow, 2000; Stevens, 2002).

There were three primary explanatory (i.e., independent) variables. All three variables were on the interval scale of measurement: (1) the Perceived Well-Being Scale (PWB) where higher numbers indicated higher levels of well being, (2) the Groningen Orthopaedic Social Support Scale (GOSS) where higher numbers denoted higher levels of social support and (3) the Groningen Activity Restriction Scale (GARS) where higher numbers corresponded to greater levels of disability. (Table 3) The first three lines of Table 4 presents distributional statistics (mean [*M*]s, standard deviation [*SD*]s) for the PBS, GOSS, and GARS and it does so separately according to the two levels of social support.

Several other explanatory variables were included in the analysis. These variables served as covariates and helped to clarify the contribution of three primary explanatory

variables. The covariates were: (1) age, (2) gender, (3) living arrangements, (4) previous joint replacement, (5) stair climbing, (6) race/ethnicity, and (7) significant health history, and (8) income. The coding scheme employed with each covariate will now be discussed more fully. So, in all, there were 11 explanatory (predictor) variables: three primary predictors and eight covariates.

**Table 3: Descriptive Analysis of Operationalized Variables**

<b>Descriptive Analysis of Operationalized Variables</b>					
<b>Perceived Well Being</b>					
<b>High Support</b>			<b>Low Support</b>		
<b>Low</b>		<b>High</b>	<b>Low</b>		<b>High</b>
39		98	39		95
	<b>Mean</b>			<b>Mean</b>	
	79.4			71.8	
	<b>SD</b>			<b>SD</b>	
	10.4			14.4	
<b>GOSS</b>					
<b>High Support</b>			<b>Low Support</b>		
<b>Low</b>		<b>High</b>	<b>Low</b>		<b>High</b>
22		48	12		48
	<b>Mean</b>			<b>Mean</b>	
	39.5			34.6	
	<b>SD</b>			<b>SD</b>	
	6.0			7.1	
<b>GARS</b>					
<b>High Support</b>			<b>Low Support</b>		
<b>Low</b>		<b>High</b>	<b>Low</b>		<b>High</b>
18		39	18		40
	<b>Mean</b>			<b>Mean</b>	
	26.8			26.5	
	<b>SD</b>			<b>SD</b>	
	6.4			6.3	

**Table 4: Distributional Characteristics and Frequency Counts**

Variable	Frequency <sup>1</sup>	
	High Support	Low Support
	<i>M and SD</i>	
PWB	79.4 (10.4) <sup>2</sup>	71.8 (14.4) <sup>2</sup>
GOSS	39.5 (6.0)	34.6 (7.1)
GARS	26.8 (6.4)	26.5 (6.3)
Age	69.5 (8.1)	66.2 (8.4)
Gender <sup>2</sup>		
Male	24 (39.3%) <sup>3, 4</sup>	20 (31.2%)
Female	37 (60.7%)	44 (68.8%)
Race/Ethnicity		
Anglo	58 (95.1%)	60 (93.8%)
Black	2 (3.3%)	4 (6.2%)
Hispanic	1 (1.6%)	0 (0.0%)
Previous Joint Replacement		
Yes	16 (26.2%)	16 (25.0%)
No	45 (73.8%)	48 (75.0%)
Stairs in the Home		
Yes	45 (73.8%)	50 (78.1%)
No	16 (26.2%)	14 (21.9%)
Significant Health History		
Yes	25 (39.1%)	25 (41.0%)
No	39 (60.9%)	36 (59.0%)
Lives Alone		
Yes	6 (9.8%)	34 (53.1%)
No	55 (90.2%)	30 (46.9%)
Income		
Less than \$26,000	17 (16.8%)	
\$26,000 - \$50,000	28 (27.7%)	
\$51,000 - \$75,000	26 (25.7%)	
\$76,000 - \$100,000	18 (17.8%)	
\$100,001 - \$150,000	9 (8.9%)	
Greater than \$150,000	3 (3.0%)	

*Note:* *M* = mean, *SD* = standard deviation, PWB = the Perceived Well-Being scale, GOSS = the Groningen Orthopaedic Social Support Scale, and GARS = the Groningen Activity Restriction Scale.

<sup>1</sup>Numbers for each design variable/predictor vary from overall sample size (*N* = 125) according to the amount of missing data.

<sup>2</sup>Numbers outside parentheses equal Means (*M*) and numbers within parentheses represent standard deviations (*SD*).

<sup>3</sup>Numbers within parentheses represent percentages within a social support group (high support vs. low support).

<sup>4</sup>Percentages rounded at first decimal for convenient presentation.

The fourth line of Table 4 presents the distributional statistics for age. A univariate statistical comparison showed a significant age difference between the two social-support groups (independent-samples  $t = 2.261$ ,  $df = 123$ ,  $p = .025$ ). This finding further supported the need for a multivariate statistical analysis. The multivariate procedure would allow social-support differences in PBS, GOSS, and GARS to be interpreted independent of any age effects.

The sample contained more women (64.8%) than men (35.2%). Nevertheless, as suggested by the percentages in Table 4, and confirmed by a univariate statistical comparison, the two social support groups showed no significant gender differences ( $r^2 = 0.897$ ,  $df = 1$ ,  $p = .344$ ). The ethnic composition of the sample was exclusively non-Hispanic white, non-Hispanic black, and Hispanic. Less than 10 percent of the sample (5.6%) came from either the non-Hispanic black or Hispanic groups. Accordingly, for the multivariate analysis, race/ethnicity was reduced to one dummy variable (categorical predictors) (Cohen, Cohen, West, & Aiken, 2003; Garson, 2007). The dummy codes were 0 = “non-Hispanic white”, and 1 = “non-Hispanic black” or “Hispanic”.

