ASSOCIATIONS AMONG PERCEIVED SELF-EFFICACY, PERCEIVED SOCIAL SUPPORT, AND WELL-BEING IN OSTEOARTHRITIS PATIENTS UNDERGOING TOTAL HIP REPLACEMENT SURGERY

by

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Abstract

A one group, pre-post test study was designed to determine if there were any relationships in direction or magnitude among perceived self-efficacy, perceived social support, and well-being. A sample of 34 osteoarthritis patients undergoing total hip replacement surgery was enrolled in the study from a large tertiary care hospital. Interviews were conducted pre-operatively and six weeks post-operatively using the Arthritis Self-Efficacy Scale, the Social Support Questionnaire, and the SF-12 Health Status Profile. No variance between pre-operative and post-operative ratings for the satisfaction with supports subscale was found, therefore, it was eliminated from analyses, leaving number of supports as a measure of the social support construct. T-tests indicated statistically significant improvements in perceived self-efficacy, perceived social support, and well-being scores. Pearson correlation coefficients were conducted and multiple regression analyses showed that pain/other self-efficacy significantly predicted physical well-being after surgery. Number of supports and functional self-efficacy were predictive of pain/other self-efficacy following surgery. A significant negative relationship between pre-operative pain/other self-efficacy and mental well-being post-operatively was found. No significant relationships were demonstrated between mental and physical health either pre-operatively or post-operatively which is contradictory to literature findings. It was concluded, that the constructs of perceived social support and well-being need to be explored further in this population during the surgical experience, using improved instruments and a larger sample size.

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CHAPTER I

Introduction

Osteoarthritis (OA) is a progressive deterioration of bone joints that occurs mainly in the elderly, and is characterized by pain, immobility, mood changes and restriction of life style (Weinberger, Hiner, & Tierney, 1986; Weinberger, Tierney, Boother, & Hiner, 1990). The Arthritis Society (1997) reports that OA affects an estimated 2.7 million Canadians or 1 person in 10 and that 85% of the population will be affected by OA by the age of 70. In view of the prevalence of OA and its long-term negative effects, health care professionals are concerned with helping patients and their families cope with this chronic illness.

The demands of OA on coping abilities have been well documented (Bandura, 1997; Burke & Flaherty, 1993, Laborde & Powers, 1985; Weinberger et al., 1986, 1990) In general, these studies showed that pain and immobility can cause isolation from friends, decrease in social activities, depression, loss of control over daily activities, and loss of self-esteem. As the condition progresses, many patients require increasing amounts of material and emotional support from family and friends in order to cope (Weinberger et al., 1986).

Medical treatment of OA includes relief of pain through the use of analgesics and anti-inflammatory medication, and promotion of exercise to preserve joint functioning. In severe cases of OA, total joint replacement surgery is required, which usually restores mobility and reduces pain (Towheed & Hochberg, 1996). In 1994, more than 120,000 total hip replacements (THR) were performed on individuals with arthritis (including OA and rheumatoid arthritis) in the United States (Towheed & Hochberg, 1996).

It is expected that THR surgery, itself, adds to the stress experienced by these patients, which, in turn, can decrease their coping resources during the immediate post-operative period. According to Bandura (1977) an individual's coping abilities are taxed at times of stress. However, little attention has been given to the psychological coping processes that facilitate well-being of patients undergoing hip surgery; yet studies have shown that coping ability can play an important role in dealing with health adversity (Anderson, Dowds, Pelletz, Edwards, & Peeters-Asdourian, 1995; O'Leary, Shoor, Lorig, & Holman, 1988).

Previous studies have suggested that coping can be enhanced during the surgical recovery by self-efficacy (Burke & Flaherty, 1993) and social support (Kulik & Mahler, 1989, 1993). The use of positive reappraisal as a coping strategy provides a sense of enhanced perceived self-efficacy (Burke & Flaherty, 1993). The effective use of social support networks on surgical recovery has been shown to be beneficial to the patient (Kulik & Mahler, 1989, 1993). The authors found that patients with naturally occurring (spousal) social support recovered more quickly and used less pain medication (Kulik & Mahler, 1989).

Also, social learning theory suggests that a person's efficacy expectation will influence the individual's adjustment to a major life stressor such as chronic pain as in the case with individuals with OA (Bandura, 1997). Those with strong perceived self-efficacy will be able to control self-doubts and be able to perform well under challenging conditions. Individuals with weak efficacy beliefs are viewed as less likely than people with strong efficacy beliefs to demonstrate coping behaviours in response to stress (Bandura, 1997). Any efforts such as perceived social support that are used to improve perceived

self-efficacy would likely result in improved well-being (Holahan & Holahan, 1987, Schröder, Schwarzer, & Endler, 1997)

Similarly, perceived social support received from others (e.g. emotional and/or physical support) may have relevance for coping because of its ability to buffer stress, promote psychological and physiological well-being and protect individuals from health declines (Miller, Haskell, Berra, & DeBusk, 1984; Taylor, Bandura, Eward, Miller, & DeBusk, 1985), particularly at times when they are facing stressful situations (e.g. surgery). Perceived social support has been shown to enhance recovery, increase adherence to treatment recommendations, and promote psychological and physical adjustment (Wallston, Alagna, DeVillis, & DeVillis, 1983).

Overall well-being may also be a factor in one's ability to cope with a stressful situation. For example, Roberto and Bartmann (1993) showed that pre-operative physical activity was able to predict post-operative physical functioning in hip fractured patients.

Since there is a need to understand the coping mechanisms of OA patients during the immediate operative phase, coping mechanisms such as perceived self-efficacy, perceived social support and overall well-being should be examined more closely during the immediate post-operative period when demands on coping ability may be high. While studies have linked any two of these variables, for example between perceived social support and well-being (Cohen, 1988; Doeglas, Suurmeijer, Krol, Sanderman, van Rijswijk, & van Leewen, 1994) and between perceived self-efficacy and well-being in other populations, such as cardiac patients (Gortner & Jenkins, 1990) and general surgical patients (Miller et al., 1984), no study has brought together self-efficacy, social support, and well-being in the OA population undergoing THR surgery. Also no previous studies

have suggested how all three of these variables might interrelate or predict each other in OA patients. Therefore, it is not clear if joint effects occur and if so, whether joint effects can improve coping. Further, it is not clear if health status variables, such as tolerance for exercise, general physical condition or level of mobility account for some of the variance in studies on perceived self-efficacy, perceived social support and well-being. In this study, an attempt will be made to assess the relationships among these variables.

CHAPTER II

Literature Review

The literature review will examine selected studies on perceived self-efficacy, social support and well-being. The intent is to summarize the main aspects of each concept as a basis for examining relationships among them.

Perceived Self-Efficacy

Perceived self-efficacy is the belief individuals have about their own capabilities to exercise control over their own thoughts, feelings, motives, and actions (Bandura, 1986). Based on social learning theory, through interaction with the environment, a person perceives, acquires, and processes information which is used to regulate one's personal behaviour. Perceived self-efficacy acts as a framework for self-reflection about information and for changing beliefs in response to new information and experiences. The belief system is thought to be more powerful than knowledge and skill in predicting a person's action because the belief system is necessary to enable knowledge and skill. In other words, perceived self-efficacy mediates the effect of knowledge and skill (Bandura, 1997; Merritt, 1989).

The term perceived self-efficacy is often confused with outcome and efficacy expectations (Bandura, 1997; Brady, 1997). Outcome expectation is a person's estimate that a given behaviour will lead to a certain outcome (Bandura, 1997). Efficacy expectation refers to the conviction that one can successfully execute the behaviour required to produce the outcome (Bandura, 1997). Brady (1997) states that researchers have used the term self-efficacy inconsistently, sometimes to refer to the entire theory of behaviour change, and sometimes to refer to just the efficacy expectation. Bandura (1997)

and Merritt (1989) state that both expectations are needed to get a true measure of the construct. Another area of confusion is the interchangeable use of the term perceived self-efficacy and the term self-efficacy (Brady, 1997). Perceived self-efficacy refers to one's belief regarding their own capabilities and will be used in this study

Perceived self-efficacy is thought to improve coping in stressful situations. For example a sense of efficacy can moderate a wide range of biological processes that arise while coping with acute or chronic stressors in everyday life. Stress, an emotional state generated by perceived threats and taxing demands, has been implicated as an important contributor to many physical and emotional dysfunctions (Krantz, Grunberg, & Baum, 1985). Studies indicate that exposure to stressors, without the ability to control them, activates neuroendocrine, catecholamine, and opioid receptors (Altmaier, Russell, Kao, Lehmann, & Weinstein, 1993; Litt, 1988; Manning & Wright, 1983, Zimmer, Hickey, & Searle, 1995) which impair the functioning of the immune system (Bandura, 1991, Maier, Laudenslager, & Ryan, 1985; Wiedenfeld, O'Leary, Bandura, Brown, Levine, & Raska, 1990).

Social cognitive theory views stress reactions primarily in terms of a low sense of self-efficacy to exercise control over aversive threats and taxing environmental demands (Bandura, 1997). In contrast, individuals with strong perceived self-efficacy beliefs are found to be less anxious, have a lower heart rate and blood pressure, and have lower levels of catecholamines (Bandura, Reese, & Adams, 1982; Bandura, Taylor, Williams, Mefford, & Barchas, 1985). They are apt to persist at efforts to manage pain using a variety of pain coping strategies by nonmedical means such as the use of cognitive-behavioural techniques (Anderson, et al., 1995; O'Leary, 1985).

O'Leary et al (1988) found that arthritis patients' immunologic function did not change when cognitive-behavioural techniques (cognitive pain management, self-relaxation, and goal setting) were used. However, there was a substantial reduction in pain which enhanced the patients' perceived self-efficacy to exercise some control over their pain. Demographic characteristics were not included in the analyses since both groups did not differ significantly. Bradley, Turner, Young, Agudelo, Anderson, and McDaniel (1985) went one step further and also measured serum rheumatoid factor, and found that those who received cognitive-behavioural intervention had reductions in pain intensity, reduced inflammation, and lower levels of serum rheumatoid factor. Holman and Lorig (1992) are in agreement with Bradley et al. (1985), Bradley, Young, Anderson, Turner, Agudelo, McDaniel, Pisko, Semble, & Morgan (1987), and O'Leary et al. (1988) in their conclusions that self-management skills, like cognitive pain control, enables people to act on their beliefs about their capacity, as opposed to their perceptions about their degree of actual physical impairment.

Cunningham, Lockwood, and Cunningham (1991) found that training in coping skills improved perceived coping efficacy. These patients were able to ward off anxiety and despair and experience an improved quality of life. The effect of perceived coping efficacy remained unchanged, after controlling for demographic variables and disease status. The extent to which patients applied their coping skills affected their outcomes, suggesting that greater application of coping skills produced more positive outcomes which is similar to findings of Holman and Lorig (1992).

Sources of Perceived Self-Efficacy

According to Bandura (1977), there are four sources of perceived self-efficacy: enactive attainment or mastery, vicarious experience, verbal persuasion, and physiological states. The information that is received from these four environmental sources is cognitively processed to develop perceived self-efficacy beliefs and, subsequently, these beliefs influence performance. A spiraling effect is thought to occur over time as continuous successes build on perceived self-efficacy (Lindsley, Brass, & Thomas, 1995).

Enactive attainment involves learning through actually doing the desired behaviour. As the simpler tasks are mastered, changes in perceived self-efficacy are assessed and successful performance is used to increase the expectations of people for performing more complex tasks. This source of information is the strongest because it involves actually doing the behaviour. Failures, especially those that are repeated, lower expectations for perceived self-efficacy making it difficult to persevere (Bandura, 1997).

Vicarious experience is learning through the actions of others particularly from peers with whom one can identify. This strategy is more effective when the person who exemplifies success is similar in characteristics such as age, sex, and past capabilities to the person who is observing the performance. Seeing other people expend effort to learn successfully is more effective than observing someone who is already adept to performance demonstrate the new behaviour (Bandura, 1997).

Verbal persuasion influences people to believe that they have the capabilities to achieve the desired behaviour outcome. Although limited in its power to cause lasting increases in perceived self-efficacy perceptions, it is through perceived social support (emotional support) whereby perceived self-efficacy may increase contributing to

successful performance if the behaviour is within realistic bounds (Weinberger et al., 1986). Verbal persuasion has an impact on people who have some belief in their own perceived self-efficacy. It is easier to sustain a sense of personal efficacy, especially when struggling with obstacles, if significant others express faith and support in one's capabilities rather than conveying feelings of doubt or dwelling on personal deficiencies (Bandura, 1997; Taylor et al., 1985).

Physiological states involves judging one's own capability, strength, and vulnerability for participating in behavioural change. When one is at a high arousal state, which is likely to occur in anxiety provoking and stressful situations, people tend to have low perceived self-efficacy expectations. Because high arousal usually reduces performance, patients are more inclined to expect success when they are not stressed. In activities involving strength, patients read their fatigue, aches, and pains as indicators of physical inefficacy (Bandura, 1997).

Perceived Self-Efficacy and Health Behaviour Change

Perceived self-efficacy is thought to be a determinant of behavioural outcome. It is thought to influence choices that people make, the actions they will take, and how long they will persist at a task. A person with strong perceived self-efficacy will pursue more difficult goals, while one with low perceived self-efficacy will withdraw from such challenges (Bandura, 1997; Locke & Latham, 1990). If people do not believe that they can perform a behaviour, knowledge alone will not motivate them to perform (Bandura, 1997; Merritt, 1989). People tend to appraise a situation, and on the basis of this appraisal, they decide whether they have the capacity and will to perform. Furthermore, each subsequent event that is performed is confirmed and is subjected to this analysis. This suggests that

self-efficacy is important not only for initiation of a behaviour, but persistence in performing the behaviour over time (Bandura, 1997; Merritt, 1989).

Enactive attainment and verbal persuasion appear to have an effect on self-efficacy over the recovery period. For example, Gortner and Jenkins (1990) measured self-efficacy expectations in 149 recovering cardiac patients to determine whether or not inpatient education and telephone monitoring during recovery increased perceptions of cardiac well-being and reported activity. Both groups received the same treatment but the experimental group received an additional video tape to view on family coping and a follow-up telephone call during recovery to reinforce risk factor reduction, coach activity and provide reassurance. The results indicated that self-efficacy increased over recovery time, and were correlated with activity and predictive of subsequent activity, suggesting that inpatient education and outpatient coaching can improve self-efficacy for their activity. The authors reported that the demographic characteristic of gender (males) was a significant variable in predicting self reported activity at 12 weeks and 24 weeks after surgery.

Verbal persuasion is also emphasized in a study of a spouse's perception of the patient's capabilities following an uncomplicated myocardial infarction (Taylor et al., 1985). The researchers hypothesized that rehabilitation efforts can either be enhanced or reduced by effects of the spouse's beliefs in the patient's efficacy. A spouse can play a significant role in a patient's recovery, either by encouraging physical activity or by communicating worry or concern about the patient's efforts (verbal persuasion). They found that wives who participated directly in their husbands' performance in treadmill exercise testing three weeks after a myocardial infarct, significantly increased their

judgments of their husbands' physical and cardiac efficacy. This substantiates the view that support by emotional or instrumental means does increase one's self-efficacy.

Measuring Perceived Self-Efficacy

Perceived self-efficacy can be assessed at three levels: the individual, collective, and general levels. An individual level of assessment is domain specific. The most relevant measure for assessing individual levels is for a particular task and for a specific set of circumstances (domain specific). To test domain specific perceived self-efficacy, graduated perceived self-efficacy scales are used to reflect variations in difficulty, complexity, and stress. The importance of domain specific tests is to capture the variation in the task and situations. In testing, it should assess people's judgments of their current capabilities as opposed to their potential capabilities (Bandura, 1977).

On the other hand, the intermediate or collective level is used for classes of performance within the same activity domain under a group of conditions sharing common properties. Studies have compared the predictive power of domain linked measures of perceived self-efficacy to general perceived self-efficacy measures such as the Generalized Self-Efficacy Scale (Barlow et al., 1996, Lorig, Chastain, Ung, Shoor, & Holman, 1989). General purpose measures of perceived self-efficacy violate the basic assumptions of the theory and do not have much predictive utility (Bandura, 1997). Whereas domain self-efficacy instruments are good predictors of outcome measures (Bandura, 1997). The need for situational specificity has led to the development of a variety of measuring instruments tied to the particular domain of functioning under investigation (Barlow, Williams, & Wright, 1997). This has resulted in a high degree of variability in the operationalization of self-efficacy (Barlow et al., 1997).

The global level of measurements are applied without reference to specific activities or conditions, and are found to be the most inaccurate measure (Barlow et al., 1996). Barlow et al. (1996) examined the coping abilities of individuals with arthritis using the General Self-Efficacy Scale (Jerusalem & Schwarzer, 1992). They concluded that domain specific tools are better predictors of specific behaviours. They also concluded that being male was associated with high self-efficacy beliefs for this sample. This was also found in Gortner and Jenkins' (1990) study.

Lorig et al. (1989) developed a domain specific tool to measure the perceived self-efficacy judgments in relation to individuals with arthritis. The instrument was able to discriminate people in the treatment group from the control group. It meets all of the underlying assumptions proposed by Bandura (1997) to qualify as an acceptable instrument.

Perceived Social Support

Perceived social support has been defined in various ways. A general definition of perceived social support describes the comfort, assistance, and/or information one receives through formal or informal contacts with individuals or groups (Wallston et al., 1983). A more specific definition for the purposes of this study defines social support as, "an exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p. 12). This definition is reflected in the Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983) which is used in this study.

