THE FAMILY HEALTH DECISION-MAKING MODEL: FAMILY INFLUENCE ON BREAST CANCER SCREENING ADHERENCE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for

the Degree Doctor of Philosophy in the Graduate

School of The Ohio State University

By

Paula Toviessi, M.S.

* * * * *

The Ohio State University
2007

Dissertation Committee:

Professor Suzanne Bartle-Haring, Adviser

Professor Natasha Slesnick

Professor Randi Love

Approved by

_____

Adviser

College of Education and Human Ecology

ABSTRACT

Breast cancer is the second most deadly cancer among women (American Cancer Society, 2005). However, woman can reduce their chances of surviving this disease if they detect the cancer early on through breast screening. This study will evaluate the Family Health Decision-Making Model (FHDMM) as it relates to partner influence on breast cancer screening adherence. The FHDMM proposes a decision-making process that incorporates the concepts of differentiation, monitoring style, coping, and the interactions between these concepts. Health, a critical component to quality of life, directly influences family functioning and interactions. For this reason, health decisions made by families are a significant predictor of family health. Participants in this study include women from a larger study and their family members. The women attended a presentation about breast cancer awareness, risk factors, and prevention. Data for this study was analyzed using correlations, t-tests, regressions, and a structural equation model with the SPSS 14.0 and LISREL 8.72 software packages. Research hypothesis one examined differentiation and monitoring, and this hypothesis was supported. This suggests that there is a relationship between differentiation and monitoring and that those reporting lower differentiation scores also reported higher monitoring. Findings from research hypothesis two revealed that there was not a significant difference on instrumental coping based on level of differentiation. Results from research hypothesis three revealed that differentiation did not directly influence the family dyad's decision to

engage in breast cancer screening behaviors although it is believed that differentiation has an indirect relationship to breast cancer-screening behaviors. This study did not support the full Family Health Decision Making Model, which stated that differentiation is related to coping, which is related to monitoring, and participant's adherence to breast cancer screenings. Due to the large sample size, the model did not have a significant fit to the data. Limitations and clinical implications are further discussed in this paper.

Dedicated to my mother

ACKNOWLEDGMENTS

I would like to thank my advisor, Dr. Bartle-Haring for her brilliant knowledge of family systems theory and statistical analyses has been very helpful throughout this process. I really appreciate your patience and the encouragement you have given me. Having you as a mentor has helped me grow in ways I could not have imagined.

I would also like to acknowledge Dr. Natasha Slesnick, I am grateful for your feedback and your words of encouragement. Thank you for all of the time and energy you invested in helping me throughout this process.

I would like to thank Dr. Randi Love, your patience and feedback has been very helpful and I really appreciate your support throughout this process. Thank you for everything.

I would also like to acknowledge the participants and their families for their time and cooperation in this study, without their willingness to participate in this study; I would not have been able to complete this project.

I would like to thank my friends and family for always being there to listen and support me. I really appreciate your friendships and your faith in me. I would not have been able to make it without your strength and confidence in me. I love you all and thank you for everything you have given me.

VITA

February, 26, 1978	Born – Alexandria, Virginia
2000	B.S. Psychology Norfolk State University
2003	M.S. Marriage and Family Therapy Purdue University Calumet
2003-2007	Research Associate The Ohio State University
2005-2006	Doctoral Intern The Ohio State University

PUBLICATIONS

Serovich, J., Mason, T., Bautista, D., & Toviessi, P. (2006).Gay men's report of regret of HIV disclosure to family, friends, and sex partners. AIDS Education & Prevention, 18 (2), p132-138.

FIELDS OF STUDY

Major Field: Human Ecology
Human Development and Family Science
Minor Field: Couple and Family Therapy

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

An estimated 212,930 women were diagnosed with breast cancer and 40,870 died from this disease in 2005 (American Cancer Society, 2005). In the absence of prevention, early detection by regular mammography screenings is the best way to increase breast cancer survival rates (Mitchell et al., 2005). This study will examine the Family Health Decision-Making Model (FHDDM) and family influence on breast cancer screening adherence. The FHDMM proposes that differentiation, monitoring style, and coping style all influence health decision-making. Due to its prevalence, breast cancer can serve as a valuable example for investigating this model. This model is discussed in detail and analyzed for its influence on the decision of the family to follow breast cancer screening adherence.

Information in the literature about breast cancer risk factors and prevention is plentiful, although information about the decision-making process is limited. The decision to engage in regular breast cancer screenings is significant to the detection of breast cancer. Russell, Swenson, Skelton and Shedd-Steele (2003) state that mammography screenings significantly increase the survival rate of breast cancer if detected in the early stages. Family involvement in this decision-making process can be

essential in the persuasion or discussion of breast cancer screening adherence. Rempel and Rempel (2004) acknowledge that the role of an intimate partner in the performance and maintenance of health-related behaviors is known but is often under-researched. More investigation into the influence of family involvement and the decision-making process can aid in prevention efforts to change health behaviors. This study includes family members due to the overwhelming research on the positive influence that family and social support have on health outcomes.

Social support consists of interpersonal connections and exchanges that are perceived as helpful (Rudkin, 2003). The social networks of an individual can include family, friends, or other outside resources. Schaefer et al. (1981) identified three distinct support types: emotional, tangible, and informational. Emotional support includes reassurance, attachment, and generally the feeling that one is loved and accepted. Tangible support involves direct aid or service, the provision of assistance or goods. Informational support includes giving information, advice, or feedback aimed at problem resolution. When making important health decisions it is essential that individuals receive all three types of support at different stages in the decisions-making process. Masters, Stillman, and Spielmans (2006) suggest that different types of support are differentially acceptable to recipients when they come from different sources. One could imagine, for example, that the informational support provided by a physician may have different valence and impact than the same information has when delivered by a spouse or even a child.

The literature has identified the numerous health benefits of social support. Taylor (2007) suggests that social support is widely acknowledged as a critical resource for managing stressful occurrences, and contributes substantially to psychological and physical health (Markey, Markey, & Birch, 2001). Trunzo and Bernadine (2003) found that higher levels of optimism and social support were associated with less emotional distress in cancer patients. Drageset and Lindstrom (2005) examined the relationships between demographic characteristics, social support, anxiety and coping among women with possible breast cancer. Social support was positively related to instrumental-oriented coping and emotion-focused coping. In a study conducted by Cunningham-McNett (1987) it was found that the availability of social support could enhance one's feelings of personal control and lead to problem-focused coping.

Katerina and Northcott (1996) examined patterns of social support in people with chronic aphasia following stroke. Results indicated that social companionship and informational support positively influenced health-related quality of life. Research that examined the relationship between social support and psychological functioning in patients with Parkinson's Disease (Simpson, Hines, Lukewuwa, Wardle, and Crawford, 2006), found that less satisfaction with social support also lead to higher depression, anxiety, and stress scores. Dukes and Holahand (2003) examined the relationship between perceived social support and coping to positive adaptation to breast cancer among fifty-six women between the ages of 38 and 58 who had been diagnosed with Stage I or II breast cancer. Results suggested that perceived social support were associated with positive adjustment.

Family support has been shown to influence health outcomes and should be investigated for its influence on family health decision making. Information on family involvement into health-decision making is essential if health professionals are to use the most effective intervention or prevention efforts to get women to participate in regular breast cancer screenings.

Significance of the Problem

Chronic illnesses such as cancer, diabetes, heart disease, and asthma are all prevalent causes of mortality and account for 80% of deaths in Western countries (Maes, Leventhal & DeRidder, 1996). One devastating consequence of a chronic illness is the deterioration of family functioning and health. These complex medical circumstances can impose difficult health decisions for individuals and their families and suggests a need to understand how families make important health decisions (Baumann, 2006).