There was no significant difference between the two social support groups with respect to previous joint replacements ( $r^2 = 0.025$ ,  $df = 1$ ,  $p = .875$ ), the presence of stairs in the home ( $r^2 = 0.325$ ,  $df = 1$ ,  $p = .569$ ), or significant health history ( $r^2 = 0.048$ ,  $df = 1$ ,  $p = .827$ ).

Living arrangements were originally coded using four categories: (1) alone, (2) spouse, non-working, (3) adult, working child, and (4) working spouse. Unfortunately, there were insufficient numbers in categories 2, 3, and 4. The variable was reduced to two codes in order to decrease the data sparsity that can adversely affect the interpretation of

results (Stokes, Davis, & Koch, 2008). Results for the two codes showed that 32.0% of the sample lived alone and that 68.0% lived with someone else such as a spouse, an adult, a working child, or a working spouse. A univariate statistical comparison between the two social support groups showed a significant difference; fewer people in the high social support group lived alone ( $r^2 = 26.896$ ,  $df = 1$ ,  $p = .001$ ). These differences are discussed more thoroughly below in the context of the multivariate data analysis. Lastly, income was coded using six rankings: (1) less than \$26,000, (2) \$26,000 - \$50,000, (3) \$51,000 - \$75,000, (4) \$76,000 - \$100,000, (5) \$100,001 - \$150,000, and greater than \$150,000. A univariate statistical comparison was conducted between the two social support groups using the Mann-Whitney U-test for ranks. Results showed no significant difference; fewer people in the high social support group lived alone ( $z = -0.011$ ,  $p = .992$ ).

### **Statistical Analysis**

Regression diagnostics were performed to evaluate whether the overall model met underlying assumptions (Meyers, Gamst, & Guarina, 2006; Tabachnick & Fidell, 2007). The analyses revealed no univariate or multivariate outliers. A further evaluation of assumptions was satisfactory for the absence of influential cases and multicollinearity. Similarly, there was no violation regarding the expected frequencies per cell needed for a logistic regression analysis (Garson, 2007).

Results from the logistic analysis indicated that the 11-predictor model provided a statistically significant improvement over the constant-only model, ( $r^2 = 51.844$ ,  $df = 11$ ,  $p = .001$ ). The Nagelkerke pseudo  $R^2$  indicated that the model accounted for approximately 53.7% of the total variance. The pseudo  $R^2$  was converted to Cohen's (1988)  $f^2$  statistic, where .02 equals a small effect size, values of .15 identify a medium

effect, and values .35 and above connote a large effect. Therefore, the obtained  $f^2$  (.98) suggested the presence of a **very large** effect size and it indicated that, as a set, the 11 design variables were excellent in discriminating between individuals with high- and low-levels of social support.

Predictive success was also evaluated for each case used to develop the model. The overall classification accuracy was impressive (87.1%). Even more so, findings for sensitivity and specificity were impressive. Sensitivity is the ability of the 11 design variables (predictors), as a set, to correctly identify individuals with high levels of social support (Streiner, 2003). Alternatively, specificity is the ability of the 11 predictors to correctly identify individuals with low levels of social support. In the current case, sensitivity was very high (85.25%), meaning that the design variables would correctly identify 85.25% of the people with high levels of social support. Likewise, specificity was very high (76.69%) and showed that the design variables would correctly identify 76.69% of the people with low levels of social support.

Table 5 presents regression coefficients ( $B$ ), Wald statistics, significance levels, odds ratios, and 95% confidence limits for the odds ratio for each predictor in the model. The Wald test revealed that three design variables (predictors) were statistically significant: (1) whether patients lived with someone else ( $p = .001$ ), (2) age ( $p = .002$ ), and (3) scores from the Perceived Well Being scale ( $p = .002$ ). None of the other eight design variables contributed to the model.

The variable ‘lives with someone else’ is binary. Therefore, interpreting its odds ratio of 19.049 is straightforward. Patients who live with someone else are over 19 times (i.e., 19.049 times) more likely to be in the high social-support group than patients who

live by themselves. This is the individual effect for living with someone else. In other words, it is the effect of living with someone else in predicting high social-support *after* controlling for the effects of all of the other predictors in the model (i.e., age, PWB, GOSS, GARS, race/ethnicity, gender, previous joint replacement, stairs in the home, income and significant health history). Needless to say, it is safe to conclude that living with someone else to a large extent, may possibly determine whether someone is in the high social-support group.

The other two significant design variables (age and PWB) were on the interval scale of measurement. It is necessary to take into consideration the mean ( $M$ ) and standard deviation ( $SD$ ) when interpreting the effects of interval-level predictors (Hosmer & Lemeshow, 2000).

The mean age for the sample was 67.80 years and the  $SD$  was 8.38 years. Therefore, a person who is 76.18 years of age (i.e. one  $SD$  above the average age of the sample) is over 9 times more likely to be in the high social-support group than someone who is at the mean age of the sample (i.e.,  $1.102 \times 8.38 = 9.235$ ). This is the individual effect of age *after* controlling for the effects of all of the other predictors in the model (i.e., living arrangements, PWB, GOSS, GARS, race/ethnicity, gender, previous joint replacement, stairs in the home, income and significant health history).

The mean PWB score was 75.0 and its  $SD$  was 13.13. Therefore, a person whose PWB score is 88.13 (i.e. one  $SD$  above the average of the sample) is over 14 times more likely to be in the high social-support group than someone who is at the mean PWB score of the sample (i.e.,  $1.077 \times 13.13 = 14.141$ ). This is the individual effect of PWB *after* controlling for the effects of all of the other predictors in the model (i.e., living

arrangements, age, GOSS, GARS, race/ethnicity, gender, previous joint replacement, stairs in the home, income and significant health history).

