# A SYNTHESIS OF LITERATURE AND UTILIZATION OF A FUNCTIONAL STATUS ASSESSMENT TOOL FOR THE OLDER BREAST CANCER PATIENT

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# A SYNTHESIS OF LITERATURE AND UTILIZATION OF A FUNCTIONAL STATUS ASSESSMENT TOOL FOR THE OLDER BREAST CANCER PATIENT

BY

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# ABSTRACT

# A SYNTHESIS OF LITERATURE AND UTILIZATION OF A FUNCTIONAL STATUS ASSESSMENT TOOL FOR THE OLDER BREAST CANCER PATIENT

By

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Breast cancer is the second most common cause of cancer death in women in the United States. Breast cancer will affect one in nine women in their lifetimes. In the elderly, breast cancer carries a substantial mortality. Age is identified as a negative prognostic factor.

Breast cancer and its treatment can negatively effect a patient's functional status. Assisting these patients in the maintenance of their functional status is of great importance to the health care profession. Once an older patient's functional status becomes altered, she is less likely to return to her independent state after the conclusion of treatment. The purpose of this scholarly project is to complete a synthesis of literature and develop a functional status assessment tool for older breast cancer patients.

# DEDICATION

This scholarly project
is dedicated
in loving memory to my
Mother:
Nancy Griggers
"The Wind Beneath My Wings"

# ACKNOWLEDGMENTS

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# CHAPTER 1

# PROBLEM OVERVIEW

## Introduction

Breast cancer is the second most common cause of cancer death in women in the United States. The incidence of breast cancer diagnosis has been rising steadily at an annual rate of 1.2% since 1940 (Murphy, Lawrence & Lenhard, 1995). Breast cancer incidence and mortality increase with age (Morrow, 1994; Lickley, 1997), and will affect one in nine women in their lifetimes. The women whose lives are affected by breast cancer will live with this disease for varying periods of time. These women will have to adjust to the impact of breast cancer and to the consequences of its treatments (Schag et al., 1993).

### Conceptual Definitions

For the purpose of this project, breast cancer will be defined as a malignant, solid tumor found in a woman's breast (Murphy et al., 1995). In the research compiled for this scholarly project there is no definitive definition for breast cancer. Therefore, it is difficult to identify if the breast cancer is primary, metastatic, localized, etc.

Older woman will be defined as those aged 55 years and older. The chance of being diagnosed with breast cancer increases by 15% at the age of 55 (Murphy et al., 1995).

Functional status will be defined as the ability to perform activities and tasks within a social, cultural, and physical environment that are basic to the fulfillment of a person's roles as a worker, parent, spouse or partner, sibling, and friend to self and others (Baum & Edward, 1995).

In recent years, there have been many advances in the treatment of breast cancer. Despite these advances many breast cancer patients still do not receive the appropriate treatment. These advances have not been translated into better health outcomes for older women (Silliman, Balducci, Goodwin, Holmes, & Leventhal, 1993).

Patients who are receiving outpatient chemotherapy, radiation therapy, or both, experience negative physiological reactions to treatment. These reactions may include fatigue, nausea, vomiting, eye problems, shortness of breath, diarrhea, and an array of other symptoms (Mor, Masterson-Allen, Houts, & Siegel, 1992). As a result of these reactions, the breast cancer patient's functional status can be altered, which can adversely affect the patient's life.

Patients receiving cancer treatment are encouraged to relinquish daily responsibilities to family and friends if possible. Normal daily activities can present a challenge to a patient undergoing chemotherapy, radiation therapy, or both. Activities such as bathing may become impossible without assistance. The burden of care during recovery from outpatient cancer treatment can be substantial. (Mor, Masterson-Allen, Houts, & Siegel, 1992). An altered functional status can impair a breast cancer patient for the rest of her life.

Horton and Cox (1997) explain that in 1997 there was an estimated incidence of 180,000 cases of breast cancer and a mortality rate of 44,000. Morrow (1994) states,

> Since 1960, the life expectancy of American women of all races has increased from 73.1 years to 78.8 years, and the percentage of the population aged 65 and older has increased from 9.2% to 12.5%. The combination of an aging population, a common cancer, and an increase in incidence of the cancer with advancing age, means that clinicians will encounter increasing numbers of older women with breast carcinoma in future years (p. 145).

Breast cancer in the elderly carries a substantial mortality. Age is identified as a negative prognostic factor (Sillman et al., 1993). In many studies, it is indicated that the pattern of care for a woman with breast cancer is strongly influenced by her age. In addition to age, the areas that influence treatment efficacy and effectiveness are comorbidity, impaired functional status, lack of social support, and differences in host physiology (Silliman et al., 1993).

In a review by Bergman et al. (as cited in Morrow, 1994), of 2,268 breast cancer cases, women under the age of 75 received surgery 92% of the time, while only 81% of older women received this intervention. Also, use of breast conserving surgery decreased with increasing age. Goldberg and co-authors (Morrow, 1994) reviewed data from the Connecticut Tumor registry and Yale-New Haven Hospital to find that the survival rate for approximately 4,000 women over the age of 60 did not differ from that of women under 54 years of age. Therefore, it is recommended that breast cancer therapy should be determined by a woman's physiologic age and psychological needs rather than her chronological age.

Substantial variations in breast cancer diagnosis, treatment, and care exist. These variations become greater with the increasing age of the patient. The overall health of the older patient plays an important role in the decision-making process for optimal treatment of primary breast cancer. The issue of multiple or comorbid conditions in older women is of great significance to health care professionals. It has been found that the presence of three or more comorbid conditions increases the death rate by 28-fold in a 3-year time frame and was unrelated to the cancer. The greater the number of comorbid conditions an older woman has the greater the effect on her health and treatment outcomes (Lickley, 1997).

Given the current uncertainty about the relative efficacy of treatments, the health care professional can best serve the older patient with early stage breast cancer by involving her in decision making and in individualizing care on the basis of such factors as comorbidity, social support, functional status, and patient preferences for outcomes (Silliman et al., 1993).

As the elderly population and the probability of being diagnosed with breast cancer increases, the more research needs to be done in this area to expand the knowledge base.

## Purpose

The purpose of this scholarly project is to do a synthesis of the literature relative to functional status of the older breast cancer patient. It is also the intent of this project to identify the strengths, limitations, gaps, and generalizations in the literature related to the functional status and the functional status measures of older breast cancer patients during and after treatment.

## Objectives

This scholarly project is intended to synthesize knowledge and understanding on the effects of treatment on older breast cancer patients and their functional status, to identify strengths, limitations, and gaps in existing literature related to the functional status and functional status measures of older breast cancer patients, to identify what generalizations are made about breast cancer patients during research studies, and to identify functional measures that can be consistently utilized to assess the functional status of the older breast cancer patient. It is also the intention of this scholarly project to combine three existing tools to assess the functional status of the older breast cancer patient. This tool will be utilized by the advanced practice nurse in the primary care facility.

# CHAPTER 2

# CONCEPTUAL FRAMEWORK

King (1981) states the "Theory of goal attainment provides a theoretical base for nursing process as it demonstrates a way for nurses to interact purposefully with clients" (p. 176). King's theory is based on the overall assumption that nursing is individuals interacting with their environment leading to a state of health, which is an ability to function in social roles (Fawcett, 1995). The domain of nursing includes promotion of health, maintenance, and restoration of health, and care of the sick, injured, and dying (King, 1981). King states (1989a), "The focus of this theory is the interpersonal system because what nurses do with, and for, individuals is what makes the difference between nursing and any other profession."[The focus of this theory is on] holism—that is, the total human being interacting with another total human being in a specific nursing situation" (p. 154-155).

The theory of goal attainment is a theory of nursing that deals with phenomena called process and outcome. The process that is essential is mutual goal setting. The theory defines outcomes in the form of goals to be obtained. The goals identified then become criteria by which the effectiveness of nursing care can be measured (King, 1989a). This theory also identifies that decision making is a shared, collaborative process in which patient and nurse exchange information, identify goals, explore means to attain goals, and each individual moves forward to attain goals (King, 1989a).

As the life expectancy of women continues to rise, so does the incidence of being diagnosed with breast cancer. The diagnosis of breast cancer and its treatment regimens can alter a woman's ability to function. The application of King's Goal Attainment Theory can assist the advanced practice nurse and the breast cancer patient in the maintenance, restoration or improvement of the patient's functional status.

This theory utilizes the concepts of perception, communication, interaction, growth and development, role, self, space, stress, time, and transaction. The following concepts are defined as: (a) Interaction—process of communication and perception between person and environment and between person and person identified by verbal and nonverbal behaviors that are goal directed; (b) Perception—each individual's representation of reality; (c) Communication—a process of exchanging information between people either directly or indirectly; (d)

Transaction—purposeful interactions that lead to goal attainment; (e) Role—a way a person is expected to conduct their behavior when occupying a position in a social system; (f) Stress—a dynamic state whereby an individual interacts with the environment to maintain balance for growth, development, and performance, which involves an exchange of energy and information between the person and the environment for regulation and control of stressors; (g) Growth and Development—constant changes in an individual at the cellular, molecular, and behavioral levels of activities; (h) Self-a composite of feelings and thoughts which form a person's awareness of his/her individual existence and what he/she is (Tomey & Alligood, 1998); (i) Time—the sequence of events moving onward to the future; and (j) Space—existing in all directions and is the same everywhere (King, 1981).

The major concepts of this theory work together for the purpose of achieving goal attainment (see Figure 1). When the advanced practice nurse and patient come together for a purpose, they are perceiving each other and the situation, making judgments, taking mental action, or making a decision to act. These two individuals react to each other and to the situation. Communication in any form is the means by which information is given and provided in nursing situations to identify concerns and problems and to share information. This information assists patients and

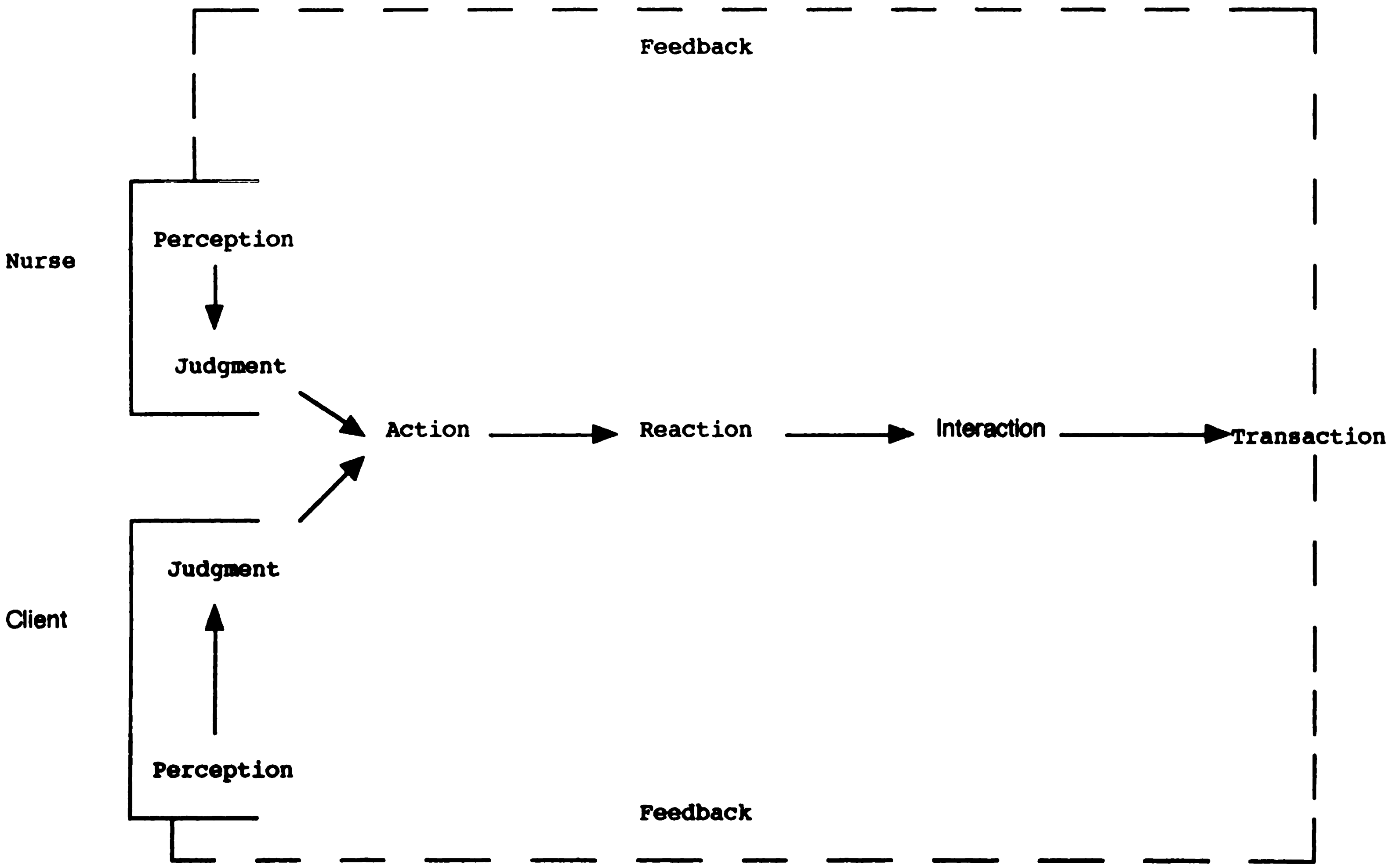

Figure 1. Conceptual Model, Adapted from King, Imogene. (1981). *A Theory for Nursing.* New York: John Wiley & Sons.

caregivers in making decisions that may lead to goal attainment. Communication is accomplished through verbal and nonverbal signs and symbols by which patients also express their goals.