Familial response to chronic illness is often best described using a family systems framework (Radina & Armer, 2001). Marriage and family therapists are trained to assist families with family interactions and functioning and will likely encounter families struggling with challenging health problems. The health decision-making process involves the family's ability to interact and function around stress and anxiety. Therefore, therapists may need to provide emotional and educational support during this difficult decision-making process.

This study will contribute to the decision-making literature by identifying variables involved in the decision-making process, identifying how individuals decide to adhere to breast cancer screenings and by explaining the extent of influence that family

members have on the individual's decision to adhere to breast cancer screenings. This study will also provide more information on family differentiation, coping and monitoring styles. This information is important for health care professionals working with families to develop prevention and intervention programs.

The decision to engage in preventative health care is important to overall health. However, changing health behaviors is a demanding task that requires change on a cognitive, emotional, and behavioral level. Development of interventions to change health behaviors should focus on the involvement of family members, an understanding of the decision-making process, and the distribution of information on preventative measures to the family. The purposes of this study are a) to examine the Family Health Decision-Making Model (FHDMM), b) to examine the FHDMM on breast cancer screening adherence, and c) to examine partner influence on breast cancer screening adherence.

The Family Health Decision-Making Model is a conceptual model of health decision-making that states that family differentiation can predict the management of stress and anxiety. This management then contributes to the coping strategies and behaviors, such as which health practices one chooses to engage in. Coping then directly impacts monitoring attentional style or the way information is processed. The choice to seek out or avoid health information directly influences the health decisions made and will eventually influence overall health.

CHAPTER 2

LITERATURE REVIEW

Bowen Systems Theory (BST)

Bowen (1978) describes the family as an emotional system, in which members are emotionally interdependent and function in reciprocal relationships with one another. This emotional system involves many patterns and behaviors that influence family functioning (Bowen, 1978). These patterns continue to play a significant role in present day relationships (McDaniel, Weber & McKeever, 1983), and are transmitted across generations through the process of multigenerational transmission (Roberto, 1992). BST consist of many concepts that explain the different patterns of interactions in families such as differentiation, triangulation, fusion, and multigenerational transmission.

Differentiation

One fundamental concept of Bowen Systems Theory is differentiation. Griffin and Apostal (1993) describe differentiation as the degree to which a person develops into a distinct, unique and thinking individual while interacting with important others. Bowen (1978) described differentiation as the ability to differentiate between thinking and feeling in an emotional relationship system. Kerr and Bowen (1988) described those with low differentiation as mainly using their feelings to make decisions and those with higher

differentiation as those who are able to think through things rather than reacting emotionally. Charles (2001) explained that an increase in differentiation would then reduce behavioral and emotional consequences because the highest level of family functioning is reached when the anxiety in the system is low. Kerr and Bowen (1988) observed that ones level of differentiation could be determined by how they handle stress and anxiety, although if stressed sufficiently social, emotional, or physical symptoms can develop in any family.

Differentiation can be explained in two levels: basic and functional. The basic level is stable, solid, and resistant to external influences, while the functional level varies and fluctuates from day to day due to external influences (Griffin & Apostal, 1993). The functional level, or pseudo-self, is fluid and shifts with the dominant emotion (Bohlander, 1995). Differentiation determines how families handle stress and anxiety, which may also predict how they make important health decisions. This ability to handle stress and anxiety may be a good predictor of whether families will engage in preventative behaviors.

Family Differentiation

The concept of differentiation is truly a family systems concept, as each individual is influenced by his or her family-of-origin and the level of differentiation within that family. Sharf (1996) describes the transmission of family dysfunction as one important component of Bowen System Theory. This transmission of family patterns can prove problematic for families that continue these dysfunctional patterns. A few studies have examined these patterns within families. Wichstrom and Holte (1995) examined parents with schizophrenic offspring, families with another psychiatric disorder or

families with no psychiatric disorder. There were seventeen families in the schizophrenia group, and fourteen in the non-schizophrenia and non-psychiatric group. Results indicated that the parents of the schizophrenic offspring were more fused than the other parents and also experienced more relationship problems. This study found that perceptions of fusion and conflicts were related to couple communications. Cohen, Vasey and Gavazzi (2003) found individuality tolerance within the family to be significantly predictive of adolescent internalized distress. Gavazzi (1994) found that differentiation levels in both father-adolescent and mother-adolescent dyads were significantly related to adolescent problem behavior. Further research on how differentiation impacts the family is needed to support Bowen's hypothesizes on the family. Wichstrom and Holte (1995) examined families of students with physical and cognitive disabilities to students without disabilities on triangulation and fusion. The authors found that families with students with disabilities were more fused than those without disabilities however there was no difference on triangulation.

Bowen Systems Theory also hypothesizes that differentiation is positively correlated with marital satisfaction and that marital conflict is a result of low levels of differentiation. Kerr and Bowen (1988) propose that someone with high chronic anxiety will likely engage in marital conflict, experience health or emotional problems, have a child that has physical or psychological symptoms, and/or triangulate other people into the relationship. Several studies have examined this hypothesis and have found a strong, positive relationship between differentiation and marital quality (Haber, 1984; Skowron, 2000; Skowron & Friedlander, 1998). Haber (1984) examined 168 couples and found those individuals that had higher levels of differentiation had lower levels of relationship

conflict. Richards (1989) examined 60 married couples and found a significant relationship between differentiation and marital satisfaction. Skowron (2000) found differentiation and marital satisfaction were significantly associated. The study also found that the husband's emotional cutoff scores were particularly correlated with both husbands' and wives' marital quality scores, while the total differentiation scores accounted for 74% of the wives' and 61% of the husbands' marital satisfaction.

Triangulation

Triangulation occurs when the anxiety and stress between two people becomes so overwhelming, that a third person is brought in to stabilize the system (Bowen, 1978). This triangle consists of two insiders and one outside person. When there is no tension, in the triangle, the insiders are comfortable and the outsider is isolated. When there is tension in the triangle, the preferred position is the outside position (Kerr, 1988). There can be several different triangles in one system at a time, and systems can consist of many interconnected triangles (Bowen, 1978). When family relationships are troubled, they are less likely to act as a buffer and more likely to act as a compounding factor in stress reactivity (Kiecolt-Glaser & Newton, 2001). Triangulation is used to relieve stress, but does not effectively resolve the problem, and may lead to negative consequences for the individuals of that triangle if the system becomes stuck (Moultroup, 1990). Another pattern that can develop when differentiation is low in the family system is fusion. Fusion occurs when the anxiety in the system is shifted from one member to another.

Fusion

Fusion refers to one's emotional over-involvement with another. In a fused relationship, boundaries are so diffuse that intimacy and individuation are hindered

because of the inability to set boundaries with another. Persons are so emotionally attached to another that their own sense of self is dependent on the other (Bowen, 1978). Fusion can also be seen as the inability to have an "I" when one is part of a "We" (Anderson & Sabetelli, 1990). Harvey, Bray, and Curry (1991) believe that one's level of fusion reflects their degree of unresolved emotional attachment to the parental subsystem. Individuals with higher levels of fusion have lower levels of differentiation. This low level of differentiation can lead to other interaction patterns such as emotional reactivity.

Emotional Reactivity

Bartle-Haring and Gregory (2003) define emotional reactivity as the response to a situation that is automatic rather than thought out. Emotional reactivity is an emotional, cognitive, and physiological response to an event. This reactivity leads to alterations in functioning of the central nervous system, cardiovascular system, endocrine system, and immune system function that increases susceptibility to illness (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002). Davidson (1998) proposes that there are different components of emotional reactivity, 1) an emotional change from baseline to peak activation, 2) duration of activation, 3) latency of activation and 4) variability in specific response components. Lavallo and Gerin (2003) explain that the emotionally reactive person is described as one who experiences intrusive-repetitive images and thoughts following emotional events. This person also lacks control over the tendency to become emotionally aroused despite conscious attempts not to do so. This person becomes emotionally aroused in anticipation of a forthcoming emotional event and experiences an excessive magnitude and/or duration of emotional response following an emotional event.

