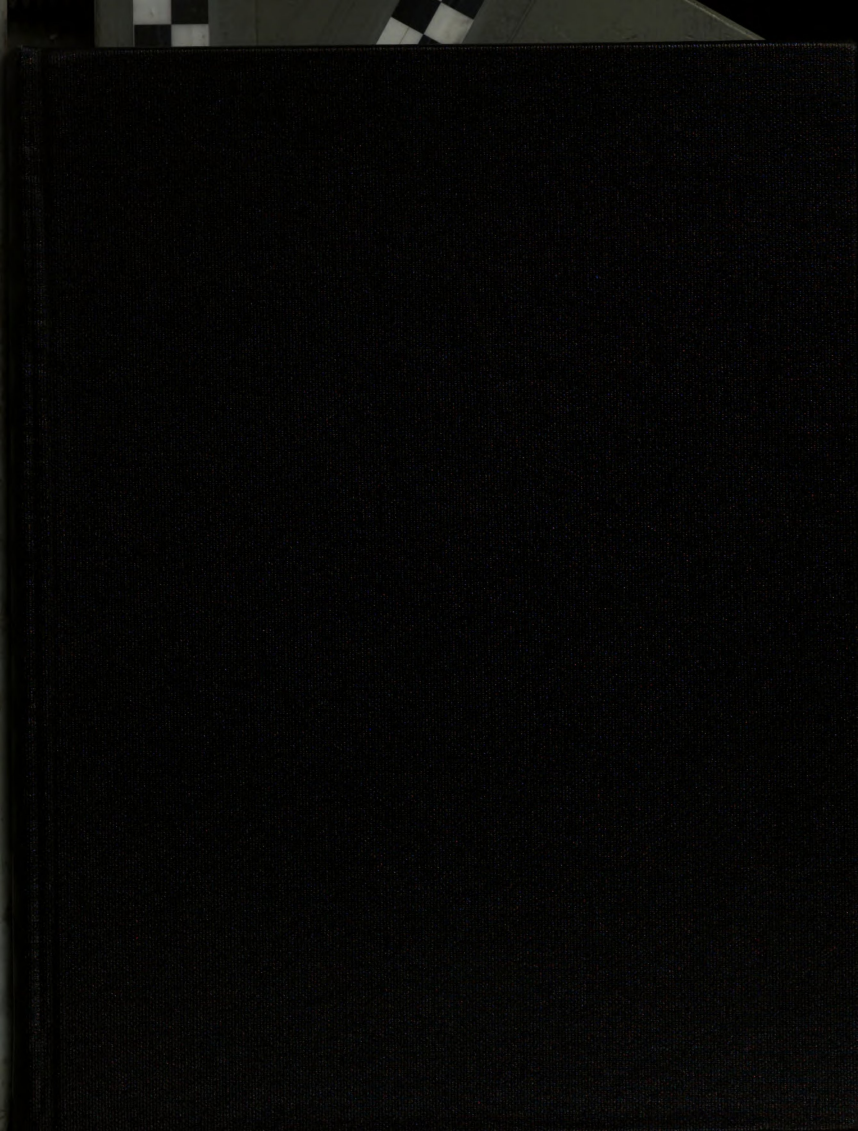






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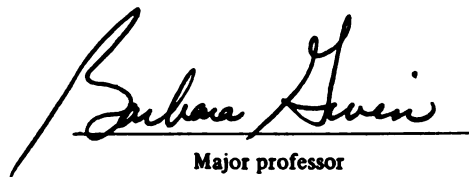
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THE RELATIONSHIPS BETWEEN OPTIMISM
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presented by

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THE RELATIONSHIPS BETWEEN OPTIMISM
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By

Susan Lynne Bradley

A THESIS

Submitted to
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MASTER OF SCIENCE IN NURSING

College of Nursing

1996

ABSTRACT

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This study is a secondary data analysis (n=33) of an ongoing cancer study focusing on breast, colon, lung, and prostate cancer patients. Because cancer survival rates have continued to improve, cancer is considered a chronic illness which brings many life changes. Health professionals must focus on helping patients adapt and maintain optimal functional status, which is important in terms of quality of life.

Through Pearson's r correlations, the relationships between cancer patients' levels of optimism and functional status were explored. Multiple regression explored the effects of patient disease status, economic status, marital status, sex, and social support on optimism level.

Results revealed statistically significant correlations between optimism and functional status soon after cancer diagnosis, and one year after diagnosis. Optimism level appeared to vary little over the year. Economic and marital status showed some effect on optimism level. These findings have relevance for cancer/primary care nursing assessment and intervention.

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and to my brother-in-law Michael, who brought Word Perfect into our

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Introduction

The purpose of this study is to explore the relationship between optimism and functional status at one year after cancer diagnosis. Also studied will be the effects of modifying external factors such as disease status, economic status, marital status, sex, and social support on a patient's level of optimism.

For many years, popular belief has connected optimism with positive health outcomes for people. This intuitive belief has survived through many generations without any concrete evidence of why it may be true. In recent decades, as survival rates of many diseases have gradually, or in some cases, dramatically improved, some of the vast amounts of scientific energy focused on simple survival has been able to shift to looking at the subtler, deeper, more spiritual/psychological aspects of what helps humans endure. With many disease processes at least partially conquered, we have the "luxury" of looking beyond just surviving to surviving well with a good quality of life.

Survival rates for cancer have improved to the point where, in many cases, it is being considered a chronic disease (McGill and Paul, 1993). This chronicity of cancer is a basic assumption for this study. Over six million living Americans have a history of cancer. This improved survival is a wonderful, hopeful fact, but the reality is that a cancer survivor's life will never be quite the same as it was before diagnosis (Dow, 1990; Dow, 1991). Cancer almost always brings about physical or psychological changes for the survivor.

Fitzhugh (1985), a physician who survived cancer, described survival as "...a generic idea that applies to everyone diagnosed as having cancer, regardless of the course of the illness" (p.271). He described three "seasons", or stages of cancer survivorship: acute

survival, extended survival, and permanent survival. The acute survival stage is dominated by the diagnosis of cancer and the treatment efforts. Along with much anxiety and fear for the patient and their loved ones, this phase is dominated by dealing with the physical effects of the treatments. The next stage is called extended survival, and is when the patient has finished the basic, rigorous course of treatment. It is then that the patient often has to deal with physical limitations caused by the cancer and its treatment. Fitzhugh describes this stage as a time of watchful waiting in which the fear of recurrence is very much present. It is important to note that this phase involves less support from health professionals since there tends to be no active treatment. This second stage gradually extends into the last stage; permanent survival. It is then that the activity of the disease and the chance that it will return become less and less. The patient's life slowly returns to some type of new "normal". The "old normal" is no longer possible due to the effects of cancer on a person's health, family, employment, health and life insurance, etc. In essence, the survival of cancer is a process which requires much courage and adjustment, and which brings about lasting changes in a person's life. For this reason, it is very important for health care providers to look beyond physical survival of a disease process to working to optimize adaptation and quality of life for cancer survivors and their families. Measuring functional status is one way of looking at how a person is being affected by their cancer, as well as how they are adapting to the changes which the cancer brings.

If adaptation and optimal quality of life is a goal, then health care providers must know what might help their patients achieve this goal. This knowledge must be integrated into effective, early

rehabilitation plans for each patient and his/her family. These rehabilitation plans must be holistic in that they must integrate consideration of a patient's physical as well as psychological/spiritual status.

The relationship between a cancer patient's functional status and their orientation towards optimism or pessimism will be a focus of this study. Anecdotally and through scientific studies, people with the same medical diagnosis have been observed to have very different health outcomes and functional abilities. It is possible that their orientation towards optimism or pessimism has something to do with these differences. The current study will attempt to explore this possibility.

Theoretical Definitions

Optimism. Expectancy orientation refers to a person's orientation towards either an optimistic or pessimistic outlook on life. Optimism is one type of orientation, and it is a general outlook which expects and hopes for the best. Scheier and Carver (1992) define dispositional optimism, which they consider to be a stable characteristic, as: "...the tendency to believe that one will generally experience good versus bad outcomes in life" (p.203). It is one thing to assume that optimists may enjoy life more as a result of their positive outlook, but of great significance are findings which indicate that optimists may actually survive longer and have better physical and psychological outcomes. Functional status is one aspect of physical outcomes.

Scheier and Carver (1992), in a review of several studies on optimism, propose that optimists do better because they use more effective coping strategies. Optimists tend to look for the best in the problems that they face, accept the reality of problems rather than

denying or wishing them away, and try to deal with problems head on through active constructive steps. Optimists tend to see desired goals as attainable and therefore keep working towards them even through adversity. In contrast, pessimists view desired goals as less attainable, and tend to give up easier. Scheier and Carver state that coping may affect the link between optimism and psychological/physical well-being. Functional status is closely related to physical well-being.

Psychoneuroimmunology. Psychoneuroimmunology (PNI) is a relatively new field which has a holistic view of humans; believing that the human mind, brain, and immune system are all connected and interactive. This concept won't be measured in this study, but is included here because it pervades many aspects of cancer issues. Bauer (1994) describes PNI as: "...the study of the intricate interaction of consciousness (psycho), central nervous system (neuro), and body's defense against external infection and aberrant cell division (immunology)" (p.1114). Studies in this field also reveal a possible positive link between optimism and good health outcomes.

McCain and Smith (1994) discuss PNI as it relates to stress and coping. They look at different stress theories, and add in the concept of PNI to make them more holistic. They use the definition of stress by Lazarus: "A particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p.223). To that, the authors add in the concept of PNI by discussing the effect of stress on the immune system. They focus on the fact that increased cortisol, which is immunosuppressive, is an effect of stress. One can conclude that effective coping strategies are important for a person's

mind and body. It can be hypothesized that an optimist, with generally more effective coping strategies and therefore less circulating cortisol, may have an immune system advantage over a pessimist. This in turn could lead to a better functional status.

Thus, the field of PNI has much potential for discoveries which may eventually help people with cancer maintain an optimal level of health and functioning.

Functional Status. Functional status is a very important aspect of daily life. Functional status refers to how well a person can do the things that they want and need to do. Functional status is both somewhat dependent on and independent of a medical diagnosis. Many would argue about which is more significant: a medical diagnosis or a person's functional status. Functional status is a broad term which refers to physical functioning, mental functioning, social functioning, role functioning, pain, vitality, and general health perceptions (Ware and Sherbourne, 1992). This study will focus on physical functioning, which will be referred to as functional status. Physical functioning is chosen because, of all the other types of functioning (e.g., mental, social, emotional), it seems to be the most removed from the psychological/spiritual concept of optimism. For example, one might intuitively expect that an optimist may have better emotional functioning, but the belief that an optimist has better physical functioning is not quite as intuitive, and therefore is of interest. Focusing on the relationship between physical functioning and optimism gives more information about the connection between mind and body.

While considering a person's medical diagnosis has importance, the measurement of that person's functional status is a true, holistic, individualized measure of how the person is actually doing when living

with a disease. Functional status is a relative concept; what one can do in the present is often viewed from the context of what one could do in the past as well as what one hopes to do in the future. "...it is functional status and not diagnosis that indicates whether an elderly person can live an independent and fulfilling life" (Meyboom-de Jong and Smith, 1992, p.130). This statement could apply to a person of any age.

Meyboom-de Jong and Smith (1992) define functional status per the World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Physicians (WONCA):

"...level of actual performance or capacity to perform, both in the sense of self-care and in the sense of being able to fulfill a task or role at a given moment or during a given period" (p.128). The authors divide functional status into somatic, psychological, and social function.

Because functional status is so important, and because people are now living longer with cancer, optimal functional status is becoming more of a focus in cancer care than it was when survival was the exception rather than the rule. Because nursing's focus is on helping people prevent, adapt to, and overcome illness, functional status is an area in which nurses can have a big positive impact on the lives of patients and their families.

Watson (1992) discusses the Optimal Functioning Plan (OFP), which is used in cancer care to focus on optimal functioning and prevention of problems. A unique plan is developed for each patient. The OFP is holistic and comprehensive, and is made of five parts: physical functioning enhancement, nutritional enhancement, psychosocial support, self-care skills, and management of symptoms and side effects. The OFP is developed at the same time as the medical treatment plan, and is

intended to correspond to each phase of the cancer episode. A nurse, with input from patient and physician, is the main designer of the plan. The creation of such a plan in itself seems a hopeful thing; it's assumption is that the patient will survive and go on to live their life. The OFP goes beyond the cancer diagnosis and focuses on attaining optimal functioning. It also makes the point that surviving cancer is a process and not an endpoint (Dow, 1991).

The OFP (Optimal Functioning Plan) is a part of the concept of cancer rehabilitation, which is defined by Watson (1992) as: "A process that begins with cancer diagnosis, and continues until the best possible level of functioning is achieved and can be maintained, either by the individual with cancer alone or by the individual with the help of caretakers" (p.254).

In summary, functional status is a very important part of daily life. As more people survive cancer, focus on functional status is a key part of cancer rehabilitation because being able to do the things that one wants to do is an important part of quality of life. Functional status, because it is so individualized, represents one way of measuring how well a person is actually doing in terms of the daily activities that have importance for them. It goes much deeper than just a medical diagnosis, and it is what nurses, as professionals whose interest and concern focus on the human response to illness, are very interested in; especially in chronic illnesses such as cancer. A nursing goal with chronic illness is to develop and implement interventions which help preserve and maximize a person's functional status.

External Factors. For this study, external factors include modifying factors which may have an effect on a person's level of optimism. Each of the five factors was chosen because they were representative of a basic difference between patients with cancer; ones which the author hypothesized may have an effect on level of optimism. No literature specifically relating optimism to each of the external factors for cancer patients was found. The first factor is disease status, which refers to a person's primary cancer site as well as the stage of their cancer. The second factor is economic status, which refers to a person's yearly household income. The third factor is marital status, which refers to whether a person is single, married, widowed, divorced, or separated. The fourth factor is sex, which refers to whether a person is male or female, and the last is social support, which for the purpose of this study, refers to whether a person is living alone or not.

Purpose of Study

Though there are currently no studies which specifically focus on a relationship between optimism and functional status with cancer patients, it is possible, whether it be through behavioral or immune system routes, that an optimistic orientation gives a patient some type of advantage when faced with cancer, and thus helps the optimistic patient maintain and achieve better functional status than the cancer patient with a more pessimistic orientation. As well as studying factors which may have an effect on a person's level of optimism, it is the purpose of this study to provide descriptive data regarding the relationship between optimism and functional status in cancer patients.

Research Hypotheses

It is hypothesized that there is a positive correlation between level of optimism soon after cancer diagnosis and functional status at one year after diagnosis. It is also hypothesized that the modifying external factors of disease status, economic status, marital status, sex, and social support all have an effect on a cancer patient's level of optimism. It is possible that having a higher economic status, being married, being female, and not living alone all have a positive effect on level of optimism. It is also possible that having a more advanced disease status has a negative effect on level of optimism.

Conceptual Framework

The work of Scheier and Carver (1987, 1992, and 1994) provides an excellent framework for the current study. Scheier and Carver's work focuses on the differences between optimists and pessimists and on why optimists seem to have better physical and psychological outcomes in life.

Basic to Scheier and Carver's work is the belief that an optimistic orientation is a generalized expectation or belief that good things will happen (1987). This expectation or belief is what separates optimists from pessimists, and it is what determines which behaviors a person will choose. These behaviors in turn have a big effect on the outcome of a situation. When a person is confronted with a barrier, a problem, or a crisis, there is apt to be some kind of "pause" for decision-making about how to cope with it. An optimist, because he or she tends to believe that outcomes will be good, is more apt to keep striving even under much adversity. Optimism may also affect appraisal of the situation. A pessimist, because he or she is not apt to believe that outcomes will be good, is more apt to give up or disengage from the situation.