Interaction is the act of two or more people in mutual presence. Interactions reveal how one person feels and thinks about another person, how each perceives the other, what each person's expectations are of the other, and how each reacts to the actions of the other. Interactions are observed in time and space as one person fulfills the role that is helpful to another person and vice versa. A person usually reacts to what another person thinks, feels, perceives, and acts (King, 1981). Advanced practice nurses and patients communicate information to each other so they can engage in mutual goal setting and explore and agree on means to achieve goals. The goal is to help the patient maintain their health so they can function in their roles (King,1981). Transactions are goal directed human behaviors. Transaction is a process of interaction in which human beings communicate with the environment to achieve goals that are valued (King, 1981). The concepts, perception, judgment, communication, and mutual goal setting in a nurse-patient interaction are to lead to a transaction. Transaction leads to goal attainment and growth and development. Goal attainment leads to satisfaction and effective nursing care. This theory assists the nurse and patient by providing a systematic approach to goal attainment. Health is not identified as a concept but as an outcome variable. The outcome is an individual's state of health or the ability to function in her roles (King, 1981).

As a woman receives treatment for breast cancer, her functional status can be altered. An altered functional status affects not only the patient's physical status, but also her vitality, role functioning, social functioning, mental health, general health perceptions, and ability to cope with pain. The advanced practice nurse and patient need to work together to identify mutual goals that can assist this patient in the areas that are of concern. Utilizing King's Goal Attainment Theory in breast cancer patient care can provide valuable information and guidance during this difficult time.

King's Goal Attainment Theory is an appropriate theoretical framework to assist the advanced practice nurse and older breast cancer patient in the maintenance, restoration, or improvement of functional status before, during, and after cancer treatment (See Figure 2). When the advanced practice nurse and older breast cancer patient meet for the first time, they each have their own perceptions. At this time the assessment phase begins. The advanced practice nurse brings special knowledge and skills to this interaction. The patient brings knowledge of self,

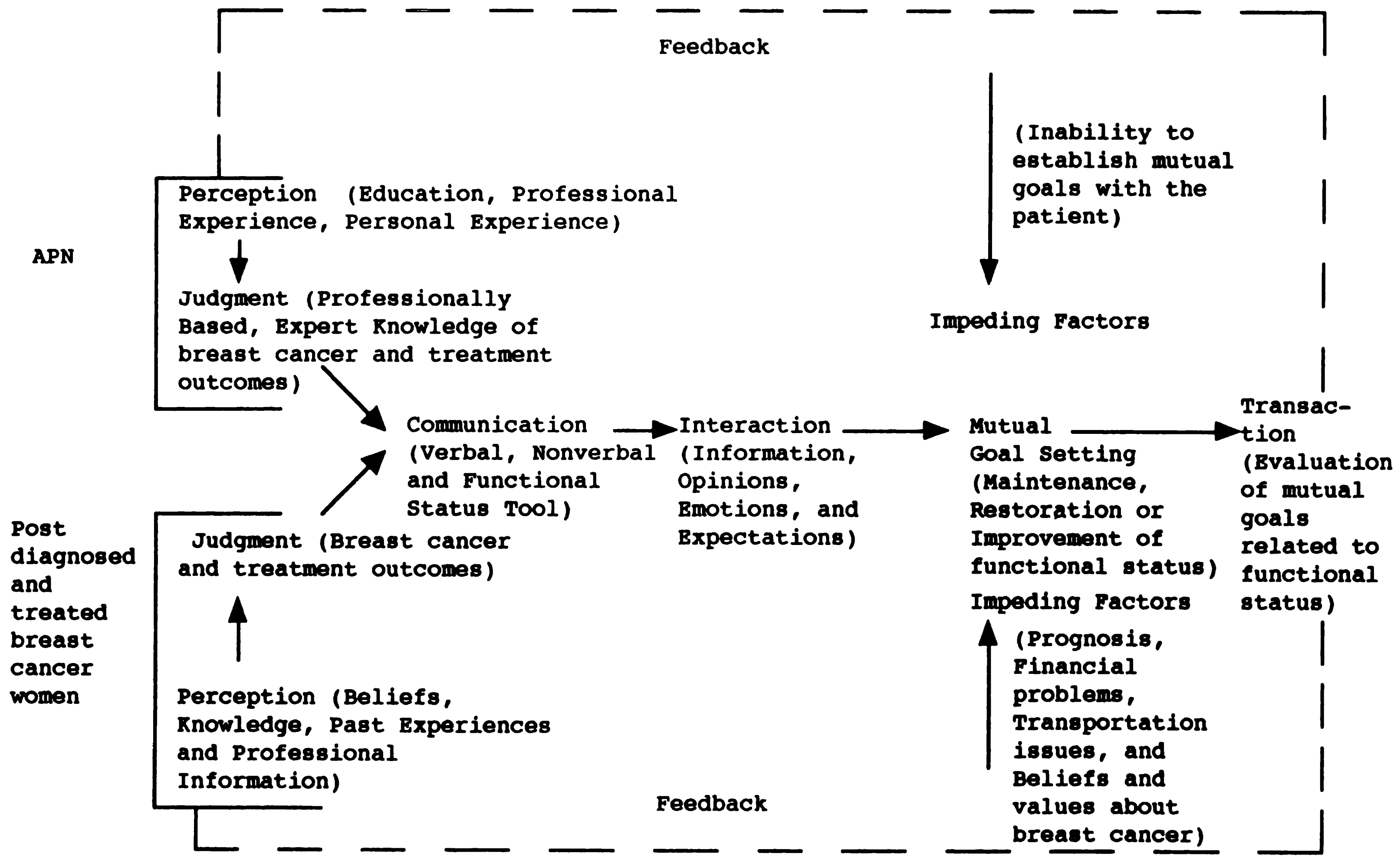

Figure 2. Conceptual Model, Adapted from King, Imogene. (1981). <u>A Theory for Nursing.</u> New York: John Wiley & Sons.

perceptions of the problem, concerns, and disturbances in health (Tomey & Alligood, 1998; George, 1995). She also contributes her perception of the situation and what she sees as possible. Perception is the basis for gathering and interpreting data and thus is the basis for assessment (Tomey & Alligood, 1998). During this phase these two individuals begin judging each other from the time they are introduced. Communication is done verbally, nonverbally, and through the functional assessment tool. Communication is essential to verify the accuracy of perceptions. Without communication, interaction and transaction can not occur (Tomey & Alligood, 1998). Each individual involved in this interaction brings personal knowledge, needs, goals, expectations, perceptions, and past experiences that influence this encounter (King, 1981). During this interaction, information is exchanged, opinions verbalized, emotions expressed, and expectations established. This step moves the advanced practice nurse and older breast cancer patient toward the planning phase. The concepts involved in the planning process are decision making about goals and exploring means to attain goals (King, 1981). Planning is mutually setting goals and making decisions about how to achieve these goals. This is part of transaction and involves a mutual exchange with the patient (King, 1981). Mutual goals cannot be established unless each person involved is willing to move forward. Mutual goal setting between an advanced practice nurse and patient is based on: (a) the advanced practice nurse's assessment of the patient's concerns, problems, and disturbances in health; (b) the advanced practice nurse's and patient's perceptions of the interference; and (c) the sharing of information whereby each person functions to help the patient attain the goals identified (Tomey & Alligood, 1998). Each patient's goal is individualized and established mutually with the advanced practice nurse. Implementation occurs in the activities that seek to meet the goals. Implementation is a continuation of transaction. The concept involved is the making of transactions (King, 1990a). Evaluation involves descriptions of how the outcomes are identified as goals are attained. Evaluation not only addresses the attainment of the patient's goals, but also the effectiveness of nursing care. This process moves the advanced practice nurse and patient towards transaction and goal achievement. When transaction is achieved, the evaluation of the mutual goals related to functional status is completed. Was the goal achieved? Were the outcome measures appropriate indicators of functional status? Could this plan of care have been revised to provide better assistance? Transactions are valued by the patient because the goal is meaningful and worth achieving. Through this whole process the advanced practice nurse and patient are moving towards transaction. Many times the advanced practice nurse and patient never achieve transaction. This process can stop at any point due to impeding factors. Impeding factors can be the patient's unwillingness to set mutual goals, poor prognosis, financial problems, transportation issues, beliefs and values about the breast cancer. When the goals of the advanced practice nurse and the goals of the patient are incongruent, conflict can occur. This situation can increase stress in both individuals (King, 1981). Through the feedback system in this theory, the advanced practice nurse and breast cancer patient can continue to work towards the achievement of their goal.

Theory is a construct that accounts for or organizes some phenomenon (Barnum, 1998). Theory pulls out the salient parts, separating the critical and necessary factors or relationships from the accidental and unessential factors (Barnum, 1998). King's Theory of Goal Attainment promotes interaction, assists the advanced practice nurse and patient in mutual decision making, goal setting, and goal attainment. Also, it gives the patient control over her health problem, since every patient has the right to participate in decisions that influence her life and health (King, 1981).

# CHAPTER 3

# LITERATURE REVIEW

Breast cancer is the second leading cause of death due to cancer among women in the United States. Also, it is the most common neoplasm in North America (Ganz et al., 1993). Although the number of new cases diagnosed has increased, mortality due to breast cancer has remained unchanged over the last decade (Hynes, 1994). Women over the age of 55 are more vulnerable to the development of breast cancer. The risk of breast cancer increases with age (Murphy et al., 1995).

The reported incidence of breast cancer has increased considerably over the last 50 years and will continue to do so because of three major factors. These factors are: (a) the reported incidence of breast cancer increases with age and will continue to rise until at least the age of 85, (b) the number of women in the older age groups of the U.S. population is increasing rapidly relative to the number of younger women, and (c) the reported age-adjusted incidence of breast cancer is also increasing.

As people age, there is a increased likelihood of functional disability and limited social resources, especially in those of family and friends (Sillman et al., 1993).

## Methodology

The literature review for this scholarly project was completed on Medline. The years researched were 1990-1998. These years were chosen because during the 1990s there were significant advancements in breast cancer treatment and patient options (Sillman et al., 1993). Utilizing the most recent information was important in establishing an effective functional assessment tool for the older breast cancer patient. The literature review was guided by the Medical Outcomes Study (MOS) SF-36 functional status measures (Ware, Stewart, & Hayes, 1988). These measures are physical functioning, role physical, bodily pain, general health perceptions, vitality, social functioning, role emotional, and mental health. Research has identified the SF-36 as an appropriate tool to measure functional status across diverse medical populations. The eight different areas that this tool measures is affected by breast cancer and its treatments. This tool also provided important information on how the advanced practice nurse can assist the older breast cancer patient maintain, restore, or improve her functional status.

The journals that were available on Medline were searched in relation to the functional status of older breast cancer patients. Certain journals were not excluded. The array of journals that information was utilized from were Medical, Nursing, Oncology, Advanced Practice, and Occupational Therapy, to name a few. While researching the literature, five common themes were identified that had a great impact on the functional status of the older breast cancer patient. These were treatment options, caregiver assistance, age and stage of disease, treatment regimen, and psychological effects on functional status. This provided a more organized way for the reader to comprehend the information and the significance of this problem.

### Treatment Options

Cancer has evolved from a rapidly fatal illness to a chronic condition. The cancer treatments that patients receive can include modified radical mastectomy, node dissection, lumpectomy, radiation, chemotherapy, hormonal treatments, and potential reconstruction in the upper body. As a result of cancer and the treatments received, a patient is affected both physically and psychologically (Ganz et al., 1993). Currently, the treatment of breast cancer is being approached more aggressively over a longer period of time. Primary therapy in breast cancer patients is often being extended and no longer ends with the initial surgery. Radiation and chemotherapy are two treatments that are used for breast cancer. The optimal duration of chemotherapy treatment for metastatic breast cancer is more than three months and likely greater than six months but not more than a year (Murphy et al., 1995).