Poorly differentiated families are emotionally reactive, so that much of their energy is directed toward the experience, expression, and intensity of their feelings. These individuals find it difficult to remain calm in response to the emotionality of others because they are trapped in an emotional world (Peleg-Popko, 2002). Effective regulation of emotions through behavioral and cognitive strategies can enhance life (Westen, 1994); however, the mismanagement of emotions such as anger and anxiety can lead to symptoms.

Families that are well differentiated are better able to withstand the effects of stress because they are likely to employ active, objective problem-focused coping responses rather than avoidant or emotionally-oriented responses (Murdock & Gore, 2004). Differentiation may play a role in family stress because of the family member's ability to work together through intense emotions and to overcome stressful situations.

Differentiation may contribute to the way that families view the world and how they react to the different life situations that they encounter. Based on family level of differentiation, it may be possible to predict coping strategies used. The ability to manage or mismanage anxiety and stress will directly influence the coping behaviors families choose to engage in.

Family Coping

Emotional reactivity towards family members can distribute the stress response throughout the family system (Klever, 2005). Once this stress response cycle is activated, families begin to react to one another emotionally which can maintain problems in the family system. A family problem is an issue for which the family has trouble finding a solution and the presence of which threatens the integrity and functional

capacity of the family (Miller, Ryan, Keitner, Bishop & Epstein, 2000). Many family problems create stress and challenges for the individuals in the family system. Stress has been defined as a state where an individual's resources are challenged by their environment in a way that overtaxes their coping ability and endangers their well-being (Lazarus & Folkman, 1984). Family coping involves the interactions and resources shared within a family for a common goal. Coping then becomes a process of achieving a balance in the family system that facilitates organization, unity, and promotes individual growth and development (McCubbin, Joy, et. al.1980). Endler, Parker, and Summerfeldt (1998) define coping as cognitive and behavioral attempts to change, modify, or regulate internal or external factors (which may be adaptive or maladaptive). Coelho, Hamburg, & Adams (1974) state that understanding how families cope with stress is just as important as understanding the frequency and severity of life changes. Family efforts at coping are designed to change or maintain family unity and balance in the face of stress and distress (McCubbin & Patterson, 1993).

Coping can be categorized into problem-focused, cognitive reappraisal, emotion-focused, or avoidance coping (Hainsworth, Eakes, Burke, 1994). Cognitive coping strategies refer to the ways in which individual family members alter their perception of stressful situations (McCubbin et. al. 1980). Lazuraus and Lazurus (1994) suggest that seeking information about an illness or its treatments is more effective than seeking distractions or avoiding the stressful situation if anything can be done. Billings and Moos (1982) believe that problem-focused and cognitive reappraisal are positive ways of coping, rather than emotion-focused coping or avoidance coping, as people try to alter the situation or change the way an encounter is understood.

Carver and Scheier (1994) explain that types of avoidant coping such as self-blame and wishful thinking are overt efforts to deny the stressor's reality. They believe this form of self-distraction, mental engagement, or behavioral disengagement with the stressor work against the person rather than to their advantage.

Endler et. al., (1998) examined the relationship between coping strategies and perceived control with psychological and physiological adjustment in Type II diabetes. It was found that emotional preoccupation and palliative coping were correlated with depression and state anxiety. On the other hand, women diagnosed with breast cancer after undergoing medical treatment found that emotionally expressive coping increased their physical health and quality of life while decreasing their distress (Stanton et. al., 2000). One form of coping that involves the use of social supports and external resource is social support. This form of coping has been thoroughly researched and found to be a useful coping mechanism.

Spiritual coping has also proven to have a significant impact on one's health. Harris, Dew, Amaya, Buches, Reetz and Coleman, (1995) found that persons who considered spirituality to be a major influence in their lives were more likely to have better physical functioning among participants receiving a heart transplant, one year later. Attendance at religious services has also been associated with better health practices, and higher levels of exercise in adults with physical disabilities (Idler & Kasl, 1997). Kinney, Emery, Dudley, and Croyle (2002) examined the relationship between beliefs about God as a controlling force in health and adherence to breast cancer screening among high-risk African-American women. There were fifty-two African-American women in this study, the women did not have breast cancer but had a BCRA1 gene mutation. Belief in God as

a controlling agent over health was measured using the God Locus of Health Control (GLHC) a six-item and six-response scale. Results of this study revealed that women who have a high GLHC score had a decreased inclination to adhere to clinical breast examinations or mammography screenings. Families facing medical challenges are forced to use coping strategies and these coping strategies used by families may lead to an understanding of how families make health decisions.

The coping literature is substantial; many researchers state stressful situations can influence mental and physical health tremendously. An investigation into the coping strategies used by families can also help determine how families make important health decisions. Family level of differentiation may be a good predictor of the coping strategies used by families. Coping can also be described as the behavioral result of family differentiation. Families with low levels of differentiation are likely to engage in avoidant or emotion-focused coping strategies, while those with high differentiation are likely to engage in more proactive and cognitive coping strategies. These coping strategies used by families are also good indicators for whether families seek out or avoid health information and what they do with the information obtained**.**

Monitoring Attentional Style

Monitoring attentional style is defined as the way information is processed. Miller (1987) explained that individuals differ in the attention they allocate to threatening health-related information. Some individuals are vigilant to threat related cues while others are less vigilant or attentive to such information (Christensen, Moran, Lawton, Stallman & Voigts, 1997). Miller (1987) developed the Miller Behavioral Styles Scale

(MBSS), used to assess dispositional monitoring. This measure helps to distinguish individuals who seek out threatening health information versus those who avoid threatening health information.

Voss, Kolling, and Heidenreich (2006) describe monitoring and blunting as two coping modes utilized during situations of threat or danger. The authors explain that monitoring is an information seeking approach while blunting is a reinterpretation or distraction from the encumbering aspects of a situation. This suggests that high monitors seek out and identify threatening health information while blunters try to avoid threatening information. Christensen et. al., (1997) examined monitoring attentional style and medical regimen adherence in hemodialysis patients. Results revealed that higher monitors reflected poorer adherence to fluid and dietary restrictions, although it was not associated with medical adherence. Voss et. al., (2006) examined the association between monitoring attentional style and primary insomnia among eighty-four participants. Results revealed that high monitoring was associated with primary insomnia and high blunting was associated with good sleeping.

Bauman (2006) cautions that there are multiple ways that individuals and families deal with information about their health risks. People will avoid information, if attention to it will cause mental discomfort or dissonance (Case, Andrews, Johnson & Allard, 2005). Information about the monitoring style of families is critical for interventions to promote mammography screenings. The threat of cancer is a health problem that produces a lot of anxiety and is difficult to cope with because there are so many types and stages of cancer (Case et al., 2005).

Fang, Miller, Daly, and Hurley (2002) examined first-degree female relatives of ovarian cancer patients to determine their intentions to undergo preventative surgery. Results of this study indicated that high monitoring and greater perceived risk was associated with the decision to undergo the surgery.

Family differentiation may contribute significantly to monitoring attentional style. Differentiation could be related to perception of risk based on health information, which directly influences health behaviors. When differentiation is low, it may lead to complete avoidance of health information and disengagement from preventative health behaviors. It can also lead to an emotionally reactive response to risk perception, where an individual allows anxiety to cloud their response to health information. When differentiation is high, it may likely lead to the interpretation of actual risk from health information received. This perception of risk will ultimately lead to decisions about preventative health behaviors. However, when differentiation is low perception of risk may be based more on anxiety than the information received.