Scheier and Carver (1987) draw on the work of Lazarus as they discuss the differing coping strategies of optimists and pessimists. They state that coping may mediate the link between optimism and psychological and physical well-being (1992). They discuss Lazarus' distinction between problem-focused coping and emotion-focused coping. Scheier and Carver (1987) state that optimists are more likely to be problem-focused in their coping efforts, meaning that they try to deal directly with the source of stress; trying to eliminate or decrease the threat and then move forward. They state that optimists are also more

likely to: place the best face on their problems, accept the reality of problems, and try to deal with problems head on. Optimists are also more likely to use acceptance when a situation is not controllable. Scheier and Carver (1987) acknowledge that there may also be something physiological (such as immune system effects, etc.) going on with optimists that helps improve outcomes.

In contrast, Scheier and Carver (1987) state that pessimists are more likely to use emotion-focused coping in an attempt to reduce or eliminate emotional distress caused by the stressful situation. Examples of this type of coping include denial, avoidance, and substance abuse.

Scheier and Carver state that the expectancy regarding outcomes is the key determinant of a person's behaviors, and is therefore the most important concept. They place less importance on how the expectancy is developed, but they do discuss it. Scheier and Carver (1994) compare their theory to that of Bandura. There are similarities and differences between the theories. Bandura's theory states that self-efficacy, or a person's self-confidence in their ability to do something, is the main determinant of behavior. Scheier and Carver (1992, 1994) acknowledge that personal efficacy is very important, but state that it is not the only thing that creates a person's expectancy or belief about the outcome of a situation. In their view, also important are external factors such as: perception of being in a benign or hostile environment, support from other people, religious faith, belief in the effectiveness of a medication or placebo, etc. The theories of Scheier/Carver and Bandura differ in many ways. Scheier and Carver place their focus on the existence of a person's beliefs or expectancies about the outcome of a situation, not on how the expectancy was developed.

Figure 1 shows Scheier and Carver's model of the connections between behavior, outcome expectancy (optimistic or pessimistic), and factors influencing outcome expectancy (Scheier and Carver, 1994). Their model indicates that a person's knowledge of external factors, of the potential consequences of their behavior, and their personal self-efficacy all combine to create their expectancy of the desired outcome of the situation. In other words, these factors combine to create either an optimistic or pessimistic orientation within the person. It is this expectancy (optimism or pessimism) which is the greatest determinant of their behaviors.

Figure 2 is an adaptation of Scheier and Carver's model (Scheier and Carver, 1994). For the purpose of this study, Expectancy of Desired Outcome (from Figure 1) is changed to Level of Optimism since optimism is the variable being measured. Figure 2 is a depiction of the relationship between Level of Optimism, Behavior, and Functional Status. Functional status is added to Scheier and Carver's model as a concept affected by behavior. It is hypothesized that optimists, due to their more effective coping styles, will have a better functional status than pessimists one year after cancer diagnosis. It is also recognized that functional status may have an effect on behavior as well as upon a person's level of optimism.

Although it is not being measured and therefore not within the focus of this study, the concept of psychoneuroimmunology (PNI) is added into this adapted model due to the author's belief that there are important two-way interactions between the immune system and functional status, behavior, and cancer patients' level of optimism. This belief could be the focus of a future study.

Figure 3 is a more focused version of Figure 2, and depicts the

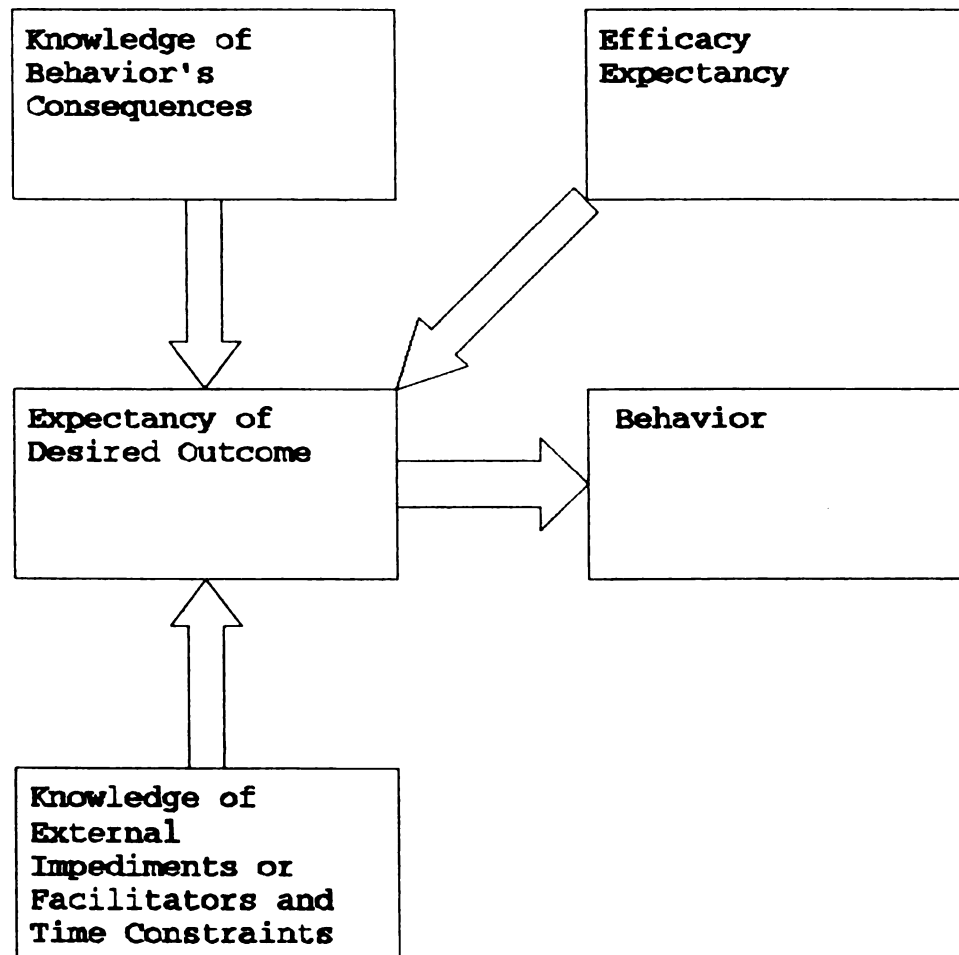


Figure 1. Scheier and Carver's model of how behavior is affected by outcome expectancy.

From Scheier and Carver, 1994



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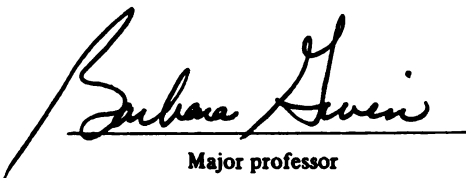
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Through Pearson's r correlations, the relationships between cancer patients' levels of optimism and functional status were explored. Multiple regression explored the effects of patient disease status, economic status, marital status, sex, and social support on optimism level.

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Scheier and Carver (1992), in a review of several studies on optimism, propose that optimists do better because they use more effective coping strategies. Optimists tend to look for the best in the problems that they face, accept the reality of problems rather than

denying or wishing them away, and try to deal with problems head on through active constructive steps. Optimists tend to see desired goals as attainable and therefore keep working towards them even through adversity. In contrast, pessimists view desired goals as less attainable, and tend to give up easier. Scheier and Carver state that coping may affect the link between optimism and psychological/physical well-being. Functional status is closely related to physical well-being.

Psychoneuroimmunology. Psychoneuroimmunology (PNI) is a relatively new field which has a holistic view of humans; believing that the human mind, brain, and immune system are all connected and interactive. This concept won't be measured in this study, but is included here because it pervades many aspects of cancer issues. Bauer (1994) describes PNI as: "...the study of the intricate interaction of consciousness (psycho), central nervous system (neuro), and body's defense against external infection and aberrant cell division (immunology)" (p.1114). Studies in this field also reveal a possible positive link between optimism and good health outcomes.

McCain and Smith (1994) discuss PNI as it relates to stress and coping. They look at different stress theories, and add in the concept of PNI to make them more holistic. They use the definition of stress by Lazarus: "A particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p.223). To that, the authors add in the concept of PNI by discussing the effect of stress on the immune system. They focus on the fact that increased cortisol, which is immunosuppressive, is an effect of stress. One can conclude that effective coping strategies are important for a person's

mind and body. It can be hypothesized that an optimist, with generally more effective coping strategies and therefore less circulating cortisol, may have an immune system advantage over a pessimist. This in turn could lead to a better functional status.

Thus, the field of PNI has much potential for discoveries which may eventually help people with cancer maintain an optimal level of health and functioning.

Functional Status. Functional status is a very important aspect of daily life. Functional status refers to how well a person can do the things that they want and need to do. Functional status is both somewhat dependent on and independent of a medical diagnosis. Many would argue about which is more significant: a medical diagnosis or a person's functional status. Functional status is a broad term which refers to physical functioning, mental functioning, social functioning, role functioning, pain, vitality, and general health perceptions (Ware and Sherbourne, 1992). This study will focus on physical functioning, which will be referred to as functional status. Physical functioning is chosen because, of all the other types of functioning (e.g., mental, social, emotional), it seems to be the most removed from the psychological/spiritual concept of optimism. For example, one might intuitively expect that an optimist may have better emotional functioning, but the belief that an optimist has better physical functioning is not quite as intuitive, and therefore is of interest. Focusing on the relationship between physical functioning and optimism gives more information about the connection between mind and body.

While considering a person's medical diagnosis has importance, the measurement of that person's functional status is a true, holistic, individualized measure of how the person is actually doing when living

with a disease. Functional status is a relative concept; what one can do in the present is often viewed from the context of what one could do in the past as well as what one hopes to do in the future. "...it is functional status and not diagnosis that indicates whether an elderly person can live an independent and fulfilling life" (Meyboom-de Jong and Smith, 1992, p.130). This statement could apply to a person of any age.

Meyboom-de Jong and Smith (1992) define functional status per the World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Physicians (WONCA):

"...level of actual performance or capacity to perform, both in the sense of self-care and in the sense of being able to fulfill a task or role at a given moment or during a given period" (p.128). The authors divide functional status into somatic, psychological, and social function.

Because functional status is so important, and because people are now living longer with cancer, optimal functional status is becoming more of a focus in cancer care than it was when survival was the exception rather than the rule. Because nursing's focus is on helping people prevent, adapt to, and overcome illness, functional status is an area in which nurses can have a big positive impact on the lives of patients and their families.

Watson (1992) discusses the Optimal Functioning Plan (OFP), which is used in cancer care to focus on optimal functioning and prevention of problems. A unique plan is developed for each patient. The OFP is holistic and comprehensive, and is made of five parts: physical functioning enhancement, nutritional enhancement, psychosocial support, self-care skills, and management of symptoms and side effects. The OFP is developed at the same time as the medical treatment plan, and is

intended to correspond to each phase of the cancer episode. A nurse, with input from patient and physician, is the main designer of the plan. The creation of such a plan in itself seems a hopeful thing; it's assumption is that the patient will survive and go on to live their life. The OFP goes beyond the cancer diagnosis and focuses on attaining optimal functioning. It also makes the point that surviving cancer is a process and not an endpoint (Dow, 1991).

The OFP (Optimal Functioning Plan) is a part of the concept of cancer rehabilitation, which is defined by Watson (1992) as: "A process that begins with cancer diagnosis, and continues until the best possible level of functioning is achieved and can be maintained, either by the individual with cancer alone or by the individual with the help of caretakers" (p.254).

In summary, functional status is a very important part of daily life. As more people survive cancer, focus on functional status is a key part of cancer rehabilitation because being able to do the things that one wants to do is an important part of quality of life. Functional status, because it is so individualized, represents one way of measuring how well a person is actually doing in terms of the daily activities that have importance for them. It goes much deeper than just a medical diagnosis, and it is what nurses, as professionals whose interest and concern focus on the human response to illness, are very interested in; especially in chronic illnesses such as cancer. A nursing goal with chronic illness is to develop and implement interventions which help preserve and maximize a person's functional status.

External Factors. For this study, external factors include modifying factors which may have an effect on a person's level of optimism. Each of the five factors was chosen because they were representative of a basic difference between patients with cancer; ones which the author hypothesized may have an effect on level of optimism. No literature specifically relating optimism to each of the external factors for cancer patients was found. The first factor is disease status, which refers to a person's primary cancer site as well as the stage of their cancer. The second factor is economic status, which refers to a person's yearly household income. The third factor is marital status, which refers to whether a person is single, married, widowed, divorced, or separated. The fourth factor is sex, which refers to whether a person is male or female, and the last is social support, which for the purpose of this study, refers to whether a person is living alone or not.

Purpose of Study

Though there are currently no studies which specifically focus on a relationship between optimism and functional status with cancer patients, it is possible, whether it be through behavioral or immune system routes, that an optimistic orientation gives a patient some type of advantage when faced with cancer, and thus helps the optimistic patient maintain and achieve better functional status than the cancer patient with a more pessimistic orientation. As well as studying factors which may have an effect on a person's level of optimism, it is the purpose of this study to provide descriptive data regarding the relationship between optimism and functional status in cancer patients.

Research Hypotheses

It is hypothesized that there is a positive correlation between level of optimism soon after cancer diagnosis and functional status at one year after diagnosis. It is also hypothesized that the modifying external factors of disease status, economic status, marital status, sex, and social support all have an effect on a cancer patient's level of optimism. It is possible that having a higher economic status, being married, being female, and not living alone all have a positive effect on level of optimism. It is also possible that having a more advanced disease status has a negative effect on level of optimism.

Conceptual Framework

The work of Scheier and Carver (1987, 1992, and 1994) provides an excellent framework for the current study. Scheier and Carver's work focuses on the differences between optimists and pessimists and on why optimists seem to have better physical and psychological outcomes in life.

Basic to Scheier and Carver's work is the belief that an optimistic orientation is a generalized expectation or belief that good things will happen (1987). This expectation or belief is what separates optimists from pessimists, and it is what determines which behaviors a person will choose. These behaviors in turn have a big effect on the outcome of a situation. When a person is confronted with a barrier, a problem, or a crisis, there is apt to be some kind of "pause" for decision-making about how to cope with it. An optimist, because he or she tends to believe that outcomes will be good, is more apt to keep striving even under much adversity. Optimism may also affect appraisal of the situation. A pessimist, because he or she is not apt to believe that outcomes will be good, is more apt to give up or disengage from the situation.

Scheier and Carver (1987) draw on the work of Lazarus as they discuss the differing coping strategies of optimists and pessimists. They state that coping may mediate the link between optimism and psychological and physical well-being (1992). They discuss Lazarus' distinction between problem-focused coping and emotion-focused coping. Scheier and Carver (1987) state that optimists are more likely to be problem-focused in their coping efforts, meaning that they try to deal directly with the source of stress; trying to eliminate or decrease the threat and then move forward. They state that optimists are also more

likely to: place the best face on their problems, accept the reality of problems, and try to deal with problems head on. Optimists are also more likely to use acceptance when a situation is not controllable. Scheier and Carver (1987) acknowledge that there may also be something physiological (such as immune system effects, etc.) going on with optimists that helps improve outcomes.

In contrast, Scheier and Carver (1987) state that pessimists are more likely to use emotion-focused coping in an attempt to reduce or eliminate emotional distress caused by the stressful situation. Examples of this type of coping include denial, avoidance, and substance abuse.

Scheier and Carver state that the expectancy regarding outcomes is the key determinant of a person's behaviors, and is therefore the most important concept. They place less importance on how the expectancy is developed, but they do discuss it. Scheier and Carver (1994) compare their theory to that of Bandura. There are similarities and differences between the theories. Bandura's theory states that self-efficacy, or a person's self-confidence in their ability to do something, is the main determinant of behavior. Scheier and Carver (1992, 1994) acknowledge that personal efficacy is very important, but state that it is not the only thing that creates a person's expectancy or belief about the outcome of a situation. In their view, also important are external factors such as: perception of being in a benign or hostile environment, support from other people, religious faith, belief in the effectiveness of a medication or placebo, etc. The theories of Scheier/Carver and Bandura differ in many ways. Scheier and Carver place their focus on the existence of a person's beliefs or expectancies about the outcome of a situation, not on how the expectancy was developed.