Radiation therapy is administered five days a week for a total of six weeks. Primary therapy can continue for an additional two to three months if breast conservation therapy is used. The most common side effect of radiation therapy is fatigue. Fatigue causes difficulty in concentrating, tiredness not relieved by resting, decreased motivation, change in sleep patterns, inability to carry out normal activities, and constant feelings of exhaustion and of hopelessness. The most common side effects of chemotherapy are fatigue, insomnia, nausea, hair thinning, and pain. These side effects can have immediate and long-term effects on a patient's functional status (Hoskins, 1997). Silliman, Balducci, Goodwin, Holmes, and Leventhal (1993) state, "Breast cancer is a common and progressively debilitating disease that can be readily treated if it is diagnosed at an early stage. While considerable therapeutic advances have been made, it appears that these advances have not been translated into better health outcomes for older women (i.e., those 65 years of age or older)" (p. 190). It has been documented that when treated more aggressively, older patients with cancer tend to respond comparably to younger patients (Given, Given, & Stommel, 1994).

Breast cancer treatment has become highly complex. A vast majority of breast cancer treatment is provided in ambulatory settings. Multidisciplinary cancer care is needed. Twenty-five years ago, surgery was the only option for breast cancer patients. At the present time, women receive surgery (mastectomy or segmental resection with axillary node dissection), chemotherapy, radiation, hormonal therapy, or a combination of these as a part of their primary treatment. Because of this, the rehabilitation of these individuals has become more complex (Ganz, 1995).

### Caregiver Assistance

Treatment of patients with cancer is basically being provided on an outpatient basis, which complicates and strains the capacity of caregiver networks to meet patient needs. This is especially true for patients who have advanced disease. The amount of care that may be needed for a patient may be considerable (Mor, Allen, Siegel, & Houts, 1992).

Family members are being called upon to assist in the care of the cancer patient due to the strain on caregiver networks. With little guidance and information from the formal health care systems, families must assume responsibilities for managing symptoms, administering medications, utilizing equipment, monitoring for possible complications, and assisting patients with self-care needs (Given & Given, 1994).

Breast cancer itself and treatment regimens can cause altered functional status. Patients are no longer staying in the hospital for their entire treatment regimens. Professional home care organizations are operating at near capacity and are unable to handle the increasing volume of cancer patients who require care outside the hospital. Family members or friends are needed to assist in this care. To maintain a patient's functional status, symptom management, administration of medications, observation of complications, and assistance in self-care are a must. Home care can assist in some aspects and educate the patient, family, and friends related to the care needed, but they are unable to provide all the care directly.

Ongoing patient care is a family responsibility that should be provided at home (Mor, Allen, Siegel, & Houts, 1992). Therefore, limitations in physical functioning and mental health become important areas for health care professionals and families. It has been shown that if emotional care is not provided in the home, the attempts to improve symptom distress and physical functioning may only be marginally successful (Given & Given, 1994). Family and health care professionals are the people who monitor and evaluate the impact of disease and treatment, and formulate strategies for continuing care, rehabilitation, and strategies for continuing care, rehabilitation, and recovery following a course of therapy (Given et al. 1994).

In a study completed by Schag, et al. (1993) rehabilitation needs were identified in the arm adjacent to the operative breast. Patients complained of not being able to dress, difficulty working, pain, difficulty with recreational activities, and not being able to complete activities of daily living. Problems with the arm were weakness, swelling, lymphedema, and tightness, pulling, and stretching in the chest wall, arm, and breast area. These factors make it necessary for each breast cancer patient to be assessed for functional limitations/deficits in relation to rehabilitation requirements. While patients are beginning their rehabilitation, the physiological stresses are especially high. During this time the patient's functional status can be altered. This alteration can continue with further scarring and restrictions.

### Treatment Regimen

Hughes (1993) completed a study on the psychosocial and functional status of breast cancer patients at the time of diagnosis and during the initial phase of treatment. The purpose of this study was to gain a better understanding of the impact of diagnosis and treatment on a patient's physical state and psychosocial well-being. The sample size for this study was 52 subjects. The sample group was one of convenience at a breast clinic affiliated with a 1,000-bed tertiary medical center. The inclusion criteria for this study were patients had to have breast cancer in the early stages of development, and the breast cancer was treatable with either modified radical mastectomy or lumpectomy followed by radiation treatment. The instruments utilized in this study were Quality of Life Cancer II Version Instrument (QLI) (Ferrans & Powers, 1985), Mishel Uncertainty in Illness Scale-Community Form (MUIS-C) (Mishel & Epstein, 1990), Medical Outcomes Study General Health Survey-Short Form (GHS) (Ware et al., 1988), and the Reaction to the Diagnosis of Cancer Questionnaire (RDCQ). Patients were interviewed at the time of diagnosis before treatment selection and approximately eight weeks after surgery.

The results of this study identified overall functional status scores from time 1 to time 2 unchanged, but social functioning, role functioning, and physical functioning were significantly decreased. However, pre- and post-treatment mean scores for pain, mental health, and overall health perceptions were not significantly different. The study found that functional status declined over the course of initial treatment. The ability to function physically and meet normal role obligations was significantly lower after surgery. The type of surgical intervention was unrelated to functional status. A possible explanation for this is that radiation therapy leads to greater functional impairment than is typically assumed. Patients undergoing radiation therapy five days a week for five to six weeks experience varying degrees of fatigue in addition to pain in the shoulder and swelling in the arm. This type of treatment can be disruptive to a woman's functioning while attempting to continue her regular schedule.

A limitation in Hughes's (1993) study is that caution must be exercised when generalizing beyond this study. This is because the subjects used in the study are not representative of all breast cancer patients. Despite this limitation, this study concludes that most breast cancer patients are uncertain at the time of diagnosis that the quality of their lives is not negatively affected by the diagnosis and initial treatment, even though their functional status does decline through the course of treatment.

Being diagnosed with breast cancer can be threatening to women on many levels. The woman's life is threatened by the cancer. The surgical intervention is disfiguring and there are threats to the woman's social and emotional well being. The diagnosis of breast cancer represents a serious crisis in the women diagnosed (Carver et al., 1993).

In 1992, Mor, Masterson-Allen, Houts and Siegel completed a study on 629 patients with advanced cancer.

This study researched the changing needs of patients with cancer at home. One hundred forty-four of the individuals in this sample had breast cancer. Three hundred seventy-eight of these patients were over age 60. Twenty-three percent of the subjects in this study had a diagnosis of breast cancer. Patient selection was completed by targeting those individuals who were likely to experience functional decline as a result of a treatment regimen or disease progression, but had a chance of surviving six months. Inclusion criteria in this study were aged 21 years or older, cancer had to be nonlocalized, recurrent, or inoperable, primary disease had to involve a solid tumor of the gastrointestinal tract, genitourinary organs, breast, lung, or head and neck, and patients with Hodgkins or non-Hodgkins lymphoma were eligible. These individuals were investigated during a course of outpatient chemotherapy, radiation treatment, or both, and again three to six months after the treatment was completed. The tools utilized for this study were Katz's (1963) Index of Activities of Daily Living (ADL) and the scale for Instrumental Activities of Daily Living (IADL) (Lawton, 1971).

The results of this study were: (a) personal functional status impairment was 7% at baseline and 16% at follow up with a 13% new prevalence need, (b) instrumental impairment (housework, shopping, and cooking) was 46% at baseline and

12% at follow up with a 25% new prevalence need, and (c) transportation impairment was 54% at baseline and 47% at follow up with a 27% new prevalence need. Cumulative 60% of patients that completed both interviews needed assistance with instrumental tasks. Ninety percent of these people who had an impaired functional status at baseline later had their functional status issue resolved.

The results of this study suggest that a substantial proportion of patients have some type of altered functional status during their treatment. Impaired functional status may cause considerable disruption in the lives of patients and their families. The patient's need to maintain functional status is of great concern to oncologists because impaired functional status may compromise a patient's compliance with his or her health status or treatment regimen and may affect future quality of life (Mor, Masterson-Allen et al., 1992).

Given, Given, and Stommel (1994) completed a longitudinal study on 111 patients 50 years of age and older with solid tumors. Twenty-seven percent of the individuals in this study had breast cancer. These patients were selected from a convenience sample of adult patients diagnosed with solid tumor or lymphoma that were receiving treatment on an outpatient basis. These patients received chemotherapy, radiation, hormonal treatment, or a combination of these. Questionnaires were completed at intake and at six months. The focus of the research was the impact of age, treatment, and symptoms on the physical and mental health of cancer patients. The tools utilized for this study were ADLs, IADLs, and vigorous functioning from the Medical Outcomes Study to measure physical functioning, Center for Epidemiologic Studies Depression Scale (CES-D) to measure depression, and a scale of 17 common symptoms that measure symptom distress. The results of this study explained that the number of symptoms experienced and the changes of those experiences are variables explaining patients' levels of physical and mental health. The patients' symptom experience at intake and the change in symptom reports over time explain why each had an independent effect on physical functioning and interacted with gender to predict changes in patients' mental health. Symptoms were found to play a significant role in predicting changes in limitations of physical functioning and mental health. The conclusion of this study was that continuing care and rehabilitation professionals need to develop strategies to focus on symptom management to prevent an alteration in functional status in breast cancer patients.

A study was completed by Mor, Allen, Houts, and Siegel (1992) of 629 patients that had cancer and were receiving radiation, chemotherapy, or both. This study describes the physiological and social determinants of need and unmet need for assistance in cancer patients with advanced disease. Areas of need were examined by personal care, instrumental tasks (housework, shopping, and cooking), and transportation. Physiological factors (metastasis, disease stage, and functional status) were associated with need for assistance in all three areas. Inclusion criteria for this study were survival prognosis of six months, were likely to experience functional impairment because of treatment complications or disease progression, age 21 years or older, cancer had to be nonlocalized, recurrent, or inoperable, primary disease had to involve a solid tumor of the gastrointestinal tract, genitourinary organs, breast, lung, or head and neck, and patients with Hodgkins or non-Hodgkins lymphoma were eligible. The tools utilized for this study were Katz's (1963) Index of Activities of Daily Living (ADL) and the scale for Instrumental Activities of Daily Living (IADL) (Lawton, 1971). Three hundred thirty-nine of these patients were women. Two hundred seventy were over age of 65 and 144 had breast cancer. Three hundred forty-five of these patients were either living alone, had three or fewer caregivers on whom they could rely, or had low resiliency. The areas studied were personal care, instrumental (housework, shopping, and cooking), and transportation.

The study showed a patient's impaired functional status was primarily associated with lack of social support.

Patients who had support systems that were not resilient were twice as likely to have an unmet need for instrumental activities and more than seven times as likely to have an unmet transportation need. The percentage of patients who verbalized impaired functional status related to these three areas were personal 14%, instrumental 50.9%, and transportation 58.3%. Identified impaired functional status related to instrumental and transportation were 37% and 16% respectively. Also, women were more likely to have instrumental and transportation needs than men. Instrumental needs (housework, shopping, and cooking) are areas that cannot be left undone long term without consequences. When the breast cancer patient is unable to complete these tasks due to impaired functional status, it is essential that she receive assistance to resolve this problem. The patient cannot tolerate living with unmet instrumental needs for an extended period of time.

Patients who had severe morbidity (three or more symptoms, one or more days in bed, and restricted activity every day) have increased odds of required assistance in personal, instrumental, and transportation areas (Mor, Allen et al., 1992). A patient with metastatic disease is three times more likely to need help with personal activities than a person with regional or local disease. Morbidity is an important factor when predicting unmet needs among cancer patients. The more the illness interferes with the patient's ability to perform tasks independently, the greater the possibility that some need will go unmet.

The results of this study suggest that there are a large number of cancer patients receiving outpatient treatment who are also impaired in daily functioning. Also, the number of impaired patients who have inadequate help in meeting their needs is substantial, ranging from 16% to 33%.

Cimprich (1992) states,

> Over one million people in the United States are diagnosed with cancer each year. In dealing with a chronic and life threatening disease such as cancer, individuals must direct attention to multiple, and often competing demands imposed by both the illness and its treatment. Directed attention is needed to deal with informational needs, the reality of treatment, therapeutic self-care, and a myriad of adjustments in daily life. Intense mental exertion in response to multiple demands for attention can lead to attentional fatigue characterized by a decline in the capacity to direct attention (p. 199).

Cimprich (1992) completed a study examining the capacity to direct attention in the initial phase of treatment in a selected group of persons with cancer, specifically women with breast cancer. Directed attention is defined as the ability to focus attention on a task.

This study consisted of 32 women with newly diagnosed breast cancer. All eligible women with Stage I or Stage II cancer were recruited over a nine-month period. The capacity for directed attention was measured by a battery of tests that required inhibition of competing or distracting stimuli, as well as a subjective measure of perceived effectiveness in attentional functioning. The battery of tests included Digit Span, Alphabet Backward, Symbol Digit Modalities Test, and Letter Cancellation. The patients received these tests on the day before discharge in the hospital setting. These tests were completed in a quiet setting. The battery of tests took 20 minutes to complete. Attentional functioning can be affected by uncertainty about the future and painful thoughts associated with anticipated or actual losses. Also, illness poses multiple limitations on normal functioning stemming from physical discomfort and losses of privacy and domain.