Social support is a coping mechanism which OA patients may use when faced with obstacles (Weinberger et al., 1986, 1990). Having a solid social network that can be relied

on for physical aid (instrumental support) and emotional support can modify the negative effects of stress and protect individuals from physical and emotional illness during a crisis (Cobb, 1976). Social support, regarded as a resource for coping, may be a stabilizing factor if the patient perceives the availability of support and satisfaction from social interaction with others (Meillier, Lund, & Kok, 1997; Sarason et al., 1983).

Conceptualization of Perceived Social Support

The construct of social support is defined both conceptually and operationally and is placed along two primary dimensions. The first dimension differentiates between instrumental and emotional support. Instrumental support includes provisions of material aid and information, whereas emotional support includes serving as a confidant and providing acceptance and understanding (Donald & Ware, 1984; Sarason et al., 1983, Thoits, 1982; Wallston et al., 1983). Instrumental support involves direct aid or services given to a person in need (Schaefer, Coyne, & Lazarus, 1981). It varies according to age, gender, marital status, and social roles. Studies have examined emotional and instrumental support in combination instead of independently, but it has been seen that family members and close friends provide most of the instrumental support (Weinberger et al., 1986, 1990). Studies have shown that instrumental support is provided at the onset of the stressor, and gradually dissipates as the recipient is able to provide for themselves (Kulik & Mahler, 1989; Revenson, Schiaffino, Majerovitz, & Gibofsky, 1991).

Emotional support, that is feeling cared for, loved, or esteemed is generally conceptualized as a key type of social support. It has been associated with adjustment to serious illnesses (Kulik & Mahler, 1993; Wallston et al., 1983). Social relationships, particularly marital relationships has been associated with better emotional status (lower

anxiety and depression). In most studies examining marital relationships, it is unclear whether marital relationships may be beneficial because they actually provide more support, one who acts as a confidant and provides reassurance; or because individuals in such relationships are more motivated to protect their health (Kulik & Mahler, 1993, Wortman & Conway, 1985). Conversely, Jenkins, Stanton, Klein, Savageau, and Harken (1983) suggest that marital relationships might exacerbate distress and slow down recovery because there is a greater likelihood of conflict and overprotectiveness to do activities

The second dimension of perceived social support is quantitative versus qualitative. At the quantitative end of the continuum social support is operationalized in terms of "amount" measures, such as the number of people one interacts with or the frequency of contacts. At the qualitative end, social support is measured in terms of "goodness" measures, such as perceptions or judgments about the adequacy of interpersonal contacts (Donald & Ware, 1984; Sarason et al., 1983, Wallston et al., 1983) Researchers tend to study either one or the other dimension as opposed to both, which results in a restricted view of social support.

Functions of Perceived Social Support

Social support has two important purposes. First, it is a health sustaining mechanism whereby it has a direct effect on the well-being of individuals. Secondly, it has a stress-reducing or buffering function. The people receiving support will be less vulnerable to the negative effects resulting from stressful events (Krol, Sanderman, & Suurmeijer, 1993; Sarason et al., 1983; Schwarzer & Leppin, 1991; Weinberger et al., 1986, 1990).

Doeglas and his colleagues (1994) conducted a cross-sectional study to investigate the direct health sustaining effect of social support on the relationship between social disability and psychological well-being in 54 patients with rheumatoid arthritis Questionnaires that measure social support, disability, and psychological well-being were used. Results showed a direct effect on psychological well-being, that is receiving more daily emotional support was positively related to greater psychological well-being and that people receiving more social companionship turned out to be less depressed. The findings from this study need to be taken with caution, as the authors are assuming a cause-effect linkage. To investigate the cause-effect linkage, a controlled longitudinal design is required with a larger sample size. Since the authors did not investigate the relationship among study variables and demographic or disease status characteristics, further exploration is warranted.

Another attempt to demonstrate the direct effect of social support was seen in Weinberger et al.'s (1990) study, where they explored the relationship between functional status (pain, psychological and physical disability) and specific dimensions of social support (self-esteem, belonging, and tangible support) in 439 patients with O.A. They concluded that stress negatively affected all functional status dimensions, with the greatest impact seen in psychological disability. The self-esteem dimension of social support was the most consistent support in predicting functional status. This outcome of self-esteem predicting functional status should be taken with caution as the findings cannot be generalized, since the sample in this study consisted predominately women of lower socio-economic status (< $6000/year), had a mean age of 62, and the majority were unmarried, suggesting that the women may have generally low self-esteem to begin with. Sample

characteristics of age, race, sex, education, income, and marital status were controlled for They found that being older, having less income and education were all associated with increased physical disability. Psychological disability was associated with Caucasians, younger respondents, and persons with more stress. Furthermore, pain was most often reported by Caucasians, younger participants, persons with more stress, those with less self-esteem, and poor instrumental support. While the authors concluded that it is possible for the direct and buffering effects of social support to act simultaneously, depending on the types of social support and the presence or absence of stressors (Weinberger et al., 1990), social support is not a unidimensional concept and so to realize the health benefits offered by strong social support systems, individuals must be able to mobilize all types of support systems (e.g., instrumental, emotional) in order to fulfill their needs.

Social support buffers negative health related consequences invoked by stress. It appears to help only when individuals are exposed to stressors (Weinberger et al., 1986). In a longitudinal study among patients with symptomatic OA, Weinberger et al. (1986) demonstrated the beneficial effects of a telephone call every two weeks on the functional status of these patients. From a sample of 150 OA patients (mean age 66 years old) baseline interviews and follow-up interviews, after six months, were administered in the patients' homes. Data concerning functional status, quality of life, life change events, and perceived social support were gathered which included data for emotional and instrumental support. During a six month period after the baseline interviews, the patients were contacted every two weeks by interviewers by means of telephone calls. Subjects were asked about their health status and problems they experienced during the previous two weeks. It was hypothesized that the telephone calls would directly improve the

patient's functional status by providing emotional support and instrumental support. Furthermore, most improvement was expected in participants who lacked social networks at baseline and were exposed to stressors as measured by Life Changes Events and the Hassles Scale, the latter effect suggests that social support has an indirect, buffering effect. The results from this study confirmed the expectation that after a six month intervention period, the functional status of the OA patients was improved. However, patients with no support system at baseline and exposed to stressors did not improve the most. This analysis failed to confirm their hypothesis. They attributed this to the characteristics of their sample since they were predominately elderly, poor, and Black women. According to the authors, the high functional status of the patients should be attributed to the support they received from the interviewers. Another limitation of this study is the a lack of a control group.

Affleck, Pfeiffer, Tennen, and Fitfield (1988) described a cross-sectional study in which the relationship between several aspects of social support and the stress buffering effect of support on psychological adjustment was examined. Specifically the patients' satisfaction with the support provided was the subject of this research for 129 rheumatoid arthritis patients. On a three point Likert scale, the participants rated how satisfied they felt with (a) their opportunities for talking with others about their intimate and private feelings; (b) the advice and information they have been receiving from others, (c) the feedback they have been getting about how they were doing; (d) the physical assistance (instrumental support) they have been obtaining from others; and (e) their participation in relaxing social situations. The rheumatologist provided data about their disease activity, functional limitations, and the patient's psychological adjustment to the disease by means

of the Global Adjustment to Illness Scale. The researchers in this study demonstrated that taking socio-demographic variables, illness duration, disease activity, and functional limitation into account, patients with a higher degree of satisfaction with the support provided showed superior psychosocial adjustment to their rheumatism. Furthermore, the authors claimed to have demonstrated the potential buffering effect of social support in patients' adjustment to their functional disability.

Measuring Perceived Social Support

It has been shown in studies concerning the aged, that measuring the number of supports as opposed to the satisfaction with existing supports is not as important as in other age groups, for example in adolescents (Goodenow, Reisine, & Grady, 1990, Schwarzer & Leppin, 1991; Wallston et al., 1983). Satisfaction with support systems has been shown to have important physical and mental health influences among general populations and especially to those who suffer from chronic illnesses (Goodenow et al., 1990; Wallston et al., 1983).

In a cross-sectional study, Goodenow et al. (1990) interviewed 194 female rheumatoid arthritis patients and examined the relationship between health status, social integration, qualitative aspects of social support, and social and psychological functioning. They hypothesized that social support is a significant predictor of functioning even after controlling for physical factors. Questionnaires on health status in terms of disease severity and disability, social support, and functional status in terms of social role performance and depression were collected by means of telephone interviews. Study results supported the hypothesis that social support is a significant predictor of functioning even after physical factors are controlled for, and that qualitative support accounts for this effect. One of the

limitations of this study was that the research design makes causal inferences inappropriate. For example, the researchers used a convenience sample comprised solely of women with rheumatoid arthritis. This may be a methodological issue if women are more sensitive to the presence or the absence of social support than men

Roberto and Bartmann (1993) conducted a retrospective study to identify the nature of care provided by the informal support network (friends and family) available to 101 older women with hip fractures and to examine the relationships among prior functional ability, locus of control, and reliance on social support in predicting recovery from hip fractures. Through the use of standard questionnaires to assess physical functioning and locus of control, the participants reported greater reliance on their spouse and/or children for instrumental support after their hip fracture than prior to their hip fracture. The investigators found that the women's prior physical functioning was the strongest predictor of their post-fracture recovery. The researchers hypothesized that having a strong sense of personal control for what was happening in their lives may have resulted in a greater commitment to their rehabilitation program and thus a more complete recovery. The authors also showed that the actual amount of help the women received from friends and family was not predictive of their recovery.

In contrast, Sarason et al. (1983) found a positive association with the number of supports and higher recovery levels when controlling for the characteristics of external locus of control and self-esteem. This discrepancy in findings suggests that knowing that support is available is just as important as the actual amount of help received. Because an all female, non-random sample was used in Roberto and Bartmann's (1993) study, caution is required in generalizing the findings of this study. The retrospective nature of the data

might attribute to some of the inconsistent findings as it is difficult for people to remember what happened more than a year ago. The findings may however, add to the body of literature in our understanding of the influence of prior health, personal beliefs, and social support variables on recovery from a hip fracture. Sarason and his colleagues (1983) have attempted to encompass both of the primary dimensions in their Social Support Questionnaire to portray a more accurate view of an individual's social support network (Cohen & Wills, 1985; Sarason et al., 1983; Wallston et al., 1983).

Well-Being

Well-being is not defined clearly but there appears to be some agreement that it is a multi-faceted concept which reflects an individual's perception of physical, mental, and psycho-social status (Meenan, Gertman, & Mason, 1980). This perception fluctuates with change in health status and these perceptions may or may not correspond to objective measures of well-being (Meenan et al., 1980). The concept of well being is rooted in a bio-psychosocial theory of health, which holds that the physical and mental dimensions of humans are interrelated (Engel, 1980). Although interdependence has been established between physical and mental health, the concept of well-being is not yet clearly defined, since many factors appear to affect a sense of well-being in healthy and well individuals Walker and Rosser (1993) have defined well-being as the perception of physical, social and psychological aspects of quality of life. This definition extends the focus beyond the traditional health and wellness interpretation. Others have defined well-being as perceptions of happiness, satisfaction with life, or satisfaction on selected indicators for well-being (Burckhardt, 1985). Additional dimensions have been studied, such as financial factors (Dwyer, 1997) and work satisfaction (Laborde & Powers, 1980). The inclusion of

well-being into the broader concept of quality of life may be relevant, but is it likely that a broader concept will be more difficult to measure. The concept used by Ware, Kosinski and Keller (1996) addresses physical functioning, role limitations due to physical problems such as pain, and role limitations due to mental health. This is a more narrow, but holistic definition, that can be applied to the study of OA patients.

Studies have shown an interaction between thinking and emotion with levels of stress, anxiety and depression (Engel, 1980). In studies on chronically ill OA patients, negative associations have been established between chronic pain and general life satisfaction (LaBorde & Powers, 1980, 1985). Other studies have shown that primary caregivers of elderly and demented patients experience negative effects on both physical and mental health (Zarit, Todd, & Zarit, 1986).

Well-Being and Health Behaviours

Osteoarthritis has been associated with decreased quality of life, depression, stress and an overall reduction in functional capacity (Zimmer et al., 1995). Other studies have shown that physical and mental distress are interrelated (Burke & Flaherty, 1993; Cassileth, Lusk, Strouse, Miller, Brown, Cross, & Tenaglial, 1984; Hays, Wells, Sherbourne, Rogers & Spritzer, 1995). For example, Burke and Flaherty (1993) investigated the relationships among coping strategies, physical health, psychological health and pain in 130 women with OA, and found that most participants used the coping strategy of self-control to influence physical and psychosocial health. They also stated that life experiences of most participants bolstered mental well-being, which provided them with a capacity to persevere in the face of obstacles. Similarly, Counte, Bieliauskas, and Pavlou (1983) agree that for individuals with multiple sclerosis, durable personality traits

act as coping mechanisms to offset the chronic and deteriorating effects of their disease. Cassileth and his associates (1984) found a direct relationship between declining physical status and mental health scores in 758 patients with chronic illness such as arthritis and cancer. That is, severity, rather than type of disability, was associated with psychological distress among patients with a variety of chronic illnesses. They also concluded that patients with newly diagnosed illnesses had poorer mental health scores than did patients who had been dealing with their illness for longer periods, reflecting the difficulties of adjusting to chronic illness. Increasing age was found to be directly related to mental health (Cassileth et al., 1984).

Ries, Kaplan, Limberg, and Prewitt (1995) compared the effects of a pulmonary rehabilitation program and an educational program on physical health, depression, well-being and length of hospital stay for 119 patients with chronic obstructive pulmonary disease. The rehabilitation program consisted of instruction, exercise training and social support. The results showed that the pulmonary rehabilitation program significantly improved exercise performance, self-efficacy and reduced symptoms in chronic and severe cases, but lung function, depression, well-being, and hospital stay did not differ between the two groups. In speculating on the non-significant findings for well-being, the researchers offered two explanations: either the rehabilitation program did not improve well-being, or the tool used to assess well-being was not sufficiently sensitive to detect the specific quality of life changes that resulted from pulmonary improvement, such as a reduction in intensity of symptoms such as dyspnea.

In other studies, interventions, such as adherence to exercise programs improves mental health and well-being (Taylor et al., 1985; Vidmar & Rubinson, 1994; Zimmer et

al., 1995). Research on social support has shown that people who have a greater amount of social support have a greater perception of well-being (Roberto & Bartmann, 1993). Similarly, research on perceived self-efficacy has shown that greater perceived self-efficacy is associated with a better ability to evaluate one's own well-being (Bradley et al., 1985, 1987; O'Leary et al., 1988).

Measuring Well-being

Until recently, the measurement of well-being focused on a range of physical or mental dependent variables such as pain, depression and stress, using self-report instruments that are relevant for each concept. Recently, well-being has been studied as a single, overall construct (Hays et al., 1995; Ries et al., 1995; Ware et al., 1996). The overall concept measures well-being as a general state of physical and mental health. The instrument used by Ries et al. (1995) included three separate scales for physical activity, social activity and mobility. Ware et al.'s (1992) 36-item instrument was used by Hayes et al.'s (1995) in a comparative, longitudinal, two-year study of 1790 adult outpatients with depression, diabetes, hypertension, recent myocardial infarction and/or congestive heart failure. Functional and mental status in depressed patients was compared with that of patients with chronic medical conditions at the beginning of the study and at the end of the two year period. Socio-demographic characteristics (age, ethnicity, gender, education, income, and marital status) accounted between 3% and 18% of the variance in baseline measurements of physical and mental well-being. It was found that depressed patients scored lower on overall well-being than those with a chronic physical condition. According to the authors, the diagnosis of clinical depression could be a confounder resulting in low well-being scores. For this reason, Simon, Reviki, Grothaus and Vonkorff

(1988) have urged researchers to be cautious when using the SF-36 instrument in cross-sectional studies, since the instrument may not be sufficiently sensitive to detect the interdependence of mental and physical health in patients with major psychiatric disorders However, the SF-36 has been used in longitudinal studies with different populations and has demonstrated good reliability (Hays et al., 1995; Jenkinson, Layte, Jenkinson, Lawrence, Peterson, Paice, & Stradling, 1997; Ritter, Albohn, Keating, Faris, Meding, 1995; Schofield & Mishra, 1998). A 12-item version of the SF-36, applied in this study, has correlated highly with the 36-item instrument on both physical and mental dimensions in the arthritis population (Dawson, Fitzpatrick, Carr, & Murray, 1996).

Relationships among Perceived Self-Efficacy, Perceived Social Support, and Well-Being

While the literature provides evidence of linkages between any two of the study variables, few studies have explained how all three study concepts interrelate Studies showed that social support acts as a protective or buffering function through which emotional (feeling loved or cared for) or instrumental (perceived availability of material aid) means enhance one's perceived self-efficacy resulting in better coping abilities and an improved sense of well-being (Schröder et al., 1997; Taylor et al., 1995).

Schröder and his colleagues (1997) examined the effect of perceived self-efficacy and social support on recovery of patients from surgery. They predicted that the patient's perceived self-efficacy and perceived social support would predict their recovery post-operatively. With the use of established questionnaires, the researchers found that through the support of their spouse, they became more self-efficacious for their recovery resulting in a positive readjustment from surgery.

Similarly, Taylor et al., (1985) showed the effects of wives' involvement in their husbands recovery after a myocardial infarction. Perceived self-efficacy for both the patient and the wife were significantly higher in this group as compared to the control group where wives did not participate in their husband's recovery. This suggests that the support provided by the spouse affected the self-efficacy for both, resulting in an enhanced physical well-being.