Figure 1 shows Scheier and Carver's model of the connections between behavior, outcome expectancy (optimistic or pessimistic), and factors influencing outcome expectancy (Scheier and Carver, 1994). Their model indicates that a person's knowledge of external factors, of the potential consequences of their behavior, and their personal self-efficacy all combine to create their expectancy of the desired outcome of the situation. In other words, these factors combine to create either an optimistic or pessimistic orientation within the person. It is this expectancy (optimism or pessimism) which is the greatest determinant of their behaviors.

Figure 2 is an adaptation of Scheier and Carver's model (Scheier and Carver, 1994). For the purpose of this study, Expectancy of Desired Outcome (from Figure 1) is changed to Level of Optimism since optimism is the variable being measured. Figure 2 is a depiction of the relationship between Level of Optimism, Behavior, and Functional Status. Functional status is added to Scheier and Carver's model as a concept affected by behavior. It is hypothesized that optimists, due to their more effective coping styles, will have a better functional status than pessimists one year after cancer diagnosis. It is also recognized that functional status may have an effect on behavior as well as upon a person's level of optimism.

Although it is not being measured and therefore not within the focus of this study, the concept of psychoneuroimmunology (PNI) is added into this adapted model due to the author's belief that there are important two-way interactions between the immune system and functional status, behavior, and cancer patients' level of optimism. This belief could be the focus of a future study.

Figure 3 is a more focused version of Figure 2, and depicts the

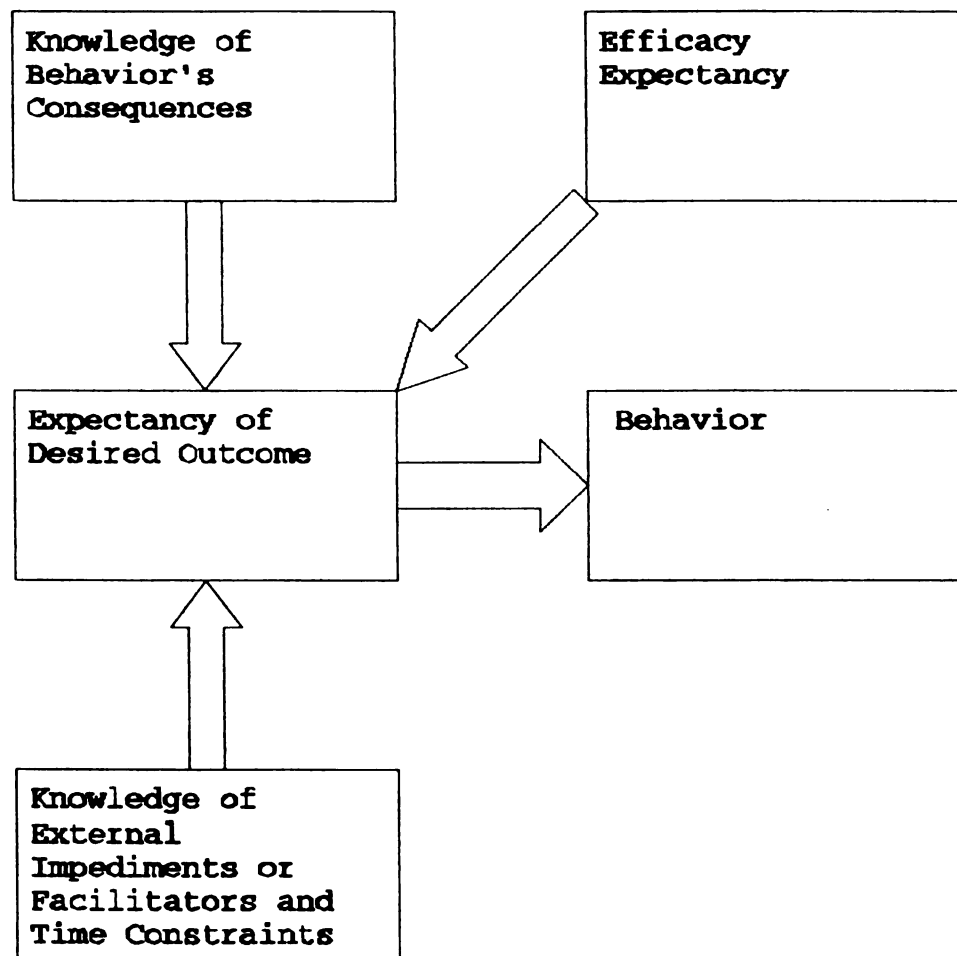


Figure 1. Scheier and Carver's model of how behavior is affected by outcome expectancy.

From Scheier and Carver, 1994

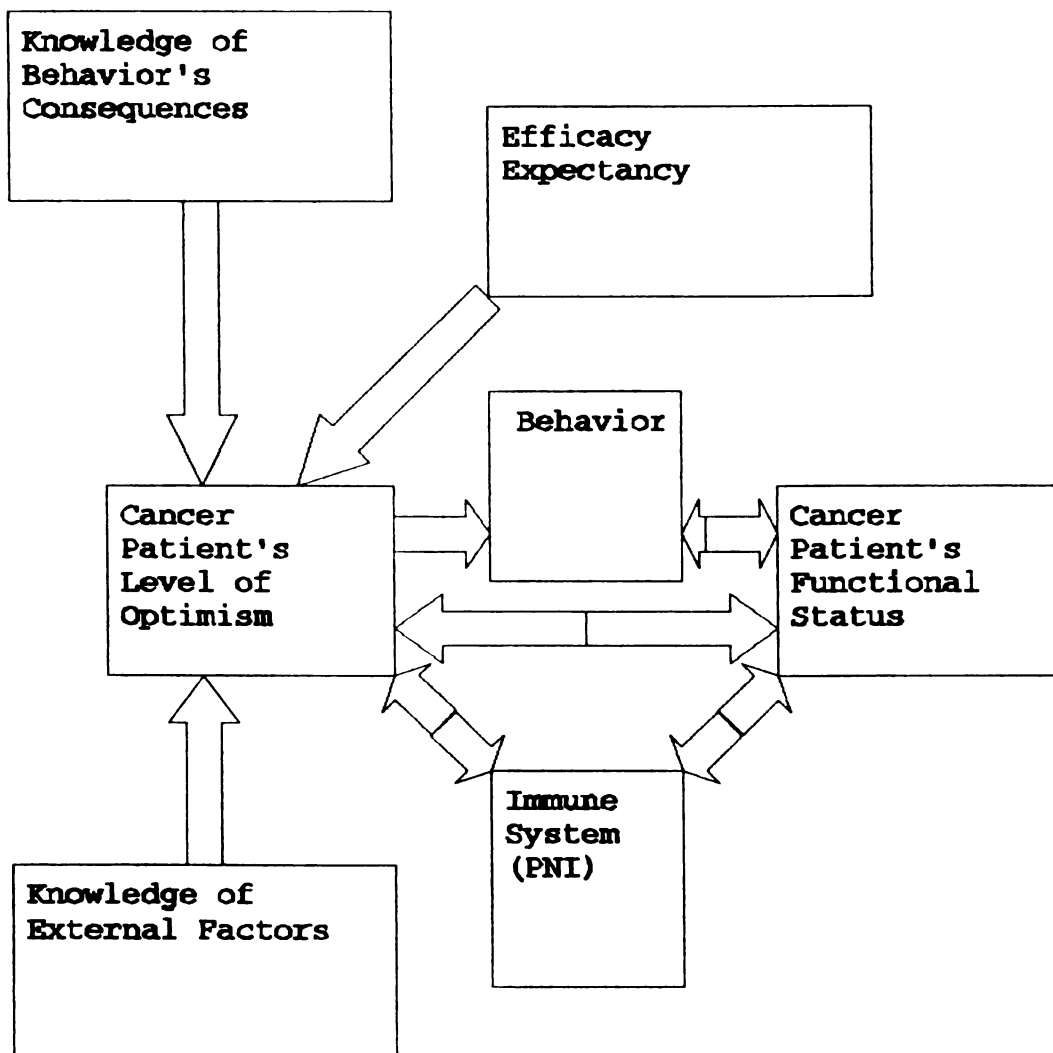


Figure 2. Adaptation of Scheier and Carver's model with addition of functional status.

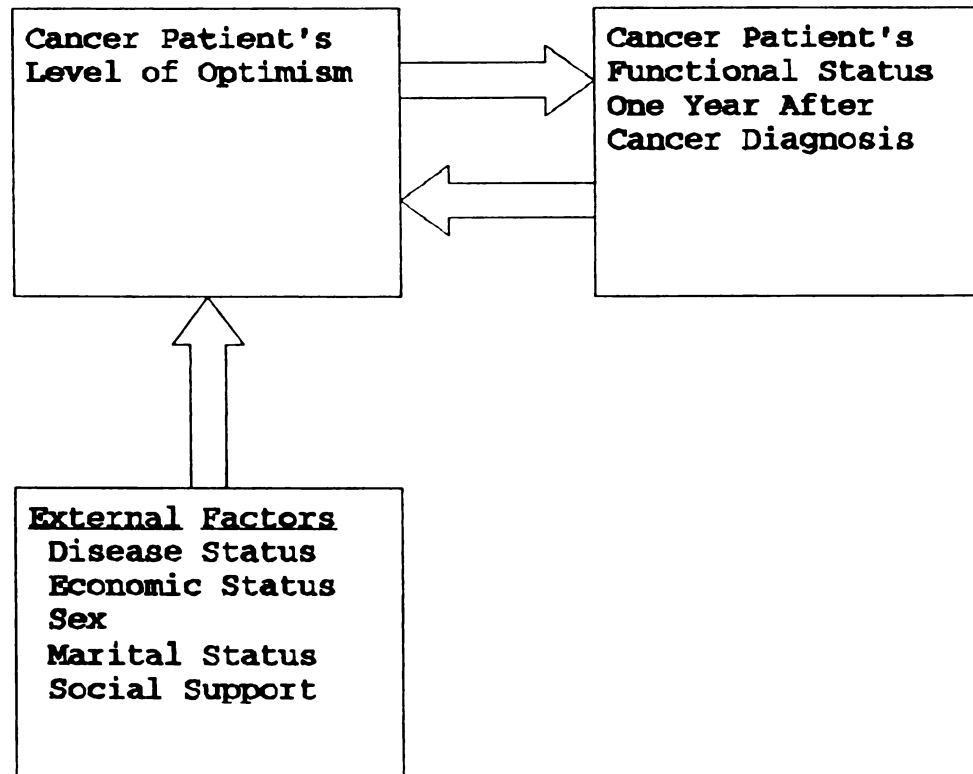


Figure 3. Modified adaptation of Scheier and Carver's model depicting research hypotheses of study.

real focus of this study. The concepts of efficacy expectancy, knowledge of behavior's consequences, behavior, and immune system are all excluded from this model because they are not being measured. The relationship between cancer patients' level of optimism soon after diagnosis and functional status one year after cancer diagnosis will be explored; the premise being that optimists will achieve better functional status than pessimists. The two-directional arrow between level of optimism and functional status depicts the possibility that the two concepts affect each other.

In order to achieve a more holistic view and hopefully to learn more, the possible influences on a person's level of optimism will also be considered and measured, and are therefore added to Scheier and Carver's model as external factors. These external factors include: disease status, economic status, marital status, sex, and social support, and will be measured soon after cancer diagnosis as modifying external factors. It is hypothesized that optimism is not developed in a vacuum; these factors may play a role in the development of a person as an optimist or a pessimist. It is possible that having a less severe disease status, a higher economic status, being female, being married, and having social support all lend towards the development of an optimist.

Literature Review

Current literature does not reveal any studies which specifically focus on the relationship between optimism and functional status in cancer patients. Kurtz, Kurtz, Given, and Given (1995), and Given et al. (1993) report findings regarding optimism among caregivers of cancer patients. They found that optimistic caregivers tended to be less depressed and to feel that caregiving had less of an impact on their schedule. Also, two studies by Carver et al. (1993 and 1994) focused on optimism in cancer patients, but this was in relation to levels of distress and psychosocial adjustment (optimism was related to decreased distress and better psychosocial adjustment); not functional status. However, there are many interesting studies which focus on the separate concepts (optimism and functional status) which must be understood in order to look at the relationship between optimism and functional status. The following literature review will discuss studies which: describe what it's like to be living with cancer, discuss relationships between optimism and health, discuss functional status with cancer, and discuss modifying external factors which may affect a person's level of optimism.

Living With Cancer

As discussed earlier, cancer is now considered more of a chronic disease, since many people live with it for many years. Living with an illness has many stages and many layers of meanings which differ from person to person. Cancer patients' and their families' lives are permanently changed by the experience. Since data for this study spans the first year after cancer diagnosis, the following studies give some insight into what it can be like to experience the different stages of cancer treatment and recovery which are often experienced during that

year.

Treatment Phase. After diagnosis of cancer, there is usually a phase involving some type of cancer treatment such as surgery, chemotherapy, or radiation. A study by Guadagnoli and Mor (1991) focuses on describing the daily needs of a special population of adult cancer patients--those receiving chemotherapy. With a sample of 413 patients receiving chemotherapy within one month of the study's phone interview, daily needs within three different domains were assessed: personal care (bathing and mobility), instrumental (meal preparation, light and heavy housework, shopping, transportation, home health and chemotherapy care, and child care), and administrative (completion of forms and paperwork, financial and legal counseling, and obtaining information about cancer and treatment). Assessed need status fell into one of three categories: no need, met need, and unmet need. Results revealed that 90% of the sample needed help with some type of activity, and 25% of those needing help reported that their need was unmet. The least amount of need was reported in the personal care domain (14% reported one or more need and 4% reported unmet needs). Forty-four percent of the sample reported a need in the administrative domain, with 11% reporting at least one unmet need. The greatest number of people (88%) reported at least one need in the instrumental domain, with 19% reporting at least one unmet need. Within this domain, the biggest need (64%) was for help with heavy housework. Family members provided needed assistance for most (greater than 75%) of the patients.

Some interesting correlations regarding patient's needs were found. The number of reported needs and unmet needs increased as a function of poorer functional status. Presence of children in the home also correlated with more reported needs, although effect of childrens' ages

was not discussed. Women reported fewer needs than men, possibly secondary to socialization. The higher the education level, the more reported unmet needs. Younger patients reported unmet needs more than older patients. Finally, the more confidence the patient had in the ability of others to help, the less likely they were to report unmet needs.

Even though Guadagnoli and Mor's study (1991) focuses on a special population of cancer patients, it provides a picture of what it is like to live through the treatment phase of cancer. The vast majority need some kind of assistance in their life, which undoubtedly represents a big adjustment to be made for both patient and family. The reported inverse relationship between better functional status and fewer reported needs/unmet needs provides an indication of the importance of a patient's functional status.

A study by Mor, Allen, Siegel, and Houts (1992) provides another look at the needs of cancer patients in the treatment phase. A sample of 629 patients undergoing outpatient chemotherapy and/or radiation was studied. The following areas of need were assessed by phone: personal care (bathing and dressing), instrumental tasks (housework, shopping, and cooking), and transportation. The impact of physiological and social factors was also assessed. Results revealed that 14% of the patients reported a need for help with personal care, 50.9% with instrumental tasks, and 58.3% with transportation. More needs were found among those with metastases, other chronic illness, illnesses of longer duration, increased number of symptoms, treatment of chemotherapy versus radiation, and lower income. Older patients needed more help with personal care and less help with instrumental tasks than younger patients. Women needed more help with instrumental tasks and

transportation than men. As for unmet needs, 32.7% of those needing help with instrumental tasks and 16% of those needing transportation assistance reported insufficient help. More unmet needs were found among the more disabled, those with more symptoms, the older patients, those with lower income, and those with smaller, less resilient helping networks than among younger, richer patients with fewer symptoms and stronger helping networks.