The results of the Cimprich study indicate that women with breast cancer experience decreased capacity for directed attention following either mastectomy or breast conservation surgery regardless of the extent of the surgery. A possible explanation for lower scores is that attentional fatigue may begin developing in the pretreatment phase of illness when intense and prolonged exertion of attentional effort is required. The diagnostic phase of breast cancer can be associated with uncertainty and conflict about treatment options. In this present study an average of about one month elapsed between confirmation of diagnosis and surgical treatment. Attentional demands can increase in the time period between the diagnostic and pretreatment phases of the illness. The patient's ability to function socially, emotionally, mentally, and physically can be greatly altered due to the inability to direct attention and concentrate, thus altering the patient's functional status.

A limitation of this study was that data was collected only in the post-surgical period. Therefore, attentional status in the pretreatment period was not assessed. Other limitations were lack of a surgical control group, small sample size, and the nature of the convenience sample. Further studies need to be completed to understand better the attentional deficits in diverse groups with cancer and other illnesses.

## Summary

Breast cancer treatment regimens can greatly alter a patient's functional status. Physical functioning was decreased after initial treatment and surgical intervention. Also, side effects such as fatigue, nausea, vomiting, and diarrhea caused an alteration in functional status (Mor, Masterson-Allen et al., 1992).

Lack of social support can affect a patient's functional status (Mor, Allen et al., 1992). The lack of health care resources and reimbursement issues require family to assist these patients in conjunction with home care. If patients do not have family or similar support system, their potential to have impaired functional status increases. Treatment regimens for breast cancer can adversely affect a patient's functional status. Symptom management, strategies to cope with adverse treatment side effects, and assistance from family, support systems, or the health care system are essential if the patient's functional status is to be maintained during treatment.

### Psychological Effects

A study was completed by Maunsell, Brisson, and Deschenes (1993) on arm problems and psychological distress after surgery for breast cancer. These patients were interviewed at 3 months and 18 months after surgical intervention. Two hundred thirty-three women participated at the 3-month interview and 201 women participated at the 18-month interview. The decrease in subject number from the first interview to the second was caused by 13 patients who had died and 3 patients were too ill to complete the interview. The criteria to be part of this study were patients who underwent surgery for unilateral disease of the breast, no distant metastasis at the time of diagnosis, and had the ability to be interviewed within the study time frame. Questions were asked about personal characteristics, interpersonal relationships, perceptions of social and professional support, daily activities, work outside the home, stressful life events, and a history of depression. The tools utilized for this study were Diagnostic Interview Schedule (DIS) (Robins, Helzer, & Croughan, 1981, as cited in Wing, Bebington, & Robins, 1981) and Psychiatric Symptom Index (PSI) (Ilfeld, 1976).

The results at 3 months identified that 82% of patients reported at least one functional deficit in the operated arm. Problems most reported were loss of sensation (54%), and pain (55%). Other problems identified were weakness (26%), stiffness (40%), limitation in movement (24%), and swelling (24%). At 18 months, 79% of patients reported at least one problem in the operated arm. Once again loss of sensation (49%) and pain (51%) were the most reported problems. The other problems identified were weakness (18%), stiffness (37%), limitation in movement (16%), and swelling (27%). Patients who had axillary dissection had significantly more problems than the women who did not receive this surgical intervention. The proportion of women with a high Psychiatric Symptom Index score increased with the number of problems in the affected arm. At three months the results were (a) no arm problems—17% high distress, (b) 1 to 2 arm problems—27% high distress, (c) 3 to 4 arm problems—34% high distress, and d) 5 to 6 arm problems—50% high distress. At 18 months the results were (a) no arm problems—17% high distress, (b) 1 to 2 arm problems—25% high distress, (c) 3 to 4 arm problems—54% high distress and (d) 5 to 6 arm problems—70% high distress.

The results of this study showed that the patient's overall quality of life was negatively affected by arm problems 18 months after surgery (Maunsell et al., 1993). The ability for these women to function independently has been altered. Their overall quality of life is lower, which causes psychological distress. Their lives have been affected so it is difficult for them to function in their social, cultural, and physical environments. It is also difficult for these women to fulfill their specified roles. Living with an altered functional status due to surgical intervention and breast cancer greatly impacts a person's life.

A study was completed by Pascreta (1997) on the nature and scope of depression and its relationship to physical symptom distress and functional status among women with breast cancer. The study consisted of 79 women. Inclusion criteria for this study were English speaking, first-time cancer diagnosis within the past 3 to 7 months, and over the age of 21. Thirty-seven percent of the participants were over age 60. The tools used were Depressive Disorders Sections of the Diagnostic Interview Schedule, Center for Epidemiological Studies of Depression (CES-D) (Radloff, 1977), Symptom Distress Scale (SDS) (McCorkle & Young, 1980), the Enforced Social Dependency Scale (ESDS)(Benoliel, McCorkle, & Young, 1980), and the Organic Mental Impairment Scale (Jacobs, Bernhard, & Delgado, 1977).

The results of Pascreta's (1997) study identified that women with elevated depressive symptoms had more physical symptom distress and an altered functional status. Two variables accounted for 35% of the variance in functional status—symptom distress 28% and depressive symptoms 7%. The functional deficits measured and affected were eating, dressing, walking, traveling, bathing, and toileting. Cancer therapies used to treat breast cancer can cause severe and life threatening side effects. As a result of this fact, the inability to tend to self-care needs and sometimes to be totally dependent on caregivers is not uncommon. The most frequently reported symptoms were fatigue, poor outlook, pain, adverse feelings about appearance, insomnia, and poor concentration. Fatigue was reported as the most common symptom.

The limitations in this study were the use of a homogeneous sample and despite the fact that a study objective was to determine the impact of study variables on functional status outcomes, a cause-and-effect relationship could not be assumed. This study suggests that depression and symptom distress can affect functional status. After being diagnosed with breast cancer, many factors can affect a patient's functional status. Health care professionals need to be ready to assist these people in their times of need. Nurses can teach management strategies, such as how to schedule treatments, symptom management, planning for periods of rest, and when to seek support from family and friends (Hoskins, 1997).

In 1997 Jepson, Schultz, Luske, and McCorkle completed a study examining the relationships between survival time and enforced dependency in a group of patients with cancer. The sample size for this study was 141 patients with solid tumors. Twenty-two of these patients had a diagnosis of breast cancer. Measures included medical history, demographic characteristics, and five measures of psychosocial status, including enforced personal and social dependency. Social dependency is defined as help required from other people to perform activities or roles that under normal circumstances could be completed by the individuals themselves. Therefore, social dependency is equivalent to functional status. Inclusion criteria for this study were solid tumor diagnosis, a complex nursing problem related to their diagnosis at the time of discharge, a prognosis of survival greater than 6 months, and lived within 30 miles of a participating hospital. The tools utilized for this study were the Symptoms of Distress Scale (SDS) (McCorkle & Young, 1978), the Enforced Social Dependency Scale (ESDS) (Benoliel, McCorkle, & Young, 1980), the Health Perceptions Questionnaire, and the Center for Epidemiological Studies-Depression Scale (CES-D) (Radloff, 1977). Survival time was measured from the date of diagnosis to the date of death or last follow up.

The results of the Jepson et al. (1997) study reveal that significant associations with survival were found for all five psychosocial variables. High levels of symptom distress, enforced personal and social dependency, and depression were associated with shorter survival. The functional limitations of the patients were physical dependency, social dependency, and depression. These findings suggested that survival might be improved by an intervention focused on functional status. Therefore, it can be speculated that efforts directed at maintaining the patient's functional status may have positive outcomes, including extended survival. This study supports the need for outpatient staff to evaluate informal support systems and care resources in addition to symptoms to determine who should be referred for home care services. This study suggests that survival rates may be directly related to functional status. Creative strategies need to be developed to broaden the range of interventions that maintain a patient's desired level of independence, but encourage dependence on others at appropriate times during treatment.

A study completed by Polinsky (1994) was done on 223 breast cancer survivors 16 months to 32 years from their original surgical intervention for breast cancer to assess their current physical, psychosocial, and social functional status. This study consisted of Reach to Recovery Volunteers in southern California. The tools utilized for this study were the 20-item Short-Form Survey (SFHS) from the Medical Outcomes Study (MOS) (Stewart et al., 1988), Breast Cancer-Specific Measure (BCSM)(Polinsky, 1994), and Profile of Mood States (POMS) (McNair, Lorr, & Doppleman, 1981). The results suggested that physical functioning was high on the general measures. The BCSM of long-term physical effects of treatment identified many areas of change and concern. These areas were uncomfortable clothing 59%, unattractive body image 37%, caution with arm use 34%, arm weakness 43%, problems with blood drawing 40%, arm heaviness 36%, and phantom breast syndrome 36%.

Social functioning was identified as high and less than 5% identified a change in their social activities. The areas that were avoided were traveling, visiting people in the hospital, attending parties, staying overnight at other people's homes, and engaging in sports activities previously enjoyed (Polinsky, 1994).

General psychological function was quite high in this group. The areas that patients thought the most of related to their breast cancer were recurrence (89%), angry feelings related to having breast cancer (50%), anxiety related to breast cancer (64%), nervousness related to follow up appointments (58%), nervousness when having diagnostic tests (72%), and nervousness when awaiting test results of routine check-ups (74%). Also, there were treatment-related problems that continued for many women. These areas were conditioned nausea, vomiting, or both from chemotherapy (39%), breast changes caused by radiation treatment (57%), increased sensitivity to sun due to radiation treatment (39%), and sensations such as a tight band around the chest, severe itching, and muscle twitching (20%) (Polinsky, 1994).

Sexual activity also was altered in Polinsky's (1994) study. Forty-four percent identified dissatisfaction with the level of sexual activity and lubrication, 55% with orgasm, and 66% with being sexually aroused. Many studies are completed on shorter term survivors, but it is apparent that many of the short-term problems continue for long-term survivors. Although breast cancer survivors generally do well, there are concerns related to the physical, psychological, and social effects. These patients continue to have problems because of surgical intervention, chemotherapy, or radiation treatment. It appears that their functional status is permanently altered because of breast cancer. They continue to have physical problems, sexual problems, increased anxiety, and symptoms caused by treatment. These patients are able to function, but the problems identified in Polinsky's (1994) study should be of concern to the health care profession. The ability to identify these problems will facilitate compliance and provide a basis for educating breast cancer survivors and health care professionals. This education could possibly limit these issues and help develop problem-solving strategies. It will also facilitate patient compliance with appropriate comprehensive follow-up care.

Tasmuth, von Smitten, and Kalso (1996) completed a study on 93 patients who underwent radical and conservative surgery for their breast cancer. This study assessed the pain, neurological symptoms, edema of the ipsilateral arm, anxiety, and depression in women treated for breast cancer, as well as the impact of these symptoms on daily life and how they evolved during the one year follow up. The patients who participated in this study underwent modified radical mastectomy with axillary clearance (MRM) or breast-conserving surgery with axillary clearance (BCT). These patients were seen four times, one day before surgery, one month, six months, and one year after surgery. The tools utilized in this study were visual analogue scale for pain (Huskisson, 1974), State and Trait Anxiety Inventory (STAI) (Spielberger, 1975), and two questions were developed to evaluate depression. These questions were developed following the style, scoring, and response options of the STAI.

The results of the Tasmuth et al. (1996) study were placed into five different categories: (a) post-treatment symptoms, (b) pain in the breast region and in the ipsilateral arm, (c) pain, (d) edema, numbness, strange sensations, muscle weakness, phantom sensations, and mobility of the arm, and (e) anxiety and depression. Post-treatment symptoms showed that most patients had a combination of symptoms in the breast area. These were pain, numbness, edema, strange sensations, and phantom sensations. In the ipsilateral arm the symptoms reported were pain, numbness, edema, strange sensations, and muscle weakness. One year after surgery, the percentage of patients reporting at least one symptom in the breast scar area was 83% MRM group and 82% BCT group.

Pain experienced in the breast region or ipsilateral arm did not differ significantly between the two groups (Tasmuth et al., 1996). Thirty percent of the patients experienced breast pain for about 2 months before surgery and about 10% had pain in the ipsilateral arm for about 5 months after surgery. One year after surgical intervention, the incidence of chronic pain in the breast region was 24% and in the ipsilateral arm 17%. Pain was aggravated by sleeping on the operated side, reaching out, working with the ipsilateral arm, housework, or handicraft. One year after surgery, sleep was interrupted because of pain in the breast region (18%) and because of pain in the ipsilateral arm (31%).

Six months after surgery, full range of motion had been restored in both groups, but was still significantly reduced in 3% of the MRM group. Sixty-two percent of these women worked. This is an important fact to be taken into account when assessing a person's ability to return to work that requires active use of the ipsilateral arm (cleaning, carrying) (Tasmuth et al., 1996).