Due to the ways that information is processed by different families, it is important that we understand how this processing style will influence the health decisions made by families. Monitoring attentional style is most likely related to the way that families make health decisions based on the attention they pay to threatening health information or health problems.

Health Decision Making

Decision-making is fundamental to all aspects of cancer care including prevention, detection, treatment, survivorship and end of life (Nelson, Stafanek, Peters & McCaul, 2005), although researchers and clinicians have limited knowledge of the ways in which patients and their health care providers make critical health decisions. Family interactions and functioning can have a significant influence on health related behaviors. Weihs, Fisher, and Baird (2002) pronounce that health decisions are not made in isolation and that all patients live within a family system that is a highly influential component of different aspects of disease management. Baumann (2006) agrees that breast cancer is a health problem with considerable psychosocial and family issues.

Family influence on health decision-making significantly influences family health and health behaviors. Baumann (2006) explains that accurate, up-to-date information and family discussions at various times in the course of illnesses are important to decision-making and family relationships. Hallowell et. al. (2005) examined familial influences on genetic testing and found that the men in their study identified their partners, siblings, and or cousins as having involvement and influence into their testing decisions. The men in this study also reported an obligation to their children or other family members as a motivation in their decision to be tested. Baumann (2006) suggests that having such self-knowledge about genetic health risks as young adults is significant to life decisions such as marriage and family. Hodgson, Shields, and Rousseau (2003) examined disengaging communication with couples coping with breast cancer. The authors found that disengaging communication characterized by withdrawal and avoiding open

communication and feelings about cancer reduced marital satisfaction and marital quality.

Health decision-making research has identified many factors that can contribute to decision outcomes. However, more research is necessary to understand the decision-making process in which individuals and families engage. Wu, Yu, Yang, and Che (2005) studied a decision-making tree to describe how women make the decision to have or not to have a hysterectomy to treat symptomatic fibroids. Of the women who opted to have a hysterectomy, three characteristics were identified: irrational psychological obstacles, increased fibroid size, and the inability to bear the physical pain. Of the women who decided not to have the surgery, two main characteristics were identified: the desire to preserve their uterus and avoid surgery. Wu et. al., (2005) stated that lack of information about fibroids and worry had a major impact on willingness to undergo a hysterectomy. The authors suggest that physicians provide women with sufficient information about hysterectomies because this significantly influenced their decision to undergo surgery.

In the health decision-making literature, shared decision-making is a topic that has been examined. Shared-decision making is the process where patients are active partners with the clinician in clarifying acceptable medical options and in choosing a preferred course of clinical care (Sheridan, Harris & Wolfe, 2004). Ozanne, Klemp and Esserman (2006) state that when considering prevention options, it is important that decisions be made within a shared decision-making process, as these decisions are highly dependent on individual preferences and risk predictions. Shifren (2003) agrees that evidence suggests that health-related behaviors are a dynamic process that requires multiple

sources of information in order to make decisions. Interventions involving communication between healthcare professionals and high-risk individuals play an important role in increasing the use of cancer screening tests (Kinney, Emery, Dudley & Croyle, 2002). To assess the impact of the patient-physician interaction on breast cancer care in older women, Maly, Leake and Sillman (2004) examined 222 breast cancer patients aged 55 and older. In this study, results revealed that physician interactive informational support was the only independent variable to significantly influence patient breast cancer knowledge, treatment delay, and receipt of breast conserving surgery.

Many factors go into the health decision-making process, such as individual values, personal experiences, quality of life, minimization of suffering and knowledge about alternatives. Decision-making research has acknowledged the impact that emotions have on health decision-making. Lowenstein (2005) suggests that when patients are in "hot" affective states such as pain or anger, they may make health decisions that are not in their best interests. Researchers can better understand and predict decision-making behaviors if they recognize that people will seek to mitigate the emotional costs of specific decision operations (Luce, 2005). Finney and Iannotti (2002) acknowledge that individuals who are highly involved in a behavioral area tend to process information with a systemic manner, and those who are not highly involved tend to process information in simple efficient rules**.** Such research suggests that positive information tends to be more persuasive than negative information when the information is processed in simple rules. Emotions can play a big part in making health-related decisions and many models have been developed to explain this process.

Decision-Making Models

Health decision models serve as a guide to understand how health decisions are made. Although little is known about decision-making models guiding patient's health related decisions and the kind of information they need in order to make medical decisions (Shoshana, Gerad & Goldman, 2006).

According to Wu et. al., (2005) a decision-making tree is necessary to show the route as well as the thought processes involved in a decision. The following models describe the variables and the interactions between the variables that result in a health decision.

The Naturalistic Model of Decision-making proposes that decision makers create mental representations of the situation in their mind and then match it with a similar situation. Decision makers replay other events in their lives that are comparable to the current decision in order to decide what choices are available. Once they are able to generate a single likely option they use the mental image to determine which option will work for them (Shoshana, Gerad & Goldman, 2006).

The Model of Emotional Tradeoff Difficulty was developed by Luce, Bettman, and Payne (1997). This model proposes that decisions are inherently stressful and an important goal should be to cope with the decision-generated negative emotion. The authors define a decision-generated negative emotion as one elicited by the perception that there is a meaningful decision to be made.

The Common Sense Model of Illness proposes that decision-making consists of a parallel processing system involving a cognitive arm and an affective arm. In the cognitive arm, individuals have cognitive representations of threats and plan to evaluate and perform procedures for threat control. In the affective arm, individuals have a

(McCaul, Reid, Rathge & Martinson, 1996). In this model, the individual's parallel set of cognitions and emotions interact with one another. During this process emotional processing of information can block reasoned information processing and vice versa.

Breast Cancer

Breast cancer no longer equals a death sentence. More women are now living as breast cancer survivors (Radina & Armer, 2001). Breast cancer can be divided into three categories based on etiology (Katapodi, M. & Aquizerat, B., 2005). Hereditary breast cancers are attributed to gene mutations. Of all women diagnosed with breast cancer and ovarian cancer, five to ten percent of these women are believed to have a genetic mutation, such as the two major susceptibility gene mutations known as BCRA1 and 2 (Swartz, Peshkin, Tercyak, Taylor & Valdimarsdottir, 2005). Familial breast cancer comprises 20-25% of all cases and is associated with a positive family history, but no known genetic mutations can be identified. Lastly, sporadic breast cancer comprises 70% of all cases and there is no known heritability.

Breast cancer risk factors can significantly predict if a woman will develop the disease. Katapodi and Aquizerat (2005) advise that age is the most important risk factor of developing sporadic breast cancer, with the greatest risk occurring after the age of 50. Other known risk factors are family history of breast or ovarian cancer, atypical hyperplasia or lobular carcinoma in-situ and genetic factors (Katapodi & Aquizerat, 2005). The American Cancer Society (2005) also suggests that exposure to hormones, alcohol use, and obesity are risk factors in the development of breast cancer.

Preventative behaviors are aimed at maintaining health or preventing the occurrence of a health problem, whereas detection behaviors are aimed at finding or detecting potential health problems in the early stages of the disease (Finney & Iannotti, 2002). Breast cancer prevention includes lifestyle modifications, chemoprevention with tamoxifen, prophylactic surgery, and ovarian suppression (Ozanne et. al., 2006). Tamoxifen is a selective estrogen receptor moderator used to reduce the risk of developing breast cancer (Gorin, Wang, Raich, Bowen & Hay, 2006). Tamoxifen is the only U.S. Food and Drug Administration (FDA) approved for breast cancer chemoprevention, but it is unacceptable to most eligible women because of side effects, both real and imagined (Euhus, 2006).