**Table 5: Regression Analysis for Variables Predicting High Social-Support Status**

Predictor	<i>B</i>	Wald	<i>p</i>	Odds Ratio	95% CL for Odds Ratio	
					Lower	Upper
Lives with Someone Else	2.947	19.041	.001	19.049	5.07	71.57
Age	.097	9.359	.002	1.102	1.035	1.172
PWB	.075	9.483	.002	1.077	1.027	1.130
GOSS	.054	1.443	.230	1.055	0.967	1.157
GARS	.052	1.718	.190	1.054	0.975	1.139
Race/Ethnicity	-1.28	1.549	.213	.267	.036	2.096
Gender(male)	-.147	0.087	.768	.863	.324	2.299
Previous Replacement	Joint	-.015	0.552	.978	.985	.3334
Stairs in Home	-.808	1.657	.198	.446	.130	1.525
Significant History	Health	.550	1.179	.278	1.733	.642
Constant		-17.28	19.341			

*Note:* *B* = unstandardized coefficient, *N* = 125, PWB = the Perceived Well-Being scale, GOSS = the Groningen Orthopaedic Social Support Scale, and GARS = the Groningen Activity Restriction Scale.

### Hypotheses

1. Hypothesis one is that higher levels of social support will be associated with higher levels of functional recovery.

The Groningen Activity Restriction Scale (GAR) has demonstrated reliability and validity in measuring the functional abilities of individuals following joint replacement surgery. Scores range from 18, indicating high levels of independence to 54 which relates to greater difficulty in performing the tasks of daily living therefore requiring more dependence on others for assistance. The mean score of the GAR for participants in the high social support group was 26.8. The mean score for the participants in the low social

support group was 26.5. The similarities of these scores indicate that no relationship exists between functional recovery and the level of social support,  $p = .190$ . The null hypothesis holds true.

2. Hypothesis two is that higher levels of social support will be associated with higher levels of well-being.

The Perceived Well-being Scale has demonstrated reliability and validity in measuring physical and psychological well-being. Total scores range from 14, indicating lowest well-being to 98, indicating highest well-being. The mean score of the PWB scale for those with high social support was 79.4 while the mean score of the PWB scale for those with low social support was 71.8. Using binary logistic regression analysis with the covariate of “living alone”, it was demonstrated that fewer people in the high support group lived alone,  $p = .001$ . The odds ratio of 19.049 for the variable “living with someone else” allows for safety in the conclusion that living with someone else has a large relationship in determining high social support. The hypothesis holds true that those individuals with high social support go on to exhibit high levels of well-being,  $p = .002$ .

## **Chapter 5: Summary and Implications for Future Research**

### **Overview**

Osteoarthritis is a degenerative disease with ramifications impacting individual well-being based on symptomatology and the chronic nature of the disease. Pain, inability to complete the basic activities of daily living, and ambulation are the most important issues facing non-working individuals. Ambulation is the most significant issue affecting working individuals as it directly affected their efforts to work as well as their ability to complete the responsibilities of their jobs, thereby, their financial stability.

Psychologically, these individuals were influenced by the pain and functional limitation. Social exclusion and dependence on familial support to provide assistance with day-to-day activities were areas of concern. Research has demonstrated that total joint arthroplasty contributes to improved functionality, lessened social isolation and promotes psychological and emotional well-being (Lucas, 2007). Patient perception assessment is a vital aspect in gauging the success of total joint arthroplasty. Three main areas of patient concern include; pain relief, improved physical function, and improved well-being or quality of life. Expectations with resultant feelings of well-being are directly related to patient perceptions (Williams et al., 2007).

This study reported the prediction of the outcome of the response variable of high or low social support on the primary explanatory variables of functional recovery and well-being in older adults following total joint arthroplasty. The explanatory variables, or covariates, of “living arrangements” and “age” also demonstrated significance in the analysis and contributed to the clarification of the three primary explanatory variables.

## Conclusions

Study results clearly indicate that a relationship does exist between the presence or absence of social support and the perceived well-being of individuals following joint replacement surgery. Individuals with high well-being scores were more likely to be in the high social support group as opposed to individuals with lower perceived well-being scores. Interestingly enough, the variables of “age” and “living arrangements” were the only two covariates that affected this relationship. Those individuals that lived with a spouse, adult child, or friend were much more likely to have higher levels of social support than those individuals that live alone. Similarly, as the individual age increases above the mean, individuals are more likely to be in the high social support group than those individuals at the mean age of the sample. The covariates of “gender”, “previous joint replacement”, “stair climbing”, “race/ethnicity”, “income” and “significant health history” demonstrated little relationship to group social support placement and subsequently to well-being or functional recovery. On a whole, the very large effect size (.98) indicated that as a set, the ten design variables were excellent in discriminating between individuals with both high and low levels of social support. Sensitivity levels of 85.25% clearly indicate that the design variables correctly identify individuals with high levels of social support. Alternately, specificity levels of 76.9% show that the design variables correctly identify those individuals with low levels of social support.

### **Significance to Nursing Practice**

The assessment of functional status is critical when caring for older adults. Normal aging changes, acute illness, worsening chronic illness, and hospitalization can contribute to a decline in the ability to perform tasks necessary to live independently in the community. The information from a functional assessment can provide objective data to assist with targeting individualized rehabilitation needs or to plan for specific social support in-home services such as meal preparation, nursing care, home-maker services, personal care, or continuous supervision. A functional assessment can also assist the nursing professional in focusing on the person's baseline capabilities, facilitating early recognition of changes that may signify a need either for additional resources or for a medical work-up (Gallo & Paveza, 2006). Results of this study clearly indicate that it is imperative that older adult patients receive a thorough functional assessment prior to discharge. The discharge environment must also be evaluated for safety and possible limitations. This assessment becomes critical for individuals whose living arrangements require them to be alone. Low social support increases the risk of negative patient outcomes.

Nurses are ideally placed to inform health policy through practice and research. Patient advocacy helps to restore faith in a healthcare system that has demonstrated difficulty in meeting patient needs. Patient and family education becomes a key component in the discharge planning for the patient undergoing total joint arthroplasty. The education process begins well before the surgery takes place. It is vital that these individuals and members of their support systems are educated and prepared for the challenges of the post-operative rehabilitation period. Nurses need to assist patients and

their support systems in developing safe, effective exercise regimes, practiced regularly, to promote cardiovascular fitness and added joint flexibility and balance, the ultimate goal being to return these individuals to their highest level of functional ability in the shortest time possible.