Perceived Self-Efficacy and Well-Being

As various studies have shown, there are links between perceived self-efficacy and well-being in arthritis patients (Bradley et al., 1985, 1987; O'Leary et al., 1988). Studies have shown that perceived self-efficacy demonstrated effects on physiological processes (Bradley et al., 1985, 1987; O'Leary et al., 1988). Bosscher, Van Der, Van Dasler, Deeg, and Smit (1995) found a direct relationship between physical health and physical self-efficacy in older adults. Similarly, Cunningham et al. (1991) and Holman and Lorig (1992) found direct relationships among mental well-being and perceived self-efficacy. Their studies show that a high sense of perceived self-efficacy bolsters mental well-being, resulting in individuals having a low sense of anxiety or depression

Bandura (1997) has emphasized the importance of well-being and perceived self-efficacy. The author suggested, that the two go hand in hand, and that physical disability or pain tends to impose low self-efficacy on individuals. Furthermore, Bandura (1997) strongly recommends the need for health promotion and prevention programs geared towards the elderly so that those with strong beliefs in their efficacy will manage health related behaviours effectively, and those with poor self-efficacy can learn to cope better

Perceived Social Support and Well-Being

Social support plays an important role in influencing well-being by the health sustaining or the buffering mechanism (Krol et al., 1993). While there are studies that look at the relationship between physical well-being and social support (Cohen, 1988; Schwarzer & Leppin, 1991), more empirical evidence exists for the relationship between social support and mental well-being. This was demonstrated in Doeglas et al.'s (1994) study in which they reported that those who received more daily emotional support had fewer incidences of symptomatic depression. Affleck et al. (1988) found that participants who expressed greater satisfaction with their social support exhibited superior psychosocial adjustment. They also found evidence for the buffering effect between social support and physical disability, indicating that the association between social support and psychological adjustment was stronger among those patients with poorer functional status. The authors suggest one possible explanation for such findings is that availability of a satisfying network of supportive relationships may be more important for the psychological adjustment of patients who encounter greater problems with everyday functioning than for those who are less disabled.

Perceived Self-Efficacy and Perceived Social Support

As to the relationship between perceived social support and perceived self-efficacy, Zimmer et al. (1995) reported that social activities that allow for demonstration of competence have a further advantage of enhancing perceived self-efficacy. This implies that those who are involved in frequent social activities are likely to experience a sense of control over their lives and environment and are more willing to face challenges. There is a likelihood that, in this case, social support acts on perceived self-efficacy through

emotional (verbal persuasion) and instrumental (vicarious experience) support (Bandura, 1982).

Holahan and Holahan (1987) found that a low sense of social efficacy increases older people's vulnerability to stress, depression, and physical illness both directly and indirectly by impeding development of social supports (Wallston et al., 1983). Other studies show that social support acts as a buffer against life stressors (Affleck et al., 1988). But social support is more than a protective cushion: it enhances perceived coping efficacy (Bandura, 1997). While social support and self-efficacy appear to have direct effects on well-being, little is known about how all three variables affect each other, for example, whether the strength of one improves the strength of the other.

Similarly, Duncan and McAuley (1993) reported on the extent to which efficacy cognitions and social support influenced the maintenance of exercise behaviours in an at-risk population of sedentary, middle-aged adults. The authors showed that self-efficacy operates as a cognitive mediator linking psychosocial influences to various health behaviours. These findings are consistent with a growing body of research (Bandura et al., 1988; Altmier et al., 1988; Litt, 1988; Manning & Wright, 1983) in which perceived self-efficacy has been found to effect a wide range of behaviors. The fact that social support through enactive attainment directly influenced exercise behaviours, supports the contention that self-efficacy may be an important mediating variable explaining the effects of various provisions of social relationships on such health promoting behaviours as regular exercise.

Summary of Literature Review

The foregoing literature review and summary of relationships among the study variables suggest that perceived self-efficacy, perceived social support, and well-being are interrelated. However, the relationships have not been clarified. Since these variables have implications for chronically ill patients who have difficulty coping with negative effects on their physical and mental health, it is important to investigate links among them. Studies of this type can add to knowledge of ways of enhancing coping mechanisms and well-being of patients who are in acute health situations, such as those who are undergoing hip replacement surgery.

Few studies have examined the impact of demographic and disease status variables on the study variables, but these may be important predictors of outcomes. For example, Ries et al. (1995) reported statistically significant improvements in health status and perceived self-efficacy as a result of rehabilitation, which included exercise training (walking) and chest physiotherapy.

Research Focus/Questions

Results from self-efficacy and social support research have consistently shown positive relationships to patient well-being in other populations. Specifically, this study will attempt to answer the following research questions:

1. What are the interrelationships among perceived self-efficacy, perceived social support, and well-being pre-operatively (Time 1) and six weeks post-operatively (Time 2) in patients undergoing THR surgery?
2. What are the relationships among the demographic and disease status variables and perceived self-efficacy, perceived social support, and well-being pre-operatively

(Time 1) and six weeks post-operatively (Time 2)?

3. Do perceived social support (number of supports and satisfaction with supports) at Time 1, and well-being (physical and mental) at Time 1 predict perceived self-efficacy (function, pain, other) at Time 2, above and beyond the effects of relevant demographic and disease status variables and perceived self-efficacy at Time 1?
4. Do perceived self-efficacy (function, pain, other) at Time 1, and well-being (physical and mental) at Time 1 predict perceived social support (number of supports and satisfaction with supports) at Time 2, above and beyond the effects of relevant demographic and disease status variables and perceived social support at Time 1?
5. Do perceived self-efficacy (function, pain, other) at Time 1, and perceived social support (number of supports and satisfaction with supports) at Time 1 predict well-being (physical and mental) at Time 2, above and beyond the effects of relevant demographic and disease status variables and well-being at Time 1?

CHAPTER III

Methodology

Research Design

This study used a one group, pre-post test design (Burns & Grove, 1993) to find the associations among perceived social support, perceived self-efficacy, and well-being. The nature of this study was dictated by the gap in the literature regarding the interdependence of self-efficacy, social support and well-being in a population of OA patients undergoing THR surgery.

Method

Population

A convenience sample was drawn from a population of orthopaedic patients scheduled for elective hip replacement surgery from a large metropolitan, tertiary care, teaching facility. The hospital serves a large geographical catchment area, representing adults, 18 years and older, from cities, towns, Indian reserves, and rural and farming communities.

Sample

Inclusion criteria for this study consisted of patients who were (a) willing to participate, (b) able to speak English, (c) male or female, (d) 50 years or older, (e) a documented diagnosis of existing OA of the affected hip, (f) oriented to person, place, and time, (g) competent for interviewing, (h) must be without any severe co-morbid conditions (e.g., symptomatic congestive heart failure during normal activities), (i) first time hip replacement surgery, and (j) the impending surgery must be elective surgery as the goal is to get a relatively homogenous sample. Potential subjects were lost due to hip revisions,

second time hip replacement and/or having a diagnosis of rheumatoid arthritis. A study sample of 34 participants was obtained based on the inclusion criteria.

Instrumentation

Respondents completed three scales to reflect pre and post-operative self-efficacy, social support and well-being. Demographic data were collected from patients' charts at Time 1 and a chart review was conducted after the second interview.

The Arthritis Self-Efficacy Scale (ASES), modified by Lorig et al., (1989), is a 20-item questionnaire designed to measure patients' perceived self-efficacy to cope with the consequences of chronic arthritis. Consistent with other research (Anderson et al., 1995; Barlow et al., 1997; Brady, 1997) the scale is specific to the tasks that must be performed. Research results have demonstrated good internal reliability of the three subscales (self-efficacy for physical function [0.85], controlling other arthritis symptoms [0.90], and pain management [0.87]) scores and stability of the scores over short time intervals. Moreover, significant relationships were found between self-efficacy scores and both present and future health status (Anderson et al., 1995; Lorig et al., 1989).

This scale was used to measure patients self-perceived ability to carry out activities of daily life functions, for example, walking a certain distance, and preparing meals, their confidence regarding their arthritis pain and other symptoms (Appendix A). Confidence estimates were made on a Likert scale that ranges from 10 (very uncertain) to 100 (very certain). The participant's perceived self-efficacy score consisted of subscales for "function" and for "pain/other". Since the "pain" and "other" subscales of perceived self-efficacy were highly correlated at Time 1 ($r = .756$, $p < .01$) and Time 2

($r = .911$, $p < .01$), the two subscales were combined and summed to produce the "pain/other" subscale. Scores were computed for each task pre-teaching (T1) and at six weeks post-operatively (T2).

The Social Support Questionnaire (SSQ) developed by Sarason et al. (1983) has provided empirical evidence for the importance of perceived social support in predicting health status. The questionnaire is a 27-item evaluation measuring perceived available support. Each of the items has two parts. The first part assesses the number of available others the person can turn to in time of need in each of a variety of situations. The second part of each item measures, on a 6 point Likert scale ranging from very satisfied to very dissatisfied, measures the person's degree of satisfaction with the perceived available support (Appendix B) (Sarason, Shearin, Pierce, & Sarason, 1987). The reliability for the number of supports subscale and satisfaction with supports subscale was .90 and .83 respectively. The tool contributes steps to understanding the relation of social support to personality indexes of well-being and self-esteem (Sarason et al., 1983).

Scores were measured for pre-operatively (Time 1) and at six weeks post-operatively (Time 2) by adding the total number of people for all 27 items and then dividing by 27 for a per item score, giving a SSQ number score (SSQN). To obtain the SSQ satisfaction score (SSQS), total satisfaction scores for all 27 items were added and then divide by 27 for a per item score.

The Health Status Profile-12-Item Short-Form Healthy Survey (SF-12) (Ware et al., 1996) is a multipurpose shortened version of the original Medical Outcomes Study 36-item Short-Form Health Survey (SF-36). Like the SF-36, the SF-12 allows to give estimates on both physical components summary (PCS) and mental components summary

(MCS). The SF-12 measures eight health concepts representing physical functioning, role limitations due to physical health problems, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health (Ware, Kosinski, Bayliss, McHorney, Rogers & Raczek, 1995). The SF-12 uses two items each to estimate scores for four of the eight health concepts (physical functioning, role-physical, role-emotional, and mental health). Scores for the remaining four health concepts (bodily pain, general health, vitality, and social functioning) are estimated using one item each (Appendix C).

Results from empirical studies indicate that the12-item version of PCS and MCS correlate very highly with the SF-36 version (Dawson et al., 1996; Jenkinson et al., 1997, Ware et al., 1995). The SF-12's reliability of the PCS measured 0 89 and 0 76 for the MCS. Validity tests involving physical criteria ranged from 0 43 to 0 93 and 0 60 to 1 07 for mental components of the SF-12 (Ware et al., 1996).

Each participant's PCS and MCS scores were computed using their response choice of each SF-12 item (indicator variable) to its respective physical and mental regression weight (found in Ware et al., 1996), and then adding or subtracting the weight from the constant. Therefore, each subject received a PCS and a MCS score for both times (Appendix D).

Demographic information that was collected included the participant's age (measured in years), religion, gender, marital status (if they were single, married, divorced, separated, or widowed at the Time 1 interview), pre-operative level of mobility as measured by the type of device they used to ambulate (independent, crutches, cane, walker, wheelchair), exercise tolerance as measured by small (doing activities of daily

living within the home), moderate (able to walk outdoors and go shopping and banking), or large amounts (doing daily exercises outside of the home and doing most activities), work status (employed, unemployed, or retired), living arrangements before (house, apartment, or residence) and after discharge from the hospital, persons available to help at home, co-morbidities, number of years living with arthritis, and educational level was collected from patient's charts. Scoring of demographic and disease status variables is found in Appendix E.

In order to validate subjective data at Time 2, a chart review was conducted after the Time 2 interview. Information collected included, length of hospitalization (days), post-operative complications (if any), emotional and instrumental support systems available post-operatively, means of transportation during the recovery process, level of rehabilitation, and consultations made during the hospitalization. Demographic characteristics, information regarding medical conditions, and co-morbidities were obtained from the patients and their medical records pre-operatively (Appendix F).

Data Collection/Procedure

Data collection, which involved semi-structured interviews of approximately one hour each, which was conducted initially in the Fall of 1997 and ended in the Winter of 1998. Questionnaires to measure the three different constructs at two times (pre-operatively (T1) and at six weeks post-operatively (T2)) were administered by the investigator. The researcher conducted the pre-operative interviewing in the pre-admission orthopaedic clinic of the tertiary care center. Follow-up interviews were done six weeks post-operatively, repeating the three questionnaires in either the patient's home, rehabilitation center, or at the pre-admission orthopaedic clinic, based upon the patient's

convenience. The three established instruments measured self-efficacy, social support, and well-being, using, the Arthritis Self-Efficacy Scale (Lorig et al., 1989) (Appendix A), the Social Support Questionnaire (Sarason et al., 1983) (Appendix B); and the Health Status Profile-12 Item Short-Form Health Survey (Ware et al., 1996) (Appendix C).

All patients scheduled for THR surgery were contacted by telephone by the admitting department of the institution a few weeks before their impending surgery date to attend the pre-admission teaching program. At this time, a teaching package was mailed to prospective surgical patients. Included in this package was a letter of information to inform them that a study was to take place and that they might be approached to participate at the time of their pre-admission appointment (Appendix G).

The pre-admission program consists of teaching prospective THR patients what they might expect from their surgery and hospitalization. Various nurses have been trained to teach THR patients about the expected manifestations of their surgery. Although different nurses teach the patients from week-to-week, the content is consistent from session to session. Patients are informed as a group, in a class-like setting, with the use of actual equipment (e.g., incentive spirometer, Buck's traction) as teaching aids and overheads to demonstrate how the recovery process will take place. The nurse describes in detail what the patient is required to do before coming into the hospital, on the day of surgery, and during the hospitalization. Patients are given the option towards the end of their hopitalization to return home, with or without home care services; or to proceed to an institution (e.g., rehabilitation center). Once the teaching is completed by the nurse, the patients goes to a gym where a physiotherapist provides verbal information, demonstration, and instrumental support on how THR patients will be mobilized after their

surgery, using different aids (e.g., crutches, walker). This is the time when patients have the opportunity to try the different aids in order to feel more comfortable with them.

In addition to the teaching provided by the different health care professionals, written handouts (those that were mailed) are reinforced. Patients are also medically prepared for surgery. They must go through x-rays, blood tests, an electrocardiogram, and a physical examination by the orthopaedic resident to determine whether they are medically fit to undergo hip replacement surgery.

Patients were expected to report to the orthopaedic clinic by 8:30 am for the teaching session. At this time, the investigator examined the charts to target patients who met the inclusion criteria. Eligible patients were approached by the clinic nurse to inform the patient that a study was presently underway, and asked if they were interested in meeting with the investigator to discuss the study. If they agreed, the investigator then provided a verbal and written explanation of the study and an opportunity to ask any questions or address any concerns. It was established that those patients who declined the offer to participate would be assured that their care would not be jeopardized in any way. Written consent (Appendix H) was obtained from those who agreed to participate. Those patients who gave informed consent were requested to complete the ASES, the SSQ, and the SF-12 questionnaires as they waited to be seen by the orthopaedic resident and for their tests to be completed. All questionnaires were completed before any teaching was conducted by the nurse or physiotherapist (usually completed by 11:00 am). The questionnaires were completed together by the investigator and the participant on a one-on-one basis to ensure completion of data, and to get a sense of the participants' perceived self-efficacy and perceived social support by means of verbal interaction. All interviews

were conducted in an isolated area, away from staff, family, and friends to maintain confidentiality and to prevent external influence on responses. Since all the data were collected by the investigator, there was consistency in the data collection approach. All patients who met the inclusion criteria and were approached to participate in the study agreed, which resulted in a 100% response rate. The attrition rate was zero as no one dropped out of the study or was lost between the two time periods. At six weeks post-operatively, patients were asked to repeat the ASES, the SSQ, and the SF-12, in conjunction with the investigator. This took place in either the patient's home, rehabilitation center, or in the orthopaedic clinic, based on the patient's convenience and preference. One person (2.9%) was interviewed in the surgical intensive care unit of the tertiary care facility at their Time 2 interview due to post-operative complications.

Ethics: Protection of Participants' Rights

Guidelines by the Tri-Council Working Group (1996) were followed. Prior to the implementation of this study, approval was obtained from the Ethics Review Committee of Queen's University and from the hospital Ethics Review Committee. Patients were mailed information sheets (Appendix G) explaining the nature of the study and that they might be approached at the time of their pre-admission teaching session to participate if they met the criteria for the study. At the time of the clinic appointment, participants were asked by the clinic nurses whether they wished to meet the researcher to obtain further details. If they expressed an interest, the researcher met with the patient to answer any questions and give them a detailed explanation of the purpose of the study and the process that would be undertaken to collect information. It was made explicit that participation was strictly voluntary. All participants were informed that they had the right, at any time, to withdraw

from the study, refuse to answer any questions, or to stop the interview, if they so desired. Reassurance was provided that the decision whether or not to participate in the study would in no way affect the care they received from the nursing or medical staff.

Possible risks and benefits were outlined. Subjects were advised that although they might not benefit personally from the study, their involvement might assist nurses to develop interventions that would help the psychosocial adjustment of future patients undergoing total hip replacement surgery. The potential for a slight inconvenience related to answering questions for approximately on hour was also discussed.

Those who agreed to participate in the study signed the informed consent (Appendix G). Participants were informed that they would not be personally identified through the data collection process, subsequent discussions, or publications. They were assured that all information would be held in the strictest of confidence by the researcher and would not be discussed with any other individual, except in aggregate form. Privacy during the interviews was assured as they were conducted in a private room away from clinic staff, other patients, and those that accompanied the patient (friends or family) to prevent interruptions, breach of confidentiality, or influencing the scores on the instruments. All research data was stored in a locked filing cabinet with limited access at the School of Nursing, Queen's University and in another secure location.

CHAPTER IV

Results

Data for 34 participants were analyzed, using the Statistical Packages for Social Sciences (SPSS). A number of analyses were performed, including descriptive statistical analysis of demographic and disease status variables, skewness and kurtosis of the subscales of the constructs to examine distribution of scores, internal reliability and validity of the subscales for this sample, Pearson correlation coefficients to explore relationships between study variables, t-tests to examine differences between Time 1 and Time 2 scores for each subscale, and multiple regression analyses to investigate the amount of variance in predicting the dependent variables.