Mammography is generally regarded as the most effective tool for detecting breast cancer early and preventing cancer mortality (Williams-Piehota, Schneider, Pizarro, Mowad & Salovey, 2003). Although, recently, use of mammography screening has increased, regular screenings necessary to maximize breast cancer survival remains low (Raucher, Hawley & Earp, 2005). Breast cancer screening adherence consist of a monthly breast self-exam, annual clinical breast exam performed by a health care provider, and an annual mammogram for women thirty-nine and older. A mammography is an x-ray of the breast that is designed to detect lumps before they are obvious. The examination involves compression of the breast against a film holder in order to view the breast from different angles (Bowie, Curbow, Laveist, & Pargament, 2001).

Denberg, Wong, and Bettie (2005) explain that informed decision-making about breast cancer screening requires that patients have a correct understanding of a test's

purpose, benefits, and risks. The authors examined misconceptions about screenings that may influence patient's informed decision-making. Results of this study showed that women expressed cancer related beliefs characterized by inaccuracies, distortions, and over-simplification. Preventative health decisions are often preference driven: patients choose whether to initiate effective treatments that may cause side effects and can negatively influence quality of life (Ozanne, Klemp & Esserman, 2006).

Breast cancer screening is a preventative behavior that requires a future time orientation. Bergadaa (2001) suggests that not having a future time orientation has serious implications on screening behaviors because the importance of prevention is not seen as a benefit. Public health practitioners working to promote mammography use must consider integrating present time orientation into their approach (Lukwago et. al., 2003). However, this effort can only be successful when there is a positive relationship between the patient and physician.

Champion and Skinner (2003) examined perceived benefits and barriers to mammography use and found that women who had not had a mammogram were more afraid that something might be wrong than women who had been screened in the past. According to the authors, those who had never had mammography, felt that they were too old to get a mammogram (Champion & Skinner, 2003). These findings stress the importance of education to older women to help them understand that breast cancer risk increases with age. Breast cancer is reported to have a survival rate of 78% after five years (Buyske, Mackarem, Ulmer, & Hughes, 1996). Unfortunately, women without the

knowledge of the high survival rate will continue to hold onto fears of breast cancer screening.

An investigation into the barriers that might influence health protective behaviors or those that might hinder protective health behaviors is valuable. McCaul, Reid, Rathge, and Martinson (1996) examined fear of breast cancer, using the variables, perceived susceptibility, precaution effectiveness, reported frequency of breast self-examination and mammography, and intentions to engage in breast cancer screening in the future. Results indicated that greater fear is related to higher levels of screening intentions and behavior, while susceptibility and fear were each associated with screening. Hay, McCaul, and Magnan (2006) examined worry about breast cancer and its influence as a facilitator or inhibitor of breast cancer screening. The meta-analysis consisted of prospective studies that measured worry about breast cancer at baseline and subsequent breast self-examination (BSE) or mammography utilization among 3342 high-risk women. Results indicated that breast cancer worry has a small association with breast cancer screening behavior.

Breast cancer is a serious illness that influences thousands of families. Detection of this disease is highly likely through regular mammography screenings. However, like many preventative measures the decision has to be made to engage in these behaviors. Family influence into these decisions is important and a better understanding of how families make certain health decisions is vital to prevention efforts. The proposed Family Health Decision-Making Model offers a conceptual model for how family differentiation impacts family health decision-making.

Family Health Decision-Making Model

The Family Health Decision-Making Model (FHDMM) (see Figure 2.1) is a conceptual model of health decision-making developed by the author and examined in this paper. This model describes the cognitive and behavioral processes incorporated in the decision-making process to predict screening behaviors. The FHDMM is based on the concepts differentiation, coping and monitoring style. The impact of differentiation on the families' ability to distinguish between thinking and feeling is essential in the health decision-making process. Differentiation, in the model, may be a good predictor of the management of stress and anxiety around health practices. In this model, differentiation directly contributes to coping style, which in this model is the behavioral result of differentiation. Level of differentiation is related to the coping mechanisms that a family uses to handle stressful and anxiety producing situations. Coping is then related to monitoring attentional style or better understood as the way health information is processed. Differentiation may also predict monitoring or blunting style because of the ability to manage stress and anxiety around health information. Families with high levels of differentiation will seek out and identify threatening health information while those with low levels of differentiation will try to avoid threatening information.

In summary, The Family Health Decision Making Model is a conceptual model to understand the impact of differentiation, coping and monitoring style on health decisions. Many models that examine or develop frameworks for health decision-making focus on the risk and benefits of a behavior and then decide if the benefits outweigh the costs. However, in this model many other factors are taken into consideration. This model

takes into consideration the many psychological barriers and automatic emotional responses that individuals experience when making a health decision.

Statement of Hypotheses

Hypothesis 1. Family dyads with lower levels of differentiation are more likely to report higher monitoring attentional style and family members with higher levels of differentiation are more likely to report low monitoring attentional style.

Hypothesis 2. Family dyads with higher levels of differentiation are more likely to utilize task oriented coping strategies than those with lower levels of differentiation.

Hypothesis 3. Family dyads with higher levels of differentiation are more likely to follow breast cancer screening adherence compared to those with lower levels of differentiation.

Hypothesis 4. The Family Health Decision-Making Model will predict which family dyads will adhere to breast cancer screening procedures.

CHAPTER 3

METHODS

Participants

Family dyads were recruited through local churches, community organizations and a university wellness program. The inclusion criteria for the study were that (a) dyads were over the age of 18 and (b) living in the same household. The exclusion criteria for this study are: (a) dyads under the age of 18 and (b) not living in the same household. A total of 134 surveys were given to participants in this study. The return rate from family members was 35%, with 47 family dyad surveys completed and used for this study.

A sample of forty-seven family dyads were included in this study. The sample was mostly made up of couples but also included parent-child dyads and other family members. Table 3.1, 3.2, and 3.3 report the relationship status, ethnicity, and religion of family dyads. The majority of the sample consisted of married couples (53.2%) who identified as African-American (48.9% for participants and 46.8% for partners) and Protestant (48.9% for participants and 63.8% for partners). Tables 3.4 and 3.5 summarize age and medical insurance status of participants and their partners. The participant's ages ranged from 18-73 years, while partner's ages ranged from 19-81 years. The majority of participants (89.1%) and partners (78.7%) reported currently having medical insurance.

Procedures

This research project was part of a larger research project examining factors that contribute to breast cancer screening adherence. A PowerPoint presentation about breast cancer awareness, risk factors, and prevention based on current breast cancer literature was developed for this study. The researchers were trained in doing the breast cancer presentation and read current research on breast cancer. Local churches, community organizations and a university wellness program were then identified and contacted to advertise the breast cancer education presentation. Churches, community organizations and the university wellness program were all provided with information about the research project and agreed to participate in the project. The researchers gave a two-hour presentation including a pre-test and a post-test following the presentation. Once the post-test were completed, participants were compensated with $5 for their time and given the opportunity to receive a free computerized individual risk assessment through the Gail Model Risk Assessment Program. Women were given the opportunity to have a family member participate in the research project by taking home a questionnaire to their family members. The women who agreed to participate in the second research project took the packets and were given instructions to have the family members return the packets through the mail.

Analysis

Data for this study were analyzed using a structural equation modeling approach. Differentiation scores for each individual in the dyad were used in the models to treat the dyad as the unit of analysis. Other correlation and regression analyses were used to analyze the data for the specific hypotheses and are outlined in the results section.

Instruments

The following demographic information were collected: age, gender, ethnicity, religious affiliation, and health insurance.