Thus, though varied by patient characteristics and circumstances, the treatment phase of cancer is a time during which patients develop new needs. Some of these needs are met, and some are not. Development of new needs is one indication of a change in functional status. It is clear that functional status is impacted by cancer.

Another study which focuses on the treatment phase was done by Oberst, Chang, and McCubbin (1991). They examined the self-care burden on 72 adult cancer patients receiving out-patient radiation. The study provides a view of what cancer patients have to deal with and how it affects them. Measurements were done on self-care burden, symptom distress, personal characteristics, family hardiness, socioeconomic status, stress appraisal, and mood. Results showed that fatigue was the most distressing symptom, followed by loss of strength and sleeping difficulties (probably a contributor to fatigue). Having to depend on others was also distressing. Patients' lives were most disrupted in the areas of social/recreational activities, household tasks, cleaning and yard work, and out-of-home tasks like errands, shopping, banking, and other daily business. Several such daily household tasks are included in the current study's measurement of functional status. Activities like eating, personal hygiene, and physical activity/mobility were least disrupted. Some of the most distressing aspects of the cancer

experience on patient's moods were softened by family strength.

Thus, the treatment phase of cancer can affect patients and their families in many ways by greatly affecting functional status, which in turn can disrupt many of the simple, day-to-day activities which many people are able to take for granted. Instrumental activities of daily living are especially affected by the treatment phase of cancer.

Watchful Waiting. After the intense treatment phase comes a period of watchful waiting. This is followed by advancement of the cancer for some, and a recovery process for others. Vinokur, Threatt, Vinokur-Kaplan, and Satariano (1990) did a longitudinal study which focused on the process of recovery for a sample of 274 newly-diagnosed breast cancer patients. Their adjustment was examined in terms of physical and mental functioning and influencing factors, and was assessed at approximately 4 months and 9 and 1/2 months after diagnosis. Results revealed significant improvements in health and physical status and no overall change in mental health and well-being. There was also a significant decrease in the appraised threat of breast cancer disease, a significant increase in anger/irritation, and a decrease in feelings of internal control. Younger patients viewed the breast cancer as a bigger threat to their future than older patients, which had adverse effects on their mental health. Also found was that greater physical impairment was related to lower income. Overall, the authors concluded that it takes some time for people to mentally recover from breast cancer. They found that poor mental health is directly affected by greater physical impairment, appraisal of threat, more extensive surgery, and age. Thus, the process of recovery from cancer is not simple and straightforward. It involves experiencing and adapting to changes in functional status. While the body may heal with good progress, the mental recovery is

affected by many factors and can be more difficult.

Long-term Adjustment. Northouse (1990), in a longitudinal study, focused on the adjustment process of 41 breast cancer patients and their husbands. Instruments measuring distress, role function, and mood were used as assessments at three days, thirty days, and eighteen months post-surgery. Results revealed that levels of mood and role function improved over time, while levels of distress did not improve over time for patients and their husbands. Hypothesized reasons for the latter include fear of recurrence, having to live with uncertainty, and the fact that other stressors may have a bigger, additive effect when a family is having to deal with a serious threat such as breast cancer. This study provides another indication of how functional status changes while living with and recovering from cancer, and underscores the fact that having cancer drastically and permanently changes a person's life as well as that of their family.

A study by Ferrans (1994) focused on the quality of life of survivors of breast cancer. Subjects included 61 women with an average length of time of 10 years since cancer diagnosis. Two open-ended questions were posed: one asked whether cancer treatment had been worth it (95% said yes), and the other asked if there was anything else that the subjects wanted to tell about their life or their health care. Ferrans divided results into four quality of life domains: health and function, psychological/spiritual, family, and social/economic. Twenty-one percent commented that they were well and without pain, while 8% commented that they were experiencing chronic pain related to cancer therapy. Seven percent reported a cancer recurrence. Twenty percent commented on experiencing depression or devastating impact, and 75% of these stated that it was ongoing. Fifteen percent indicated that fear

of recurrence was always present. Sixteen percent commented on having difficulty with finances. Eighteen percent commented on their supportive husbands or families, and 8% commented on negative experiences related to family. This study as a whole indicates that the diagnosis of and experience of living with cancer affects all aspects of quality of life, and many of these effects are long-lasting and life-changing.

A longitudinal study by Kurtz, Given, Kurtz, and Given (1994) focused on the interaction of age, symptoms, and survival status for cancer patients. Their results give a picture of what life with cancer is like for patients and families as disease progresses and worsens. Results revealed that patient age was positively related to patient immobility. Patients approaching the terminal phase of their illness had higher levels of depression, immobility, and symptoms, although symptom severity and frequencies varied. This study also focused on caregivers, which is not within the scope of the current study. For cancer patients, it gives an idea of what life can be like as health status deteriorates.

A study by Given et al. (1993) focuses on life with cancer for patients and their caregivers. With a sample of 196 adults with cancer, the following assessments were made: caregiver and patient depression, impact of caregiving on caregiver's health and schedule, cancer symptomatology, patient's functional deficits, and caregiver's optimism. Results revealed moderate to high correlations between patient immobility, symptom distress, and ADL dependencies with patient level of depression. The relationship between symptom distress and depression was the strongest. Also of interest in relation to the current study of optimism is the finding that caregivers scoring high on the optimism

scale appeared to be less depressed and tended to feel that caregiving had less of an impact on their health and schedule. These relationships show how the life of the caregiver as well as the patient's life is greatly affected by cancer. The strong relationship between patient depression and symptom distress, and the resulting effect on caregivers warrants special attention by health professionals. Thus, this study gives another view of life with cancer by pointing out the factors which have significant effects on patients and their families.

In summary, the preceding literature gives some idea of what is known about life with cancer. Functional status is impacted during the treatment and recovery phases of cancer, and patients experience new needs, some of which go unmet. The diagnosis of cancer affects all aspects of patients' and families' lives. In most cases, the cancer represents a life-disrupting chronic illness which brings many necessary, sometimes permanent adjustments versus an acute illness where life goes quickly back to "normal" after recovery. This study is needed because it may add to knowledge about how to identify cancer patients who may be at high risk for poor functional status, and about how to develop effective interventions focused on improving functional status.

Effects of Optimism

A review of the literature reveals a substantial amount of information linking optimism and health. Some of the studies focus on cancer patients, and some on other aspects of health. All reveal that optimism has a positive effect on physical and/or psychological health and functioning in some way.

Freidman et al. (1992), in a study with cancer patients, found relationships between optimism and coping. Dispositional optimism was measured with the Life Orientation Test (LOT), and type of coping was

measured and categorized into either active-cognitive, active-behavioral, or avoidance coping. A significant positive relationship was found between dispositional optimism and active-behavioral coping. A negative relationship was found between dispositional optimism and avoidance coping. This supports Scheier's theory that dispositional optimism has an effect on how people cope with stressful events. This particular study does not measure outcomes or functional status of the subjects, but one could hypothesize that the optimists, because they tend to use more active coping, would have better functional status outcomes than the pessimists, who are more likely to give up or disengage from a situation.

Lin and Peterson (1990) studied the link between explanatory style, which is a person's usual way of explaining bad events, and illness. Explanatory style is considered to be either optimistic or pessimistic. The study focused on young adults, and measured physical health, explanatory style, response to illness, and ways of coping. The results showed that pessimists reported more frequent illness, were less apt to take active steps to relieve symptoms when ill, and were less apt to use effective coping during their most recent episode of illness. The authors offered the interpretation that pessimists may be predisposed to act helplessly in response to bad events like illness. Again, functional status is not explicitly measured, and this study is not done with cancer patients, but one may be able to hypothesize that a response of helplessness may leave a person with a poorer functional status by leading them to a tendency to disengage from rather than actively participate in the recovery process.

Two cancer studies on the same group of subjects show an important link between attitude and survival, even though they do not directly

measure functional status or optimism. A cancer study by Greer, Pettingale, and Morris (1979) looks at the relationship between psychological perspective of 69 early stage breast cancer patients and survival status (not functional status) five years later. The psychological perspectives fell into four main categories: denial, fighting spirit, stoic acceptance, and feelings of helplessness and hopelessness. Those who fell into the categories of denial or fighting spirit had better five-year outcomes (75% alive with no recurrence) than those categorized as stoic or helpless/hopeless (35% alive with no recurrence). These findings are very interesting, but one limitation is that the authors don't discuss the fact that denial and fighting spirit are very dissimilar responses or categories. Despite their differences, the outcome rates for these two categories are very similar. The process whereby they affect outcomes is not delineated. However, the authors do state that more and larger studies need to be done to test the reliability and validity of the study's categories of psychological response.

Pettingale, Morris, Greer, and Haybittle (1985) did a follow-up to the above study by looking at the survival status of the same patients with breast cancer five years after the initial five-year measurement. The same psychological perspective categories were used. Results revealed that the women from the denial and fighting spirit categories were still doing better (55% alive without recurrence) than those from the stoic and helpless/hopeless categories (22% alive without recurrence). While these two studies do not measure functional status or optimism directly, they do show a link between attitude and survival.

A study indirectly related to optimism and functional status was done with a group of 86 women with metastatic breast cancer (Spiegel,

1991). An experimental psychosocial intervention involving group-based social support, help with facing problems related to cancer, and help with developing individual life projects was implemented. The effect of this intervention on mood and pain sensation was studied. Over the time period of the study, mood disturbance scores worsened for the control group and improved for the experimental group. Pain sensation also worsened for the control group and improved for the experimental group. Several years after this study, Spiegel did another analysis of this data with an eye towards survival time. At 48 months after the beginning of the study, all of the women in the control group had died, and one third of the women in the experimental group were still living. Those with decreased pain sensation and improved mood clearly had a better quality of life and functional status, which was followed by better survival statistics. The treatment group lived twice as long (36.6 months) as the control group (18.9 months) after entry into the study. This again shows an important link between attitude and survival. The group intervention helped the women develop and carry out some of the characteristic behaviors of optimists, and the outcomes (decreased pain sensation, improved mood, and longer survival) can be associated with a better functional status.

Halstead and Fernsler (1994) carried out a study which focused on the coping strategies of people who had survived cancer for at least five years. Subjects rated optimism (positive thinking, thinking about the good things in life, trying to keep life as normal as possible, keeping a sense of humor) as the one used most often. These long-term survivors used optimism as a coping approach. A limitation of this study is that it is not known if those who did not survive for more than five years were optimists as well.

A study by Carver et al. (1993) (Scheier was also a part of study) focused on the relationship between optimism and levels of distress for 59 early stage breast cancer patients. The study was longitudinal; beginning 1 day pre-surgery and ending at 12 months post-surgery. Results revealed that optimism was inversely related to distress at each assessment point. As far as coping mechanisms, they found that acceptance and use of humor predicted lower distress levels. Functional status was not measured.

Another study with early stage breast cancer patients by Carver et al. (1994) focused on the relationship between optimism and psychosocial adjustment over the first year post-op (mastectomy or lumpectomy). Assessments were done the day before surgery and at three, six, and twelve months after surgery. There was no specific measure of functional status, but results showed a strong positive relationship between optimism and subjective well-being (mood and life satisfaction measures) at each stage.

Several studies, though not cancer-related, lend support to a link between positive physical and mental health outcomes. Scheier et al. (1989) found that optimists achieved better recoveries and functioning than pessimists after coronary artery bypass surgery. They believe that effective coping skills mediates the link between optimism and positive health outcomes. Scheier and Carver (1985), studying college students, found that optimists were less apt to develop common physical symptoms than pessimists under stressful (final exams) circumstances. Carver and Gaines (1987) also found that optimism was associated with less susceptibility to post-partum depression, which can greatly affect functioning. Finally, Strack, Carver, and Blaney (1987) found that dispositional optimism was a significant predictor of successful

completion of an alcohol treatment program.

In summary, studies with specific measurements of optimism and functional status are not abundant at this time, especially for cancer patients. However, studies which show positive links between optimism and positive physical and psychological outcomes have been steadily accumulating. In some of these studies, functional status is not specifically measured, but one can gather that it could be included within the category of physical outcomes because ability to carry out everyday physical functions is related to one's physical health status. However, because functioning is so unique to each person, it is a better, more specific representation of how that person is actually doing, and therefore should be measured separately rather than just "blended into" the category of physical outcomes. Therefore, it is known that optimists in general tend to have better health outcomes than pessimists, perhaps through the use of more effective coping strategies. It is not known if optimistic cancer patients have better outcomes in terms of functional status.

Functional Status

Functional status is a very important aspect of daily life. It refers to how well a person can do the things that they want and need to do, and is very unique to each person. The following studies focus on the many factors which affect functional status for people living with chronic diseases, mainly cancer.

Stewart et al. (1989) studied the effect of chronic illness on functional status and well-being in one part of the large Medical Outcomes Study (MOS). The SF-36 was used as a measurement tool. The chronic conditions included: hypertension, diabetes, heart attack in the last twelve months, congestive heart failure, arthritis, chronic lung

problems, back problems, chronic GI disorders, and angina. Results revealed that self-reported health perceptions were poorest for those with congestive heart failure and GI disorders, and best for those with hypertension or back problems. Physical functioning was best for those with hypertension, and worst for those with heart attack or congestive heart failure. Role function was worst for those with congestive heart failure or heart attack. Social function was worst for those with heart attack or congestive heart failure, and best for those with hypertension.

Meyboom-de Jong and Smith (1992), in a related study, focused on functional status and morbidity among a sample of 5502 elderly patients visiting 25 different general practitioners. Functional status was measured through COOP charts (developed for the Dartmouth Primary Care Cooperative Information Project), and was divided into: physical status, psychological status, daily activities, social status, and change (in condition). The greatest limitations in functional status were found in encounters for cerebrovascular disease, dementia, and cancer of the lungs, stomach, intestine, and breast. The best functional status was with hypertension, "no disease", and the common cold. This study shows that functional status does vary by the nature of a person's disease. It is important to consider type of disease when assessing an individual. However, functional status should also be assessed because it is a way of delving deeper into how the disease is actually affecting a person's daily life, and varies by the individual.

Mor (1987) studied the varying quality of life (QOL) scores of people in three different stages of cancer. Mor refers to QOL as "those aspects of life and human function considered essential for living fully"(p.535). QOL is a broad term which includes the following

aspects: physical, psychological, social, activities, and material (financial). As it is being used for the current study about functional status and optimism, functional status is one aspect of QOL. Mor reports that QOL scores were highest among the newly-diagnosed, second-highest among those receiving active treatment, and much diminished among those in the terminal stage of cancer. In all three stages, functioning, symptoms, depression level, and social support were significant predictors of QOL scores while age and cancer type were only minimally related. Thus, functional status is a very important contributor to one's overall quality of life, and should be considered as much as their actual diagnosis.

Given, Given, and Stommel (1994) focused on how age, gender, type of cancer, and symptom experience affect physical function and mental health in cancer patients over age 50. They found that cancer site did not affect the other variables. They found that symptoms had an important effect on functional status. The number of symptoms and physical functioning were inversely related. The researchers also found a gender difference: the older the men, the less the depression, and the older the women, the more the depression. Male depression levels were more affected by changes in symptoms than were female depression levels, and women were significantly less likely to improve in the area of depression. Also, patients undergoing chemotherapy treatment were least negatively affected (in terms of depression) by an increase in symptoms; this group of patients also suffered from the highest numbers of symptoms. Perhaps these patients expected an increase in symptoms, and were therefore better prepared to deal with them. It was concluded that higher depression scores seemed to be a function of an interaction of symptoms and treatment. This study shows that a patient's level of

functioning is affected by many inter-woven factors.