In the Tasmuth et al. (1996) study, anxiety and depression played a significant role in the ability for these women to function. Of these two groups of patients more than half (MRM 57%, BCT 53%) reported experiencing stressful events within the 6 months preceding surgery. The patients who had these stressful events and could correlate them with work had significantly higher levels of trait anxiety and depression. The number of chronic symptoms experienced in the operative site correlated significantly with depression and anxiety one year after surgery. The conclusion drawn from the Tasmuth, et al.

(1996) study, was that one year after surgical intervention for breast cancer, most of these 93 women still had treatment-related symptoms in the ipsilateral arm and breast area. This study showed that the incidence of chronic post-treatment pain was considerable and may have affected functions that were important to women in performing their activities at work and at home.

Surgical intervention for breast cancer can cause physical problems, thus altering functional status. Problems that could be experienced, such as pain, edema, arm weakness, numbness, etc., are not usually discussed before surgery. These patients are unaware and unprepared for the issues they will face in the upcoming months to years. These patients need to be informed of the possible life-altering changes that will occur so plans can be made to decrease the impact.

Zichi-Cohen, Kahn, and Steeves (1998) completed a qualitative study to describe the mental and emotional impact of breast cancer treatment with a focus on the ways the body is experienced. The study consisted of 20 women who underwent mastectomy or lumpectomy as treatment for breast cancer. One interview was completed with the interviewer asking, "Please tell me what it was like for you to have breast cancer and your treatment" (p. 836). This question was followed by probe questions to have the women elaborate and give examples. The women interviewed in the Zichi study identified three important areas of the body. They were the body as a symbol or social expression, the body as a way of being in the world, which includes symptoms and sensations, and the body as a necessary expression of existence. These three areas can help the advanced practice nurse conduct a more focused assessment to identify and meet the needs of breast cancer patients by providing more effective care.

A limitation of this qualitative research is that it is not generalizable in the standard use of the term. This information may be applicable to other settings and cancers, but that must be answered by the clinician or researcher in that new setting.

### Summary

Women that have breast cancer experience psychological effects from the disease, treatment, symptom distress, and side effects. These effects can alter a woman's functional status. Patients experience numbness, weakness, pain, swelling, lymph edema, and an array of other problems for varying periods of time. The probability of experiencing depression and anxiety increases the longer these patients experience these problems. Symptom distress caused by treatment regimens, when not relieved, also can lead to depression and thus affects the patient's functional status.

## Age, Comorbid Conditions, and Stage of Disease

Kurtz, Given, Kurtz, and Given (1994) completed a study on how age and survival status influence the frequency and severity of patients' symptoms and dependencies in functioning. This study was completed on 208 caregiver-patient dyads. These dyads were separated into three groups by duration of survival. Group I was composed of patients who survived 12 months or longer; Group II of patients who survived between 6 and 12 months; and Group III of patients who survived fewer than 6 months. The survival rate for each group was Group I—111; Group II—35; and Group III—62. The percentage of breast cancer patients that participated in this study was 24%. The percentage of breast cancer patients in each group was Group I—27.9%; Group II—25.7%; and Group III—16.1%. Eighty-three breast cancer patients in this study were over age 65. The tools utilized for this study were a modified version of McCorkle's Symptom Distress Scale (SDS) (McCorkle & Young, 1980), a scale derived from the Medical Outcomes Study to measure loss of physical functioning and ADLs (Filenbaum & Symer, 1981; Ware et al., 1981), the Center for Epidemiological Studies for Depression Scale (CES-D) (Radloff, 1977) and the Caregivers Reaction Inventory (Given et al., 1992). The most frequently identified symptoms for the patients aged

65 years and older were fatigue (81.3%), pain (71.9%), poor appetite (65.6%), constipation (56.3%), weight loss (53.1%), nausea (43.8%), insomnia (43.8%), diarrhea (43.8%), and vomiting (37.5%).

The results of this study demonstrate that patient depression, immobility, and dependency in ADLs were all correlated. Also, all increased steadily with the client's stage of illness. A further analysis was completed to determine whether the increase in immobility and dependency in ADLs were directly related to symptoms. The results stated that symptoms were the only significant predictor of dependency in ADL's, whereas symptoms and the interaction of symptoms were significant for immobility. The mere presence of symptoms is not the only factor related to impact. An ability to manage the symptoms is also important.

These results show the impact of symptoms on cancer patients. Also, this study pointed out that as the demands increased on caregivers during the later stages of illness, an increase in physical and emotional support from friends to caregivers did not occur.

Comorbid conditions can adversely affect a patient's breast cancer treatment. With advanced breast cancer and a significant number of comorbid conditions, a patient's chances for successful treatment are significantly decreased. Comorbid conditions need to be identified and considered when making treatment decisions related to breast cancer. Lickley (1994) identified a tool developed by Greenfield and colleagues called the comorbidity index. It rates 11 system categories, including circulation, respiration, neurological, mental status, urinary, feeding, ambulation, transfer, vision, hearing, and speech. Each area is given a value. Complications and how they affect functional status are also taken into account. Each category is rated on a 3-point scale (0 represents no comorbid conditions, 1 represents mild, controlled comorbid conditions, and 2 represents moderate to severe comorbid conditions). The chance of a 3-year death rate unrelated to the cancer increases 28-fold in older patients with 3 or more comorbid conditions.

Arathuzik (1994) completed a study on 24 patients with metastatic breast cancer who were experiencing physical pain. The purpose of this study was to examine the effects of a combination of cognitive and behavioral nursing interventions on pain perception, pain control, and mood in patients with metastatic breast cancer experiencing physical pain. Inclusion criteria for this study were a confirmed diagnosis of metastatic breast cancer, experiencing physical pain, oriented to person, place, and time, and between the ages of 30 and 80. Patients were randomly assigned to either of the two treatment groups or to the control group. Three instruments were utilized for this study. They were the Johnson Pain Intensity-Distress Scales (1973), the pain control scales developed by Rosenstiel (1981), and a shortened version of the Profile of Mood States (Shacham, 1983). A pretest was given to each subject in the treatment groups. The first treatment group received instruction and practice time for either progressive muscle relaxation exercise or guided imagery visualization exercise aimed at reducing pain. The second treatment group received the same instructions and practice with cognitive coping skills included. All three groups were able to continue taking narcotic analgesics. Thirty-three percent of the subjects took strong narcotic analgesics, 29.2% received mild narcotic analgesics, and 25.5% were receiving nonnarcotic analgesics. All the patients that participated in this study had received one or more cancer treatments including surgery (79.1%), chemotherapy (100%), and radiation therapy to metastatic sites (66.7%).

Pain caused by breast cancer itself, surgical intervention, and chemotherapy or radiation treatment can greatly alter a person's functional status. Attempting to alleviate or decrease her pain can give the cancer patient the ability to maintain functional status. If a patient's pain is tolerable, she may be able to perform essential tasks to maintain her independence.

The result of Arathuzik's (1994) study was that the combination of pain and coping strategies on the two treatment groups did have an effect on the ability of these patients to decrease pain. Both of the treatment groups were significantly different from the control group in their perceived ability to decrease pain as a result of the interventions. This supports the idea that a combination of interventions in addition to pain analgesics can be helpful in decreasing a patient's pain.

McCorkle et al. (1994) completed a study to evaluate the impact of home care services on the symptom distress, mental health, enforced social dependency, and health perceptions of cancer patients with advanced disease following an acute care hospital stay. The sample size for this study was 60. Seventeen subjects in this study had a diagnosis of breast cancer. The inclusion criteria were that the subjects had a solid tumor cancer diagnosis (breast, colon, lung, or prostate), complex nursing problem associated with their cancer at the time of discharge, prognosis of greater than 6 months, and lived within 30 miles of a participating hospital. This sample was placed into two groups, patients receiving home care and patients not receiving home care. Forty-nine patients were in the home care group and eleven patients were in the nonhome care group. Seventeen in the home care group and two in the nonhome care group were breast cancer patients. Forty-two of the patients in this study were over age 65. The tools utilized in this study were Symptom Distress Scale (SDS)(McCorkle & Young, 1980), Enforced Social Dependency Scale, (McCorkle & Young, 1980), Health Perception Questionnaire (Ware, 1976), and Mental Health Status Inventory 5 (Viet & Ware, 1983).

The patients in the McCorkle et al. (1994) study were interviewed on or about the date of discharge and three months later. The care the patients received from nurses was provided by certified home care agencies. Patients were seen for an average of 7.31 weeks with a mean of 12.96 home visits.

The results of the McCorkle et al. (1994) study showed that home care patients had greater symptom distress at baseline than the nonhome care patients. It also showed that home care patients had greater dependency scores than the nonhome care patients. But the home care patients had significant improvements in mental health, dependency, and symptom distress. A decrease in any and all of these factors can lead to increased functional status. The home care patients remained unchanged on health perceptions. The nonhome care patients showed no significant change in symptom distress, mental health, dependency, and health perceptions.

The McCorkle et al. (1994) study demonstrated that home care interventions improve patients' mental status and preserved their functional abilities. Home care assisted these patients in the reduction of symptoms caused by cancer treatment and the progression of the disease. Health care professionals, patients, and family members need to be made aware of the benefits of home care. Limitations in this study were the small number of subjects in the analysis and the lack of random assignment of patients to the home care or nonhome care conditions. The benefits of home care services demonstrated by this study have important implications for health care policy. At the present time, home care service funding is limited. The results of this study underscore the importance of increasing this funding for such services.

Breast cancer patients who are utilizing home care to maintain their functional status have fewer mental health issues. A person who has breast cancer can begin a vicious cycle that in the end may never return them to their previous level of functioning. As side effects cause a patient's inability to care for self, family, and household, these in turn cause depression and social isolation, which are mental health problems that can be avoided if the patient's functional status can be maintained. The maintenance of functional status is a very important aspect that needs to be considered for the older breast cancer patient if she is to recover completely.

## Summary

The studies completed by Kurtz et al. (1994), Arathuzik (1994), and McCorkle et al. (1994) indicate that when breast cancer patients receive treatment for their disease, physical functioning and mental health are affected. When a person's functional status is impaired, it alters life and outside assistance may be warranted. If a patient does not have family and friends to assist in this area, community health care resources need to fill this gap.

A process is needed in the oncology clinics where these patients are seen to identify existing and potential problems (Given & Given, 1994). This documentation could provide the much needed evidence that cancer patients are in need of assistance at home. Given and Given (1994) suggest that health care professionals need to assess, plan, implement, and evaluate the home care needs of cancer patients and their families based on the type and aggressiveness of initial and continuing therapy; the age and comorbid conditions of the patient; the manner in which families have chosen to organize home care and caregiver needs; and the ability to manage symptoms, monitor equipment, coordinate services, deliver physical care, and address the patient's emotional needs. By utilizing the nursing process, problem areas can be identified before rehospitalization occurs. Not all people have family or friends to take on the role of caregiver. These people may require community resources to assist in their care.

A possible solution and a way to ensure that appropriate care is going to be provided at home is for the advanced practice nurse to utilize her case management role from the time of diagnosis. The advanced practice nurse can assist the family in maximizing the use of home care and community services. Many patients and family members are not aware of community-based agencies such as home health aides, transportation, or nutrition assistance (Given & Given, 1994). Introducing the case management role at the time of diagnosis could help educate families about available community-based resources. As the elderly population grows, so does the need to deliver appropriate care and services for these individuals to remain independent and maintain their functional status. Utilizing the case management role can be an important link to assist the elderly (Toran, 1994).

## Summary

The literature states that the number of women in older age groups is rising. The number of women diagnosed with breast cancer is also increasing. Cancer has evolved from a fatal illness to a chronic condition for many people. While the complex treatment of breast cancer is being approached more aggressively over a longer period of time, it does not equate to better health outcomes for older women. Also, cancer treatment is being provided more in outpatient care settings. As a result of these factors there will be an increasing number of women that will have altered functional status caused by breast cancer treatment.

When patients receive chemotherapy, radiation, hormonal therapy, surgical intervention, or a combination of these treatments, their lives and functional status are affected. The studies have identified that patients undergoing breast cancer treatment have impaired functional status at some point in time. Hughes (1993) identified that functional status declined over the course of initial treatment with the ability to function physically and meet normal role obligations being significantly lower after surgery.

The diagnosis of breast cancer represents a serious crisis for the patient. To maintain functional status during treatment should be of great concern to oncologists. Impaired functional status can compromise a patient's compliance with health status and treatment. Given, Given, and Stommel (1994) found that the number of symptoms experienced and changes of those experiences are variables explaining patients' level of physical and mental health. Symptoms were found to play a significant role in anticipating changes in limitations of physical functioning and mental health. Therefore it is essential for the health care profession to assist in symptom management and to develop strategies to limit this complication.

Cimprich's (1994) study looked at the capacity to direct attention during the initial phase of treatment. The results of this study identified that women with breast cancer had decreased capacity to direct attention following either mastectomy or breast conservation surgery. They were unable to pay attention and concentrate, which affected their functioning in social, emotional, mental, and physical roles. Maintaining functional status during treatment of breast cancer is very important but difficult if health care professionals are not aware of the profound impact the disease and treatments have on a patient's life.