Differentiation Scale

Differentiation was measured using the Differentiation of Self Inventory (DSI). This scale was constructed by Skowdron and Friedlander (1998) to measure one's ability to balance intimacy and autonomy. The scale consists of 43 items, answered in a Likert format. The scale has four subscales that measure Emotional Reactivity, I-Position, Emotional Cutoff, and Fusion with others. Emotional Reactivity is defined as the degree to which a person responds to his/her environment with emotion or sensitivity. This subscale has 11 items with an alpha of .84. The I-Position describes a defined sense of self and the ability to stick to what one believes even while under pressure. This subscale has 11 items with an alpha of .83. Emotional Cutoff refers to person's feelings of vulnerability in relationship to another. This subscale has 12 items and an alpha of .82. Lastly, Fusion describes a person being too emotionally involved with another. This subscale has 9 items and an alpha of .74. The higher the score on the DSI the higher

one's level of differentiation. The DSI yields good internal reliability, with a total Alpha of .88 (Skowdron & Freidlander, 1998).

Coping Scale

The Coping with Health Injuries and Problems Scale (CHIPS) was developed by Endler et. al., (1998). The CHIPS is a 32-item scale used to asses coping styles for responding to health problems. The scale measures four health-specific coping dimensions, with eight items each. The "Distraction" dimension measures how much a person may focus on another or more pleasant objects or situations; the alpha is .85 for men and .82 for women. The "Palliative" dimension assesses efforts to lessen the unpleasantness of the health problems and is related to avoidance coping (Macrodimitris & Endler, 2001). This subscale has an alpha of .76 for men and .64 for women. The "Instrumental" dimension is related to problem-focused coping, and has an alpha of .79 for men and .64 for women. The "Emotional Preoccupation" dimension focuses on the emotional response to the health problem; this subscale has an alpha of .75 for men, and .78 for women. The overall alpha for the CHIPS is .81-.84 for men and .78-.82 for women (Endler, Parker & Summerdelt, 1998).

Monitoring Attentional Style

Monitoring Attentional Style will be assessed using the Miller Behavioral Style Scale (MBSS; Miller, 1987) The MBSS short form presents two scenarios and asks the respondent to endorse the behavioral response that they would most likely choose if they were in the same situation. The MBSS is scored by subtracting the sum of the blunting

items from the sum of monitoring items. The higher the score the more the monitoring behavior is endorsed. The overall alpha for the MBSS is .70 (Miller, 1987).

Breast Cancer Screening Adherence

Breast cancer screening adherence was measured by asking participants to report their frequency self-breast exam, clinical breast exam, and mammography screening behaviors. Participants were asked if they conducted breast self-exams and how often. Participants were also asked if they have had a clinical breast exam and a mammogram and the most recent month and year.

CHAPTER 4

RESULTS

This chapter will report findings from analyses of the data. Statistical methods used to analyze the data include correlations, t-tests, regressions, and a structural equation model. The SPSS 14.0 and LISREL 8.72 software packages were used to analyze the data. A check for internal consistency was performed for the instruments in this study, using Cronbach's alpha (1951). The present study had alpha coefficients comparable to those mentioned in the literature for all instruments (Skowron & Friedlander, 1998; Endler, Parker & Summerfeldt, 1998) except for the MBSS (Miller, 1987). All items on the emotional reactivity and emotional cut-off subscales of the DSI were reverse scored. The SPSS SMEAN method was used in the analysis to replace missing data. If less than an appropriate number of items were missing on the scale, then a total score was calculated using the mean value of the range of items for missing items. SMEAN replaces missing values in the new variable with the variable mean. Table 7. provides the alpha coefficients for each subscale of all of the instruments in the present study. For all analyses, a dyad score was created by taking the average of the participant and partner score. Dyads scoring in the lower thirds were considered low in differentiation and dyads scoring in the upper thirds were considered to have high differentiation.

Differentiation

The fusion subscale of the DSI was not included in the analyses due to its low reliability. The mean total DSI score for the sample was 126.9 (n=82) (see Figure 2). The mean total DSI score for participants was 121.6 and 128.5 for partners. Reported DSI mean scores for male partners were 123.7 (n=25), and females reported a mean score of M=127.7 (n=55) but there was no significant difference between the two groups. High and low, DSI respondents were those scoring in the upper and lower thirds of the DSI. Participants that reported a low DSI score had a mean of 89.5 (n=15), while those who reported a high DSI score had a mean score of 147.1 (n=18). Partners that reported a low DSI score had a mean of 102.5 (n=15) while this that reported a high DSI score had a mean of 154.17 (n=16). A paired t-test showed that the differences between participants and partners were not significant ($t = -.630$, $p = .531$) on the differentiation measure.

Coping

The mean total CHIPS score for the sample was 88.6 (n=81) (see figure 3). The total mean CHIPS score for participants was 93.1 (n=46) and 85.3 (n = 47) for partners. Reported CHIPS scores for males had a mean of M=93.7 (n=25), and females reported a mean score of M=91.6(n=56) and there was no significant difference between the two groups. Individuals in this study that reported a lower differentiation score used emotional preoccupation coping significantly more than individuals reporting higher differentiation scores ($t = .3.877$, $p = .000$) and although a difference was expected for instrumental coping there was no significant difference between the groups ($t = -1.733$, p

= .087). However, participants in this study were much more likely to use instrumental coping than their partners (t = 2.460, p = .016) after conducting a paired t-test.

Monitoring

The total mean monitoring score for the sample was 2.58 (n=93) (see figure 4). Reported monitoring mean scores for males were 2.56 (n=25), and females reported a mean score of 2.57(n=66) and there was no significant difference between the two groups. An paired t-test also revealed that there was a significant difference between participants and partners on monitoring, with participants having higher monitoring scores than their partners (t = 2.243, p = .028).

Hypotheses

Hypothesis one stated that family dyads with lower levels of differentiation are more likely to report high monitoring attentional style and family members with higher levels of differentiation are more likely to report lower monitoring attentional style. There was a significant difference between dyads reporting higher differentiation than those reporting lower differentiation on monitoring (t = 2.808, p = .008). In this analysis, those scoring below the mean were categorized as having low differentiation and those above the mean were categorized as having high differentiation. Table eight and nine show significant negative correlations between total differentiation and the monitoring scale. Table 10. indicates dyad differentiation subscales explained 15% of the variance in dyad monitoring, while partner differentiation explained 14% of the variance in partner monitoring (see Table 11).

Research hypothesis two stated that family dyads with higher levels of differentiation were more likely to utilize task oriented coping strategies than those with lower levels of differentiation. Correlations between differentiation subscales and coping subscales can be found in Table 8 and 9. Findings from an independent t-test revealed that dyads reporting higher differentiation scores used Instrumental coping with a mean M=10.4 (n=11) more than those who reported a lower score on the DSI with a mean of M=11.6 (n=16) although there was no significant difference (t = 1.023, p = .926) between the two groups. However, there was a significant difference between dyads reporting lower differentiation scores on emotional preoccupation coping (t = 4.635, p = .000). Table 4.6 indicates dyad coping subscales account for 21% of the variance after regressing dyad monitoring. Partner differentiation explained 15% of the variance in partner coping (see Table 12.).

Research hypothesis three stated that family dyads with higher levels of differentiation are more likely to follow breast cancer screening adherence compared to those with lower levels of differentiation. This hypothesis was not supported, as there was no significant relationship between high and low differentiated groups on clinical breast exam after conducting a crosstabs analysis and chi-square (2, N = 42) = .169, exact p = 1.0. There was also no difference on breast self-exams after conducting a t-test (t = 1.027, p = .314). However, participant monitoring did explain 11% of the variance in mammography screening (see Table 13).

The fourth hypothesis states that The Family Health Decision-Making Model would predict which family dyads would adhere to breast cancer screening procedures. A structural equation model (see Figure 5) was developed with LISREL 8.72 (Joreskog &

Sorbom, 2005). In the model, dyad differentiation scores were hypothesized to influence coping and monitoring scores, which would then predict breast cancer screening adherence.