Because the self-efficacy subscales of "pain" and "other" correlated highly at Time 1 ($r = .756$, $p < .01$) and Time 2 ($r = .911$, $p < .01$)) (see Table 1), the two subscales were combined and scores were summed to reflect the variable pain/other. The second subscale in the ASES was function.

There was little variance for satisfaction with supports on the SSQ between Time 1 and Time 2. At Time 1, 31 out of 34 and at Time 2, 34 out of 34 respondents gave a rating of 6 (very satisfied) on the 6-point scale. This could indicate that this sample may not be typical of other samples for this population. Therefore, the variable for satisfaction with supports was eliminated, leaving "number of supports" as a measure of perceived social support. The number of supports was summed and divided by 27 (as this was the number of questions asked) to derive a mean score for analysis

Table 1

Means, Standard Deviations, Pearson Correlation Coefficients and Level of Significance for Pain and Other Self-Efficacy Subscales

	M	SD	r	p
Pain - Time 1	208.09	105.24		
Pain - Time 2	399.12	76.69		
Other - Time 1	322.35	121.71		
Other - Time 2	502.06	92.69		
Pain + Other - Time 1			.756	.01
Pain + Other - Time 2			.911	.01

The two subscales for the 12-item well-being scale, physical and mental, were treated as separate variables to measure their independent contributions. For both subscales, higher scores indicated higher perceived levels of health.

Demographic and Disease Status Variables

Measures of centrality, frequency, and variability were used to summarize the sample characteristics. Demographic and disease status characteristics of the sample are presented in Table 2. Subjects ranged in age from 49 to 85 years with a mean age of 68.71 and a standard deviation of 9.39. Of the 20 males and 14 females, 73.5% were married, 20.6% were widowed, 3% were divorced and 2.9% were separated. A predominant proportion (41.2%) of the sample had an educational level between 11 and 15 years, and 61.8% were retired from their occupation. Most (64.7%) had been living with OA of the affected hip for less than five years. A majority of the sample (67.6%) were hospitalized between 6 to 10 days, with 58.8% proceeding to a rehabilitation center. One person (2.9%) was interviewed in the surgical intensive care unit of the tertiary care facility at their Time 2 interview due to post-operative complications. Frequency and percentages were used because the demographic characteristics consisted mostly of categorical data rather than interval data.

Skewness and Kurtosis

Before conducting multiple regression analyses, skewness and kurtosis were examined for each variable.

Perceived Self-Efficacy

The distribution of the functional self-efficacy score became more negatively skewed between Time 1 and Time 2, indicating that most responses were high. Functional

Table 2

Demographic Characteristics of Study Participants (N=34)

Variable	Frequency	Percentage
Age		
40-49	1	2.9
50-59	7	20.6
60-69	7	20.6
70-79	15	44.1
80-89	4	11.8
Gender		
Female	14	41.2
Male	20	58.8
Marital Status		
Divorced	1	3.0
Married	25	73.5
Separated	1	2.9
Single	0	0
Widowed	7	20.6
Living Domicile		
Apartment	9	26.5
House	24	70.6
Residence	1	2.9
Religion		
Anglican	1	2.9
Jewish	4	11.8
Native	1	2.9
Protestant	15	44.1
Roman Catholic	9	26.5
Other	4	11.8
Diagnosis		
Left THR	19	55.9
Right THR	15	44.1

(continued)

Variable	Frequency	Percentage
Years of Education		
0-5	1	2.9
6-10	13	38.2
11-15	14	41.2
16-20	4	11.8
>21	2	5.9
Employment Status		
Employed	11	32.4
Retired	21	61.8
Unemployed	2	5.8
Exercise Tolerance		
Large Amounts	2	5.9
Moderate Amounts	17	50.0
Small Amounts	15	44.1
Ambulatory Status at Time 1		
Independent	11	32.4
Cane	17	50.0
Crutches	1	2.9
Walker	3	8.8
Wheelchair	2	5.9
Years Living with Osteoarthritis		
<5	22	64.7
6-10	9	26.5
11-15	2	5.9
>16	1	2.9
Length of Hospitalization (days)		
1-5	3	8.8
6-10	23	67.6
11-15	5	14.7
16-20	2	5.9
>21	1	2.9
Place of Rehabilitation		
Home	2	5.9
Home with home care services	11	32.4
Convalescence Home	20	58.8
Deceased (in hospital)	1	2.9

self-efficacy at both times was leptokurtic (see Table 3 and Figures 1 and 2). The distribution of scores for pain/other self-efficacy was normally distributed at Time 1, but became negatively skewed at Time 2, indicating that a majority of the sample had high confidence for controlling their pain/other self-efficacy symptoms. Pain/other self-efficacy at Time 1 showed a platykurtic distribution but then became leptokurtic at Time 2 (see Table 3 and Figures 3 and 4).

Perceived Number of Supports

Number of supports is somewhat positively skewed at both times stating that participants started out with high levels of perceived number of supports and increased slightly higher for Time 2. Number of supports at Time 1 and Time 2 showed a leptokurtic distribution (see Table 4 and Figures 5 and 6).

Well-Being

Distribution of scores was symmetrical or normally distributed for physical well-being at both times. A leptokurtic distribution was seen for physical well-being at Time 1 and became platykurtic for Time 2 (see Table 5 and Figures 7 and 8). Mental well-being at Time 2 became negatively skewed as compared to mental well-being at Time 1. The kurtosis for mental well-being changed from platykurtic to leptokurtic over time (see Table 5 and Figures 9 and 10).

Reliability and Validity of Study Constructs

Internal consistency or reliability was tested using Cronbach's alpha for Time 1 and Time 2. The higher the alpha coefficient (range 0.0 to 1.0) the more consistent is the scale and the greater the likelihood that it is tapping an underlying single construct on the questionnaire.

Table 3

Arthritis Self-Efficacy Scales: Range, Measures of Central Tendency, Internal Consistency Reliability Assessment using Alpha (α) Coefficients, Skewness, and Kurtosis for Time 1 and 2

Subscale of Self-Efficacy	Range	Mean	Median	Standard Deviation	Alpha (α)	Skewness	Kurtosis
Pain/Other-Time 1	23.3-158	95.3	93.2	38.73	0.94	-0.3	-0.8
Pain/Other-Time 2	22-196	163.5	168.2	30.09	0.98	-3.4	15.1
Function-Time 1	16.7 – 93.3	67.9	71.1	19.37	0.92	-1.1	0.8
Function-Time 2	10 – 96.7	84.5	89.4	16.32	0.96	-3.3	13.2

Figure 1. Histogram of Functional Self-Efficacy at Time 1

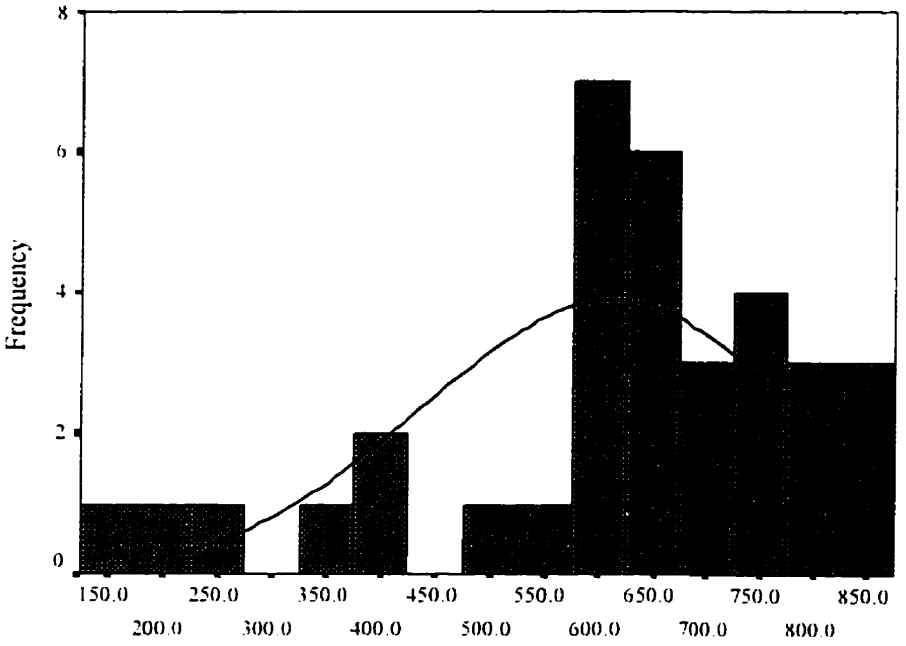


Figure 2. Histogram of Functional Self-Efficacy at Time 2

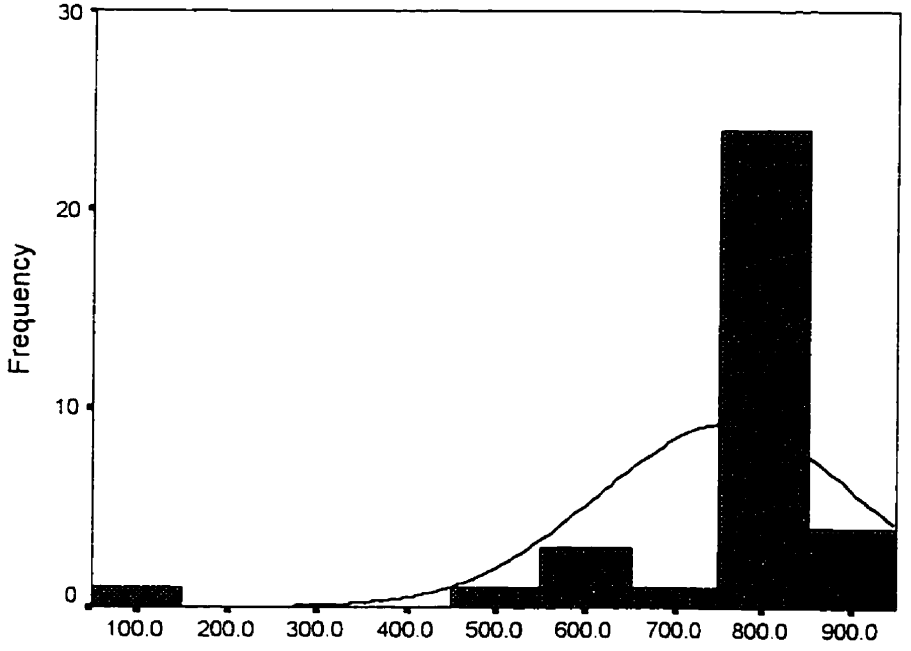


Figure 3. Histogram of Pain/Other Self-Efficacy at Time 1

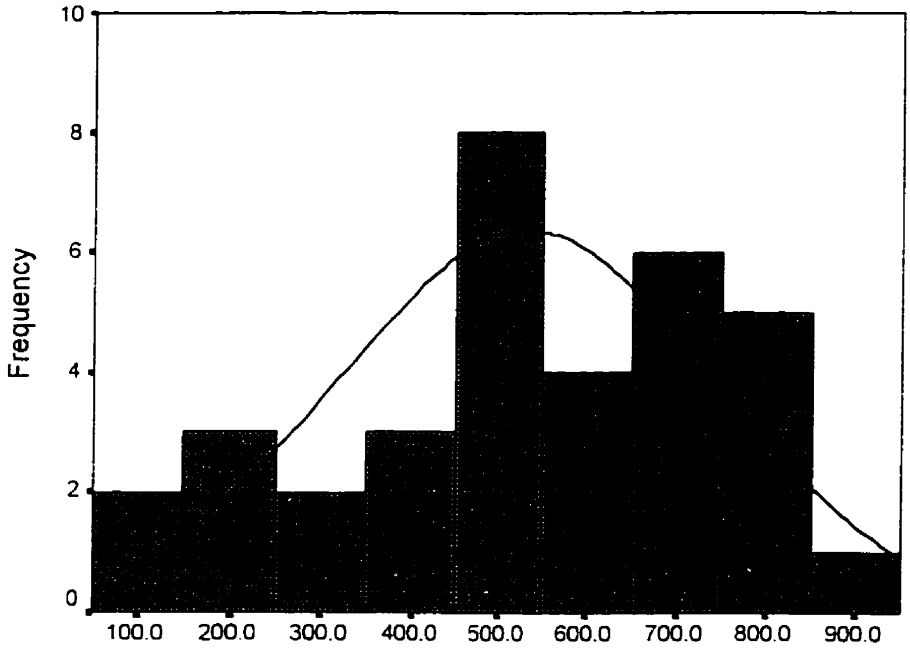


Figure 4. Histogram of Pain/Other Self-Efficacy at Time 2

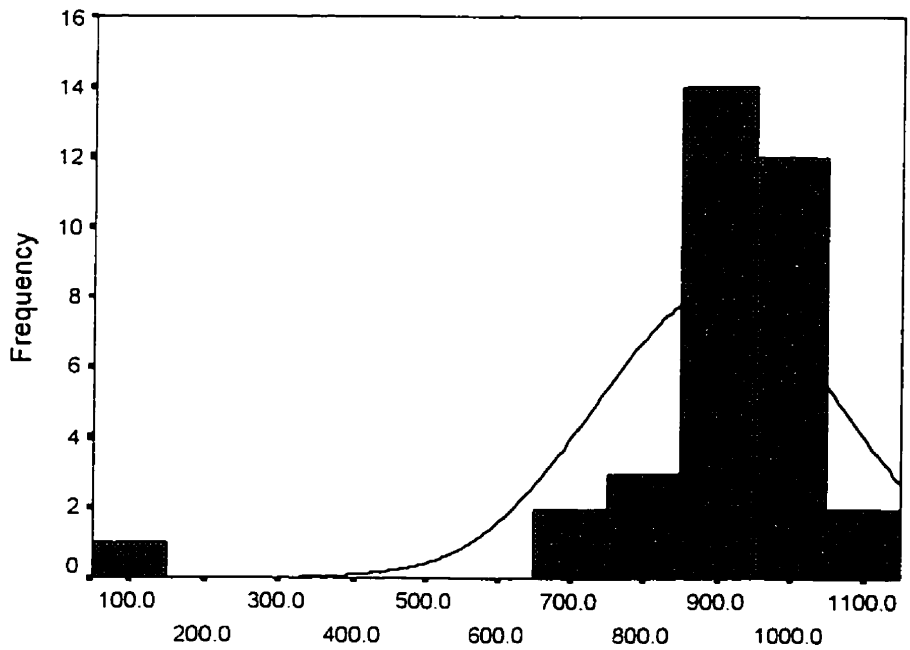


Table 4

Social Support Questionnaire, Range, Measures of Central Tendency, Internal Consistency Reliability Assessment using Alpha (α) Coefficients, Skewness, and Kurtosis for Time 1 and 2

Social Support	Range	Mean	Median	Standard Deviation	Alpha (α)	Skewness	Kurtosis
Number of Supports (Time 1)	1.1 – 7.8	2.7	2.0	1.8	0.98	1.5	1.5
Number of Supports (Time 2)	1.3 – 8.7	3.3	2.5	1.9	0.98	1.3	0.9

Figure 5. Histogram of Number of Supports at Time 1

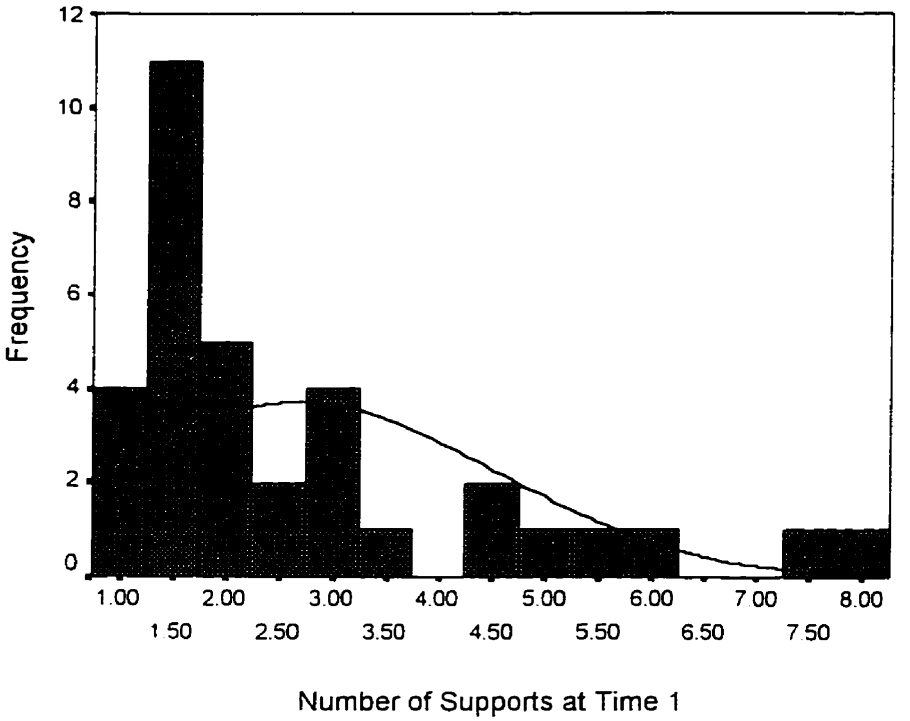


Figure 6. Histogram of Number of Supports at Time 2

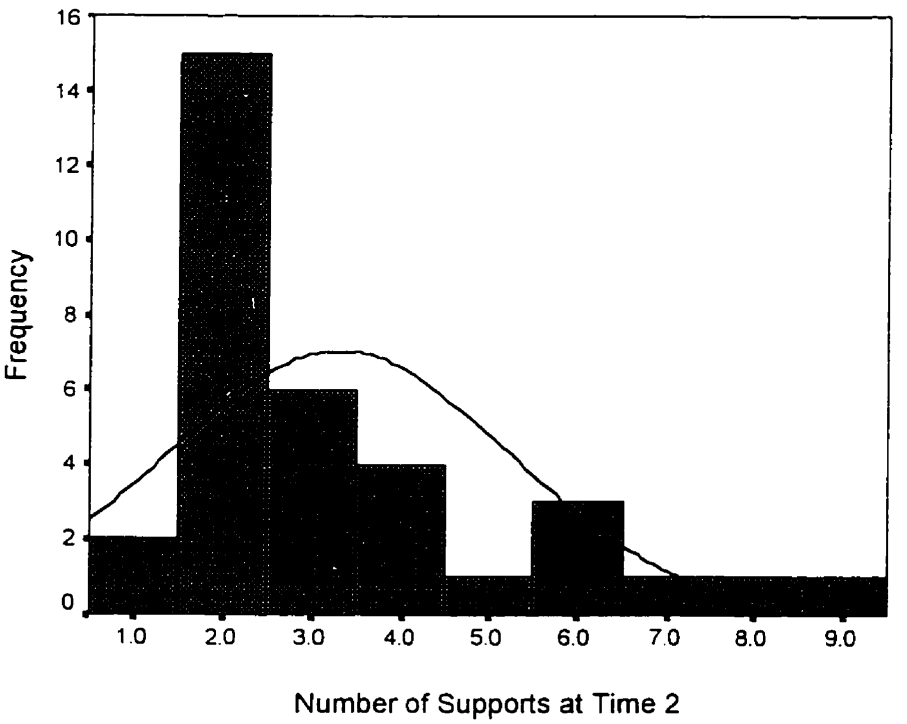


Table 5

SF-12 Health Status Profile, Range, Measures of Central Tendency, Internal Consistency Reliability Assessment using Alpha (α) Coefficients, Skewness, and Kurtosis for Time 1 and 2