The results of this study adds to current data determining whether the current plan of care for joint replacement patients is demonstrating positive outcomes. It is also essential to determine if the current treatment plan leads to complications which lengthen the recovery time and requires re-hospitalization with its added cost implications. This data can also help in the benchmarking of patient progress and lead to prognostic treatment decisions in regard to recovery and rehabilitative needs. This knowledge will result in improved care planning standards and advance clinical outcomes. The application of evidence to practice can promote more informed decision making and foster the use of best practice and maximal care delivery outcomes in the home health care setting (Chimenti & Ingersoll, 2007). Patient expectations and knowledge of the rehabilitation process are key determinants in discharge placement. Realistic expectations are paramount to achieve successful outcomes on a maximal functional status recovery timetable that proves acceptable to patients and their families.

The decreased lengths of stay in both the orthopedic and acute rehabilitation settings coupled with decreased home care reimbursement necessitates greater research to optimize the effectiveness of theory based interventions. Implementation of effective treatment is essential in regard to cost effectiveness and the provision of the greatest benefits to functional recovery in the elder population following total joint replacement.

Validating the effects of the various community reintegration interventions is essential as the nursing profession continues to embrace the concept of evidence -based practice.

### **Limitations of the Study**

The strength of the study was that it demonstrated the relationship between the covariates of “living arrangements”, and “age” on social support and well-being in the older adult population following joint arthroplasty. Limitations include; small sample size, limited diversity, and single site location. Study participants were not assessed for depressive symptoms. Participants were recruited by convenience sampling from one health care facility and their outcomes may not be representative of all patients in all geographic regions. The limited non-random sample size would affect the generalizability of the results. A larger random sample size would yield greater statistical power and would allow for more definitive conclusions regarding the impact of social support on functional recovery and well-being. Another limitation was the lack of control over variables such as the operating surgeon, surgical procedure and site of acute rehabilitation which could influence patient experiences and outcomes. The sample was drawn from one agency and the subjects could not be randomly assigned

Limitations in this research project would also involve the self-reporting on the questionnaires as opposed to direct observation of the participants. Although self-report measures are easier to administer and inexpensive, they are influenced by expectations and beliefs of the participant and impaired cognition and memory. The vast majority of orthopedic rehabilitation programs take place in a facility setting. The disadvantage of a facility setting is that it does not generalize learned skills to the home environment and obstacles found in everyday life. The limited ethnic and racial diversity of the participants

presented another limitation. Further study would be necessary to determine if these findings would generalize to all racial backgrounds.

### **Recommendations for Future Research**

Further research using qualitative methods can gain subjective knowledge about joint replacement outcomes. Knowledge of the determinants of outcome can assist in the development of interventions with the goal of altering outcome behaviors by influencing the significant determinants. Self-efficacy may be considered one of these determinants. Bandura defined self-efficacy as the belief in the ability to perform or produce a desired outcome (van den Akker-Scheek et al., 2006). Expectations of successful outcomes determines effort put forth as well as perseverance when obstacles are encountered (van den Akker-Scheek et al., 2006). Individuals need to possess high self-efficacy and expectations of positive outcomes to achieve positive outcomes in adverse situations.

Uncertainty with resultant anxiety may provide a unique contribution as another determinant to successful rehabilitation (Kagan & Bar-Tal, 2007). Uncertainty promotes feelings of discomfort and uneasiness. It arises from low confidence and lack of control (Kagan & Bar-Tal, 2007). Mishel's model of uncertainty (1988) paints uncertainty in illness as a threat or danger. Further research into this concept can add to the current knowledge base and provide education to patients and family members to allay fears and promote confident decision-making.

Shorter lengths of stay inhibit the effective discharge planning necessary for continuity of care. An important factor in providing continuity between hospital and the community setting remains communication among healthcare providers. It is important that perceived outcomes directly relate to patient expectations (Montin et al., 2008).

Qualitative research can also gain insight into what patient expectations are concerning the joint replacement process and prepare health professionals to meet those expectations (Jacobson, et al., 2008).

Further exploration of the role of positive affect or well-being in maintaining physical functioning in old age may lead to the development of more comprehensive and effective ways to promote the continued independence of the older adult population (Ostir, Markides, Black, & Goodwin, 2000).

Qualitative analysis of patient rationale for wait times may reveal a fuller range of experiences providing particular strengths in uncovering evidence revealing significant, unanticipated factors resultant in patients, “putting up and putting off,” “waiting and worrying,” and “hurting and hoping” (Jacobson et al., 2008).

Resilience is another concept that bears investigation. The lack of a correlation between the variables of social support and functional recovery warrants further exploration to determine what factors are continuing to promote independence in patients with a low support system following joint replacement. Resilience just might be one of those factors.

Future research would be beneficial in furthering knowledge on total joint arthroplasty. The projected increase in the number of joint replacements and joint replacement revisions will result in a large population of individuals contemplating their options to the disabilities of osteoarthritis. Having an increased knowledge base in the areas of patient’s expectations and outcomes will better prepare health care professionals to address these issues and lead to positive outcomes.

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## Appendices

### Appendix A: Research Study Brochure

#### Joint Replacement Patients Needed for Research

##### Eligibility Requirements

- ◆ Age 55-95 years of age
- ◆ Elective total joint replacement



#### Calling all Joint Replacement Patients



Recruitment  
Advertisement  
Ruth Ann Kiefer RN MSN  
CRRN DrNP(c)  
rkiefer@amh.org  
(215) 481-5533

This research is being  
conducted by a  
researcher who is a  
member of Drexel  
University, a doctoral  
nursing student, and a  
certified rehabilitation  
nurse at Abington  
Memorial Hospital



**The Effect of Social Support on Functional Recovery and Well-Being in Older Adults Following Total Joint Arthroplasty**

**Recruiting Total Joint Replacement Patient Volunteers for a Research Study**

**Qualified Participants:**

1. Will fill out confidential questionnaires concerning their:

- Post-operative recovery
- Support received from others
- Feelings of life satisfaction

Time involved- approximately 30 minutes

- 10 minutes pre-operatively at Joint Replacement Education classes
- 20 minutes post-operatively at physical therapy classes or physician follow-up visits.