Another longitudinal study of solid tumor cancer patients by Kurtz, Kurtz, Given and Given (1993) focused on the relationships between age, co-morbidity, symptoms, and physical and mental status. Loss of physical function was predicted mainly by symptoms: especially fatigue, pain, and weight loss. The research revealed that symptoms were not as disruptive to patients at the second measurement as at the first (6 mos. apart). These findings indicated that patients' symptoms and disruption of physical function was mainly a result of cancer treatment, and gradually improved over time. These results have important practice implications for helping cancer patients maintain their functional status and therefore quality of life; a deeper focus on symptom control could greatly improve functional status and quality of life.

Sarna (1994) focused on describing physical functional status among 69 women with lung cancer. The typical subject had lived with cancer for more than 12 months. Measurements were done on physical performance status, disruptions in daily activities, and a subjective view of activity limitations. Results revealed that a decrease in energy was the most prevalent disruption of daily life. Seventy-two percent had limited vigorous activity, 45% had trouble climbing stairs, and 51% had trouble walking more than one mile. This study is important because it shows that a measure of functional status goes deeper than the broad diagnosis of lung cancer to give a truer, more important picture of how life is disrupted and affected by lung cancer. An additional important point made by Sarna is that functional status is a relative concept for each person. When measuring a person's functional status, it is important to compare it to their previous level of function in order to really know how a disease or stressor has disrupted and affected their

life.

In summary, a review of recent literature reveals that the importance of assessing functional status in cancer and other chronic illnesses is being realized. Functional status clearly varies by condition, and is also affected by other factors such as symptoms, age, type of treatment, etc. It is a deeper, more individual measure of how a person is actually doing than just a sole focus on their diagnosed disease. Functional status assessment is an important first step towards helping people and their families live better with cancer and other chronic illnesses.

External Factors

According to the model for this study, there are external factors which may affect a person's level of optimism. External factors are patient characteristics which may affect level of optimism. In this section of the literature review, these external factors will be discussed in the following sequence: social support, marital status, disease status, economic status, and gender. No cancer literature was found which specifically discusses optimism in relation to each of the external factors. Therefore, several concepts related to optimism are very briefly discussed.

Social support. Fawzy et al. (1993), in a randomized controlled experimental study, studied the effects of a structured psychiatric six-week group intervention on rates of survival and recurrence for a sample of 68 people with recently diagnosed and treated stage I or II malignant melanoma. The control group (34 people) received no psychiatric intervention, while the experimental group received a six-week group intervention focusing on education, stress management, enhancement of coping skills, and psychological support. This group intervention can

be considered a type of social support. In the study, assessments of affective state, coping methods, and certain immunologic parameters were done. Six months after the group intervention, data showed that the group support intervention improved effective coping, decreased psychological distress, and positively affected parts of the immune system. Effective coping methods and positive affective states are both characteristics of optimists.

Marital status. A study by Ganz, Lee, and Siau (1991) examined the relationship between cancer patients' self-assessed quality of life and their survival time. A sample of 40 cancer patients with stage IV metastatic non-small cell lung cancer completed the FLIC (Functional Living Index-Cancer), a cancer-specific measure of quality of life which focuses on a patient's day-to-day life (concerns related to stress, pain, ability to work, etc.). Results showed significantly better survival times for the patients with higher quality of life scores, and also for the patients who were married. There was no significant relationship between physical variables and survival time. These results show that there are many factors which may affect survival time and functional status. The people who were married and reported higher qualities of life lived longer. While a connection between marital status and optimism is not directly measured, one may hypothesize from the study that being married may have some positive effect on survival time; perhaps related to increased support and assistance. Previously discussed studies (Friedman et al., 1992; Halstead and Fernsler, 1994; Carver, Harris, Robinson, and Moffat, 1994) have shown that optimism is linked with improved outcomes and survival for cancer patients, but more research is needed to see if optimism could be a significant link between marital status and survival time.

Disease status. The presence of cancer symptoms differs from patient to patient, and may greatly affect their level of optimism. Two studies done by Spiegel, Sands, and Koopman (1994) examine the relationship between pain and depression in cancer patients as well as the possible directions of causality between them. Neither study was longitudinal; both involved assessments of pain and depression/mood which took place in just one session. In the first study, patients self-rated their pain and were subsequently placed in high or low pain groups. Other measures done at the same time were for depression, mood, anxiety, family status, and life events. Results revealed that 33% of patients in the high pain group versus 13% of those in the low pain group met the criteria for major depressive disorder. This general trend held when metastatic status was controlled. Of importance is the fact that the history of major depression was higher in the low pain group, which might lead to the expectation that a higher percentage (than 13%) would experience depression. Patients in study 2 were not grouped; their scores on a 1-10 pain scale were compared with their mood scores. For this group, pain intensity was significantly correlated with mood disturbance, fatigue, and vigor, but not with depression. Pain frequency was significantly correlated with depression, fatigue, and vigor, but not with mood disturbance. These findings indicate a definite relationship between pain and depression in cancer patients, but because of the cross-sectional design, a two-directional causality can't be inferred. Pain is one of many factors which have an effect on a cancer patient's mood state, which in turn may have an effect on a cancer patient's functional status. Amount of pain is associated with disease status, so while this study does not directly measure optimism and disease stage, the findings may be used to hypothesize a negative

link between optimism and advanced disease stage. This hypothesized link would need further study.

Economic status. In a study by McGill and Paul (1993), the relationships between functional status and hope were studied. Socioeconomic status was also measured, and they found that higher income was related to a higher level of hope among the subjects. Higher income is usually associated with more resources, which could lead to more effective coping. While more follow-up would be needed regarding this relationship, it does lend support to this study model's assumption that a person's economic status has some effect on their outcome expectancy orientation, or level of optimism versus pessimism.

Sex. In another previously cited study by Given, Given, and Stommel (1994), the focus is on the relationships between the variables of age, gender, cancer type, symptom status, physical function, and mental health among cancer patients. The findings related to gender were that depression decreased as men aged, and increased as women aged. Male depression levels were more affected by changes in symptoms than female levels. This subset of the study's findings indicates that gender may influence a person's depression level. From this, an idea for further study could focus on whether or not gender may influence level of optimism.

In summary, while the main focus of this study is on the relationship between optimism and functional status, a focus on the factors which might influence a person's level of optimism is included to make the model and study more holistic. A person's outcome expectancy is as it is, but it is important to at least consider how it might have developed. If results show factors which clearly influence level of optimism, and if optimism proves to be a helpful trait in terms

of functional status, it will be important to be able to identify those who may be at higher risk for poorer functional status. It will also be important to consider whether optimism-enhancing interventions can be developed and successfully implemented.

Currently, there are no studies which have specifically focused on the relationship between optimism and functional status in people with cancer. The value of measuring a person's functional status rather than just going solely by disease status has gradually been realized because functional status, as a relative concept, gives a truer picture of how a person is really doing, how much a disease has disrupted his or her life, etc. Helpful, effective interventions can be developed from this type of assessment; thus enhancing the quality of life for a person with cancer and his/her family.

The literature review discusses findings which support the idea that optimism influences patient outcomes in a positive way. This may be through the use of more effective coping skills, such as facing problems head on, seeking support and information when needed, avoiding denial and substance abuse, and accepting one's situation when necessary. Secondly, the literature review has also shown that the assessment of functional status has been developed as a true, holistic, individualized measure of how a person is actually doing when living with a disease. Thirdly, though this is not strong and therefore needs further study, there is acknowledgement in the literature of the effects of external factors on a person's attitude or mood.

This study is important because it will hopefully show if there is a significant correlational relationship between optimism and functional status. This study will also show which types of external factors have the greatest effect on level of optimism. If a relationship between

optimism and functional status with cancer patients is found, further studies designed to show a cause and effect relationship as well as those designed to test interventions designed to enhance a person's level of optimism and therefore functional status may then be considered and developed. While there is some evidence in the literature that the latter exists (Fawzy et al., 1993; Spiegel, 1991), that area would be full of possibilities for further exploration.

Methods

Research Design

This research study is a secondary data analysis of a large research study: Family Home Care for Cancer--A Community Based Model. The study is funded by the National Institutes of Health, NCI grant number 2R01NR/CA01915-03A3. Principal investigators: Dr. Barbara Given and Dr. Charles Given. The focus of the larger study is to describe how age, comorbid conditions, cancer site, extent of disease, and type of treatment impact on elderly cancer patients' functional and mental states. The ongoing study also focuses on the involvement of and impact on family caregivers.

The current secondary data analysis is a descriptive correlational study which provides descriptive data about the type of relationship between two of the measurements from the primary study: initial level of optimism, and functional status at one year after diagnosis of cancer. In addition, the effects of disease status, economic status, marital status, sex, and social support on level of optimism are also studied.

Sample

The target population for this study was elderly patients who had recently been diagnosed with cancer. Study eligibility criteria included: age of 65 years or older, no hospitalizations in the previous 60 days, a new diagnosis of either breast, colo-rectal, lung, or prostate cancer, and some type of initial treatment beyond palliation. These types of cancer were chosen because they are among the most common types, and because equal representation of each sex is facilitated.

A non-probability, convenience sample of the first 33 subjects who completed Wave 4 (one year after cancer diagnosis) of the primary study was gathered and studied. The primary study is gathering a sample of

1235 patients based on an estimate that approximately 800 (200 of each studied type of cancer) would survive through the first year after diagnosis. Subjects were found through community hospitals affiliated with the MSU College of Human Medicine, College of Nursing, and the Cancer Consortium of MSU.

Data Collection Procedures

Study data was obtained through interviews with patients, self-administered questionnaires, and audits of patients' medical records. Specially-trained nurses worked as subject recruiters and data collectors for the study. These nurses were baccalaureate-prepared with clinical experience in cancer care. Their training for this study included videotaping and evaluation of patient interviews, and group meetings. The training was done to ensure inter and intra data collector reliability, and was always done by the same research study personnel. All nurses had phone access to resources for help with computer problems or other issues.

Through a variety of sources (surgery schedule, pathology laboratory reports, oncology medical-surgical units, chemotherapy and radiation therapy settings, and oncology clinicians/clinical nurse specialists), the nurse recruiters identified patients who fit the study's eligibility criteria. A note to the physician of each eligible patient was placed on the patient's chart. This note served as a way of gaining permission to approach the patient per agency policy.

If no physician objection was received, the nurse recruiter approached the patient. The study was described and patients were asked if they would like to participate. Approximately one-third of those who were approached refused participation. If patients agreed to participate, informed written consent was obtained (see Appendix A).

This consent allowed a review of patients' medical records, and gave authorization to obtain patient address, telephone number, and other necessary clinical information. To avoid bias, information regarding patient age, gender, cancer site and stage, insurance status, name of attending physician, name of hospital, and whether or not patient had surgery was recorded even if the patient or their physician refused study participation.

Assessment of patients' functional status was done by phone interview by a data collector soon after discharge and one year later. The telephone interviews took approximately 40-50 minutes. After each telephone interview, a "self-administered booklet" containing an assessment regarding the patient's level of optimism was mailed to the patient to complete and return. The one year time-line was used because at that time, patients are likely to have finished cancer treatment, but may still have symptoms and compromised functional status. For the primary study, data was collected at 6, 12, 24, and 52 weeks, and additional areas assessed included: caregiver involvement, cognitive health status, comorbid conditions, symptom distress, patient utilization of services, and costs to patients and caregivers.

Patient records were audited after the patient completed the study. Audited info included: demographics, insurance info, history and physical info, staging info, operative notes, nursing admission forms, pathology reports, radiology/chemistry reports, consultations, discharge summaries, and homecare referrals.

The Computer Assisted Patient Interview system (CAPI) was used by the data collectors to record the interviews. The system is cost-effective and allows loading of all of the data collection instruments. The system also requires that information is entered before the next

question can be completed, which helps ensure complete data collection. The data was entered into PARADOX, a database software.

Human Subjects

The anonymity and confidentiality of patients agreeing to participate in the study was protected in several ways: subject identification numbers were used instead of names, research data is released in aggregate form only, agency names and identification is omitted in presentations and reports, and confidential patient interview data is not released to an agency or participating physician.

Patients had to give written informed consent (see Appendix A) to participate in the study. Before this was given, the nurse recruiter described the study in detail and gave the patient the chance to ask questions. Patients were assured regarding confidentiality and anonymity, were told that their decision would not affect their care in any way, and were informed of their right to withdraw from the study at any time. If patients had cognitive deficits and had an available guardian or designated family member available, proxy consent was obtained. Nurse recruiters and data collectors did not provide direct care to the patients.

Patients participating in the study were not placed at any identifiable physical, psychological, or legal risk. There was recognition on the part of the study staff that having and being treated for cancer is stressful. During interviews, patients were frequently asked if they wanted to continue, and were given a 1-800 number to call if they had any questions.

Patients participating in the study had no direct benefit except the possible good feeling which may come from contributing to science. Health professionals may benefit from the study by learning more about

characteristics which may put patients at higher or lower risk for difficulties with functional status. From this knowledge, effective interventions geared toward improved functional status may be developed and used.

Operational Definitions of Terms

Optimism

A person's expectancy orientation refers to their orientation towards either an optimistic or pessimistic outlook on life. An optimistic expectancy orientation is one in which a person expects the best outcomes (optimism), and a pessimistic expectancy orientation is one in which a person expects the worst outcomes (pessimism). For the purpose of this study, a subject's level of optimism was determined by their score on the Life Orientation Test (LOT) (See Appendix B).

Functional Status

Functional status refers to a person's ability to perform tasks that are necessary for daily life, and necessary for enhancement of quality of daily life. For the purpose of this study, a subject's functional status was determined by their score on one part of the study's Instrumental Activities of Daily Living questionnaire (see Appendix C) which is from the Physical Function subscale of the SF-36 (Ware and Sherbourne, 1992).

External Factors

Disease Status. Refers to cancer stage (I through IV) and to primary cancer site (breast, colon, prostate, or lung). Both were measured through the previously described audit of the patient's hospital chart.

Economic Status. Refers to combined household income of all household members during the previous year. This was measured by a specific categorical question regarding amount (see Appendix D) in the patient interview questionnaire.

Marital Status. Refers to whether a person is single, married, widowed, divorced, or separated. This was measured through gathering of demographic information from the patient's hospital chart during the audit of records.

Sex. Refers to whether a patient is male or female. This was measured through audit of patient's hospital chart, and is included in the demographics.

Social Support. Refers to patient living arrangement, and was measured by a specific question (see Appendix E) in the patient interview questionnaire.

Description of Measures

Patient's level of optimism was measured by a scale called the Life Orientation Test (LOT)(see Appendix B). This scale was developed by Scheier and Carver (1985, 1987). The purpose of the scale is to measure patients' outcome expectancy orientation (optimistic or pessimistic).

The LOT (Appendix B) consists of twelve items, four of which are filler items designed to somewhat disguise the underlying test purpose. These filler items were omitted for this study due to length and the fact that the scale was mixed in with other scales. Of the eight items which were used, four are phrased in a positive way and four in a negative way. Respondents answer by indicating their extent of agreement with each statement on a four-point Likert scale; 1=strongly agree, 2=agree, 3=disagree, and 4=strongly disagree. Before scoring, all of the positively-worded items were reversed. A respondent's total

score was then calculated (32 is the highest possible score, 8 is the lowest possible score). The higher the score, the higher the level of optimism. For this study, each subject's average score was used.

The internal reliability of the scale is adequate; coefficient $\alpha = .76$. Per Scheier and Carver (1985), the test-retest reliability of the LOT is .79 over a four-week interval, and .72 over a thirteen-week interval. For this study, the alpha reliability coefficient was .86. As far as convergent and discriminant validity, the LOT moderately correlates in the theoretically-appropriate direction to measures of internal-external control, self-esteem, depression, hopelessness, alienation, and perceived stress. The scale is not totally independent of social desirability (optimism is generally regarded as a good quality). However, the correlation with the Crowne-Marlowe scale (used to assess social desirability) for men and women combined (.26, $p < .01$) is low.