Well-Being	Range	Mean	Median	Standard Deviation	Alpha (α)	Skewness	Kurtosis
Physical-Time 1	17.2 – 41.4	30.4	30.3	5.48	0.48	-0.4	0.8
Physical-Time 2	24.0 – 60.8	39.9	37.2	9.05	0.52	0.6	-0.5
Mental-Time 1	27.8 – 66.7	45.0	42.6	10.81	0.61	0.2	-1.0
Mental-Time 2	19.1 – 61.9	53.4	55.7	9.77	0.63	-2.4	6.0

Figure 7. Histogram of Physical Well-Being at Time 1

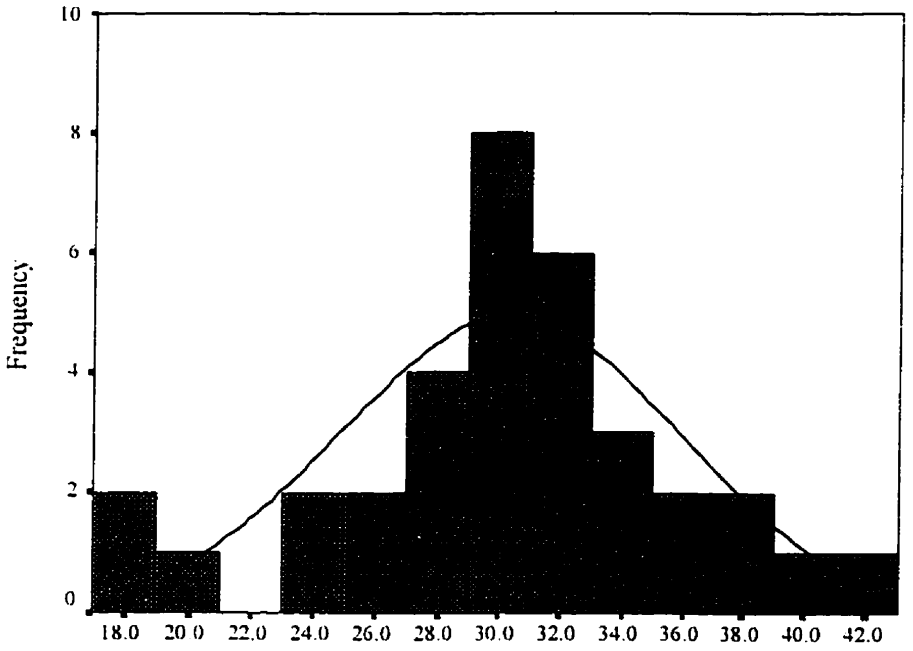


Figure 8. Histogram of Physical Well-Being at Time 2

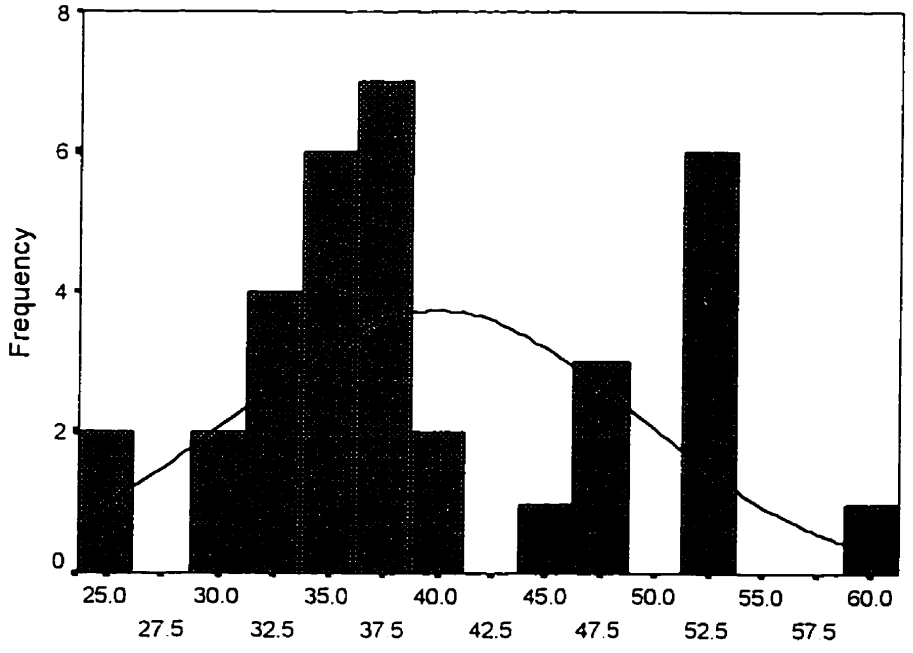


Figure 9. Histogram of Mental Well-Being at Time 1

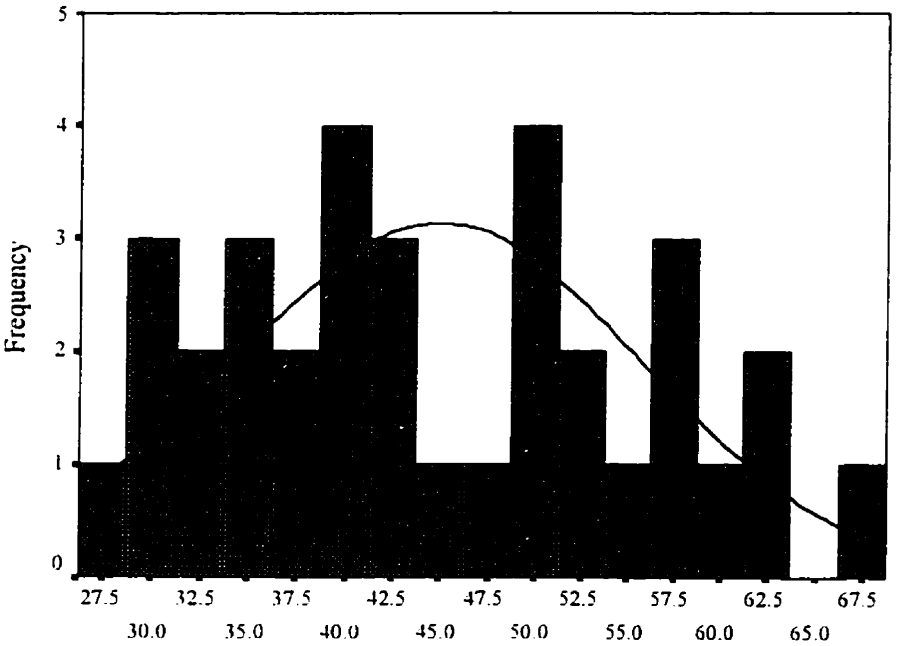
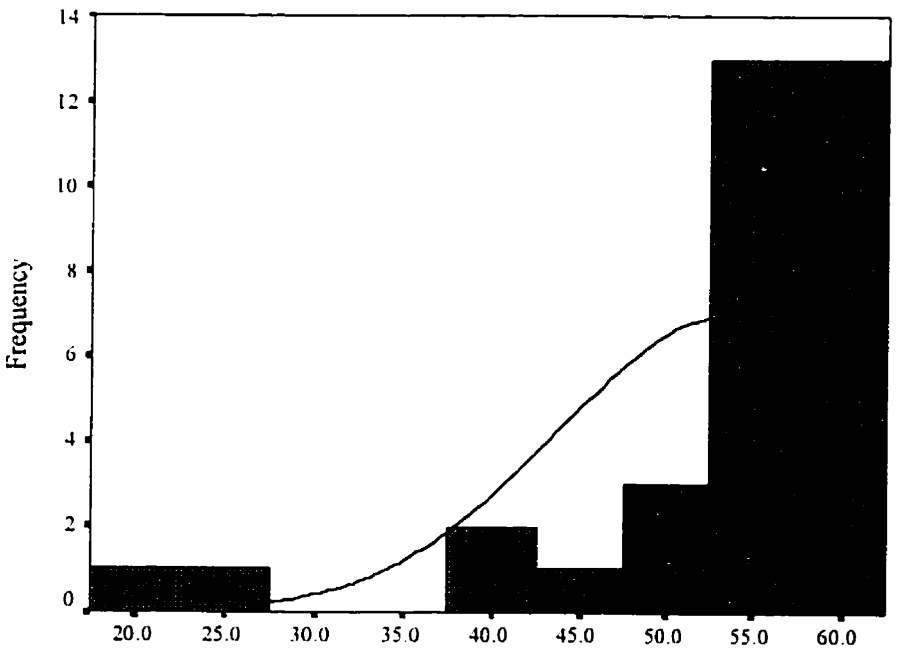


Figure 10. Histogram of Mental Well-Being at Time 2



For the Arthritis Self-Efficacy Scale, the coefficients α demonstrated high internal consistency, which was uniform in nature and ranged from 0.92 to 0.98 (see Table 3). This was higher than that reported in a sample of 144 arthritic patients (Lorig et al., 1989).

To determine construct validity and to ascertain whether the subscales are relatively specific and unique in their representation, scores of the function and pain/other subscales at both times were correlated with one another and to the total self-efficacy score using Pearson correlation coefficients. Correlation coefficients among subscales ranged from .34 to .98 resulting in poor to high correlations to the total self-efficacy score (see Table 6).

Internal consistency for scores on the number of social supports also demonstrated high internal consistency, which was uniform in nature (.98) (see Table 4). This was similar to previous scores for number of social supports reported by Sarason et al. (1983).

Reliability estimates for physical and mental well-being in this sample demonstrated a poor to moderate internal consistency ranging from .5 to .6 respectively (see Table 5). These were generally lower than those reported by Ware et al. (1995) (physical = .89 and mental = .76). Construct validity among the physical and mental subscales of well-being ranged from - 06 to .90 which are poor to high correlations to the total well-being score (see Table 7).

Correlations

A Pearson correlation coefficient matrix for study, demographic, and disease status variables is presented in Table 8 and addresses the first research question which queries the interrelationships, direction (either positive or negative), and the magnitude of the

Table 6

Arthritis Self-Efficacy Scale: Correlations between each Subscale and Total Self-Efficacy

Subscale	1	2	3	4	5	6
1. Function-Time 1		.69**	.75**	.59**	.92**	.65**
2. Function-Time2			.38*	.90**	.55**	.97**
3. Pain/Other-Time 1				.34	.95**	.37*
4. Pain/Other-Time 2					.48**	.98**
5. Total Self-Efficacy-Time 1						.53**
6. Total Self-Efficacy- Time 2						

Note. **p < .01
*p < .05

Table 7

SF-12: Health Status Profile: Correlations between each Subscale and Total Well-Being

Subscale	1	2	3	4	5	6
1. Mental-Time 1		.46**	.04	.15	.90**	.45**
2. Mental-Time 2			.25	-.06	.51**	.72**
3. Physical-Time 1				.48**	.48**	.52**
4. Physical-Time 2					.34*	.66**
5. Total Well-Being-Time 1						.63**
6. Total Well-Being-Time 2						

Note. **p < .01
*p < .05

Table 8

Pearson Product Moment Correlation Matrix at Time 1 and 2

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Demographics																
1. Age		-.019	-.427*	-.346*	-.296	-.432*	-.446**	-.325	-.405*	-.381*	-.506**	-.431*	-.333	-.070	-.109	-.275
2. Gender			-.065	.052	-.330	-.163	-.298	-.002	-.197	.140	.356*	.310	-.207	-.053	-.121	-.008
3. Pre-op tolerance to exercise				.155	.543**	-.049	.531**	.364*	.499**	.417*	.143	.138	.344*	.269	.447**	.192
4. Length of hospitalization (days)					.098	.374*	.284	.454*	.230	.500**	-.154	-.119	.170	.229	.320	.393*
5. Pre-op level of mobility						-.022	.647**	.399*	.498**	.340*	-.041	-.010	.264	.148	.466**	.267
6. Level of rehabilitation							.292	.401*	.101	.408*	.325	.300	.197	.311	.044	-.052
Perceived Self-Efficacy																
7. Function (T1)								.687**	.745**	.589**	.071	.101	.399*	.241	.567**	.452**
8. Function (T2)									.380*	.904**	.157	.173	.194	.551**	.528**	.468**
9. Pain/Other (T1)										.336	.097	.165	.584**	.032	.486**	.468**
10. Pain/Other (T2)											.274	.272	.223	.646**	.502**	.405*
Perceived Social Support																
11. No. of Supports (T1)												.952**	.214	.264	-.096	-.032
12. No. of Supports (T2)													.301	.292	-.091	.025
Well-Being																
13. Mental (T1)														.456**	.037	.146
14. Mental (T2)															.247	-.059
15. Physical (T1)																.480**
16. Physical (T2)																

Note. **p < .01, *p < .05

relationships among perceived self-efficacy, perceived social support, and patient well-being.

Perceived Self-Efficacy

In examining the interrelationships among study variables at Time 1, it was shown that functional self-efficacy at Time 1 was significantly related to pain/other self-efficacy at Time 1 (r = .745, p < .01), to mental well-being at Time 1 (r = .399, p < .05), and to physical well-being at Time 1 (r = .567, p < .01). Pain/other self-efficacy at Time 1 demonstrated a positive and significant relationship to mental well-being at Time 1 (r = .584, p < .01) and to physical well-being at Time 1 (r = .486, p < .01). There were no significant correlations found between the subscales of perceived self-efficacy and number of supports. These findings appear to establish a relationship between the perceived self-efficacy variable and well-being pre-operatively. However there was no relationship between perceived self-efficacy and number of supports at Time 1.

Again at Time 2 functional self-efficacy was related to pain/other self-efficacy (r = .904, p < .01), to mental well-being (r = .551, p < .01), and to physical well-being at Time 2 (r = .468, p < .01). Similarly, pain/other self-efficacy at Time 2 was significantly correlated with mental well-being at Time 2 (r = .646, p < .01) and with physical well-being at Time 2 (r = .405, p < .05). The fact that consistent and positively significant findings were found among these variables, both before and after surgery suggests that the constructs of perceived self-efficacy and well-being may be related. As was the case at Time 1, the number of supports at Time 2 did not correlate significantly with functional or pain/other self-efficacy at Time 2.

When pain/other perceived self-efficacy was examined, it was shown that at Time 1, pain/other perceived self-efficacy was significantly related to physical well-being at Time 2 (r = .468, p < .01) but not to mental well-being at Time 2 (r = .032). While this finding seems to indicate that one's pain/other perceived self-efficacy affects physical well-being over the post-operative period, it is not clear why it is not related to mental well-being.

Functional perceived self-efficacy at Time 2 was significantly and positively related to functional perceived self-efficacy at Time 1 (r = .687, p < .01), to pain other self-efficacy at Time 1 (r = .380, p < .05) and to physical well-being at Time 1 (r = .528, p < .01), but not to mental well-being at Time 1. This indicates that the relationship of perceived self-efficacy appears to remain relatively constant over the recuperative stage. As before, no relationship was established between number of social supports at Time 1 and Time 2.

Perceived Social Support

Number of supports at Time 2 was highly correlated with number of supports at Time 1 (r = .952, p < .01). The relationships between numbers of supports at Time 2 and mental well-being at Time 1 (r = .301) and Time 2 (r = .292) are positive, although not significant.

No significant relationships were found between number of social supports at Time 2 and physical well-being at Time 1. Similarly, negative correlation values were found between number of supports and physical well-being at Time 1 (r = -.096) and at Time 2 (r = -.091). Finally, no significant relationships were found between number of social supports and perceived self-efficacy. This suggests that while number of supports may be

important for mental well-being, not enough evidence is available to establish its value in enhancing self-efficacy.

Mental and Physical Well-Being

In addition to the above mentioned correlations with perceived self-efficacy, mental well-being at Time 1 is significantly correlated with mental well-being at Time 2 ($r = .456$, $p < .01$), and mental well-being at Time 2 is positively and significantly correlated with both functional ($r = .551$, $p < .01$) and pain/other perceived self-efficacy ($r = .646$, $p < .01$) at Time 2. However, mental well-being at both times was poorly correlated with physical well-being at both times.