2. Will receive a \$25 American Express gift card for their participation following completion of the surveys

The goal of this research project is the hope that it may influence the discharge plan and post operative care of joint replacement patients.

Thank You,

Ruth Ann Kiefer RN, MSN, CRRN  
Doctor of Nursing Practice

Student

Drexel University

Abington Memorial Hospital

Rehabilitation Nurse

215 481-5533

## **Appendix B: Consent Form**

### **The Effect of Social Support on Functional Recovery and Well-being in Post-Joint Arthroplasty Older Adults**

#### **Principal Investigator**

Ruth Ann Kiefer RN, MSN, CRRN, DrNP Student

2500 Maryland Rd, Willow Grove, PA 19090

215 481-5533

You have been asked to participate in a research study. This form is designed to give you information about this research study. The principal investigator or person authorized to obtain your consent will tell you about the study and answer any of your questions. If you have any questions about this research study or an injury related to this research study you should contact Ruth Ann Kiefer RN, MSN, CRRN at 215 481-5533. If you have any questions about your rights as a human research subject please contact the Director of Patient Advocacy at Abington Memorial Hospital at 215-481-2209.

#### **Purpose**

The purpose of this study is to discover if the current discharge plan for patients undergoing total joint replacement is effective in meeting the post-operative needs of the patients in regard to functional recovery, well-being, and social support. This research project is part of the dissertation requirements of the principal investigator for completion of a DrNP degree at Drexel University. You are being asked to participate because of your recent total joint replacement. There will a total of one hundred fifty patients participating in the research, all of whom had recent total joint replacements.

#### **Payments**

The principal investigator is not receiving any funds to conduct this research. There will be no cost to you for participation in this study. You will receive a \$25.00 American Express gift card if you complete this study. To complete this study you would need to complete all of the three surveys and the demographic data sheet.

### **Study Duration**

You will be involved in this study for a period of four weeks.

### **Procedure**

You understand that the following things will be asked of you as part of the data collection. A survey schedule developed for this study consists of two major parts: a) demographic information obtained at the joint replacement education classes you are now attending and b) surveys that measure your physical progress, well-being, and support and assistance that you are receiving after discharge which will be obtained at out-patient physical therapy classes or post-op doctor's visits. The time required to complete the three surveys and the demographic form is projected to be thirty minutes. Privacy and confidentiality will be maintained by using study identifier numbers on all survey forms. Only the principal investigator will have access to the names and phone numbers of the participants.

### **Risks**

You may experience some emotional upset when discussing your physical recovery, especially if it is not meeting your expectations. Low levels of social support as well as the need to be dependent on others may also be a source of emotional upset. If unforeseen risks are seen, they will be reported to the Institutional Review Board.

### **Benefits**

There may be no direct benefits to you from participating in this study. In the future, results from this study may provide benefits to candidates of total joint replacement surgery that may dictate changes in the current discharge plan that could result in successful outcomes of the rehabilitation process.

### **Alternatives**

The alternative is **not** to participate in this study.

### **Termination**

You may be required to stop the study before the end for any of the following reasons:

- a) Change in medical condition, i.e., infection, DVT;

- b) If all or part of the study is discontinued for any reason by the investigator or government agencies; or
- c) Other reasons, including new information available to the investigator or harmful unforeseen reactions experienced by the subject or other subjects in this study.

### **Withdrawal**

You are free to withdraw from this study at any time. It will not affect your healthcare that you are receiving at this time.

### **New Information**

New findings developed during the course of the research, which may relate to the subject's willingness to continue participation, will be provided to the subject. If you are interested in reviewing current ongoing research results, you can access this information at *newjoints.blogspot.com*.

### **Injury or Costs**

Abington Memorial Hospital will be responsible for any costs relating to this study.

**Confidentiality**

Your name and phone number will be stored in a locked filing cabinet separate from all of your completed surveys. Only the Principal Investigator will have access to this information and your name and phone number will be destroyed as soon as we receive your completed surveys. An ID number will be used to identify your demographic data sheet and allow us to contact you post-operatively to complete the surveys and insure that the surveys were received.

All of your questions have been answered and this informed consent has been explained to you in a language understandable to you.

You understand that your participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled, and You may stop participating in this study at any time without penalty or loss of benefits, to which you are entitled. You will contact Ruth Ann Kiefer RN, MSN,CRRN at 215 481-5533 prior to ending your participation.

You will receive a copy of this informed consent form.

---

Subject signature

---

Date

---

(or authorized representative signature)

---

Date

---

Principal Investigator

---

Date

**Appendix C: Demographic Profile****Demographic Profile****Age:** \_\_\_\_\_**Gender:**

---

- Female
- Male

**Education:**

---

- 8<sup>th</sup> grade or less
- 9<sup>th</sup> to 12<sup>th</sup> grade
- Completed high school
- Some college
- College graduate

**Living arrangements:**

---

- Alone
- With working spouse
- With nonworking spouse
- With adult working children
- With adult nonworking children
- With family members other than spouse or children
- With friends
- Life partner
- Assisted living facility
- Hired home health care assistant #\_\_\_\_\_ hours/day  
\_\_\_ RN \_\_\_ LPN \_\_\_ Aide

**Self Reported Health:**

---

- Excellent
- Good
- Fair
- Poor

**Significant Health History**

---

- Heart problems
- Breathing problems
- Diabetes
- Significant memory loss

**Yearly Income:**

---

- Under \$25,000
- \$26,000-\$50,000
- \$51,000-\$75,000
- \$76,000-\$100,000
- \$101,000-\$150,000
- Over \$150,000