Functional status was measured by question 1 (it has 9 parts) of the Instrumental Activities of Daily Living questionnaire (see Appendix C). These questions are from the subscale of Physical Functioning of the MOS 36-Item Short-Form Health Survey (SF-36), and are in Likert format. Each question asks about a different type of activity, and asks if the patient is limited in ability to perform each one: 1=Not Limited at all, 2=Limited a little, 3=Limited a lot. The highest possible score was 27 (indicating more limitations), and the lowest possible score was 9 (indicating fewer limitations). For this study, each subject's average item score was used.

The SF-36 was designed to measure health status in the Medical Outcomes Study (Ware and Sherbourne, 1992). It consists of 36 items that assess eight different health concepts: 1) limitations in physical

activities because of health problems; 2) limitations in social activities because of physical or emotional problems; 3) limitations in usual role activities because of physical health problems; 4) bodily pain; 5) general mental health; 6) limitations in usual role activities because of emotional problems; 7) vitality; and 8) general health perceptions. The SF-36 subscale measuring limitations in physical activities was used for this study.

The SF-36 was designed to obtain the patient's point of view, and can be self-administered or given in-person or by telephone. For this study, it was done by telephone. The full-length MOS scale was the base for selecting items for the SF-36, which was preceded by an 18-item and a 20-item scale.

In a patient population, testing of the physical functioning, role functioning, social functioning, mental health, health perceptions, and pain scales was done (Stewart, Hays, and Ware; 1988). The internal consistency reliability coefficient for the physical functioning subscale was .86. For the primary study, the alpha reliability coefficient for the physical functioning subscale was .84. For this study, the alpha reliability coefficient was .77. As for validity, the correlations among the health measures were statistically significant ($p < .01$), and ranged from .24 to .65 (most were in the area of .4). To compare scores from a patient population to a general population, the percent scoring in the "poor" health range was calculated. The percentage of respondents with poor health in the patient population was significantly greater ($p < .01$) than in the general population, which shows that this scale has validity for a patient population experiencing illness.

Statistical Analysis Plan

To answer the research question regarding the relationship between a cancer patient's level of optimism and functional status at one year after cancer diagnosis, the Pearson's r correlation statistic was used. Optimism was measured initially, and functional status at one year after diagnosis. Optimism was also measured at one year to see if and how it changed. In order to learn as much as possible about the relationships among the variables, a Pearson's r correlation matrix was also done with all of the variables: optimism, functional status, disease status, economic status, marital status, sex, and social support. Correlations were a good choice because they measure magnitude and significance of relationships among variables, which is what was explored with optimism and functional status. Correlations were limiting in that they cannot show cause and effect.

To answer the question regarding the effect of the external factors (disease status, economic status, marital status, sex, and social support) on level of optimism, a multiple regression was done with optimism as the dependent variable and all of the external factors as independent variables. In addition, a larger multiple regression was done with functional status at one year after diagnosis as the dependent variable and initial level of optimism, disease status, economic status, marital status, sex, and social support as the independent variables. Regressions were chosen because they are able to show the combined effect of several independent variables upon a dependent variable. One limitation of multiple regressions is that they can't separate out the independent variables and show exactly how much effect each separately contributes.

Results

Descriptive Statistics

Since more and more people are now surviving cancer, this disease is considered a chronic illness which requires much adaptation by the patient and his/her family. For any chronic illness, consideration of how to best help a patient maintain optimal functioning is important. Physical functioning is one aspect of overall functional status, and is the focus of this study. One study hypothesis was that there is a positive relationship between level of optimism soon after cancer diagnosis and functional status one year after diagnosis. The other study hypothesis was that factors such as disease status, economic status, marital status, sex, and social support may have some effect on optimism level.

Demographics

Data was gathered in 1994 and 1995, and was available for 33 elderly cancer patients. Table 1 shows all sociodemographic data as well as cancer type and stage. Of the 33, 16 (48%) were female and 17 (52%) were male. The average age of the sample was 73 years (S.D.=4.9) with 65 years as the youngest, and 83 years as the oldest. As for type of cancer, 11 (33%) had breast cancer, 8 (24%) had colon cancer, 4 (12%) had prostate cancer, and 3 (9%) had lung cancer. The majority of the patients were married: 24 (73%) were married, 5 (15%) were divorced or separated, and 4 (12%) were widowed.

Social support was measured by whether or not a patient lived alone. Of the sample, the majority of patients lived with their spouse: 23 (70%) lived with spouse, 8 (24%) lived alone, 1 (3%) fit neither category, and 1 was not recorded.

As far as the distribution of cancer stages, twelve (36%) had stage

Table 1. Sociodemographic Data and Cancer Type and Stage

	<u>Frequency</u>	<u>Percent</u>	<u>Mean</u>	<u>SD</u>	<u>Range</u>
<u>Sex</u>					
Male	17	52			
Female	16	48			
<u>Age</u>			73	4.9	65-83
<u>Marital Status</u>					
Married	24	73			
Divorced/Separated	5	15			
Widowed	4	12			
<u>Social Support</u>					
Living alone	8	24			
Living with spouse	23	70			
Neither category	1	3			
<u>Yearly Household Income</u> (Mean = \$20,000-\$24,000; Range = \$5,000-\$69,999)					
\$0-\$9,999	3	9.1			
\$10,000-\$19,999	7	21.2			
\$20,000-\$29,999	10	30.3			
\$30,000-\$39,999	3	9.1			
\$40,000-\$49,999	0	0			
\$50,000-\$59,999	2	6.1			
\$60,000-\$69,999	1	3.0			
Missing Data	7	21.2			
<u>Cancer Type</u>					
Breast	11	33			
Colon	8	24			
Prostate	4	12			
Lung	3	9			
<u>Cancer Stage</u> (Mean = 1.92 = early stage)					
I	12	36			
II	4	12			
III	6	18			
IV	2	6			
Missing Data	9	27			

I cancer, 4 (12%) had stage II cancer, 6 (18%) had stage III cancer, 2 (6%) had stage IV cancer, and 9 (27%) were not recorded. The mode (1.0) showed that the highest number of people had stage I cancer. The mean (1.92) showed that the average subject had early stage cancer. This means that the group as a whole was not having to deal with late stage cancer.

Economic status was measured by yearly household income. The average income for the group was between \$20,000 and \$24,999. The range of income was fairly wide; from \$5000 to \$69,999 per year. In general, the group as a whole was not extremely wealthy, but not destitute either.

In order to give a very general sociodemographic description of the sample, one could state that most were in their seventies, most were married and not living alone, most had early to mid-stage cancer, and most had modest incomes.

Functional Status

Functional status was measured at Wave 1 (soon after cancer diagnosis), and again at Wave 4 (one year later). Table 2 shows descriptive statistics for Wave 1 and Wave 4 functional status.

For each item of the scale, a score of one indicates the best (least limitations) level of functional status, and a score of three indicates the worst (most limitations) level of functional status.

For Wave 1, the activity associated with the most limitations was vigorous activities (lifting heavy objects, strenuous sports), followed by moderate activities (moving a table, bowling, playing golf), and then ability to walk more than one mile. The activity associated with the least limitations was walking one block. The mean Wave 1 functional status score was 1.48, which indicates a low limitation level. The

Table 2. Wave 1 and Wave 4 Functional Status
Means and Standard Deviations

<u>VARIABLE</u>	<u>WAVE 1</u>		<u>WAVE 4</u>	
	<u>MEAN</u>	<u>SD</u>	<u>MEAN</u>	<u>SD</u>
Moderate Activities	1.78	0.91	1.36	0.70
Vigorous Activities	2.23	0.81	1.91	0.88
Lift, Carry Groceries	1.41	0.63	1.15	0.51
Climb Several Stairs	1.43	0.68	1.56	0.76
Climb One Stair	1.16	0.45	1.22	0.55
Bend, Kneel, Stoop	1.42	0.67	1.33	0.54
Walk One Block	1.09	0.39	1.09	0.38
Walk Several Blocks	1.19	0.54	1.18	0.47
Walk > 1 Mile	1.63	0.81	1.49	0.76
Overall Wave 1 Results: Mean = 1.48 SD = 0.39				
Overall Wave 4 Results: Mean = 1.37 SD = 0.38				
1 = Best Functional Status				
3 = Worst Functional Status				

scoring of functional status (only three possible answers) resulted in less variability of scores.

For Wave 4, the activity associated with the most limitations was vigorous activities, followed by climbing several stairs, and then ability to walk more than one mile. The activity associated with the least limitations was walking one block. The mean Wave 4 functional status score was 1.37, which also indicates a low limitation level.

In comparing Wave 1 and Wave 4 functional status results, the mean functional status score improved (decreased) by .11, which is a relatively small change. From Wave 1 to Wave 4, functional status abilities improved for every item except climbing several stairs, and climbing one stair. For one item (walking one block), the mean score stayed the same.

The Wave 1 mean functional status score of 1.48 indicates that the group as a whole had a relatively high level of physical functioning when it came to everyday activities soon after their cancer diagnosis. According to the literature, one might expect to see that physical functioning would improve after a year of cancer treatment, and the slightly improved Wave 4 mean functional status score of 1.37 (less limitations) followed that expectation. It is important to note that the small range (1 to 3) of functional status scores has the effect of decreasing the ability to measure as much variability in functional status.

A deeper look at this small sample shows that, of the 33 subjects, 18 (55%) had improved functional status one year after diagnosis, 11 (33%) had poorer functional status, 3 (9%) had remained the same, and 1 (3%) had missing data. Possible factors lending towards poorer functional status might be increased age, co-morbid conditions,

progression of cancer, and effects of cancer treatment. Table 3 shows comparisons of Wave 1 and Wave 4 mean functional status scores, as well as mean optimism scores.

Optimism

Level of optimism was also measured at Wave 1 and Wave 4. Table 4 shows mean descriptive item statistics for optimism in Wave 1 and Wave 4. The scores of the last 4 items of the optimism scale were reversed before scoring. The mean item scores range from 1 (the lowest level of optimism=least optimistic) to 4 (the highest level of optimism=most optimistic). Item scores were used instead of total scale scores in order to remain consistent with the meaning of the 1-4 scores (1=least optimistic, 4=most optimistic). In retrospect, it would be interesting to use the total scores also, especially since doing so would provide more variability among the optimism scores.

The Wave 1 mean optimism score (3.18 of 4) reveals that the sample as a whole has a relatively high level of optimism. One year later (Wave 4), the optimism level is slightly lower (3.13), but the group as a whole still has a relatively high level of optimism.

Of the 33 subjects, 10 (30%) had an improved level of optimism one year after cancer diagnosis, 12 (36%) had a poorer level of optimism, 5 (15%) had stayed the same, and 6 (18%) had missing data. The average change per subject in optimism score was .31 (10 went up, 12 went down). This small change in optimism scores lends support to Scheier and Carver's belief that optimism is a dispositional characteristic which does not vary according to current situation.

When the Wave 1 mean optimism score (3.18) is used as a point of division between optimists and pessimists, the data (Table 3) shows that 12 (40% of those for whom Wave 1 optimism data was available) subjects

Table 3. Mean Wave 1 and Wave 4 Functional Status and Optimism Scores

ID	WAVE 1 FUNCTIONAL STATUS	WAVE 4 FUNCTIONAL STATUS	WAVE 1 OPTIMISM	WAVE 4 OPTIMISM
1	1.63	1.11	3.00	.
2	1.44	1.00	3.75	3.00
3	2.11	1.00	3.00	3.00
4	1.22	1.00	3.00	3.13
5	1.56	1.00	3.50	3.88
6	2.00	1.33	3.25	3.00
7	.	1.56	2.88	2.75
8	1.14	1.67	3.25	3.50
9	1.25	2.11	2.88	2.75
10	2.33	1.89	3.63	3.50
11	1.56	1.00	.	2.75
12	2.11	1.11	3.00	3.25
13	1.78	1.33	3.75	3.00
14	1.00	1.56	3.13	.
15	1.67	1.22	3.00	2.75
16	2.22	1.22	4.00	4.00
17	1.22	1.11	2.88	3.00
18	1.78	1.11	4.00	4.00
19	1.44	1.33	3.00	3.75
20	1.00	1.00	.	3.63
21	1.38	1.00	3.00	3.88
22	1.00	1.22	2.75	2.75
23	1.00	1.00	2.75	3.25
24	1.11	1.78	.	.
25	1.33	1.67	3.13	2.63
26	1.00	1.11	3.63	3.75
27	1.22	2.33	3.13	2.88
28	1.00	1.00	3.00	.
29	1.67	1.44	3.50	3.00
30	1.67	1.86	3.63	2.00
31	1.22	1.78	2.00	2.00
32	1.67	2.00	3.25	3.13
33	1.56	1.33	2.75	2.88

Functional Status: 1 = Best Functional Status
 3 = Worst Functional Status
 Wave 1 Grand Mean = 1.48 SD = 0.39
 Wave 4 Grand Mean = 1.37 SD = 0.38

Optimism: 1 = Least Optimistic
 4 = Most Optimistic
 Wave 1 Grand Mean = 3.18 SD = 0.43
 Wave 4 Grand Mean = 3.13 SD = 0.52

Table 4. Wave 1 and Wave 4 Optimism Item Means and Standard Deviations

<u>VARIABLE</u>	<u>WAVE 1</u>		<u>WAVE 4</u>	
	<u>MEAN</u>	<u>SD</u>	<u>MEAN</u>	<u>SD</u>
Things will go wrong	3.10	0.80	2.83	0.93
Things won't go my way	3.23	0.57	3.21	0.68
Things never work out	3.07	0.64	3.21	0.56
Rarely count on good things	3.27	0.52	3.21	0.73
Usually expect the best	1.80	0.48	1.90	0.62
Always look on the bright side	1.83	0.70	1.86	0.69
Always optimistic	1.80	0.48	1.86	0.58
Every cloud has a silver lining	1.79	0.56	1.79	0.62
Overall Wave 1 Mean Item Score =	3.18	SD = 0.43	Range: From 2 to 4	
Overall Wave 4 Mean Item Score =	3.13	SD = 0.52	Range: From 2 to 4	
1 = Least Optimistic				
4 = Most Optimistic				

could be considered optimists, and 18 (60%) could be considered pessimists. Of the 12 optimists, it is interesting to note that 8 (67%) had improved functional status scores from Wave 1 to Wave 4. Of these 8, 2 of the 3 subjects with the biggest improvement in functional status scores were the subjects with the highest optimism scores. Of the 4 subjects with the lowest Wave 1 optimism scores, 1 had an improved functional status score from Wave 1 to Wave 4, 1 remained the same, and 2 had poorer functional status scores.

The average Wave 1 optimism score for men was 3.23, (4 is highest level of optimism, 1 is lowest level), and the average for women was 3.16. The average Wave 4 optimism score for men was 3.34, and the average for women was 2.93. The average optimism score for men is higher at both times, and it is interesting to note that the average score for men increased from Wave 1 to Wave 4. The statistical significance of the differences between scores for men and women was not measured.

Inferential Statistics

Hypothesis #1

The first research hypothesis stated the belief that a positive correlation would be found between Wave 1 optimism and Wave 4 functional status. To test this hypothesis, a Pearson's r correlation was run, and the result was $r = -.085$ ($p = .656$). Because of the way that level of optimism (higher score indicates more optimistic) and functional status (lower score indicates better level of functioning) were scored, this negative correlation is in the hypothesized direction: as level of optimism increases, level of functioning improves. However, this correlation is quite weak, and it is not statistically significant.