A confirmatory factor analysis was used to estimate the parameters of the measurement model. The structural model consisted of six latent variables: participant total DSI, partner total DSI, couple coping, participant monitoring, partner monitoring and breast cancer-screening adherence. A maximum likelihood estimation method was used along with a covariance matrix which resulted in a marginal fit of the data to the model. The chi-square with 23 degrees of freedom was 46.24 (p=.0028) and the RMSEA was .16 (RMSEA is a test of close fit; values of 0 to .05 are considered a close fit). Table 16. provides the unstandardized LISREL estimates for the paths. The model explained about 64% of the variance in couple coping, 15% of the variance in partner monitoring, 22% of the variance in participant monitoring and 23% of the variance in obtaining a clinical breast exam.

Due to the small sample size, the data was not a good fit for the model so a series of multiple regressions were performed to test the relationships between the variables (see Table 17.). In Table 11, results indicate that dyad coping explained 27% of the variance in participant monitoring with emotional preoccupation coping explaining the majority of the variance ($t = 3.263$, $p = .002$, $F = 5.778$). This provides some support for the FHDMM; however, modifications to this model are necessary. The results of this study did not support the FHDMM although further examination and explanation of the results will be provided in the next chapter.

CHAPTER 5

DISCUSSION

The research hypothesis proposed in the earlier chapters were: 1) family dyads with lower levels of differentiation are more likely to report high monitoring attentional style and family members with higher levels of differentiation more likely to report low monitoring attentional style, 2). family dyads with higher levels of differentiation are more likely to utilize task oriented coping strategies than those with lower levels of differentiation, 3). family dyads with higher levels of differentiation are more likely to follow breast cancer screening adherence compared to those with lower levels of differentiation and 4). The Family Health Decision-Making Model will predict which family dyads will adhere to breast cancer screening procedures. This study revealed significant relationships between variables although the results only partially supported the hypotheses. This study made significant contributions the health decision-making literature and provides the guidance to examine more research questions that can help understand the health decisions made by individuals and their families.

Research hypothesis one examined differentiation and monitoring, and this hypothesis was supported. There were strong correlations between the subscales of differentiation and monitoring. Differentiation subscales explained 15% of the variance in monitoring through a regression analysis.

This suggests that there is a relationship between differentiation and monitoring and that those reporting lower differentiation scores reported higher monitoring. One possible explanation for this finding is that those experiencing lower differentiation have higher monitoring behaviors because of their inability to handle anxiety and stress. Emotional reactivity is another symptom of low differentiation and may explain avoidance of threatening health information. The inability to relieve anxiety and to self-sooth when one becomes emotionally reactive can have a significant impact on the health decision-making process for the family. This finding also implies that there is a direct relationship between differentiation and monitoring and that the health decision-making process should continue to be examined in the context of family relationships.

In this study, findings from research hypothesis two revealed that there was not a significant difference on instrumental coping based on level of differentiation. Family dyads with higher levels of differentiation are more likely to use instrumental coping according to Bowen Systems Theory (1978). Bowen Systems suggests that persons with higher differentiation are able to think through information while those with lower differentiation are more likely to emotionally react to this information. Instrumental coping can be categorized as active or problem-focused coping because it indicates that the individual is seeking help for the illness or learning more about it (Endler & Parker, 1992). This research did not support this hypothesis, although results did reveal that dyads with lower differentiation were more likely to use emotional preoccupation coping, which is supportive of Bowen System Theory (1978). According to Bowen, families

with low levels of differentiation are not able to think through emotionally charged events and therefore become emotionally reactive. This is one possible explanation for why families with low differentiation are likely to use emotional preoccupation coping significantly more than dyads with higher levels of differentiation.

In this study, findings from research hypothesis three revealed that differentiation did not directly influence the family dyad's decision to engage in breast cancer screening behaviors. This may be due to the fact that differentiation is a cognitive and emotional process and that the decision to engage in preventative behaviors is a behavioral process may be more directly influenced by coping behaviors and monitoring behaviors. Differentiation is a way of being or a mindset that although it may predict one's protective behaviors may not be the determining factor. According to this model, one's coping behaviors would predict their monitoring style, which will ultimately influence the decision to engage in preventative screenings. In other words, monitoring and coping behaviors may be an outcome of the differentiation process. Therefore, differentiation may indirectly influence screening adherence through coping and monitoring behaviors.

This study did not support the full Family Health Decision Making Model, which stated that differentiation is related to coping, which is related to monitoring, and participant's adherence to breast cancer screenings. The model did not have a significant fit to the data, although partner's differentiation was related to coping, monitoring and the participant receiving a clinical breast exam. One explanation for the lack of support for the model is due to the small sample size. It is suggested that the use of a sample size of 100-200 subjects are used with Structural Equation Modeling (Hair, Anderson, Tatham and Black, 1998). Due to the sample size, there may have been significant relationships

that could have supported the model but that were not detected. Smaller samples however, are said to have less power to detect discrepancies for the chi-square test, thus there is a higher probability of accepting an incorrect model. The model fit and chi-square statistics for the model were poor and suggested that there was not enough power to detect discrepancies in fit. Therefore, although the model may be misspecified, it may also be that the model is specified correctly but the sample size could not support the size of the model. Further research with larger samples would help in making this determination. Cook et. al. ( ) stated that in order to obtain a power of .80, 25 degrees of freedom and an alpha of .05 there would need to be a sample size of at least 363 individuals, although this sample only included 94 individuals. Through the regression analyses, there was support for direct relationships between couple coping to participant monitoring. There was partial support for the FHDMM and significant relationships in this model.

Limitations of the Study

Participants

The majority of the sample was obtained from community churches, community centers and one university wellness program, thus the sample is one of convenience and not representative of the population. Another major limitation of this study is that family dyads consisted of partner-spouse, parent-child, and siblings combined. According to Bowen Systems Theory, how differentiation is related between the members in these dyads may differ, so creating a dyadic differentiation score was not possible. According to Bowen Systems Theory, one would expect differentiation among couple dyads to

differ from that among a parent child or sibling dyad. Although it may be the case that dyads made up of family members would be more similar than randomly paired dyads. Since the sample was small, we could not estimate the models separately for the different dyads represented. Given that people live in different family groups and those contexts can influence health decision making, it is important to consider these different groups in the future research.

Another limitation is that most of the women engaged in regular mammography screenings. Statistics on regular mammography usage in the general population suggest about 70% of women obtain screening, but that there is a disparity between Caucasian women and ethnic minority women (CDC, 2003), this was not the case in this sample. The majority of family dyads also currently had medical insurance, which did influence breast cancer screening adherence.

Self-Report

When using a self-report measure in any type of research, it is hard to know the accuracy of the information provided by subjects. Therefore, reports of differentiation, coping, monitoring and breast cancer screening adherence are subject to all the problems of self-report data. In this case, however, the self-report data was the most efficient and effective method available.

Measures

Some of the scales used in this study did not have good reliability, which did influence the results. However, the author believed these were the best scales to measure

the variables identified. The DSI used in this study measures the basic level of differentiation, which is inherited through family of origin. Bowen believed that your basic level of differentiation is established by late adolescence or launching and would remain stable throughout life. The functional level of differentiation is said to fluctuate due to external influences, and is dominated by emotions. Using a scale that measures both basic and functional level of differentiation would be a more accurate measure of differentiation but is currently unavailable.

The participant and partner differentiation scores did not produce significant correlations and therefore the family dyad differentiation scores were not significant in the FHDMM model. Due to this finding, there was not a strong correlation or a direct relationship between the dyad differentiation scores and breast cancer screening adherence measures. The use of more reliable measures may have resulted in more support for the hypotheses tested.