**Current Marital Status:**

---

- Married (Years Married: \_\_\_\_\_)
- Widowed
- Divorced
- Never Married

**Race:**

---

- White
- African- American
- Native American
- Asian
- Mixed
- Other

**Previous Joint Replacement:**

---

- Hip
- Knee
- Both hips
- Both knees

**Date of surgery(ies):** \_\_\_\_\_

### Place of Residence

---

- No stairs
- Stairs to enter home,  
# of stairs \_\_\_\_\_
- Bathroom facilities on first floor, Wheelchair/walker assessable,  
Yes \_\_\_ No \_\_\_
- Bedroom and bathroom on second floor,  
Wheelchair/walker assessable,  
Yes \_\_\_ No \_\_\_  
# of stairs \_\_\_\_\_

### Who will be the person/s MOST involved in providing assistance during your recovery and many hours of assistance per day do you expect to receive from each?

---

- Spouse- \_\_\_ hours of assistance /day
- Adult child-\_\_\_ hours of assistance /day
- Family member other than spouse or child- \_\_\_ hours of assistance /day
- Friend or neighbor- \_\_\_ hours of assistance /day
- Hired home health care assistant- \_\_\_  
Hours of assistance/day  
\_\_\_ RN \_\_\_ LPN \_\_\_ Aide
- Assisted living facility staff
- I will be responsible for my own care

### With how many tasks do you expect to receive assistance during your recovery? (Check all that apply)

---

- Bathing
- Dressing
- Transferring from bed to chair
- Walking
- Preparing meals
- Laundry
- Shopping
- Light housework (dusting, tidying up)
- Heavy housework (vacuuming, mopping)
- Exercises
- Transportation
- Decision making
- No assistance

## **Appendix D : The Groningen Activity Restriction Scale (GARS)**

### The Groningen Activity Restriction Scale (GARS)

**Overview:** The Groningen Activity Restriction Scale (GARS) is general disease independent instrument for measuring disability. It can be used to monitor a patient. It can be used to monitor a patient over time and to identify potential interventions. The authors are from the University of Groningen in The Netherlands.

**Statements about Activities of Daily Living (ADL) – Can you fully independently:**

	<b>Yes I can do it fully Independently without any difficulty</b>	<b>Yes I can do it fully independently but with some difficulty</b>	<b>Yes I can do it independently but with great difficulty</b>
Dress yourself?	1	2	3
Get in and out of bed	1	2	3
Stand up from sitting in a chair	1	2	3
Wash your face and hands?	1	2	3
Wash and dry your whole body?	1	2	3
Get on and off the toilet?	1	2	3
Feed yourself?	1	2	3
Get around in the house (if necessary with a cane)?	1	2	3
Go up and down the stairs?	1	2	3
Walk outdoors (if necessary with a cane)?	1	2	3
Take care of your feet and toenails?	1	2	3
Prepare breakfast or lunch?	1	2	3
Prepare dinner?	1	2	3

**Statements about Activities of Daily Living (ADL) – Can you fully independently:**

	<b>Yes I can do it fully Independently without any difficulty</b>	<b>Yes I can do it fully independently but with some difficulty</b>	<b>Yes I can do it independently but with great difficulty</b>
Do “light” household activities (for example dusting or tidying up)?	1	2	3
Do “heavy” household activities (for example mopping, cleaning the windows, and vacuuming)?	1	2	3
Wash and iron your clothes?	1	2	3
Make the beds?	1	2	3
Do the shopping?	1	2	3

## Appendix E : The Groningen Orthopaedic Social Support Scale (GO-SSS)

### Groningen Orthopedic Social Support Scale (GO-SSS)

On the following 12 theses, your opinion is asked. There are no right or wrong answers.

You can choose between the following 4 answers:

- never or rarely
- now and then
- regularly
- often

- |   |   |
|---|---|
| 1. My friends and family understand me                  | <input type="radio"/> never or rarely<br><input type="radio"/> now and then<br><input type="radio"/> regularly<br><input type="radio"/> often |
| 2. My friends and family help me with my exercises      | <input type="radio"/> never or rarely<br><input type="radio"/> now and then<br><input type="radio"/> regularly<br><input type="radio"/> often |
| 3. My friends and family provide meals for me           | <input type="radio"/> never or rarely<br><input type="radio"/> now and then<br><input type="radio"/> regularly<br><input type="radio"/> often |
| 4. I do feel listened to by my friends and family       | <input type="radio"/> never or rarely<br><input type="radio"/> now and then<br><input type="radio"/> regularly<br><input type="radio"/> often |
| 5. My friends and family are there for me when I'm sick | <input type="radio"/> never or rarely<br><input type="radio"/> now and then<br><input type="radio"/> regularly<br><input type="radio"/> often |

6. I can talk with my friends and family about my deepest problems
- never or rarely  
 now and then  
 regularly  
 often
7. My friends and family do my shopping
- never or rarely  
 now and then  
 regularly  
 often
8. My friends and family are there for me when I need them
- never or rarely  
 now and then  
 regularly  
 often
9. My friends and family provide transportation for me
- never or rarely  
 now and then  
 regularly  
 often
10. I can share happiness and sorrow with my friends and family
- never or rarely  
 now and then  
 regularly  
 often
11. My friends and family help me to do household chores
- never or rarely  
 now and then  
 regularly  
 often
12. My friends and family are prepared to help me with making decisions
- never or rarely  
 now and then  
 regularly  
 often