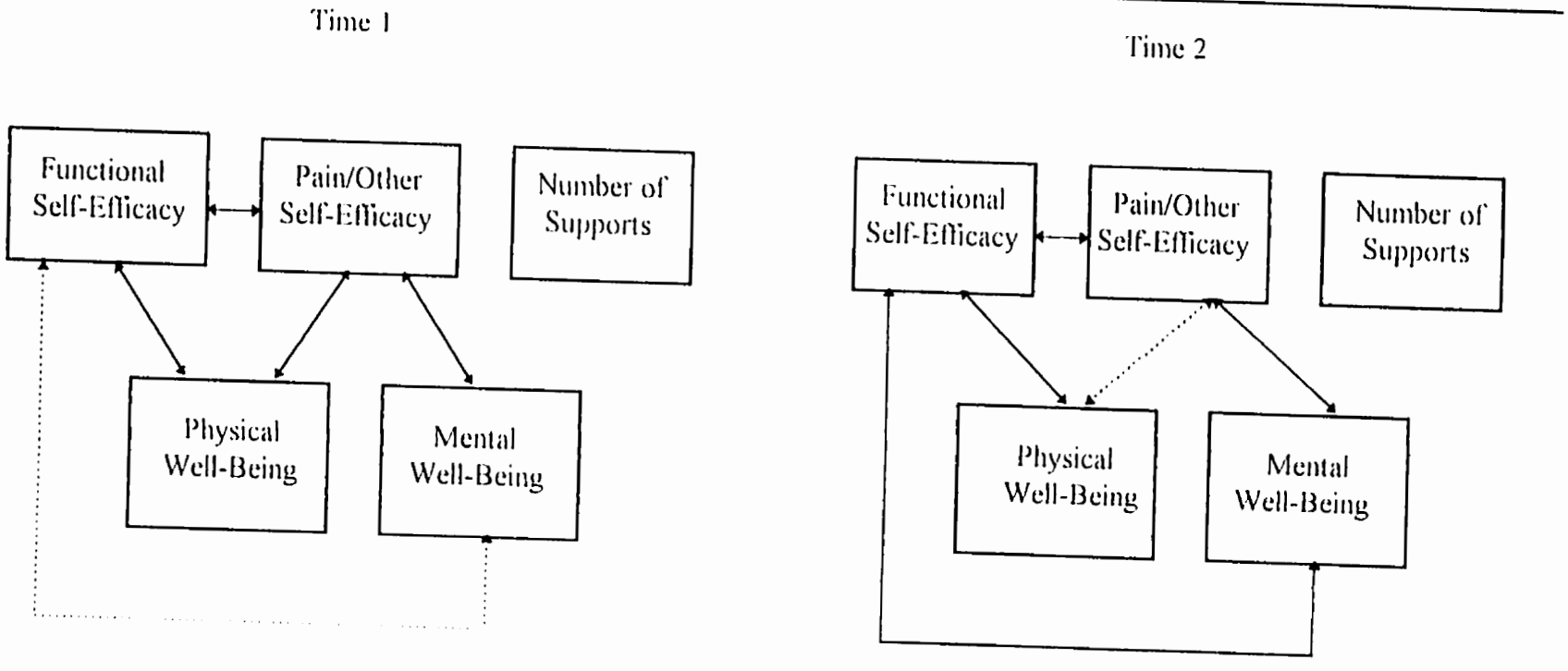
Physical well-being at Time 1 is moderately significantly correlated to physical well-being at Time 2 ($r = .480$, $p < .01$). Physical well-being at Time 2 is positively and significantly related to functional ($r = .452$, $p < .01$) and pain/other ($r = .468$, $p < .01$) perceived self-efficacy at Time 1.

In summary, from Table 8, it can be seen that some significant relationships were observed among the subscales of the three variables, but no clear evidence emerged for strong interrelationships among the three variables as whole constructs (see Figure 11).

Correlations among Demographic and Disease Status Variables

The demographic and disease status variables of age, gender, pre-operative tolerance to exercise, length of hospitalization, pre-operative level of mobility, and level of rehabilitation were entered into the correlation matrix (see Table 8). There were significant relationships between age and pre-operative tolerance to exercise ($r = -.427$, $p < .05$), suggesting as one got older, tolerance to exercise was diminished. There was a significant negative correlation between age and level of rehabilitation ($r = -.432$, $p < .05$), indicating

Figure 11: Summary of Significant Correlations at Time 1 and Time 2



—— $p < .01$

..... $p < .05$

that as people got older, they tended to recover in an institution. Pre-operative tolerance to exercise and pre-operative level of mobility showed a relationship of .543 ($p < .01$) This suggests that those who had a had a high level of tolerance to exercise, were able to ambulate without more restrictive devices (e.g. wheelchair). A positive linear relationship was found between length of hospitalization and level of rehabilitation ($r = .374$, $p < .05$) reflecting the need for hospitalization for those who are most compromised.

To answer the second research question, about the relationships among the demographic and disease status variables with perceived self-efficacy, perceived social support, and well-being at Time 1 and at Time 2, demographic and disease status variables were examined (see Table 8). It was found that the disease status variables of pre-operative tolerance to exercise, length of hospitalization, and pre-operative level of mobility were the variables that correlated significantly most often with the study constructs. For example, pre-operative tolerance to exercise was positively related to Time 1 variables of functional self-efficacy ($r = .531$, $p < .01$), pain/other self-efficacy ($r = .499$, $p < .01$), mental well-being ($r = .344$, $p < .05$) and to physical well-being ($r = .447$, $p < .01$). It also correlated significantly with functional self-efficacy ($r = .364$, $p < .05$) and pain/other self-efficacy ($r = .417$, $p < .05$) at Time 2. Length of hospitalization was positively related to functional self-efficacy ($r = .454$, $p < .05$), pain/other self-efficacy ($r = .50$, $p < .01$) at Time 2, and to physical well-being ($r = .393$, $p < .05$) at Time 2. Pre-operative level of mobility was positively related to functional self-efficacy ($r = .647$, $p < .01$), to pain/other self-efficacy ($r = .498$, $p < .01$) and physical well-being ($r = .466$, $p < .01$) at Time 1. It showed significant relationships between functional self-efficacy ($r = .399$, $p < .05$) and to pain/other self-efficacy

($r = .340$, $p < .05$) at Time 2

T-tests Analysis for Differences in Scores Between Time 1 and Time 2

Preliminary to multiple regression analyses, paired t-test analysis were performed to detect any differences between Time 1 and Time 2 scores for each subscale. Functional and pain/other self-efficacy scores significantly improved at six weeks post-operatively (see Table 9). Scores in number of supports showed a significant difference between Time 1 and Time 2, indicating that the number of supports improved at six weeks post-operatively (see Table 9). T-tests showed significant differences between the two time periods for physical and mental well-being indicating that scores for both physical and mental well-being were better at Time 2 (see Table 9).

Multiple Regression Analyses

Multiple regression analyses were conducted for the subscales of perceived self-efficacy and well-being. A conservative approach was used to determine the unique effects of the predictor variables on the outcome variable. Based on Pearson correlations, the study variables at Time 2, excluding social supports at Time 2 (functional and pain/other perceived self-efficacy, physical and mental well-being) were entered separately as dependent variables and the Time 1 variables plus selected demographic and disease status variables (pre-operative level of mobility, pre-operative level of exercise, and length of hospitalization) were entered as independent variables. A backwards regression equation method was used to enter all variables simultaneously and those that failed to contribute to the regression model were deleted. Given the small sample size, the number of predictors entered into each equation was kept to a minimum. Keeping the three demographic and disease status variables and the score for the Time 1 dependent variable in the model,

Table 9

Paired T-tests for Differences between Time 1 and Time 2 for Study Constructs

Study Construct	Time 1	SD	Time 2	SD	t-value	Significance
Self-Efficacy Function	611 18	174.32	760 29	146.88	-6 71	.001
Self-Efficacy Pain/Other	530 44	212 73	901 18	165 62	-9.77	.001
Number of Supports	2 69	1 82	3 31	1 93	-6 11	001
Physical Well-Being	30 35	5.48	39 94	9 05	-6 97	.001
Mental Well-Being	44 97	10 81	53 40	9 77	-4 56	001

predictors that added the least variance to the model were sequentially eliminated from the model. The results of the regression analyses are presented in Tables 10, 11, 12, and 13

Perceived Self-Efficacy

Predicting Functional Self-Efficacy

The third research question asked which variables (social support at Time 1, well-being at Time 1, effects of relevant demographic and disease status variables, and perceived self-efficacy at Time 1) predicted perceived self-efficacy at Time 2. This question was answered in two parts: (1) predicting functional self-efficacy at Time 2; and (2) predicting pain/other self-efficacy at Time 2. With functional perceived self-efficacy as the dependent variable, the regression analysis showed that the full model accounted for 65% of variance ($R^2 = .646$, $p < .05$) and with the elimination of pain/other self-efficacy at Time 1, number of social supports at Time 1, physical well-being at Time 1, and mental well-being the variance is reduced to 55% ($R^2 = .545$, $p < .05$) (see Table 10). To determine the proportion of variance due to the predictors that were significant, a backwards regression analysis was re-analyzed. Subtracting the R-squared of the significant predictor from the R-squared of the full model gave this percentage. Findings show that length of hospitalization accounted for 7% and functional self-efficacy at Time 1 accounted for 18% of the variance in predicting functional self-efficacy at Time 2. This suggests that the longer the length of hospitalization, the more confident one is for their functional self-efficacy. Perhaps, this is done through instrumental and emotional support provided by health care professionals. Those with high functional self-efficacy at Time 1 maintained or improved their level of functional self-efficacy at Time 2.

Table 10

Regression Coefficient Analysis for Predicting Functional Self-Efficacy at Time 2 (n = 34)

	Full Model			Reduced Model		
Predictor	B	β	t	B	β	t
Pre-operative level of mobility	-3.21	-.03	-.16	-4.71	-.04	-.22
Pre-operative tolerance to exercise	-5.61	-.02	-.15	1.78	.01	.05
Length of hospitalization (days)	50.55	.29	2.15*	49.42	.28	2.12*
Self-Efficacy (function - T1)	.64	.76	3.54*	.53	.63	3.54*
Self-Efficacy (pain/other - T1)	-.25	-.37	-1.73			
Social Support (No of supports - T1)	16.31	.20	1.59			
Well-Being (physical - T1)	6.08	.23	1.36			
Well-Being (mental - T1)	.28	.02	.13			

Note *$p < .05$
R^2 for full model = 0.65
R^2 for reduced model = 0.55

Predicting Pain/Other Self-Efficacy

To answer the second part of the third research question regarding which variables (social support at Time 1, well-being at Time 1, effects of relevant demographic and disease status variables, and perceived pain/other self-efficacy at Time 1) predicted perceived pain/other perceived self-efficacy at Time 2. It was found that with all predictors included in the full model for the prediction of pain/other self-efficacy at Time 2, the total variance was 64% (R^2 = .641, $p < .05$) and dropped to 61% (R^2 = .606, $p < .05$) through the elimination of physical and mental well-being at Time 2 (see Table 11). Functional self-efficacy at Time 1 contributed 9%, length of hospitalization contributed 12%, and number of supports at Time 1 contributed 9% in predicting pain/other self-efficacy at Time 2.

When functional self-efficacy at Time 1 and number of supports at Time 1 are also eliminated from the reduced model, leaving pre-operative level of mobility, pre-operative tolerance to exercise, length of hospitalization, and pain/other self-efficacy at Time 1, the R^2 drops to 39% ($p < .05$), with functional self-efficacy at Time 1 and number of supports at Time 1 accounting for 22% ($p < .05$) of the variance in predicting pain/other self-efficacy at Time 2. This suggests that those who have high functional self-efficacy at Time 1 and high levels of perceived number of social supports will have greater confidence for pain/other self-efficacy at Time 2 than those who initially started out with low functional self-efficacy. The findings also indicate that those who have longer hospitalizations will feel more confident about managing their pain/other symptoms.

Social Support

The fourth research question which queried which variables predicted social support, cannot be answered because a true measure of the social support construct would

Table 11

Regression Coefficient Analysis for Predicting Pain/Other Self-Efficacy at Time 2 (n = 34)

	Full Model			Reduced Model		
Predictor	B	β	t	B	β	t
Pre-operative level of mobility	-4.51	-.03	-.19	-.42	-.03	-.02
Pre-operative tolerance to exercise	25.66	.09	.59	39.23	.14	.92
Length of hospitalization (days)	75.84	.38	2.85*	85.03	.43	3.27*
Self-Efficacy (function - T1)	.51	.54	2.49*	.57	.60	2.8*
Self-Efficacy (pain/other - T1)	-.29	-.37	-1.76	-.24	-.31	-1.68
Social Support (No. of supports - T1)	29.84	.33	2.56*	27.83	.31	2.42*
Well-Being (physical - T1)	7.88	.26	1.55			
Well-Being (mental - T1)	.90	.06	.36			

Note. *$p < .05$
R^2 for full model = .64
R^2 for reduced model = .61

not be reflected, given that satisfaction with supports, was eliminated from analyses It did not seem appropriate to predict just the perception of number supports that might be available at Time 2.

Well-Being

For the fifth research question, which concerns the variables that predict well-being, separate multiple regressions were conducted for physical and mental well-being at Time 2.

Predicting Physical Well-Being

With the elimination of functional self-efficacy at Time 1, number of supports at Time 1, and mental well-being at Time 1, the R^2 for the full model decreased to 37 % ($p < .10$). The equation shows that physical well-being at Time 2 is predicted by the demographic and disease status variables, pain/other self-efficacy at Time 1, and physical well-being at Time 1 (see Table 12). This shows that as those with high confidence to manage their pain/other symptoms at Time 1 most likely felt physically well after surgery

Predicting Mental Well-Being

In the multiple regression to predict mental well-being at Time 2, the R^2 decreased from .620 in the full model to .400 ($p < .05$) in the reduced model, with the elimination of functional self-efficacy at Time 1, number of supports at Time 1, and physical well-being at Time 1. This indicates that 40 % ($p < .05$) of the variance in mental well-being at Time 2 is explained by the demographic and disease status variables, pain/other self-efficacy at Time 1 and by mental well-being at Time 1 (see Table 13).

What was suspicious, though, was that pain/other self-efficacy at Time 1 produced significant negative value ($B = -.03$, $p < .05$), despite a positive significant, zero order

Table 12

Regression Coefficient Analysis for Predicting Physical Well-Being at Time 2 (n = 34)

	Full Model			Reduced Model		
Predictor	B	β	t	B	β	t
Pre-operative level of mobility	.01	.001	.003	.18	.02	.12
Pre-operative tolerance to exercise	-2.34	-.16	-.75	-2.39	-.16	-.84
Length of hospitalization (days)	2.75	.25	1.44	2.65	.24	1.52
Self-Efficacy (function - T1)	.01	.10	.36			
Self-Efficacy (pain/other - T1)	.01	.35	1.25†	.01	.33	1.76†
Social Support (No. of supports - T1)	.17	.03	.20			
Well-Being (physical - T1)	.41	.25	1.13	.50	.30	1.59
Well-Being (mental - T1)	-.09	-.10	-.48			

Note. †$p < .10$

R^2 for full model = .38

R^2 for reduced model = .37

Table 13

Regression Coefficient Analysis for Predicting Mental Well-Being at Time 2 (n = 34)

	Full Model			Reduced Model		
Predictor	B	β	t	B	β	t
Pre-operative level of mobility	-.48	-.06	-.34	.87	.11	.59
Pre-operative tolerance to exercise	1.17	.07	.45	3.87	.24	1.29
Length of hospitalization (days)	1.12	.10	.69	2.38	.20	1.34
Self-Efficacy (function - T1)	.02	.32	1.43			
Self-Efficacy (pain/other - T1)	-.04	-.96	-4.38*	-.03	-.56	-2.70*
Social Support (No. of supports - T1)	1.14	.21	1.6			
Well-Being (physical - T1)	.87	.49	2.82*			
Well-Being (mental - T1)	.72	.80	4.74*	.58	.64	3.52*

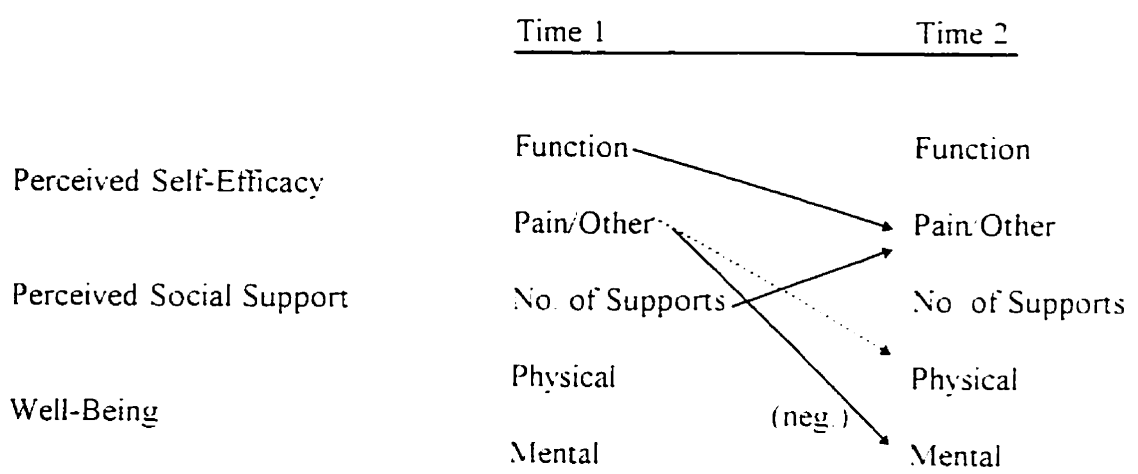
Note *p < .05
R^2 for full model = .62
R^2 for reduced model = .40

What was suspicious, though, was that pain/other self-efficacy at Time 1 produced a significant negative value ($B = -.03$, $p < .05$), despite a positive significant, zero order correlation, between pain/other self-efficacy and mental well-being at Time 1 ($r = .584$, $p < .01$). This negative value indicates that high levels of pain/other perceived self-efficacy predicted a decrease in mental health at Time 2 after controlling for the other variables in the equation. This contrasts with studies that have shown that arthritic patients who are experiencing chronic pain tend to have low levels of mental well-being (e.g. depression and anxiety) (Doeglas et al., 1994; Goodenow et al., 1990). A possible explanation for this negative relationship is perhaps this is a statistical artifact with no real result because perceived pain/other self-efficacy at Time 1 accounted for the meaningful variance in predicting mental well-being at Time 2 and what is left over is error.