Therefore, the study's conceptual model is not supported by the

results of testing the first research hypothesis. This may be related to the limitations of a small sample size; a larger sample may show different results. Or, it is also possible that optimism level after cancer diagnosis has little to do with one's functional status one year later. Perhaps optimism level right after cancer diagnosis is "shaken" a bit by the significance of the diagnosis, and is therefore not a good predictor of functional status one year later.

An exploration of correlations between closely-related variables was also done, again with Pearson's r . Results revealed a statistically significant correlation ($r=.505$, $p=.007$) between Wave 1 optimism and Wave 4 optimism. This finding, along with small differences between Wave 1 and Wave 4 optimism mean scale scores plus the small average change in individual's mean optimism scores, lends support to Scheier and Carver's theory regarding optimism as a dispositional versus a situational characteristic. Perhaps optimism level is basically a steady characteristic which is not greatly affected by the circumstance of cancer diagnosis, even if it may be "shaken" a bit right after diagnosis.

An unexpected finding was a $r=.453$ ($p=.015$) correlation between Wave 1 functional status and Wave 1 optimism level. This finding means that there was a moderately strong statistically significant relationship between high optimism and low functional abilities, and low optimism and high functional abilities at Wave 1. When trying to interpret this result, it has to be in the context of a relatively high-functioning and optimistic group of recently-diagnosed elderly cancer patients. A possible interpretation is that those with the least functional limitations at diagnosis felt less optimistic after a cancer diagnosis (more to lose), or that those with more functional limitations

had already adapted to them and were therefore more optimistic regarding "getting through" a diagnosis of cancer. However, both of these interpretations imply that optimism may be at least partially related to current circumstances (situational).

Along similar lines, a statistically significant ($r = -.425$, $p = .022$) negative correlation was found between Wave 4 optimism and Wave 4 functional status. This means that there is a moderately strong relationship between high optimism level and high functional abilities, and between low optimism level and low functional abilities at one year after cancer diagnosis. This finding represents a very interesting contrast to this study's first hypothesis and to the almost completely opposite findings between Wave 1 optimism and Wave 1 functional status. The time period of this Wave 4 correlation is different from that of the first research hypothesis, but is in partial support of the author's belief that those cancer patients who are most optimistic are more apt to have higher functional abilities a year after diagnosis. However, since a correlation cannot predict cause and effect, the preceding statement can only be made with extreme caution. A statistically significant relationship between Wave 1 functional status and Wave 4 optimism level was not found ($r = .130$, $p = .509$).

A positive, weak correlation ($r = .130$, $p = .509$) was found between Wave 1 functional status and Wave 4 optimism level, but it was not statistically significant. This means that, for the sample only and on a weak basis, low Wave 1 functional status scores (less limitations) were related to low levels of Wave 4 optimism, or that high Wave 1 functional status scores (more limitations) were related to high Wave 4 levels of optimism. Finally, a statistically significant relationship was not found between Wave 1 functional status and Wave 4 functional

status ($r = -.01$, $p = .966$).

Though not statistically significant, an interesting difference between men and women was found when running a separate Pearson's r for each group to look for a relationship between Wave 1 optimism and Wave 4 functional status. For men, the correlation was $r = -.290$ ($p = .294$). For women, the correlation was $r = .217$ ($p = .457$). This means that, for the men in the sample, functioning improved as optimism increased. For women, the opposite effect was seen: as optimism increased, functioning decreased. This difference might be partially explained by the fact that the men in Wave 1 were more optimistic than the women.

In summary, for the first hypothesis, a weak correlation was found in the predicted direction, but it was not statistically significant. The unexpected findings were the ones which were statistically significant: a moderately strong positive correlation between Wave 1 optimism and Wave 4 optimism, a moderately strong positive correlation value between Wave 1 optimism and functional status (as optimism increases, functional ability decreases), and a moderately strong negative correlation between Wave 4 optimism and functional status (as optimism increases, functional ability increases).

Hypothesis #2

The second research hypothesis stated the belief that the modifying external factors of disease status, economic status, marital status, sex, and social support all have some effect on a cancer patient's level of optimism. To test this hypothesis, a multiple regression was done with Wave 1 optimism as the dependent variable, and marital status, patient sex, household income, cancer site, cancer stage, and social support as the independent variables. The result of this regression was not statistically significant ($F = .65$, $p = .748$), and therefore cannot be

applied to the population.

In order to search for a combination of independent variables which might yield statistically significant regression results, the Pearson's r correlation matrix from the above multiple regression was explored. The strength and statistical significance level of the correlations between the dependent variable of optimism and the individual independent variables was used as criteria for selecting four independent variables to enter into a second multiple regression: household income ($r=.37, p=.099$), divorced/separated marital status ($r=.27, p=.08$), breast cancer site ($r=-.25, p=.099$), and cancer stage ($r=.41, p=.04$). Even though none except cancer stage were statistically significant correlations, they were the ones which were closest to statistical significance, and therefore were selected to try in a smaller regression. With these four variables as independent variables and optimism as dependent variable, a multiple regression was run. The results were still not statistically significant ($F=2.0, p=.154$).

After this, all possible combinations of the above four independent variables were tested in a multiple regression, yielding two statistically significant multiple regression (see Table 5). The first had household income, divorced/separated marital status, and breast cancer site as independent variables, and optimism as dependent variable. The R Square was .365, $F=3.5$, and $p=.039$. This means that for the sample and the population, approximately 37% of the variation in optimism level can be attributed to the combined effects of higher household income, being divorced/separated, and breast cancer site. Of the three independent variables, only household income and divorced/separated marital status were statistically significant (Sig T for household income=.014, .046 for divorced/separated marital status,

Table 5. Significant Multiple Regression Statistics

<u>DEPENDENT VARIABLE</u>	<u>INDEPENDENT VARIABLES</u>	<u>Sig T</u>	<u>R Sq.</u>	<u>F</u>	<u>p</u>
Optimism	Household Income	.014	.365	3.5	.039
	Divorced/Separated Marital Status	.046			
	Breast Cancer Site	.497			
Optimism	Household Income	.010	.348	5.07	.017
	Divorced/Separated Marital Status	.023			

and .497 for site of breast cancer).

The second statistically significant regression was just a subset of the above multiple regression, and yielded the same end results. The only difference was that breast cancer site was omitted because it was not a statistically significant variable in the previous regression, so the independent variables were household income and divorced/separated marital status. The R Square was .348, $F=5.07$, and $p=.017$. Both independent variables were statistically significant (Sig T for household income=.010 and .023 for divorced/separated marital status). The R Square showed that the combination of household income and divorced/separated marital status accounted for 34.8% of the variation in optimism level. Sig T was used as an indicator of the statistical significance of the two independent variables.

Therefore, to summarize both of these statistically significant findings for the population of elderly cancer patients, it can be stated that the combination of being divorced/separated and having a higher income can have a positive effect on optimism level. Per the original multiple regression, the combination of marital status, household income, sex, social support, and disease status does not have a statistically significant effect on level of optimism.

A final multiple regression was done as an exploratory complement to the first. In this one, Wave 4 functional status was the dependent variable with Wave 1 optimism, household income, marital status, cancer site, cancer stage, sex, and social support as the independent variables. The results were not statistically significant (R Square=.539, $F=.49$, and $p=.857$).

Again, the correlation matrix was explored, and the three independent variables with the strongest and most significant (or

closest to being significant) one-to-one correlations with Wave 4 functional status were selected. They were: patient living alone ($r = -.244$, $p = .362$), stage ($r = .289$, $p = .085$), and household income ($r = -.197$, $p = .168$). Even though these two variables were not significantly correlated to Wave 4 functional status, they were the ones which were closest to being significant, and therefore chosen for further exploration. A follow-up multiple regression was done with these variables, but the results were still not statistically significant ($R^2 = .292$, $F = 1.92$, and $p = .172$). All possible combinations of the three independent variables were tested, but none yielded statistically significant results. Therefore, for the population of elderly cancer patients, it can be stated that functional status at one year after diagnosis is not significantly affected by the combined effects of level of optimism at diagnosis, marital status, social support, sex, household income, and disease status.

Discussion

Summary of Results

The sample in general was a relatively optimistic group of elderly cancer patients with a relatively high level of functioning, both soon after cancer diagnosis and one year later. For both points in time, the activity associated with the most limitations was vigorous activities, and walking one block was associated with the least limitations. There was a small increase in functional abilities between Wave 1 and Wave 4, which is not surprising based upon literature describing the first year after cancer diagnosis. Two of the three subjects with the largest improvements in functional status had the highest optimism scores. There was also a very small decrease in level of optimism and a moderately strong positive correlation between Wave 1 and Wave 4

optimism; little change is also consistent with the literature, which describes optimism as a dispositional versus a situational characteristic. Of interest is the fact that, from Wave 1 to Wave 4, mens' average optimism score improved, and womens' average optimism score worsened.

The hypothesis predicting a positive relationship between Wave 1 level of optimism and Wave 4 level of functional ability was not supported by the data, which revealed a very weak positive relationship (negative correlation value per the way functional status and optimism were scored) which was not statistically significant. Unexpected related findings revealed a moderate statistically significant negative relationship (positive correlation value) between Wave 1 optimism and Wave 1 functional status, and a statistically significant positive relationship between Wave 4 optimism and Wave 4 functional status.

When considered together, these correlations reveal that the most significant relationships were found between variables which were measured at the same point in time versus across the span of a year. The one exception to this statement is the relationship between Wave 1 and Wave 4 optimism levels, which just showed that the two were moderately positively correlated. Therefore, the correlations with the most potential for further study and practical implications are the ones which were measured at the same point in time. The hope of eventually uncovering some predictive power through further research on Wave 1 optimism and Wave 4 functional status remains realistic, but a larger sample would be needed.

The statistically significant correlations between optimism and functional status at both Wave 1 and Wave 4 are noteworthy, both on their own and in contrast to one another. The contrast is in the way

that they are almost completely opposite. Since correlations only indicate strengths of relationships and not cause and effect, the following interpretation would require further study and can only be made very cautiously. Looking at the Wave 1 results, which reflect a point in time when patients are readying themselves to face the prospect of cancer and its treatment, it is possible that the negative relationship between being optimistic and having higher functional abilities is seen because those with poorer functional status had already had some experience with ill-health and were therefore not quite as pessimistic about the prospect of facing cancer. Conversely, those with better functional abilities were less optimistic because they did not have as much experience in dealing with ill-health, and may have felt that they had more to lose with a cancer diagnosis; perhaps their optimism was temporarily shaken.

In contrast, Wave 4 reflects a time when most cancer treatment has been completed and life is returning to some semblance of "normal". It is possible that those with better functional status were more optimistic because they had survived an adversity, or because their steady optimism throughout the cancer process helped them achieve their higher functional status. This latter statement conflicts with the insignificant findings between Wave 1 optimism and Wave 4 functional status, but a larger sample may help to clarify these relationships. Also, the cautious interpretation as a whole at least partially conflicts with Scheier and Carver's findings that optimism is a dispositional trait which does not change over time. Perhaps this is not completely "black and white"; perhaps optimism is mainly dispositional but slightly affected by circumstances for cancer patients. It is possible that learning of one's own cancer diagnosis

temporarily "shakes up" one's level of optimism. Further research is needed to gain a better grasp of the whole picture.

The positive relationship between Wave 4 optimism and functional status is important all by itself, and will be considered further during a discussion about nursing implications.

The difference in relationship between Wave 1 optimism and Wave 4 functional status between men and women, though not statistically significant, is interesting and may be reflective of men's higher level of optimism in the sample. Though optimism and depression are separate variables, this goes along with previously-cited findings by Given, Given, and Stommel (1994). Their study found that depression decreased as men aged, and increased as women aged.

To sum up the findings of the multiple regression with Wave 1 optimism as the dependent variable, it can be said that the combined effect of having a higher household income and being divorced/separated has a positive effect on optimism for elderly cancer patients. The income effect makes sense because a higher income is associated with better material resources. The marital status effect is surprising to the author, and may only be able to be fully understood by looking at the qualities of the individual marriages represented in the sample. Also, the regression results must be interpreted with much caution since regression analysis requires a larger sample size than was used with this study.

Like the correlation results, the regression results with Wave 4 functional status as dependent variable (not significant) point out the difficulties in analyzing variables at different points in time. The data analysis techniques used may not have been the best for longitudinal data. However, it would be important to see what happens

with a larger sample.

In summary, the results are interesting and partially unexpected. The positive correlation between wave 4 optimism and functional status is important, as is the negative correlation between Wave 1 optimism and functional status, the positive correlation between Wave 1 and Wave 4 optimism, and the regression finding which indicates that marital status and household income together have an impact on level of optimism. The results have some clinical implications, and also raise questions for further study. The results are not statistically supportive of the author's initial conceptual model (Figure 3). A statistically significant relationship between patient's level of optimism soon after cancer diagnosis and functional status one year later was not found, which was what the model represented. However, the model could easily be changed to depict the statistically significant correlations found between Wave 1 optimism and functional status and Wave 4 optimism and functional status by omitting the "one year" time frame shown with functional status. Then the model would represent the significant findings.

The other aspect of the conceptual model depicts the hypothesis that the external modifying factors (disease status, economic status, marital status, sex, social support) have a significant effect on level of optimism. Since results showed that only the combination of marital status and economic status had a significant effect on optimism level, this part of the model could be changed by omitting disease status, sex, and social support. Then the conceptual model would represent the findings of the study.

Relationship of Findings to Existing Literature

Most of the significant findings of this study can be at least partially related to existing literature. The significant positive relationship found between Wave 4 optimism and functional status can be related to the findings of Scheier and Carver and associates (1989 and 1994). The earlier study, though it was with cardiac patients, found that optimists achieved better recoveries and functioning than pessimists after coronary artery bypass surgery. The later study was with early stage breast cancer patients, and showed a strong positive relationship between optimism and subjective well-being. Both of these studies are related to the current study in that all found positive relationships linking optimism with better mental or physical health status.

The significant negative relationship found between Wave 1 optimism and functional status is not related to existing literature. This represents a unique point in time (right after cancer diagnosis), and there isn't any literature focusing on the relationship between level of optimism and functional status right after a cancer diagnosis.

The strong positive correlation between Wave 1 and Wave 4 optimism level, plus the small change in optimism scores, is supported by Scheier and Carver's work (1992) on the Life Orientation Test (LOT). They state in their findings that optimism level remains quite stable over time.

The findings associated with improvement in functional status over the first year after cancer diagnosis are also reflected in studies by Vinokur, Threatt, Vinokur-Kaplan, and Satariano (1990), and Northouse (1990).

This study's finding that the combination of being divorced/separated and having a high income level has a positive effect

on level of optimism is only partially supported by existing literature. McGill and Paul (1993) found that higher socioeconomic status was related to higher level of hope among elderly subjects. This is associated with this study's findings even though hope and optimism do not have the same meanings.

The finding related to marital status is an oddity which is not supported by the literature. Though no studies specifically linking marital status and optimism for cancer patients were found, a study by Ganz, Lee, and Siau (1991) reported better survival times among cancer patients who were married and reported higher qualities of life. The latter finding is only remotely and indirectly related to a relationship between optimism and marital status, but the fact remains that this study's finding linking optimism with divorced/separated marital status is an oddity.

In general, most of the significant findings of this study are at least partially related to existing literature, but this study appears to be alone in specifically focusing on optimism and functional status for cancer patients.

Limitations of Study

This study has several limitations. First of all, the sample size was small. This affects the calculations of statistical significance, and therefore the ability to generalize findings to the population of elderly cancer patients. A small sample allows for greater opportunity to "miss" the true population picture.

The design of the study allowed for some built-in bias. In looking only at cancer patients who were willing and able to remain in the study for a year, the study was somewhat biased towards those who were more apt to have better survival and functional status statistics. The study

may also have been somewhat biased towards more optimistic people; it is possible that less optimistic patients may not have chosen to participate in the study. In other words, this study sample probably included the healthiest, highest-functioning, and possibly the most optimistic elderly cancer patients. Along similar lines, this same effect may have resulted from the early physician refusal to have certain patients participate in the study.