## Appendix F: Perceived Well-Being Scale

### Perceived Well Being Scale (Reker, 1984)

	Strongly Agree	Occasionally Agree	Neither Agree Or Disagree	Occasionally Disagree	Strongly Disagree
No one cares whether I am dead or alive	1	2	3	4	5
I am often bored	1	2	3	4	5
I have aches and pains	1	2	3	4	5
Sometimes I wish that I never wake up	1	2	3	4	5
I think my health is deteriorating	1	2	3	4	5
I don't seem to care about what happens to me	1	2	3	4	5
I don't have many physical complaints	1	2	3	4	5
I don't think I have a heart condition	1	2	3	4	5
I have a good appetite for food	1	2	3	4	5
It is exciting to be alive	1	2	3	4	5
I am in good shape physically	1	2	3	4	5
I feel that life is worth living	1	2	3	4	5

---

	<b>Strongly Agree</b>	<b>Occasionally Agree</b>	<b>Occasionally Agree</b>	<b>Neither Agree Or Disagree</b>	<b>Occasionally Disagree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
I don't get tired very easily	1	2	3	4	5	6	7
I can stand a fair amount of physical strain	1	2	3	4	5	6	7

## Appendix G: Drexel University IRB and Abington Memorial Hospital IRB



### DREXEL UNIVERSITY COLLEGE OF MEDICINE

Office of Regulatory Research Compliance

**MEMORANDUM**  
**Institutional Review Board (IRB #1)**

**APPROVAL NOTICE WITHOUT CONSENT**

TO: Linda Wilson , Ph.D.  
Provost / School of Nursing & Health Prof  
Mailstop: 501

FROM:

---

Abhay J. Dhond , M.D. , Chair  
Institutional Review Board (IRB #1)  
Drexel University College of Medicine  
1601 Cherry Street, Philadelphia, PA 19102  
Tel: 215-255-7857 Fax: 215-255-7874

SUBJECT: The Effect of Social Support on Functional Recovery and Well-being in Post-Joint Arthroplasty Older Adults  
SPONSOR: Abington Memorial Hospital  
PROJECT No: 94210, PROTOCOL No: 18123 , ACTION No: 51455 Type: New Period: 1 Seq: 1 , DETAIL No: 253667  
CURRENT APPROVAL PERIOD: 03/27/2009, EXPIRES: 02/24/2010

RE: 03/27/09 - Approved Expedited Categories 9B, and 10. This study will enroll 150 subjects from Abington Memorial Hospital.

Please Note: The Drexel University IRB has a reliance on the IRB of Abington Memorial Hospital. The protocol has been approved by their IRB, along with the consent form to be used. All continuing reviews should be handled by Abington Memorial Hospital with copies of all correspondence being submitted to Drexel University.

Date: 3/30/2009

On behalf of the Committee, I am pleased to inform you that the subject protocol has been reviewed and approved for the period indicated above. We operate under many Government requirements. As a result, this approval is granted with the following understandings:

1. If this is a sponsored project, then the study may not be activated until the Contract is fully executed by the Clinical Research Group. If this is not a sponsored study (designated "internal"), the costs of the project must be identified and a cost center designated. Please call 215-255-7857 if you have any questions regarding these procedures.
2. You must advise the IRB of the activation date. "Activation" for the purposes of this notice is the 1601 Cherry Street, Suite 10444, 3 Parkway • Philadelphia, PA 19102 • Phone 215-255-7857 • Fax 215-255-7874  
www.research.drexel.edu • www.drexelmed.edu

**In the tradition of Woman's Medical College of Pennsylvania and Hahnemann Medical College®**

Philadelphia Health & Education Corporation d/b/a Drexel University College of Medicine is a separate not-for-profit subsidiary of Drexel University.

enrollment of the first human subject or the performance of the first experimental procedure on or after the above approval date. Please use the ACTIVATION NOTICE for this purpose.

3. Any change to the protocol must be submitted in writing and approved by the IRB in advance.
4. Any adverse reaction must be reported to the IRB as soon as it occurs.
5. Should the IRB decide to monitor your project directly, please cooperate fully. Failure to do so may result in withdrawal of this approval and notification to the sponsor and/or Federal agencies. Specific information regarding monitoring appears in **GUIDELINES FOR BIOMEDICAL AND BEHAVIORAL RESEARCH INVOLVING HUMAN SUBJECTS**, and **GUIDELINES FOR NON-MEDICAL** obtainable through this office or the website <http://research.drexel.edu>.
6. Whether or not this protocol is activated, the IRB will conduct Continuing Review at least annually. Should you fail to respond to this Federally-required continuing review and progress report, the project may become ineligible for re-approval and the IRB may choose not to consider other projects for approval.
7. A final progress report must be submitted to the IRB in format similar to that of a periodic report.

The IRB welcomes your research project into the list of approved protocols. Your compliance with the above conditions will help to protect the continuation of all research activity at the University. With your project and others like it, we look forward to additions to knowledge of human health and benefits to science, our patients, and society.

cc: IRB Chair, Dept Chair, Tenet, Drexel

**MEMORANDUM**  
**Institutional Review Board (IRB #1)**

**ACTIVATION NOTICE**

TO: Institutional Review Board (IRB #1)  
 1601 Cherry Street, Philadelphia, PA 19102  
 Tel: 215-255-7857 Fax: 215-255-7874

FROM: Linda Wilson ,  
 Provost / School of Nursing & Health Prof

SUBJECT: ACTIVATION OF HUMAN RESEARCH PROTOCOL ENTITLED:  
 The Effect of Social Support on Functional Recovery and Well-being in Post-Joint Arthroplasty Older Adults  
 PROJECT No: 94210, PROTOCOL No: 18123, ACTION No: 51455 Type: New Period: 1 Seq: 1 ,  
 DETAIL No: 253667  
 DATE OF APPROVAL: 03/27/2009, EXPIRES: 02/24/2010

Date: 3/30/2009

This is to inform the IRB that the subject protocol was activated\* on   /  /  . I understand that a Periodic Report for Continuing Review or Final Summary is due on or before the above Expiration Date.

Yes I have a copy of the University's Human Subjects Guidelines and Federal Wide Assurance (FWA) to the OHRP, as required in 45 CFR Part 46.  
 No

**NOTE:**

The University Guidelines for Biomedical and Behavioral Research for the protection of human subjects have been posted on the Office of Research website.