The strength of interrelationships between perceived self-efficacy and well-being suggest that pain/other perceived self-efficacy was a good predictor for physical well-being. Number of social supports was found to predict pain/other self-efficacy at Time 2 but because number of social supports was not a true measure of the social support construct in this study, its role as a predictor should be taken with caution.

To summarize the regression analyses, functional self-efficacy at Time 1 was a significant predictor for pain/other self-efficacy at Time 2. Pain/other self-efficacy at Time 1 was a significant predictor for physical well-being and significant negative predictor for mental well-being at Time 2. Number of supports at Time 1 was a significant predictor for pain/other self-efficacy at Time 2 (see Figure 12).

Figure 12 Summary of Regression Analyses



—— $p < .05$

····· $p < .10$

CHAPTER V

Discussion

This study investigated the relationships among perceived self-efficacy, perceived social support and well-being during the immediate post-operative stage in patients undergoing hip surgery. While t-tests results showed significant increases at Time 2 for self-efficacy, number of social supports, and well-being, multiple regression analyses did not reveal strong interrelationships among the variables as was anticipated. However, some evidence was found to support moderate and significant relationships as described in the following discussion.

Perceived Self-Efficacy

Overall, a positive linear relationship was found between functional self-efficacy at Time 1 and pain/other self-efficacy at Time 2. That is, participants who were more confident about controlling their pain and other factors for their disease, were more confident prospectively about their functional capacity. Studies reviewed (Barlow et al., 1997; O'Leary et al., 1988; Taal, Johannes, Rasker, Erwin, Seydel, Weigman, 1993), suggested that functional, pain, and other self-efficacy improves after a teaching intervention is given. Some argue that the timing of testing is critical. This study compared self-efficacy scores at a six-week interval and this time frame appears to be acceptable, since Gortner and Jenkins (1990) found significant results at eight weeks post-operatively in a group of cardiac patients. However, they do go on to say that self-efficacy in the recovering surgical group needs to be measured early in the recovery trajectory, as efficacy expectations are quite dynamic during this period (Gortner & Jenkins, 1990).

Pain/other self-efficacy at Time 2 was significantly predicted ($p < .05$) by functional self-efficacy at Time 1. The findings indicate that having a high functional self-efficacy predicts self-confidence in controlling pain/other factors. Similarly, Laborde and Powers (1985) concluded that individuals who had a high functional self-efficacy also reported high levels of well-being.

Perceived Social Support

Satisfaction with supports was omitted from the study because of no variance therefore, number of supports was used for analyses. Number of supports and functional self-efficacy at Time 1 accounted for 61% ($p < .05$) of the variance in predicting pain/other perceived self-efficacy at Time 2 when other variables were held constant in the multiple regression analysis. In this prediction, number of supports accounted for the least amount of variance, suggesting that for this sample, number of supports is limited in predicting one's confidence about pain control. In the correlation matrix, number of supports was significantly and negatively related to age (Time 1: $r = -0.506$, $p < .01$, Time 2: $r = -0.431$, $p < .05$), indicating that as age increased, supports decreased. This raises the question as to whether lack of social supports in the elderly will negatively affect pain/other self-efficacy. Social support was not correlated significantly with Time 1 or Time 2, and no other associations were found for this construct.

Although this study failed to demonstrate strong findings for social support, there is some literature support in the surgical context. Krause (1987) examined whether social support buffers the impact of life stress by bolstering perceived self-efficacy in older adults. The results indicated that there is a threshold for the effects of social support. Beyond a certain point, increased assistance from other serves to erode perceived self-

efficacy. Cummings, Kelsey, Nevitt, and O'Dowd (1985) reported a positive association between the number of members in older hip fracture patients' social network and higher recovery levels as measured by their ability to function with activities of daily living.

In contrast, other studies have shown that social support has not been directly associated with pain outcomes. Effects between number of supports and satisfaction with supports in relation to pain are inconsistent (Cohen, 1988). Goodenow et al. (1990) reported that in chronically ill populations, the presence of friends and family is not an important aspect of social support. Some social contacts are clearly necessary for support to work, but the number of relationships or frequency of contacts makes little difference. A number of reasons for the inconsistencies have been offered. First, there is a concern about the lack of conceptual specificity and deficits in social support measurements (Schwarzer & Leppin, 1991). Duncan and McAuley (1993) implied that the type of social support needs to be tailored to the individual and the circumstances surrounding him/her, therefore making it domain specific. There is also a view that social support has a negative side to social interaction. The receipt of social support, especially from kin, may have detrimental consequences for the well-being of older adults (Wallston et al., 1983).

In spite of the mixed results, perceived quality of support is thought to be a buffer against social and psychological dysfunction in the presence of physical distress, but assessing quality of social support is difficult. Concern is also raised about the type of support (emotional or instrumental) and the lack of instruments to measure number and satisfaction of supports (Sarason, Shearin, Piercs, & Sarason, 1987; Wallston et al., 1983). In short, while there is preliminary evidence on the independence of perceived social

support as well as the relationship of perceived self-efficacy and patient well-being in other populations, it is difficult to measure the construct.

In the current study, the presence of the investigator during the completion of the questionnaire, the small sample size, lack of specificity of the construct of social support, and limitations associated with general satisfaction scales for social support may account for such results (Ganster, Fusiliers, & Mayes, 1986; Harrison & Shaffer, 1994). Findings of an upward bias of ratings in the satisfaction with the number of supports subscale was found at Time 1 and Time 2. It is likely that a larger sample would have provided a greater range of responses. Qualitative data might also help to clarify the meanings of these findings. On the other hand, high satisfaction ratings may be valid since social support may not be reduced in this study situation, considering that THR surgery is elective, all patients receive pre-operative teaching, assessment of needs, and rehabilitation over the operative and post-operative phase. In many cases, families may be engaged to provide extra support for this time.

Well-Being

Mental well-being at Time 1 and pain/other perceived self-efficacy at Time 1 (negative relationship) were significant predictors for the outcome variable of mental well-being at Time 2 when demographic and disease variable were held constant. One would expect a positive linear relationship between perceived pain/other self-efficacy and mental well-being, but this finding suggests that as pain/other self-efficacy became higher, perhaps mental well-being decreased. Since this finding could be a result of a statistical artifact, it is not warranted for health care providers to predict positive outcomes from those with low scores pre-operatively. In contrast, Hawley (1995) found that psycho-educational

interventions tend to improve pain/other self-efficacy scores resulting in a decrease in depressive symptoms and anxiety and (Bastone & Kerns, 1995) found a strong sense of efficacy to manage pain, which may predict use of pain medication during recovery from coronary artery surgery.

Pain/other self-efficacy was a significant variable ($p < .10$) in predicting physical well-being after pre-operative level of mobility, pre-operative tolerance to exercise, length of hospitalization, and physical well-being at Time 1 were controlled for and included in the model. Altmaier et al. (1993) found that perceived efficacy to override pain not only reduced intensity of pain in patients suffering from degenerative disc disease, but also increased physical functioning as measured by trunk strength, range of motion, and flexion extension movements in these patients.

As with the social support construct, however, difficulties with defining and measuring well-being affect the quality of research findings. While there are numerous instruments to measure well-being or what the investigator may call it (e.g. quality of life), most are too general and unable to elicit a valid and reliable measure of the construct (Simon et al., 1998). As illustrated by Schofield and Mishra (1998), the short version of the SF-36 was able to discriminate reliably between physical and mental health, the long version was a more precise measurement. That is they are not domain specific nor they do not capture the essence of the situation. Also, it is difficult to choose the most appropriate tool since it is important that the questions asked do not overlap with other questions on any other instruments used in the study.

Demographic and Disease Status Variables

While the demographic and disease status variables of pre-operative tolerance to exercise, length of hospitalization, and pre-operative level of mobility accounted for a substantial portion of the correlations among the study constructs, only one study examined pre-operative level of mobility in women on post-operative outcomes (Roberto & Bartmann, 1993). Mobility was measured in terms of physical functioning using the Activities of Daily Living rating scale. Prior physical functioning was the strongest predictor of post-operative recovery. They do say that additional contributions of psychosocial variables such as a strong sense of personal control and a social support network should not be overlooked.

Demographic variables such as educational level, religion, age, and gender have been used in previous research, but there seems to be a weakness with previous studies as few have examined the effects of variables such as pre-operative tolerance to exercise and length of hospitalization on perceived self-efficacy, perceived social support, and well-being. This is a problem if, as this study indicates, such variables are important predictors of outcomes under study. One study (Ries et al., 1995) did show that self-efficacy was improved as a result of a pre-operative exercise program. Further studies that include these factors as independent variables are necessary. For the purposes of this study, it was felt that because pre-operative tolerance to exercise, length of hospitalization, and pre-operative level of mobility were strongly correlated, they should be explored further in the multiple regression analyses.

The regression analyses revealed length of hospitalization to be a significant predictor for perceived functional self-efficacy and perceived pain/other self-efficacy. This

may have some clinical significance, suggesting that those who stay for longer periods of time in the hospital tend to have a strong sense of confidence for their OA function, pain, and other symptoms. With shortened hospital stays, the self-efficacy of OA patients may be jeopardized and so health care workers need to find methods to enhance perceived self-efficacy in the OA population undergoing THR surgery or to involve support systems actively so they can bolster a patient's perceived self-efficacy.

Overall, while this study yielded useful information about some interrelationships among factors that affect hip surgery patients, it did not provide strong evidence for interrelationships among the study variables. This may be due, partly, to the scope of this study, including small sample size, which limits its generalizeability. Instrumentation may be a major impediment to the study findings, given the literature on difficulties encountered with the concepts of social support and well-being.

This study can, however, serve as a starting point for future research in this area. Directions for research include longitudinal studies to determine changes in the study variables over time, use of qualitative methods to enhance understanding of patients' perceptions about social support and well-being, using more objective means to measure the construct (e.g. measuring distance of walking as opposed to stating that I can walk a certain distance) and other health status variables, such as severity of illness tools which could strengthen the reliability and validity of findings. The development and testing of tools that are domain specific to measure social support and well-being in this context could also serve to be beneficial. In replicating this study, consideration should be given to adding a qualitative component to this study in order to gain better insight into reasons for particular responses.

Even though some inconsistencies have been found in this study when compared to the literature, for example, between physical and mental well-being (Cassileth et al., 1984, Counte et al., 1983), zero order correlations show some linkages with empirical literature For example, pre-operative tolerance to exercise was positively correlated with perceived with physical and mental well-being at both times. This is consistent with studies that have shown positive relationships between exercise and well-being (Taylor et al., 1985; Vidmar & Rubinson, 1994, Zimmer et al , 1995).

Similarly, pre-operative level of mobility was associated with perceived functional and pain/other self-efficacy pre-operatively and post-operatively and with physical well-being post-operatively as was also demonstrated in Roberto and Bartmann's (1993) study Length of hospitalization was found to be associated with functional and pain/other self-efficacy at both times, which is similar to findings of Kurlowicz (1998). Assuming that there may be considerable variation in functioning and well-being of OA patients, there is reason to believe that further research of pre-operative tolerance to exercise, pre-operative level of mobility, and length of hospitalization is necessary (Stewart, Greenfield, Hays, Wells, Rogers, Berry, McGlynn, & Ware, 1989) to assess their contribution to self-efficacy and well-being.

In general, more reliable and valid information is needed to provide direction to care givers, particularly nurses who are involved in promoting coping skills of OA patients undergoing THR surgery. As an example, additional research is warranted to extend work initiated by Holman and Lorig (1992) who examined the effect of self-management interventions, such as pain control on self-efficacy. Variables such as those addressed in

this study could add to pre-existing knowledge which can result in the development of comprehensive models to guide research and practice

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Appendix A

ARTHRITIS SELF-EFFICACY SCALE (ASES)

Self-efficacy pain subscale
In the following questions, we'd like to know how your arthritis pain affects you. For each of the following questions, please circle the number which corresponds to your certainty that you can <u>now</u> perform the following tasks.

1. How certain are you that you can decrease your pain quite a bit?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

2. How certain are you that you can continue most of your daily activities?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

3. How certain are you that you can keep arthritis pain from interfering with your sleep?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

4. How certain are you that you can make a small to moderate reduction in your arthritis pain by using methods other than taking extra medication?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

5. How certain are you that you can make a large reduction in your arthritis pain by using methods other than taking medication?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

Self-efficacy function subscale

We would like to know how confident you are in performing certain daily activities. For each of the following questions, please circle the number which corresponds to your certainty that you can perform the tasks as of **now**, **without** assistive devices or help from another person. Please consider what you **routinely** can do, not what would require a single extraordinary effort.

AS OF NOW, HOW CERTAIN ARE YOU THAT YOU CAN:

6. Walk 100 feet on flat ground in 20 seconds?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

7. Walk 10 steps downstairs in 7 seconds?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

8. Get out of an armless chair quickly, without using your hands for support?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

9. Button and unbutton 3 medium-size buttons in a row in 12 seconds?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

10. Cut 2 bite size pieces of meat with a knife and fork in 8 seconds?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

11. Turn an outdoor faucet all the way on and all the way off?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

12. Scratch your upper back with both your right and left hands?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

13. Get in and out of the passenger side of a car without assistance from another person and without physical aids?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

14. Put on a long sleeve front opening shirt or blouse (without buttoning) in 8 seconds?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

Self-efficacy and other symptoms subscale

In the following questions, we'd like to know how you feel about your ability to control your arthritis. For each of the following questions, please circle the number which corresponds to the certainty that you can **now** perform the following activities or tasks

15. How certain are you that you can control your fatigue?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

16. How certain are you that you can regulate your activity so as to be active without aggravating your arthritis?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

17. How certain are you that you can do something to help yourself feel better if you are feeling blue?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

18. As compared with other people with arthritis like yours, how certain are you that you can manage arthritis pain during your daily activities?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

19. How certain are you that you can manage your arthritis symptoms so that you can do the things you enjoy doing?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

20. How certain are you that you can deal with the frustrations of arthritis?

I	I	I	I	I	I	I	I	I	I
10	20	30	40	50	60	70	80	90	100
Very Uncertain				Moderately Uncertain					Very Certain

Appendix B

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SOCIAL SUPPORT QUESTIONNAIRE (SSQ)

The following questions asks about people in your environment who provide you with help or support. Each question has two parts. For the first part, list all the people you know, excluding yourself, whom you can count on for help or support in the manner described. Give the person's initials and their relationship to you. For the second part, circle how satisfied you are with the overall support you have. If you have no support for a question, check the words "No one," but still rate your level of satisfaction. Do not list more than nine persons per question.

EXAMPLE:

Who do you know whom you can trust with information that could get you in trouble?

No one	1) T.N. (brother)	4) T.N. (father)	7)
	2) L.M. (friend)	5) L.M. (employer)	8)
	3) R.S. (friend)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

QUESTIONS:

1. Whom can you really count on to listen to you when you need to talk?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

2. Whom can you really count on to help if a person whom you thought was a good friend insulted you and told you that he/she didn't want to see you again?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

3. Whose lives do you feel that you are an important part of?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

4. Whom do you feel would help you if you were married and just separated from your spouse?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

5. Whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

6. Whom could you talk with frankly, without having to watch what you say?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

7. Who helps you feel that you truly have something positive to contribute to others?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

8. Whom can you really count on to distract you from your worries when you feel under stress?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

9. Whom can you really count on to be dependable when you need help?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

10. Whom could you really count on to help you out if you had just been fired from your job or expelled from school?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

11. With whom can you totally be yourself?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

12. Whom do you feel really appreciates you as a person?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

13. Whom can you really count on to give you useful suggestions that help you avoid making mistakes?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

14. Whom can you count on to listen openly and uncritically to your innermost feelings?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

15. Who will comfort you when you need it by holding you in their arms?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

16 Whom do you feel would help if a good friend of yours had been in a car accident and was hospitalized in serious condition?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

17. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

18. Whom do you feel would help if a family member very close to you died?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

19 Who accepts you totally, including both your worst and your best points?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

20. Whom can you really count on to care about you, regardless of what is happening to you?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

21. Whom can you really count on to listen to you when you are very angry at someone else?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

22. Whom can you really count on to tell you, in a thoughtful manner, when you need to improve in some way?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

23. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

24. Whom do you feel truly loves you deeply?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

25. Whom can you count on to console you when you are very upset?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

26. Whom can you really count on to support you in major decisions you make?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

27 Whom can you really count on to help you feel better when you are irritable, ready to get angry at almost anything?

No one	1)	4)	7)
	2)	5)	8)
	3)	6)	9)

How satisfied?