Patients that undergo surgical intervention for breast cancer have various problems with their arms after treatment. A study completed by Maunsell et al. (1993) found that women who are still experiencing problems with their arms 18 months after surgical intervention have an altered quality of life. Jepson et al. (1997) completed a study to examine survival time and enforced dependency. The results found that high levels of symptom distress, enforced personal and social dependency, and depression were associated with shorter survival. This study supports that survival might be improved by implementing interventions focused on functional status. Therefore, if the patient is assisted in maintaining functional status, positive outcomes, such as extended survival, may result.

Studies completed by Polinsky (1994) and Tasmuth et al. (1996) identified multiple problems due to surgical intervention. Common problems were pain, arm weakness, anxiety, and depression. Short- and long-term survivors experience many difficulties in relation to functional status due to surgical intervention. Therefore it is essential that patients be informed before surgery of changes and issues that can occur as a result of treatment.

Kurtz et al. (1994) completed a study on how age and survival status influence the frequency and severity of patient symptoms and dependencies in functioning. The results identified that symptoms were the only significant predictor in dependency in ADLs, whereas symptoms and the interaction of symptoms were significant for immobility. As a patient's cancer progresses, symptom distress increases. Also, as a person ages the probability of having comorbid conditions increases. The more comorbid conditions a person has, the greater the probability of impaired functional status. The ability to survive the treatment and cancer itself decreases substantially with an increased number of comorbid conditions.

McCorkle et al. (1994) completed a study to evaluate the effect of home care services on patients with advanced disease. The results of this study demonstrated that home care interventions improved mental status and preserved the patient's functional status abilities. Maintaining functional status and minimizing symptom distress are essential if these older patients are to be survivors of breast cancer.

Not every individual has family or friends who can care for that individual in a time of need. It has been identified that if physical and emotional support is not provided in the home, the attempts to improve symptom distress and physical functioning are only marginally successful. If a patient has unmet needs during her rehabilitation, the likelihood of noncompliance with treatment increases. This adversely affects patient outcomes. If a family support system is not present, professional assistance is required to provide this necessary care. The health care profession must respond by increasing the community health care resources and assistance for breast cancer patients.

### Strengths

The strengths of this literature for older breast cancer patients are as follows. The research completed on patients receiving chemotherapy, radiation, or both in relation to their physical, mental health, and psychosocial status provided sound evidence of the impact they have on the older breast cancer patient. The literature provided evidence that these three factors are affected by the treatment regimens given to these patients.

The research on physical functioning also showed the impact it has on the older breast cancer patient. The research provided valuable information on how the patient is affected physically by breast cancer, surgical intervention, and treatment regimens. The literature informs the health care profession of the deficits that can occur in this area.

The research and literature provided suggestions to the health care profession on how to alleviate problems that can affect functional status. Symptom management, guided imagery, and changing pain medication doses or the pain medication itself can assist in the alleviation of these problems. Also, the literature identified ways to assist in the maintenance of the breast cancer patient's functional status.

The literature emphasized the importance of being able to maintain functional status through assistance from family, friends, home care, or a combination of these so patients can be independent after surgical intervention or treatment.

The tools that were utilized in the research studies were reliable, valid, and well established (e.g., SF short form, ESDS, DSD, CES-D, ADLs, and IADLs).

The literature informed the reader of the significant impact that breast cancer can have on the older patient. It informs health care professionals on how a patient's functional status and the impact it can have on treatment and prognosis over time needs to be continually assessed.

### Limitations

The limitations of the literature review for the older breast cancer patient are as follows. There were limited studies completed on women with metastatic breast cancer. The studies completed on breast cancer were on women with early stage breast cancer, treatable breast cancer, or solid tumors.

The studies that were completed solely on breast cancer patients had a small number of subjects. This can decrease the significance of the study. More studies need to be completed on older women with larger subject numbers to increase the validity of these studies.

There are not many studies completed on long-term survivors of breast cancer. More research needs to be done in this area. The one study about long-term survivors in this scholarly project identified that these patients continue to have multiple problems from surgical intervention and treatment regimens.

The research studies identified limitations in the arm on the operative side but no recommendations were identified to rectify this problem. Information on exercises and rehabilitation needs to be identified for these patients.

### Gaps in Literature

The one gap identified in the research literature was the effects of long-term rehabilitation on the older breast cancer patient. No research or information was provided in this area. The rehabilitation needs of these patients is of great importance to the health care profession and research needs to be completed in this area.

### Generalizations

There are several generalizations within the literature. Functional status is affected by surgical intervention, treatment regimens, and age. If the functional status in the older breast cancer patient is impaired, the ability for her to return to an independent state may be impossible. Most of the research completed on older breast cancer patients is done on early stage breast cancer and treatable breast cancer. These results are generalized to "all" breast cancer patients. It has been identified that studies completed on younger breast cancer patients cannot be extrapolated to older breast cancer patients (Silliman et al., 1993). The results in the literature cannot be generalized to cover "all" older breast cancer patients.

# CHAPTER 4

# PROJECT

According to the literature functional status is compromised by stage of disease, treatment regimens, psychological effects and comorbid conditions on the older breast cancer patient. Due to this fact, a functional status assessment tool is needed to measure the older breast cancer patient's ability to function. The information provided by this tool will assist the advanced practice nurse and patient to set mutual goals to restore, maintain or improve functional status.

With the information provided from the literature review, in conjunction with King's Goal Attainment Theory, the Medical Outcomes Study (MOS) SF-36 (Ware, 1993), Upper Body Strength of the Affected Arm (Satariano, Ragland & DeLorenze, 1995) and The Symptom Experience (Given & Given, 1996) tools were identified and combined to capture the essence of functional status for the older breast cancer patient. The combination of these tools provides the advanced practice nurse with comprehensive information on functional status. A woman who undergoes breast cancer treatment has the potential to have an alteration in functional status.

In King's Goal Attainment Theory the advanced practice nurse and patient are in a reciprocal relationship in which the nurse has special knowledge and skills to communicate appropriate information to help the patient set goals. The patient has information about self and perceptions of problems or concerns that, when communicated to the advanced practice nurse, will help in mutual goal setting (King, 1981). Each patient's goals are individualized related to that patient's concerns, problems and disturbances in health (Tomey & Alligood, 1998). The advanced practice nurse and patient communicate verbally, and nonverbally. The functional status assessment tool for the older breast cancer patient provides another way for these two people to communicate. Communication is an essential concept in King's Goal Attainment Theory. Without communication, interaction and transaction cannot occur (Tomey & Alligood, 1998). The utilization of this tool provides valuable information and guidance during this difficult time.

With the information provided from the literature review, the MOS (Medical Outcomes Study) SF-36 (Ware, 1993), Upper Body Strength of the Affected Arm (Satariano, Ragland & DeLorenze, 1995), and The Symptom Experience Tool (Given & Given, 1996) were combined to make the functional status assessment tool for the older breast cancer patient (See Appendix A). These tools were combined for the following reasons:(a) The tool is easily self-administered, (b) it is easily understood by the advanced practice nurse and patient, (c) it covers a broad range of health concepts, and (d) it provides important information about a person's ability to function.

King's theory of goal attainment assisted in the selection of these tools because of the following characteristics:(a) The tools can be utilized in the Goal Oriented Nursing Record process (GONR). The GONR serves as a documentation system that assists the advanced practice nurse and patient toward goal attainment. (b) Because this tool is divided into 13 different sections, the advanced practice nurse and patient can identify a broad range of problem areas and mutually set goals that they identify as important. A patient may have multiple problems, but is only willing mutually to set goals related to one area. The different sections in this tool makes this possible. If a patient is not interested in mutually setting goals, the ability to achieve goal attainment is minimal. (c) This functional status assessment tool for the older breast cancer patient focuses on the patient holistically. It looks at many aspects of the patient's ability to function. It is not restricted to one area. In King's Goal Attainment Theory focusing on holism is essential; and (d) This tool promotes shared decision making between the advanced practice nurse and patient.

After the tool is administered, the results need to be discussed and decisions need to be made to proceed toward goal attainment. When applying King's Goal Attainment Theory collaborative decision making is necessary throughout the entire process to achieve the mutual goal(s).

### Medical Outcomes Study (MOS) SF-36

The SF-36 is identified as a generic health measure because it assesses health concepts that represent basic human values that are relevant to everyone's functional status and well-being (Ware, 1987, 1990a).

The Medical Outcomes Study SF-36 was constructed to measure eight health attributes using eight multi-item scales containing between two and ten items each. Ware (1993) explains that the scales utilized in this tool are Likerts method, but in fact, these scales are Likert-type. The eight health attributes utilized in this tool are physical functioning (PF), role limitations because of physical health problems (RP), role limitations because of emotional problems (RE), bodily pain (BP), vitality (energy/fatigue) (V), social functioning (SF), general mental health (psychological distress and psychological well-being) (MH), and general health perceptions (GH) (Ware & Sherbourne, 1992). The SF-36 permits scoring of a set of eight scales displayed as a profile of health status concepts. The scores are easy to compute and considerable information is provided through their interpretation (Ware & Sherbourne, 1992).

Ware (1993) explains that the SF-36 items and scales are scored so that a higher score indicates a better health state. For example, functioning scales are scored so that a higher score indicates better functioning, whereas the pain scales are scored so that a high score indicates freedom from pain.

A study was completed on the MOS SF-36 to test data quality, scaling assumptions, and reliability across diverse patient groups. This study had 4,842 patients enrolled in the longitudinal-panel component of the MOS SF-36. The inclusion criteria into this study were: (a) English speaking, (b) 18 years of age or older, and (c) had an office visit with an enrolled clinician during a 9-day screening period between February and November 1986.

The results of this study provide substantial evidence that using the MOS SF-36 is appropriate across diverse medical and psychiatric groups. The SF-36 is a reliable and valid tool that is utilized widely with many different patient populations (McHorney, Ware, Lu, & Sherbourne, 1994; Ware, Kosinski, Bayliss, McHorney, Rogers, & Raczek, 1995; Ware & Sherbourne, 1992; Stewart, Hays & Ware, 1988; Stewart, Greenfield, Hays, Wells, Berry & McGlynn, 1989; Ware & Kosinski, 1996).

### Upper Body Strength of the Affected Arm

Upper Body Strength of the Affected Arm(UBS) was added to the Medical Outcomes Study SF-36 tool because this condition can greatly alter the older breast cancer patient's functional status (see Appendix A). This section consists of four items related to the physical functioning of the affected arm. These items question the patient's ability to (a) lift an object greater than ten pounds, (b) lift an object less than ten pounds, (c) push or pull large objects, and (d) reach or extend arm above or below shoulder level. This tool utilizes a Likert-type scale with four possible answers to each question. They range from 1- no difficulty to 4-a lot of difficulty. This section will be scored utilizing the SF-36 scoring system.

### Symptom Experience

McCorkle (1994) defines symptom distress as the degree of discomfort from specific symptoms reported by the patient. Studies completed by Given, Given and Stommel (1994) and Given, Kurtz, Given, and Kurtz (1994) demonstrate that symptom distress can affect functional status of cancer patients. Careful management of symptoms will have a positive impact on a patient's ability to function and perform her normal social roles.

McCorkle's symptom distress tool identifies to what degree the patient is feeling symptoms and how this affects the patient's functional status. The symptom experience tool does not measure the degree of the distress but rather if the patient is experiencing the symptoms at all. McCorkle's research studies identify that symptoms caused by cancer treatment can affect a patient's ability to function. Due to this fact the Symptom Experience Tool was included in the Functional Status Assessment Tool for the Older Breast Cancer Patient.

The Symptom Experience Tool (SE) was revised from its original format to be included in this scholarly project. Ten symptoms were identified that directly affected the breast cancer patient. The Symptom Experience Tool scoring system will be dichotomous (yes/no) due to the fact that severity of the symptoms are not being looked at, but rather the number of symptoms the patient is experiencing. The scores will be summated at the end of this section. A score of zero means that the patient is not having any symptoms related to treatment regimens or breast cancer itself and a score of 10 denotes the patient is experiencing 10 symptoms affecting her ability to function. Given and Given (1994) explain that when symptoms of cancer treatment or disease progression are large in number and unmanageable, it is a cause of great distress for the patient and family.

This section will also be scored separately from the SF-36 and the Upper Body Strength of the Affected Arm.

## Scoring

The SF-36 and the Upper Body Strength of the Affected Arm (UBS) will be scored utilizing the SF-36 scoring system. Each item in the SF-36 has a precoded item value and a final item value. The final item value is the recoding of response choices. Seven items in the SF-36 are reverse scored. Reverse scoring is done to ensure that a higher item value indicates better health on all SF-36 items and scales. SF-36 items that need to be reverse scored are worded in such a way that a higher precoded item value indicates a poorer health state (Ware, 1993).