There are two sets of Guidelines - one each for Medical and Non-Medical Research.

You must have a hard copy and read these Guidelines to make sure that these Guidelines are met.

To download a copy of the University Guidelines, follow the below instructions:

1. Go to <http://research.drexel.edu>
2. Click "Medical IRB" or "Non-Medical IRB" in Quick Links
3. Under "Go to", click "Medical IRB" or "Non-Medical IRB Guidelines"
4. Please keep a copy of the University Guidelines in your office.

---

(Signed) Wilson, Linda

\* "Activated" means that the first new human subject was accrued, or an experimental procedure was performed, or records were reviewed under this protocol on or after the date of last approval: 03/27/2009.

**Accordingly, this notice must be sent to the IRB ONLY for the FIRST such accrual since that date.**

**IRB AUTHORIZATION AGREEMENT BETWEEN UNIVERSITY OF PENNSYLVANIA AND  
DREXEL UNIVERSITY FOR THE PROTECTION OF HUMAN SUBJECTS**

**Name and Address of Institution or Organization Providing IRB Review (Institution A):**

Abington Memorial Hospital  
1200 Old York Road  
Abington, PA 19001-3788  
Federal Wide Assurance Number: 00004123  
IRB Number: 00003100

**RECEIVED**

MAR 27 2009

**OFFICE OF  
RESEARCH COMPLIANCE**

**Name of Institution Relying on the Designated IRB (Institution B):**

Drexel University College of Medicine  
Office of Regulatory Research Compliance  
3 Parkway Building - 1601 Cherry Street  
10th Floor Suite 10444  
Philadelphia, PA 19102-1192  
Federal Wide Assurance Number: 00005917  
IRB Number: 00000696

The Officials signing below agree that Drexel University College of Medicine will rely on the designated IRB of Institution A for review and continuing oversight of its human subjects research described below.

This agreement is limited to the following specific protocol(s):

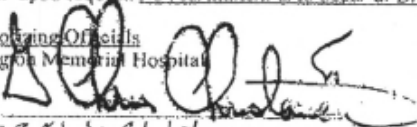
**Name of Research Protocol:** *The Effect of Social Support on Functional Recovery and Well-being in Post-Joint Arthroplasty Older Adults*

**Name of Principal Investigator (Institution A):** Ruth Ann Keifer, RN, MSN (protocol 09-014)

**Name of Principal Investigator (Institution B):** Linda Wilson, Ph.D (protocol 18123)

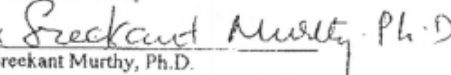
The protocol reviewed and approved by the IRB of Institution A will include a description of the research to be conducted at Institution B. Principal Investigators at both Institutions will maintain current copies the IRB approved protocol. Institution A will conduct this research in accord with the terms and conditions of its OHRP-approved Assurance and will provide relevant minutes of its IRB meetings to Institution B upon request. Institution B will conduct this research in accord with the terms and conditions of its OHRP-approved Assurance. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the terms of its OHRP-approved Assurance. This agreement will be kept on file at both Institutions and will be available to OHRP upon request. No recruitment is to occur at Drexel University College of Medicine.

Authorizing Official  
Abington Memorial Hospital

X   
Name g. Chris Christensen, III, DO  
Title IRB Chairman

Address Abington Memorial Hospital  
1200 Old York Rd.  
Abington, PA 19001  
(phone) 215-517-1210  
(fax) 215-517-1219  
Email drchris3@gmail.com  
Date: 3/27/09

Drexel University

X   
Sreekant Murthy, Ph.D.  
Vice Provost for Research Compliance  
3 Parkway - 1601 Cherry Street  
10th floor Suite 10444  
Philadelphia, PA 19102  
215-255-7858 (phone)  
215-255-7874 (fax)  
sm53@drexel.edu

Date: March 19, 2009

## VITA

RUTH ANN KIEFER, MSN, R.N, CRRN, DrNP(c)  
 Born: November 23, 1955, Hazleton, PA  
 United States Citizen

### EDUCATION

Drexel University, Philadelphia, PA. DRnP(c) – Educator Track	2006 – Present
Drexel University, Philadelphia, PA MSN – Educator Track	2006
Temple University, Philadelphia, PA. BSN	2003
Hazleton State General Hospital School of Nursing, Hazleton, Pennsylvania. Diploma	1976

### PROFESSIONAL EXPERIENCE

Abington Memorial Hospital – Abington, PA	2006 – Present
<ul style="list-style-type: none"> <li>• Full time instructor and course coordinator at the Dixon School of Nursing.</li> </ul>	
Maxim Health Systems – Lansdale, PA	1996 – Present
<ul style="list-style-type: none"> <li>• External staff nurse.</li> </ul>	
Abington Memorial Hospital – Abington, PA	1992 – Present
<ul style="list-style-type: none"> <li>• Staff nurse</li> <li>• Charge nurse</li> <li>• Certified Rehabilitation Registered Nurse</li> </ul>	

### PUBLICATIONS AND PRESENTATIONS

“An Integrative review of the Concept of Well-Being” <i>Holistic Nursing Practice</i>	September 2008
“Leading Change” <i>Rehabilitation Nursing</i>	2009
“Leading Change” Association of Rehabilitation Nurses Conference, Washington, DC	2007

### HONORS AND AWARDS

- Jacob and Rebecca Sherman Award for Efficiency in Nursing - Hazleton State General Hospital School of Nursing - 1976
- Temple Faculty Award for Highest Academic Average - 2006
- Nurse Excellence Award, Abington Memorial Hospital – 2009

### PROFESSIONAL AFFILIATIONS

- Sigma Theta Tau National Honor Society in Nursing
- Temple Alumnae Association
- Hazleton State General Hospital Alumnae Association