6-very satisfied	5-fairly satisfied	4-a little satisfied	3-a little dissatisfied	2-fairly dissatisfied	1-very dissatisfied

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Appendix C

HEALTH STATUS PROFILE--SF-12

Instructions: This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. Answer every question by selecting the appropriate answer. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor
( )	( )	( )	( )	( )

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

		Yes, Limited A Lot	Yes, Limited A Little	No, Not Limited At All
2.	Moderate activities, such as moving a table, pushing a vacum cleaner, bowling, or playing golf	( )	( )	( )
3.	Climbing several flights of stairs	( )	( )	( )

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

		Yes	No
4.	Accomplished less than you would like	( )	( )
5.	Were limited in the kind of work or other activities	( )	( )

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

		Yes	No
6.	Accomplished less than you would like?	( )	( )
7.	Didn't do work or other activities as carefully as usual?	( )	( )

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

Not at all	A little bit	Moderately	Quite a bit	Extremely
( )	( )	( )	( )	( )

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

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
9	Have you felt calm and peaceful?	( )	( )	( )	( )	( )	( )
10.	Did you have a lot of energy?	( )	( )	( )	( )	( )	( )
11.	Have you felt down hearted and blue?	( )	( )	( )	( )	( )	( )

12. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives, etc.)?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
( )	( )	( )	( )	( )

Appendix D

REGRESSION WEIGHTS FOR PHYSICAL AND MENTAL OUTCOMES AT TIME 1 AND TIME 2

Participant Number	Physical (Time 1)	Mental (Time 1)	Physical (Time 2)	Mental (Time 2)
01	29.457	30.078	35.197	30.078
02	29.313	38.309	35.469	52.618
03	28.018	37.297	36.217	50.925
04	34.192	41.454	45.477	57.898
05	17.165	45.258	23.998	19.064
06	32.686	34.654	24.890	49.611
07	29.214	40.869	39.951	58.671
08	24.519	66.688	37.215	60.103
09	35.969	35.727	38.940	53.215
10	20.867	61.445	34.511	60.693
11	30.307	40.152	32.471	59.901
12	17.441	49.710	30.475	57.502
13	31.860	51.875	37.215	60.103
14	25.802	62.741	33.378	61.921
15	32.799	56.651	37.215	60.103
16	33.186	50.453	53.540	53.693
17	37.279	47.708	37.247	59.261
18	41.425	55.951	34.511	60.693
19	33.174	49.631	53.540	53.693
20	32.675	41.830	37.196	57.222
21	31.987	60.811	27.805	23.053
22	28.858	33.026	33.193	60.632
23	29.750	29.517	47.349	47.320
24	31.830	43.415	53.128	55.652
25	24.968	40.761	33.248	57.126
26	30.486	39.829	36.494	59.371
27	29.208	30.581	34.671	51.743
28	28.962	56.510	47.611	57.322
29	40.693	57.641	53.128	55.652
30	35.897	60.042	51.810	55.591
31	37.205	51.118	46.704	55.302
32	26.951	31.289	30.571	54.742
33	30.242	53.333	53.128	55.652
34	27.615	35.705	37.410	40.196

Appendix E

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d m yr **INCLUSION CRITERIA AND DEMOGRAPHIC INFORMATION**
(Extracted from participant's charts)

Associations Among Perceived Self-Efficacy, Perceived Social Support, and Well-Being in Osteoarthritis Patients Undergoing Total Hip Replacement Surgery

Queen's University, School of Nursing

Name:_____ Participant Number: _____

Tel #:_____ Age:_____ Male ( ) = 1 Female ( ) = 2

Religion:_____ Diagnosis: _____

Date of Surgery: _____

How long have you been diagnosed with arthritis?

Less than 5 years	( ) = 4
Six to 10 years	( ) = 3
Eleven to 15 years	( ) = 2
More than 16 years	( ) = 1

Oriented to Person ( ) Place ( ) Time ( )

Single	( ) = 1
Married	( ) = 2
Divorced	( ) = 3
Separated	( ) = 4
Widowed	( ) = 5

Number of Years of Completed Education:

0 to 5 years	( ) = 1
6 to 10 years	( ) = 2
11 to 15 years	( ) = 3
15 to 20 years	( ) = 4
21 or more years	( ) = 5

Current Level of Mobility

Independent	( ) = 5
Crutches	( ) = 4
Cane	( ) = 3
Walker	( ) = 2

To what extent can you tolerate exercise now?

Small amounts	( ) = 1
Moderate amounts	( ) = 2
Large amounts	( ) = 3

Work Status:

Employed	( ) = 1
Unemployed	( ) = 2
Retired	( ) = 3

Current Living Arrangements:

House	( ) = 1
Apartment	( ) = 2
Residence	( ) = 3

Plans after Discharge:

Return Home	( ) = 1
Proceed to Convalescence	( ) = 2

If you are returning home, do you have any assistance? Yes ( ) = 1 No ( ) = 2

If yes, who is at home to help you?

Brother	( ) = 1
Daughter	( ) = 2
Friend	( ) = 3
Home Care Services	( ) = 4
Other Relative	( ) = 5
Sister	( ) = 6
Son	( ) = 7
Spouse/Partner	( ) = 8

Current Health Conditions:

Cancer	( ) = 1
Diabetes	( ) = 2
Gastro-intestinal Impairments	( ) = 3
Genital-Urinary Problems	( ) = 4
Hearing Deficits	( ) = 5
Heart disease	( ) = 6
High blood pressure	( ) = 7
Liver Disease	( ) = 8
Musculoskeletal Impairments	( ) = 9
Neurological Impairments	( ) = 10
Stroke	( ) = 11
Visual Deficits	( ) = 12

Appendix F

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POST-OPERATIVE CHART INFORMATION

(Extracted from participant's chart)

Associations Among Perceived Self-Efficacy, Perceived Social Support, and Well-Being in Osteoarthritis Patients Undergoing Total Hip Replacement Surgery

Queen's University, School of Nursing

Name:_____ Participant Number: _____

Diagnosis:_____ Date of Surgery: _____

Length of Hospitalization:

1-5 days	( ) = 5
6-10 days	( ) = 4
11-15 days	( ) = 3
16-20 days	( ) = 2
21 or more days	( ) = 1

Any Post-operative Complications?

Cardiac Symptoms	( ) = 1
Constipation	( ) = 2
Decubitus Ulcer	( ) = 3
Deep Vein Thrombosis	( ) = 4
Diarrhea	( ) = 5
Dislocation of Affected Hip	( ) = 6
Disorientation	Person ( ) Place ( ) Time ( ) = 7
Falls	( ) = 8
Fecal Incontinence	( ) = 9
Fever >5 days	( ) = 10
Low Hemoglobin	( ) = 11
Nausea &/or Vomiting	( ) = 12
Stroke	( ) = 13
Urinary Incontinence	( ) = 14
Urinary retention	( ) = 15
Wound Infection	( ) = 16

Who was available to help you both physically and emotionally after your surgery?

Brother	( )	= 1
Daughter	( )	= 2
Friend	( )	= 3
Home Care Services	( )	= 4
Other Relative	( )	= 5
Sister	( )	= 6
Son	( )	= 7
Spouse/Partner	( )	= 8

Consults during Hospitalization.

Anaesthesia	( )	= 1
Cardiology	( )	= 2
CVT	( )	= 3
Dental Services	( )	= 4
Dermatology	( )	= 5
Dietician	( )	= 6
Endocrinology	( )	= 7
ENT	( )	= 8
Gastro-intestinal	( )	= 9
General Surgery	( )	= 10
Gerontology	( )	= 11
Gynaecology	( )	= 12
Haematology/Oncology	( )	= 13
Home Care Liaison	( )	= 14
Internal Medicine	( )	= 15
Nephrology	( )	= 16
Neurology	( )	= 17
Neuro-Surgery	( )	= 18
Occupational Therapy	( )	= 19
Opthamology	( )	= 20
Pastoral Services	( )	= 21
Plastics	( )	= 22
Physiotherapy	( )	= 23
Psychiatry	( )	= 24
Rheumatology	( )	= 25
Social Services	( )	= 26
Urology	( )	= 27

Means of Transportation during Rehabilitation Phase:

Bus	( ) = 1
Car (self)	( ) = 2
Subway	( ) = 3
Taxi	( ) = 4
Walk	( ) = 5

Level of Rehabilitation:

Death in hospital	( ) = 1
Rehabilitation centre	( ) = 2
Return home with health services	( ) = 3
Return home without services	( ) = 4

Appendix G

GENERAL INFORMATION FOR POTENTIAL STUDY PARTICIPANTS

Associations Among Perceived Self-Efficacy, Perceived Social Support, and Well-Being in Osteoarthritis Patients Undergoing Total Hip Replacement Surgery

Queen's University, School of Nursing
The Montreal General Hospital

The Montreal General Hospital is currently involved in a study with patients who are living with osteoarthritis and who be will having hip replacement surgery in the near future. The study wishes to determine how confident patients are before and after their surgery, what social support they may receive during this time and how this affects their well-being. If you meet the study requirements, you may be approached by the clinic nurse or the investigator to participate in this study at the time of your pre-admission teaching session. However, should you decide not to participate, your care will not be affected in any way.

If you do decide to participate, you will be asked to complete three questionnaires at the time of your pre-admission teaching session (interview #1) and again at your follow-up appointment after your surgery (interview #2). Each interview will take approximately one hour of your time. Should you have insufficient time to complete the questionnaires at your follow-up appointment, the investigator is willing to come to your home or rehabilitation centre to help you complete the questionnaires.

We request that all patients who wish to be considered for inclusion in the study come to the pre-admission clinic one-half hour before the scheduled appointment time to allow us to select patients for the study. At the time of meeting with you, we will be able to determine if your condition meets all the entry criteria of the study.

Thank you for your interest in this study and for arranging to be at the pre-admission clinic one-half hour in advance of your scheduled appointment. If you have any questions or concerns regarding the study or your role in it, please feel free to contact the investigator, Smita Gandhi at any time at 514-684-3639 or the Hospital Co-Investigator, Monique Giguère at 514-937-6011 ext.3033. I look forward to your interest and co-operation in this study.

Sincerely,

Smita Gandhi RN, B.Sc.N.,
M.Sc. Student

Appendix H

STUDY INFORMATION SHEET AND CONSENT FORM

Associations Among Perceived Self-Efficacy, Perceived Social Support, and Well-Being in Osteoarthritis Patients Undergoing Total Hip Replacement Surgery

Smita Gandhi RN., B Sc.N.
Queen's University, School of Nursing

Explanation of Study

You are invited to participate in a study to determine how confident patients are before and after their total hip replacement surgery, what social support they may receive during this time and how this affects their well-being. The results of this study may benefit osteoarthritic patients undergoing total hip replacement surgery in the future

As a study participant, you will fill out three questionnaires regarding your total hip replacement surgery - one on confidence, one on social support, and one on well-being. The questionnaires will be completed on the day of your pre-admission testing and the same three questionnaires will be completed when you return for your follow-up appointment at six weeks after your surgery. All three questionnaires will take approximately one hour to complete, but this can be done while you are waiting to be examined by the physician. If there is difficulty with the questions, the researcher will help you complete the questionnaires. In addition, some information will be collected from your medical records at The Montreal General Hospital. Information to be collected from your medical record may include previous medical history, when you started to experience symptoms of osteoarthritis, management of your osteoarthritis, current living arrangements, any support systems currently in place, and your overall general health. In addition, information regarding complications will be collected from the chart. Should you have insufficient time to complete the questionnaires at your follow-up appointment, the investigator is willing to come to your home or rehabilitation centre to help you complete the questionnaires. Although the purpose of the study is not to help you with any social problems, we wish to remind you that help is available if required.

Consent Statement

I understand the explanation given to me regarding this study and have had all my questions answered to my satisfaction. I give permission to the researcher to have access to my medical records to ensure completion of data. I am aware that this study involves no foreseeable risks or benefits to myself. I also understand that my participation in this study is voluntary and that I may refuse to answer any questions or withdraw from this study at any time at my request for any reason, and realize that my care will not be affected. I am aware that I can refuse to answer any specific question without affecting my participation in the study.

All information given by the study participant will be kept strictly confidential, but the Montreal General Hospital Research Ethics Committee may have access to the patient's research records to monitor compliance with Institutional regulations. The study data will be coded so they will not be linked to my name. All data will be locked in a secure cabinet. The information acquired by the researcher may be used for educational and research purposes. This includes publication, with no disclosure of my identity. I will receive a copy of this consent form for my information and the investigator will retain the yellow copy for her files. I understand what is expected of me, and by signing this consent form, I am indicating that I agree to participate in this study.

If, as a study participant, I understand if I have any questions or concerns about the research study or the rights as a study participant, I should feel free to discuss them at any time with the Investigator, Smita Gandhi (514-684-3639), with the Thesis Supervisor, Ena Howse (613-545-2668), the Dean/Director of the School of Nursing (613-545-2669), or the hospital patient representative, Mr. Glen Fash (514-937-6011 ext.2409). In the case of an emergency, I should contact the Hospital Co-Investigator, Monique Giguère at The Montreal General Hospital (514-937-6011 ext.3033).

_____

Name of Participant (please print)

_____

Signature of Participant Date

Statement of Investigator

I have carefully explained to the participants the nature of the above research study. I certify that, to the best of my knowledge, the participant understands clearly the nature and his/her involvement in this study.

_____

Name of Investigator (please print)

_____

Signature of Investigator Date

_____

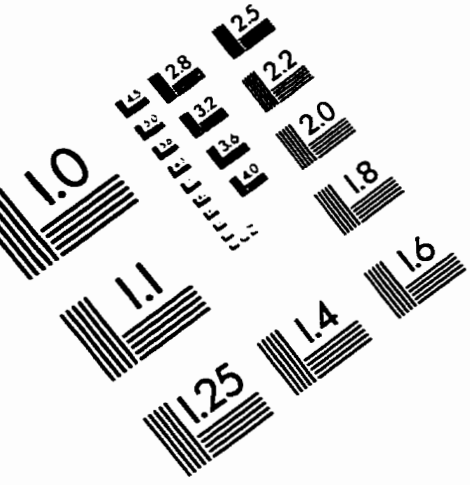
Name of Witness (please print)

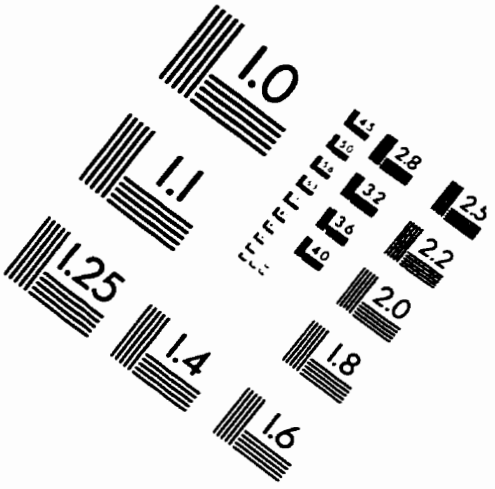
_____

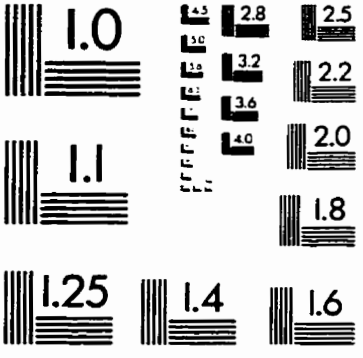
Signature of Witness Date

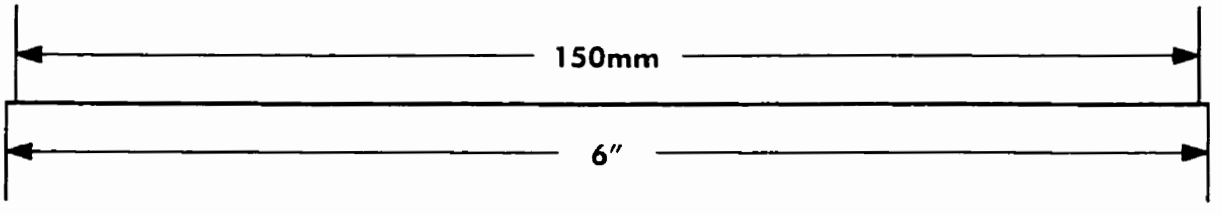
Vita

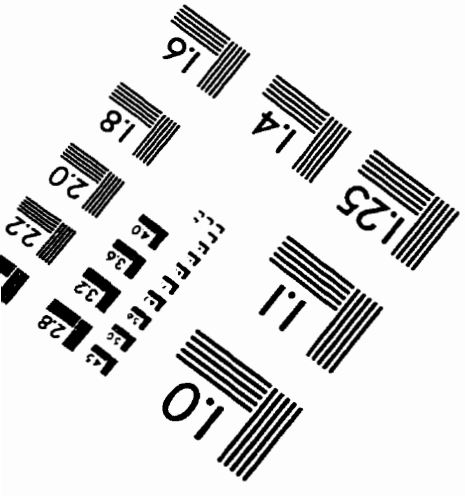
IMAGE EVALUATION
TEST TARGET (QA–3)

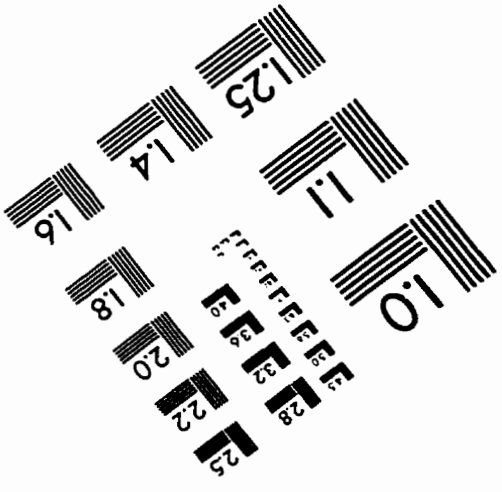












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