The Upper Body Strength of the Affected Arm and the Symptom Experience Tool are not in the original content of the SF-36 tool. Due to this fact a precoded and final item value needs to be established to utilize the SF-36 scoring system. The Upper Body Strength of the Affected Arm section is scored as 1—experiencing no difficulty, 2—experiencing a little difficulty, 3—experiencing some difficulty, and 4—experiencing a lot of difficulty. The scoring system of the Symptom Experience Tool will be dichotomous (Yes-1/No-0). Even though the scoring system is different this section will also be compared to national norms.

For the purpose of this scholarly project the precoded values and recoded values will be the same number. This means that if the older breast cancer patient is having a lot of difficulty with upper body strength in the affected arm the four questions for this section values precoded and recoded for each question would be a four. As for the Symptom Experience Tool the precoded and recoded value for any question marked "yes" is one.

After recoding for the SF-36, Upper Body Strength of the Affected Arm and the Symptom Experience Tool is completed, a raw score is computed for each scale. This score is the simple algebraic sum of responses for all items in that scale (See Table 1). The next step is to transform each raw score to a 0-100 scale using the following formula:

$$\text{Transformed Scale} = \frac{(\text{Actual raw score} - \text{lowest possible raw score}) \times 100}{\text{possible raw score range}}$$

Although this final step is optional, is it strongly recommended because transformed scale scores can be compared with norms derived from the Medical Outcomes Study (MOS) (Ware, 1993). Ware (1993) explains two reasons to adhere to the standards of content and scoring described in the SF-36 manual. First, they are most likely to produce scores with the same reliability and validity as reported in other Medical Outcome Study (MOS) publications. Second, the comparisons of results across

**Table 1.** Formulas for scoring and transforming scales

| **Scale** | **Sum final item value** | **Lowest and highest possible raw scores** | **Possible raw score range** |
|---|---|---|---|
| PF | 3a+3b+3c+3d+3e+3f+3g+3h+3i+3j | 10,30 | 20 |
| RP | 4a+4b+4c+4d | 4,8 | 4 |
| BP | 7+8 | 2,12 | 10 |
| GH | 1+11a+11b+11c+11d | 5,25 | 20 |
| V | 9a+9e+9g+9i | 4,24 | 20 |
| SF | 6+10 | 2,10 | 8 |
| RE | 5a+5b+5c | 3,6 | 3 |
| MH | 9b+9c+9d+9f+9h | 5,30 | 25 |
| UBS | 12a+12b+12c+12d | 4,16 | 14 |
| SE | 13a+13b+13c+13d+13e+13f+13g+13h+13i+13j | 0,10 | 10 |

Note. = SF-36 Health Survey Manual & Interpretation Guide (6:18) by J. E. Ware,1993, Boston, Massachusetts: Nimrod Press. Copyright 1993 by John E. Ware. Reprinted with permission.

studies are made possible to benefit all who use these content and scoring standards.

When scoring algorithms are used, the national norms (see Table 2) in the SF-36 manual are the appropriate way to interpret these scores. Each section of the tool is scored separately. Questions referring to upper body strength of the affected arm and symptom experience do not have norms with which to compare their scores. These questions are not a part of the SF-36; therefore, national norms have not been developed in these areas. This issue will be discussed in Chapter 5.

### Recommendations/Implications.

Due to the fact each section in this tool is unique, it is difficult to summate all 13 areas and decide if the patient has an alteration in overall functional status. Each section will need to be considered separately and compared to national norms to determine if the patient is having a problem in this area.

### The Advanced Practice Nurse's Use of the Functional Status Assessment Tool for the Older Breast Cancer Patient

This tool will be administered every three months for one year. A baseline score will established between two and three weeks after the patient has had surgical intervention. The initial scores received from the patient will be compared to national norms and the patient's own satisfaction with her ability to function. A plan of care

## Table 2. National Norms for Females by Age Group

### Ages 55-64
Females (N=164)

| | PF | RP | BP | GH | VT | SF | RE | MH |
|---|---|---|---|---|---|---|---|---|
| Mean | 73.09 | 71.61 | 66.64 | 62.87 | 58.08 | 79.43 | 79.51 | 73.40 |
| 25th Percentile | 60.00 | 33.33 | 51.00 | 46.00 | 40.00 | 62.50 | 66.67 | 64.00 |
| 50th Percentile *(median)* | 85.00 | 100.00 | 72.00 | 67.00 | 65.00 | 100.00 | 100.00 | 76.00 |
| 75th Percentile | 95.00 | 100.00 | 84.00 | 82.00 | 77.50 | 100.00 | 100.00 | 88.00 |
| Standard Deviation | 26.73 | 39.84 | 25.26 | 23.37 | 23.42 | 27.02 | 34.64 | 19.74 |
| Range | 0-100 | 0-100 | 0-100 | 5-100 | 0-95 | 0-100 | 0-100 | 0-100 |
| % Ceiling | 13.3 | 59.8 | 17.2 | 5.5 | 0.0 | 54.5 | 67.7 | 5.2 |
| % Floor | 1.2 | 17.9 | 2.1 | 0.0 | 1.2 | 1.5 | 12.7 | 0.5 |

### Ages 65 & over
Females (N=413)

| | PF | RP | BP | GH | VT | SF | RE | MH |
|---|---|---|---|---|---|---|---|---|
| Mean | 61.86 | 56.11 | 63.44 | 61.64 | 55.46 | 77.00 | 73.38 | 74.71 |
| 25th Percentile | 40.00 | 0.00 | 41.00 | 45.00 | 40.00 | 62.50 | 33.33 | 64.00 |
| 50th Percentile *(median)* | 66.70 | 75.00 | 62.00 | 62.00 | 55.00 | 87.50 | 100.00 | 80.00 |
| 75th Percentile | 85.00 | 100.00 | 84.00 | 77.00 | 75.00 | 100.00 | 100.00 | 88.00 |
| Standard Deviation | 28.95 | 42.53 | 27.12 | 22.08 | 23.51 | 27.69 | 39.66 | 19.88 |
| Range | 0-100 | 0-100 | 0-100 | 10-100 | 0-100 | 0-100 | 0-100 | 4-100 |
| % Ceiling | 7.3 | 40.0 | 21.0 | 3.1 | 0.8 | 48.3 | 64.3 | 6.8 |
| % Floor | 2.8 | 27.9 | 2.4 | 0.0 | 2.2 | 2.2 | 18.5 | 0.0 |

will then be established utilizing the advanced practice nurse's assessment and the above comparison. Comparing the initial and previous scores with those obtained at the current office visit will be important. If the patient's scores experience a 10% decrease over time, her function is decreasing. There is no discussion in the literature about what is identified as a clinically significant decline in functional status. Due to this fact, the advanced practice nurse's assessment and the patient's satisfaction with functioning is important. The decline in scores will alert the advanced practice nurse to problems and open discussions with the patient. The advanced practice nurse and patient will need to problem solve and develop strategies to prevent the continuing decline in score. This tool could be useful in justifying referrals to home care for those patients with decreasing functional status scores.

This tool can assist the advanced practice nurse and patient in identifying problem areas related to functional status. It is important to involve the patient in decision making and developing goals related to her functional status. With this tool divided in sections, the advanced practice nurse and patient can identify problem areas and mutually decide what areas need to be worked on. A patient may have many problem areas, but may only choose to work on one at time. King's Goal Attainment Theory involves the patient in her care and promotes interaction.

## CHAPTER 5

## RECOMMENDATIONS/IMPLICATIONS FOR THE ADVANCED PRACTICE NURSE

As the older breast cancer patient receives cancer treatment, it is important for the advanced practice nurse to monitor her functional status. If the older breast cancer patient's functional status is altered during cancer treatment, the ability for her to return to her previous functioning may be compromised.

The intentions of this scholarly project are to:(a) Expand knowledge and understanding on the effects of treatment on older breast cancer patients and their functional status, (b) identify measures that can be consistently utilized to assess the functional status of the older breast cancer patient, and (c) utilize a functional status assessment tool for the older breast cancer patient that can be applied by the advanced practice nurse in the primary care facility.

Throughout the literature review, functional status measures were identified. Understanding and knowledge were also increased in the area of older breast cancer patients. Three tools were identified and combined to make the Functional Status Assessment Tool for the Older Breast

Cancer Patient. These three tools were the Medical Outcomes Study (MOS) SF-36 (Ware, 1993), the Symptom Experience Tool (Given & Given, 1996), and Upper Body Strength of the Affected Arm (Satariano, Ragland,& DeLorenze, 1995). These combined tools provide the advanced practice nurse with the ability to assess, plan, implement and evaluate the older breast cancer patient's ability to function. The advanced practice nurse will assist in the restoration, maintenance, or improvement of this patient's functional status.

This chapter of the scholarly project will identify recommendations for future research and implications for advanced practice.

## Research

Information provided from the literature review informs the reader that more studies need to be completed on the older breast cancer population. Also, the research completed on older breast cancer patients should not be extrapolated to "all" breast cancer patients. Due to the fact that more research needs to be done in this area, three tools were combined to measure the functional status of the older breast cancer patient. These tools are the Medical Outcomes Study (MOS) SF-36 (Ware, 1993), the Symptom Experience Tool (Given & Given, 1996) and Upper Body Strength of the Affected Arm (Satariano, Ragland & DeLorenze, 1995). The Functional Status Assessment Tool for the Older Breast Cancer Patient can provide valuable information about this population and be of great assistance to the advanced practice nurse in the primary care facility. Information provided by research can help the advanced practice nurse gain the knowledge necessary to provide the best possible care to the older breast cancer patient.

Due to the fact that these tools have never been combined to assess the functional status of the older breast cancer patient, the first research study must be longitudinal to develop the psychometrics on the tool itself. For the information provided by this tool to be valued and meaningful in research, reliability and validity must be established (Polit & Hungler, 1995). This reliability and validity must also be established before the tool can be utilized to measure the functional status of the older breast cancer population in the primary care facility.

Reliability identifies the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure (Polit & Hungler, 1995). To assess the stability of the functional status assessment tool, procedures that evaluate test-retest reliability need to be completed (Polit & Hungler, 1995). The researcher would administer the functional status assessment tool to a sample of older breast cancer patients on two occasions and then compare the scores (Polit & Hungler, 1995). The comparison procedure is performed by computing a reliability coefficient. This coefficient represents a numerical index of the magnitude of the test's reliability (Polit & Hungler, 1995). The reliability coefficients can be used as an important indicator of the quality of the instrument (Polit & Hungler, 1995).

Another indicator of reliability is internal consistency. Internal consistency must be established before a tool can be used for research purposes (Brink & Wood, 1995). Internal consistency is established through Cronbach's Alpha. Cronbach's Alpha is a reliability index that estimates the internal consistency or homogeneity of a measure composed of several items or subparts (Polit & Hungler, 1996). Cronbach's Alpha correlates each individual item with each item and the overall score. This procedures gives an overall measure of the consistency with which the score on an item can be used to predict the overall attribute being measured (Brink & Wood, 1995). These procedures can establish the reliability of the Functional Status Assessment Tool for the Older Breast Cancer Patient.

Validity is the degree to which an instrument measures what it is intended to measure. Validity of a tool is extremely difficult to establish (Polit & Hungler, 1995). To test if the Functional Status Assessment Tool for the Older Breast Cancer Patient is valid, the criterion-related approach would be utilized. The key issue to utilizing this approach is whether the instrument is a useful predictor of subsequent behaviors, experiences, or conditions (Polit & Hungler, 1995). Criterion Validity demonstrates that test scores are systematically related to one or more outcome criteria (Ware, 1993). Validity for the Upper Body Strength of the Affected Arm Tool will be established by utilizing the following measures: (a) passive range of motion (ROM) with resistence to the muscles, and (b) active range of motion (ROM). An independent advanced practice nurse will complete the active and passive ROM assessment. The results of the assessment will be compared to the information obtained from the tool. To establish validity a correlation between the assessment and the tool need to be identified. This correlation identifies to the advanced practice nurse that this tool is measuring what it is suppose to. Validity is not an all-or-nothing characteristic for an instrument. Validity is not proved, established, or verified but rather supported to a greater or lesser degree by evidence. Validation is a never-ending process. The more evidence that can be gathered that an instrument is measuring what it is supposed to be measuring, the more confidence researchers will have in the validity of the instrument (Polit & Hungler, 1995). It must be identified that this tool measures functional status of the older breast cancer patient at various stages during the treatment and disease trajectory. This tool must be able to reveal the two distinct groups of patients, those who are experiencing functional status changes and those who are not.

During the development of the psychometrics for the functional assessment tool for the older breast cancer patient, national norms need to be established in the areas of upper body strength of the affected arm and symptom experience. At the present time, this information is not available but it is needed to score adequately the functional status assessment tool for the older breast cancer patient. This tool is scored utilizing the Medical Outcomes Study (MOS) SF-36 scoring system. The SF-36 scores are compared to national norms. If national norms are not established for the Functional Status Assessment Tool for the Older Breast Cancer Patient, the ability to score the tool and to signify its worth are nonexistent.