The statistical analysis choices of the study created a built-in limitation. The multiple regressions created limitations because the sample size was not really big enough for a multiple regression. The correlations may have been weakened by the fact that there was a fairly small range of variability (1 to 3) among the possible scores for each functional status question. The range of scores for optimism was a little bit larger (1 to 4), but was still rather small.

The study lacked measurement of other health conditions besides cancer. When looking at results from this study, it is important to remember that functional status was probably affected by more than just cancer.

These study limitations can be incorporated into ideas and suggestions for future research.

Future Research

This study, partly because of its limitations and partly because of its findings, brings to mind many ideas for future research.

Looking at all of the correlations between functional status and optimism with a larger sample would be a good follow-up to this study. It is possible that the relationship between Wave 1 optimism and Wave 4 functional status would become statistically significant with a larger sample. It would also be interesting to include more measurements done

at more points in time (Ex. Wave 2 and 3 also). If a statistically significant relationship is found, the next step would be to search for some evidence of cause and effect as well as to explore how the variables affect each other.

It would also be interesting to do another correlational study with functional status and optimism using scales that might capture more variability within each variable. A possibility for this would be to use the whole SF-36 instead of just the physical functioning subscale. With more variability and a larger sample, stronger correlations might be found.

Another research idea would be to focus more on the two external factors of this study (social support and disease status) which did not appear to impact level of optimism in this study. By measuring each of them in different ways with larger samples, one might find that they do have some impact on level of optimism.

Although it is fairly clear that optimism level did not change very much over the one year time period, another research study might specifically focus on measuring optimism level at several times over a year's period to validate that the changes are not statistically significant for cancer patients.

There is a need for more nursing research regarding optimism and health in general, and optimism and cancer patients specifically. The holistic view of patients held by nursing (that the mind and body are connected) would enhance this research. A primary care setting would be an ideal place to explore a possible relationship between optimism and positive outcomes with many kinds of health problems as well as with different patient age groups. A very specific example of this would be to explore whether or not optimists may be more likely to attempt

lifestyle changes or comply with medication regimens than pessimists.

Looking at other variables which might affect optimism level would also be interesting. Examples of these variables could include ethnicity, co-morbid conditions, urban versus rural residence, and education level.

Another related research idea would be to explore the health-related characteristics of elderly optimists and pessimists. An example of this would be to focus on comparing tendencies to come in for preventive care, frequencies of self-breast or self-testicular exams, tendencies to follow up on referrals, etc.

Also of interest would be to explore how cancer patients' optimism level may affect the attitudes and perceptions of their caregivers. One could hypothesize that caregivers of optimists perceive less burdens related to caregiving than caregivers of pessimists.

Another interesting research idea would be to create an intervention study based on optimism. Cancer patients' optimism levels could be assessed, and patients divided into optimist or pessimist groups based on this assessment. Functional status could also be measured initially and one year later. A group intervention focused on social support and development of effective coping skills could be done for the pessimist group. Then, one could see if functional status scores improved for the intervention group.

Finally, the area of psychoneuroimmunology (PNI) holds other possibilities for research with cancer patients. Studying the levels and fluctuations of immune function among optimistic and pessimistic cancer patients might provide some more insight into how and why optimists usually experience better health outcomes and functional status.

Implications for Advanced Nursing Practice

The Advanced Practice Nurse (APN), through his/her integration of the various APN roles, is in an excellent position to use the significant findings of this study to have a positive impact on cancer patients' functional status and therefore quality of life, which would also positively impact the cancer patients' families. The primary care APN and the cancer care APN are both apt to be working with cancer patients. The cancer care APN may be the one to be initially working with a newly-diagnosed cancer patient, and then, once cancer treatment is completed, the patient would return to his/her primary care site for ongoing health care. It is essential that the cancer care APN and the primary care APN collaborate and keep each other apprised of assessment data and recommendations.

The findings of this study have implications for the APN in each type of setting. Because of the demographic characteristics of this study's subjects, the focus of the nursing implications to be discussed should be directed towards elderly, middle-income, early-stage cancer patients of both sexes with varied marital statuses.

While it is not clear from this study if there is an ability to use optimism level at time of diagnosis to help predict level of physical functioning one year later, it is clear that there is a moderate positive relationship between level of optimism and functional status at one year after diagnosis. This finding, combined with the finding that optimism does not appear to vary much over the year after diagnosis, is very important. The APN in cancer care could use knowledge of this relationship in his/her assessor role to help with an initial determination of which newly diagnosed cancer patients (those with lower levels of optimism) are at higher risk for having a less than optimal

functional status one year after diagnosis. This baseline determination of functional status risk is very important because interventions designed to improve or preserve functional status should begin as early into the illness as possible. Preservation of functional status, especially in the elderly, is important in terms of quality of life for the patient. It is also important in terms of health care costs (i.e., avoidance of spending in terms of expensive emergency room visits and nursing home care).

Assessment of functional status risk could easily be done with the SF-36 and the Life Orientation Test (LOT). In addition, questioning patients about functional status losses and hoped-for gains should be done to get an idea of how illness has already disrupted a patient's life, and an idea of what is important to the patient in terms of functional status goals. Functional status assessment should be done at each visit with the cancer care APN in order to carefully track changes in patients' abilities, needs, and goals. Findings, interventions, and recommendations must be communicated to the primary care APN, who will be the patient's source of ongoing care once cancer treatment is completed.

Because functional status is such an important part of living, knowing that someone is at higher risk for poor functional status is just as important as knowing that they are at high risk for heart disease or diabetes. This represents a person versus disease focus which is a characteristic of nurses. The APN, in his/her clinician role, has the ability to integrate cues regarding optimism level and functional status abilities in with all of the other important patient data and develop relevant diagnoses and effective nursing interventions for those at high risk for poor functional status.

While the focus of this study is on cancer patients, it may also be possible for the APN working in primary care to cautiously use this knowledge of the relationship between optimism and functional status when doing assessments for other patients with chronic illnesses such as diabetes, asthma, or heart disease. Functional status is important for all patients, no matter what their illness.

Based on this study's findings that the combination of higher household income and divorced/separated marital status has a positive impact on level of optimism, the APN can also look at these two variables as part of his/her assessment of which patients may be at higher risk for low level of optimism and therefore poor functional status. However, since these findings were based on regression analysis of a small sample, results must be used cautiously. While income level and marital status are not necessarily areas in which the APN would be likely to have a direct impact, they are still important areas to assess and be ready with referrals to appropriate social service or counseling referrals.

Once a patient is identified as being at risk for poor functional status, it is important to develop and implement appropriate interventions as soon as possible. Patients with different types of dispositions will benefit from different types of interventions. Since optimism is established as a dispositional characteristic, it is probably impossible to change a pessimist into an optimist. However, it may be possible for the primary care and cancer care APN, through their roles of educator, counselor, advocate, and case manager, to help patients learn and develop coping skills and behaviors which are characteristic of optimists. There is some evidence in the literature that this might be possible (Spiegel, 1991; Fawzy et al., 1993).

Included in these coping skills are lack of denial, facing problems head on, requesting information and help when needed, keeping a focus on a positive outcome, and using acceptance when a situation is not controllable (Scheier and Carver, 1987).

APN interventions may be carried out through use of readings, support groups, audiotapes, and one-on-one counseling and discussions. An APN's knowledge of teaching theories would be an important aide in selecting the proper timing and approaches for teaching these coping skills. Depending on the patient's disposition and current situation, it may be important to simply act as a support person for the patient and their family while they are in crisis. By helping them weather a crisis, an APN would have a better sense of how and when to begin to try and help patients and their families empower themselves with new coping skills and strengths. As case manager, the APN could help coordinate care to ensure that patients and their families have assistance from other professionals when needed.

While the preceding interventions are aimed at improving functional status through development of coping skills characteristic of optimists, the APN could also use interventions aimed directly at enhancing the functional status of those who are determined through assessment to be at higher risk for functional status problems. Since the focus is on physical functional status, a focus on the physical needs of the individual patient would be important. Those who are determined to be at high risk for functional status problems may also benefit from extra nutritional support and teaching, extra teaching regarding the recovery process from cancer and its treatment, physical and/or occupational therapy, extra in-home help, and extra effort to involve family members. Simple recommendations such as those regarding diet and exercise could

easily be written out for the patient on a prescription pad. The educator and case manager APN roles would be important for these interventions. While these interventions would probably not improve patient level of optimism, they may help a patient toward the ultimate goal of optimal functional status.

Just keeping a focus on functional status as an outcome variable is a very important APN role, both in cancer specialty care and in primary care. While the development of new technology for treating cancer and other illnesses is a very wonderful and important thing, it could place further emphasis on just the disease aspect of illness. The APN is in an excellent position to keep the focus on the patient and on how they are actually doing with their disease, and, by being a role model, to demonstrate to other health professionals that keeping this human focus is very important in terms of good patient outcomes, patient satisfaction, and prevention of extra health care costs such as long-term nursing home care, emergency room visits, and home care.

In an era where busy, fast-paced primary care and managed care clinics are the norm, the APN may need to "go against the tide" and advocate for more time to be spent with patients. Time spent on thorough primary care patient assessment, intervention, teaching, and referral will save costs in the long run. While cost-effectiveness is very important, the human and healing elements of health care must not be lost to it. It is very important to always try to demonstrate that extra time spent with patients is indeed cost-effective in terms of patient outcomes, but cost should not always win out over caring.

The APN is also in an excellent position to influence the type and direction of nursing research. More nursing research on optimism and functional status is needed, both for cancer patients and for those

dealing with other health conditions in primary care settings. Research on how to help people live well with chronic conditions is very important, and represents a wonderful opportunity for nursing to help humanity "keep up" with the advances of technology. Based on this study's findings, which support a relationship between optimism and functional status, it is very probable that there are many powerful subtleties related to living with illness that are waiting to be uncovered.

As more and more people survive cancer, the APN has much to contribute towards keeping a focus on the quality of that survival, which is partially represented by functional status. At a point in time where more and more effective treatment options are available against cancer and other disease processes, the APN can act as a role model and change agent to help ensure that adequate attention is focused on the human factors which also greatly affect quality of life and survival.

APPENDIX A

APPENDIX A

MSU FAMILY HOME CARE CANCER STUDY CONSENT FORM

We are asking you to participate in a study to learn how cancer impacts the lives of patients and families and the costs of this disease. You will be asked questions about your health, any assistance needed, visits to doctors and treatment centers and expenditures made for care. Over the coming 12 months you will be contacted at 2, 6, 12, 24 and 52 weeks by the Family Home Care Cancer Study staff. Each interview will take 40 minutes, and you will be asked to complete a mailed questionnaire. If you are willing to participate please read and sign this page which indicates your consent to begin in this study.

1. The study has been described and explained to me and I understand what my participation will involve.
2. I understand my participation in this study is voluntary, will involve no cost to me, and that my decision will in no way affect my current or future health care, nor involve any additional costs to my health care insurer.
3. I understand that all information will be treated in strict confidence. Information will be presented as a summary of all respondents and not identified with me individually. I understand that within these restrictions, results can, upon request, be made available to me.
4. I understand that no immediate benefits will result from my taking part in this study, but am aware that my responses may add to the understanding of health care professionals and may influence future cancer care.
5. I understand that I have the right to seek further information about this study, and my rights relating to it, by calling the project coordinator or Charles W. Given, the Co-Principal Investigator, at the research office: (517) 353-3843 or toll free, 1-800-654-8219.
6. I understand that a member of the research staff will review part of my current medical record to obtain a list of my medical diagnoses/problems, and cancer and other treatments. I consent to allow access to this information for information about my home care needs and services and understand that this information will remain strictly confidential.
7. I authorize the Health Care Financing Administration and other health insurers to release information about myself to Barbara A. Given, Professor in the College of Nursing, Michigan State University for the purposes of this research study entitled *Family Home Care for Cancer -- A Community-Based Model* in which I am a participant. The information to be released will include admissions to hospitals, nursing homes, home care agencies, the respective lengths of stay for these admissions, and all health care costs paid by Medicare.
8. I understand that I may withdraw from participation at any time without penalty.

I, _____, state that I understand what is required of me as a participant and agree to take part in this study of family caregivers conducted by the College of Nursing, and the Department of Family Practice in the College of Human Medicine, at Michigan State University.

Patient Signature _____ Date _____

Guardian/Family Member _____ Witness _____

Principal Investigator Signature _____

APPENDIX B

APPENDIX B

Life Orientation Test (LOT)

Please choose one response for each item that represents how you feel about each statement:

STRONGLY AGREE AGREE DISAGREE STRONGLY DISAGREE

1. In uncertain times, I usually expect the best.
2. It's easy for me to relax. (Filler item)
3. If something can go wrong for me, it will.
4. I always look on the bright side of things.
5. I'm always optimistic about my future.
6. I enjoy my friends a lot. (Filler item)
7. It's important for me to keep busy. (Filler item)
8. I hardly ever expect things to go my way.
9. Things never work out the way I want them to.
10. I don't get upset too easily. (Filler item)
11. I'm a believer in the idea that "every cloud has a silver lining".
12. I rarely count on good things happening to me.

APPENDIX C

APPENDIX C

Instrumental Activities of Daily Living For the Patient

1. The following questions are about the activities you might do during a typical day. I am going to ask you about your ability to perform these activities currently. Does your health limit your ability to do activities? If so, how much?

(Interviewer: Are you currently limited in...because of your health? We are interested in your ability to do these activities.)

(1=No, not limited at all; 2=Yes, limited a little; 3=Yes, limited a lot)

- a. Vigorous activities, such as lifting heavy objects or participating in strenuous sports?
- b. Moderate activities, such as moving a table, bowling, or playing golf?
- c. Lifting or carrying groceries?
- d. Climbing several flights of stairs?
- e. Climbing one flight of stairs?
- f. Bending, kneeling, or stooping?
- g. Walking more than one mile?
- h. Walking several blocks?
- i. Walking one block?

APPENDIX D

APPENDIX D

Sociodemographic Information For Cancer Patient

Who now lives in your household with you? (Check all that apply)

No one-lives alone

Spouse

Other

NA/Refused

APPENDIX E

APPENDIX E

Finances

Considering all sources of income, what was the combined household income of all household members in the previous year?

0-- 4,999
5,000-- 9,999
10,000--14,999
15,000--19,999
20,000--24,999
25,000--29,999
30,000--34,999
35,000--39,999
40,000--44,999
45,000--49,999
50,000--59,999
60,000--69,999
70,000--79,999
80,000--89,999
90,000 and over

APPENDIX F

APPENDIX F

MICHIGAN STATE UNIVERSITY

June 6, 1995

TO: Barbara A. Given
A230 Life Sciences

RE: IRB#: 92-280
TITLE: FAMILY HOME CARE FOR CANCER--A COMMUNITY-BASED
MODEL
REVISION REQUESTED: 05/25/95
CATEGORY: FULL REVIEW
APPROVAL DATE: 06/05/95

The University Committee on Research Involving Human Subjects (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.



OFFICE OF RESEARCH AND GRADUATE STUDIES

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

PROBLEMS/ CHANGES:

Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright
David E. Wright, Ph.D.
UCRIHS Chair
DEW:kaa/lcp

The Michigan State University
Office of International Programs
Lansing, Michigan

MSU is an affirmative-action,
minority-opportunity institution

RE: IRB#: 96-058
TITLE: AN EXPLORATION OF THE RELATIONSHIP BETWEEN
OPTIMISM AND FUNCTIONAL STATUS FOR CANCER
PATIENTS
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 01/30/96

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

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**PROBLEMS/
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Should either of the following arise during the course of the work, investigators must notify UCR/HS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517) 355-2180 or FAX (517) 432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW : bed

cc: Barbara A. Given

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List of References

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