After the Functional Status Assessment Tool for the Older Breast Cancer Patient has been identified as reliable and valid, qualitative and quantitative research needs to be completed. Qualitative and quantitative research are two broad approaches to gathering and analyzing scientific data (Polit & Hungler, 1995). These two different approaches provide a different emphasis on the information collected. The health care profession needs to be informed of the older breast cancer patient's measurable attributes of the human experience. Medical professionals must also be aware of the dynamic, holistic, and individual aspects of the human experience, which are attempted to be captured in there entirety within the context of those who are experiencing them (Polit & Hungler, 1995). Each aspect of research can provide valuable information about the older breast cancer population.

Research studies need to be completed solely on older breast cancer patients. The following research questions need to be asked about this population:

1. What are the effects of chemotherapy and radiation on the older breast cancer patient's overall functional status during and three months after a treatment regimen?
2. During treatment regimens, does the older breast cancer patient's functional status of the affected arm differ when physical therapy is and is not provided?
3. How effective are rehabilitation's broad range of services in improving the older breast cancer patient's overall functional status during and three months after treatment regimens?

4. What is the relationship between the actual decline in scores of the Functional Status Assessment Tool for the Older Breast Cancer Patient and their ability to function in their daily activities?

This information from further research can bring about positive alterations in the breast cancer patient's survival, independence, and health behaviors, and/or in the health care system itself.

Practice

The literature review identified that an older breast cancer patient's functional status can be altered during treatment of their disease. This scholarly project combined three existing tools to measure the functional status of the older breast cancer patient. The tools utilized were the Medical Outcomes Study (MOS) SF-36 (Ware, 1993), Symptom Experience Tool (Given & Given, 1996), and Upper Body Strength of the Affected Arm (Satariano, Ragland & DeLorenze, 1995). This tool will be identified as the Functional Status Assessment Tool for the Older Breast Cancer Patient.

The functional status assessment tool for the older breast cancer patient will be administered to patients that have been diagnosed and treated for breast cancer in the last year. This tool will be administered every three months for one year. The administration will begin at the earliest convenient visit to the primary care facility. The tool's intentions and importance will be explained to the patient. If the patient agrees to complete this tool, she will be given two options: (a) the tool can be filled out at home and brought back to the primary care facility, or (b) the tool can be completed prior to the patient's next office visit in the primary care facility.

After the tool is completed by the patient, the advanced practice nurse will compile the scores. The initial scores will be compared to national norms. The patient's functional status will be determined by comparing initial scores to national norms, the advanced practice nurse's assessment, and how the patient feels she is functioning. Each time the patient fills out the tool, it will be compared to previous scores. A 10% decrease from previous scores will indicate that the patient's functional status has declined and a plan of care will need to be established.

The advanced practice nurse will take the information obtained from the tool and discuss the results with the patient. At this time, the advanced practice nurse and patient will identify problem areas. The patient will identify the areas she is willing to work on. To set goals mutually the advanced practice nurse's and patient's goals need to be congruent. The patient may only identify one area of concern, however, there may be several problem areas. The advanced practice nurse cannot force the patient to work on these areas. After problem areas have been identified, the advanced practice nurse and patient mutually set goals. A plan of care is then developed to restore, maintain, or improve functional status.

Each plan of care and follow-up care is individualized for every patient. Each patient that has a decreased ability to function, as identified by the functional status assessment tool, needs a plan of care developed including follow-up care. The progress or digression of this patient needs to be monitored closely. At follow-up visits, the plan of care may need to be changed. The advanced practice nurse's case management role may need to be utilized to initiate care of the patient at home and provide new interventions.

If the functional status assessment tool for the older breast cancer patient identifies physical functioning and upper body strength of the affected arm as problems areas, the advanced practice nurse will need to initiate a consultation for rehabilitation medicine. If bodily pain is the issue, collaborating with the physician in the primary care facility or the patient's oncologist would be warranted. The advanced practice nurse would initiate interventions, such as prescribing pain medication, teaching the patient relaxation techniques, or the importance of music therapy. If this patient's pain could not be managed by the advanced practice nurse. a consultation with the patient's oncologist or the pain clinic may be needed to serve this patient better.

Complications caused by breast cancer treatment can occur at any time during and after the older breast cancer patient's treatment. The functional status assessment tool can assist in identifying these complications. The advanced practice nurse can then develop a plan of care to assist in the resolution of these issues. Complications, such as severe pain or depression, can be out of the realm of the advanced practice nurse's practice. Consulting another physician to manage these problems may be the role the advanced practice nurse plays in this aspect of patient care.

The interventions developed in the breast cancer patient's plan of care need to be realistic. The patient's health condition, her ability to complete the tasks, available support systems, and other comorbid conditions must be taken into account. The functional status assessment tool may identify a patient with a 5% decrease in physical functioning and a 10% decrease in social functioning. The advanced practice nurse is informed from the patient that she lives alone and is not going out because it is too difficult to get dressed. Interventions for this patient would be an evaluation from rehabilitation medicine, arm exercises, and a referral for a home health aide to assist in morning care. The interventions assist in the resolution of this problem as well as achievement of goals and expected outcomes.

Evaluation of the plan of care for a patient is essential. The advanced practice nurse must identify the success of this care plan. Were any aspects more helpful than others? Did the patient achieve the expected outcome?. Were the goals for the advanced practice nurse and the patient achieved? If not, what could have helped this patient achieve her goals? If this patient's goals have not been achieved, a new plan of care must be established. At this time, the advanced practice nurse could collaborate with the physician of the primary care facility, an expert advanced practice nurse in the area of breast cancer, or the patient's oncologist to problem solve and develop a plan of care to assist this patient.

The functional status assessment tool for the older breast cancer patient is divided into 13 sections. Each patient's expected outcomes are individualized related to her own problems. The overall expected outcome for this patient is to be able to function independently or with as little assistance as the patient feels is necessary.

The maintenance, restoration, or improvement of functional status for the older breast cancer patient during and after treatment is very important. If functional status is altered, the ability to return to the previous level of functioning may be compromised. The utilization of the functional status assessment tool for the older breast cancer patient, if used properly, provides valuable information to the advanced practice nurse to identify problem areas, develop a plan of care with interventions, and utilize her role characteristics to help this patient regain her ability to function.

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# APPENDIX A

# APPENDIX A

## Functional Status Assessment Tool for the Older Breast Cancer Patient

Medical Outcomes Study (MOS) SF-36

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

| **Excellent** | **Very good** | **Good** | **Fair** | **Poor** |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

2. Compared to one year ago, how would you rate your health in general now?

| | |
|---|---|
| **Much better now than one year ago** | 1 |
| **Somewhat better now than one year ago** | 2 |
| **About the same as one year ago** | 3 |
| **Somewhat worse now than one year ago** | 4 |
| **Much worse now than one year ago** | 5 |

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

a) Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.

**Yes, limited a lot** **(1)** ___

**Yes, limited alittle** **(2)** ___

**No, not limited at all** **(3)** ___

b) Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

c) Lifting or carrying groceries.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

d) Climbing several flights of stairs.

**Yes, limited a lot** **(1)** ___

**Yes, limited alittle** **(2)** ___

**No, not limited at all** **(3)** ___

e) Climbing one flight of stairs.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

f) Bending, kneeling or stooping.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

g) Walking more than a mile.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

h) Walking several blocks.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

i) Walking one block.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

j) Bathing or dressing yourself.

**Yes, limited a lot** **(1)** ___

**Yes, limited a little** **(2)** ___

**No, not limited at all** **(3)** ___

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

| | **Yes (1)** | **No (2)** |
|---|---|---|
| a) Cut down on the amount of time you spend on work or other activities. | ____ | ____ |
| b) Accomplished less than you would like. | ____ | ____ |
| c) Were limited in the kind of work or other activities. | ____ | ____ |
| d) Had difficulty performing the work or other activities (for example, it took extra time). | ____ | ____ |

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

| | **Yes (1)** | **No (2)** |
|---|---|---|
| a) Cut down on the amount of time you spent on work or other activities. | ____ | ____ |
| b) Accomplished less than you would like. | ____ | ____ |
| c) Didn't do work or other activities as carefully as usual. | ____ | ____ |

6. During the past 4 weeks to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

| **Not at all** | **Slightly** | **Moderately** | **Quite** | **Extremely** |
|---|---|---|---|---|
| **(1)** | **(2)** | **(3)** | **(4)** | **(5)** |
| ______ | ______ | ______ | _____ | ______ |

7. How much bodily pain have you had during the past 4 weeks?

| **None** | **Very Mild** | **Mild** | **Moderate** | **Severe** | **Very Severe** |
|---|---|---|---|---|---|
| **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| ______ | ______ | ______ | ______ | ______ | _____ |

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

| **Not at all (1)** | **A little bit (2)** | **Moderately (3)** | **Quite (4)** | **Extremely (5)** |
|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ |

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

a) did you feel full of pep?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

b) have you been a very nervous person?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

c) have you felt so down in the dumps nothing could cheer you up?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

d) have you felt calm and peaceful?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

e) did you have a lot of energy?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

f) have you felt downhearted and blue?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | _____<br>_ |

g) did you feel worn out?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

h) have you been a happy person?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | _____<br>_ |

i) did you feel tired?

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

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

| **All of the time (1)** | **Most of the time (2)** | **A good bit of the time (3)** | **Some of the time (4)** | **A little of the time (5)** | **None of the time (6)** |
|---|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ | ______ |

11. How TRUE or FALSE is <u>each</u> of the following statements for you?

a) I seem to get sick a little easier than other people.

| **Definitely true (1)** | **Mostly true (2)** | **Don't Know (3)** | **Mostly false (4)** | **Definitely false (5)** |
|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ |

b) I am as healthy as anybody I know.

| **Definitely true (1)** | **Mostly true (2)** | **Don't Know (3)** | **Mostly false (4)** | **Definitely false (5)** |
|---|---|---|---|---|
| ______ | ______ | ______ | ______ | ______ |

c) I expect my health to get worse.

| | | | | |
|---|---|---|---|---|
| **Definitely true (1)** | **Mostly true (2)** | **Don't Know (3)** | **Mostly false (4)** | **Definitely false (5)** |
| ______ | ______ | ______ | ______ | ______ |

d) My health is excellent.

| | | | | |
|---|---|---|---|---|
| **Definitely true (1)** | **Mostly true (2)** | **Don't Know (3)** | **Mostly false (4)** | **Definitely false (5)** |
| ______ | ______ | ______ | ______ | ______ |

<u>Upper Body Strength of the Affected Arm</u>

12. Physical functioning of the affected arm.

These are activities that you may do during a typical day with your affected arm. Does your health now limit you in these activities. If so how much?

a) lifting objects heavier than 10 lbs.

| | | | |
|---|---|---|---|
| **No difficultly (4)** | **A little difficulty (3)** | **Some difficulty (2)** | **A lot of difficulty (1)** |
| ______ | ______ | ______ | ______ |

b) lifting objects weighing less than 10 lbs.

| | | | |
|---|---|---|---|
| **No difficultly (4)** | **A little difficulty (3)** | **Some difficulty (2)** | **A lot of difficulty (1)** |
| ______ | ______ | ______ | ______ |

c) pushing or pulling large objects like a living room chair.

| | | | |
|---|---|---|---|
| **No difficultly (4)** | **A little difficulty (3)** | **Some difficulty (2)** | **A lot of difficulty (1)** |
| ______ | ______ | ______ | ______ |

d. reaching or extending arms above or below shoulder level.

| **No difficultly (4)** | **A little difficulty (3)** | **Some difficulty (2)** | **A lot of difficulty (1)** |
|---|---|---|---|
| _____ | _____ | _____ | _____ |

Symptom Experience

13. Have you experienced any of the following symptoms in the last two weeks.

| | **(1)** | **(0)** |
|---|---|---|
| 1. **Nausea** | **Yes** | **No** |
| 2. **Trouble sleeping** | **Yes** | **No** |
| 3. **Fatigue** | **Yes** | **No** |
| 4. **Diarrhea** | **Yes** | **No** |
| 5. **Vomiting** | **Yes** | **No** |
| 6. **Difficulty concentrating** | **Yes** | **No** |
| 7. **Weakness** | **Yes** | **No** |
| 8. **Poor appetite** | **Yes** | **No** |
| 9. **Arm Swelling** | **Yes** | **No** |
| 10. **Limitations in arm movement** | **Yes** | **No** |

Note. From Ware, J., & Sherbourne, C. (1992). The MOS 36-item short-form survey (SF-36). Medical Care, 30(6), 473-483., Vinokur, A,. Threatt, B., Vinokur-Kaplan, D., & Satariano, W. (1990). The process of recovery from breast cancer for younger and older patients. Cancer, 65 1242-1254., Satariano, W., Ragland, D., & DeLorenze, G. (1995). Limitations in upper body strength associated with breast cancer: A comparison of black and white women. Journal of Clinical Epidemiology, 49(5), 535-544. and Given, B. & Given, C. (1996). Wave I Patient Without Caregiver Telephone Interview (Michigan State University. Grant #2). Lansing, Michigan: Research Study.