Clinical Implications

Clinically, the present research supports the need for therapists and physicians to work together with families to help them make important health decisions. The utilization of the biopsychosocial model in medical family therapy has helped to establish guidelines for this type of collaboration between the two fields. Medical Family Therapy focuses on the health of the family while also taking into consideration family therapy concepts that influence health. In medical family therapy, the goals of therapy include helping client's better cope with a chronic illness or disability, lessen conflict around handling a medical regimen, better communication with physicians, acceptance of

medical problems, or help with making lifestyle changes (Doherty, McDaniel and Hepworth, 1994).

Research has established the importance of families and social support on health (Wardle and Crawford, 2006; Trunzo and Bernadine, 2003; Markey, Markey, & Birch, 2001; Katerina and Northcott, 1996) however, a better understanding of how families influence the decision-making process and preventative health behaviors is essential. This suggests that prevention and intervention efforts should focus on the family in the lives of patients.

This study identified instrumental coping as a coping method used by differentiated family dyads. Therapist should focus on teaching clients how to increase their level of differentiation, through teaching patients how to utilize a cognitive coping style when facing health problems and decisions. This can be done by helping clients identify the fears and emotional reactions to health problems and decisions. Once therapists are able to identify these fears they can then help clients think through health problems and decisions. The reduction of emotional reactivity and stress can be beneficial to family health, and can increase family differentiation.

Future Research

Future research in the field of family therapy to examine the role of family patterns such as differentiation and the impact it has on preventative behaviors is essential. Breast cancer screening adherence is just one example of a protective behavior that is influenced by differentiation. Future research needs to examine the cognitive, emotional, and behavioral processes involved in decision-making, from a family systems perspective. This information can assist in identifying the actual mechanism in place that

leads to the decision to get screened. Research on how family members contribute to or influence this process is also necessary to help understand how families influence health decisions. Research to examine family coping and strategies that families use to cope with health problems and decisions is also necessary to determine its influence on health. Instrumental coping has been identified for its positive association to health (Drageset and Lindstrom, 2005). However, there is still little research on what exactly in this coping dimension aids in stress and anxiety reduction. Research identifying the direct path between coping behaviors and overall health can assist in better understanding of health decision-making. Lastly, more research is necessary to determine the clinical effectiveness of Bowen Systems Theory. For therapists there is not enough research substantiating its effectiveness with families facing health problems and decision.

Conclusion

This study was able to answer a few questions about how differentiation may influence health decisions, coping and monitoring behaviors. Findings revealed that there are direct relationships between differentiation and instrumental coping, which implies that that differentiation has a direct influence on coping behaviors. Findings from this study also revealed that monitoring behaviors do have a direct impact on adherence to screening behaviors. This information is important to know in order to help increase preventative screening behaviors among individuals with different monitoring styles. This study has established that there are significant relationships between differentiation, coping, monitoring and screening adherence. However, more research is necessary to

examine the strength and direction of these relationships to increase preventative screening behaviors and screening adherence.

LIST OF REFERENCES

American Cancer Society (2005). *Cancer facts and figures.* American Cancer Society. Atlanta, GA.

Anderson, S. & Sabatelli, R. (1990) Differentiating differentiation, and individuation: Conceptual and operational changes. *American Journal of Family Therapy, 18,* 32-50.

Bartle-Haring, S. & Gregory, P. (2003).Relationship between differentiation of self and the stress and distress associated with predictive cancer genetic counseling and testing: Preliminary evidence. *Families, Systems &Health*, 21(4), 357-381.

Baumann, S. (2006). Family systems genetic illness model-breast cancer. *Clinical Journal of Oncology Nursing, 10*(3), 377-381.

Bergdaa, M. (1990). The role of time in the action of the consumer. *Journal of Consumer Research,* 17, 289-302.

Billings, A. & Moos, R. (1982). Stressful life events and symptoms: A longitudinal Model. *Health Psychology, 1*, 99-118.

Bohlander, J. (1995). Differentiation of self: An examination of the concept. *Issues in Mental Health Nursing, 16,* 165-184.

Bowen, M. (1978). *Family Therapy Clinical Practice*. New York: Jason Aronson.

Bowie, J., Curbow, T., Laveist, S. & Pargament, K. (2001). The relationship between religious coping style and anxiety over breast cancer in African-American women. *Journal of Religion and Health, 40*(4), 411-422.

Brown, J., Rawlinson, M., Hardin, D. (1982). Family functioning and health status. *Journal of Family Issues, 3*(1), 91-110.

Buyske, J., Mackarem, G., Ulmer, B. C., & Hughes, K. S. (1996) Breast cancer in the nineties. *AORN Journal, 64*, 64-68.

Carver, S. & Scheier, M. (1994). Situational coping and dispositions in a stressful transaction. *Journal of Personality and Social Psychology, 66 (1),* 184-195.

Case, D., Andrews, J., Johnson, J. & Allard, S. (2005). Avoiding versus seeking: The relationship of information seeking to avoidance, blunting, coping, dissonance, and related concepts. *Journal of the Medical Library Association, 93*(3), 353-362.

National Center for Heath Statistics (2003*). Cancer: Breast Cancer.* Center for Disease Control and Prevention. Hyattsville, MD.

Champion, V. L. & Skinner, C. (2003). Differences in perceptions of risk, benefits, and barriers by stage of mammography adoption. *Journal of Women's Health*, 12(3), 277-286.

Charles, R. (2001). Is there any empirical support for Bowen's concepts of differentiation of self, triangulations, and fusion? *The American Journal of Family Therapy, 29*, 279-292.

Christensen, A, Moran, P., Lawton, W., Stallman, D. & Voigts, A. (1997). Monitoring attentional style and medical regimen adherence in hemodialysis patients. *Health Psychology, 16*(3), 256-262.

Coelho, G, Hamburg, D., & Adams, J. (1974). *Coping and Adaptation.* New York: Basic Books.

Cohen, Vasey, Gavazzi, S. (2003).The dimensionality of family differentiation and the prediction of adolescent internalized distress. Journal of Family Issues, 24(1), 99-123.

Cunningham-McNett, S. (1987). Social Support, threat, and coping responses and effectiveness in the functionally disabled. *Nursing Research, 36 (2*), 98-103.

Davidson, R. (1998). Affective style and affective disorders: Perspectives from affective neuroscience. *Cognition & Emotion*, 12 (3), 307-330.

Denberg, T., Wong, S. & Bettie, A. (2005). Women's misconceptions about cancer screening: implications for informed decision-making. *Patient Education and Counseling, 57*, 280-285.

Doherty, W., McDaniel, S. & Hepworth, J. (1994). Medical family therapy: An emerging arena for family therapy. *Journal of Family Therapy*, 16(1), 31-46.

Drageset, S. & Lindstrom, T. (2005). Coping with a possible breast cancer diagnosis:

Demographic factors and social support. *Journal of Advanced Nursing*, 51(3),

217-226.

Dukes & Holland, K. (2003). The Relation of Social Support and Coping to

Positive Adaptation to Breast Cancer. Source: Psychology & Health, 18 (1), 15-29.

Endler, N., Parker, J. & Summerfeldt, L. (1998). Coping with health problems: Developing a reliable and valid multidimensional measure. *Psychological Assessment, 10(3),* 195-205.

Euhus, D. (2006). Breast cancer prevention in the 21st century: Defining the challenge. *The Breast Journal, 12*, 97-98.

Fang, C., Miller, S. M., Daly, M. & Hurley, K. (2002). The influence of attentional style and risk perceptions on intentions to undergo prophylactic oophorectomy among first-degree relatives. *Psychology and Health, 17*(3), 365-376.

Finney, L. & Iannotti, R. (2002). Message framing and mammography screening: A theory driven intervention. *Behavioral Medicine, 28,* 5-14.

Gavazzi, S. (1994). Advances in assessing the relationship between family differentiation
and problematic functioning in adolescents. Family Therapy, 21(3), 249-259.

Griffin, J. & Apostal, R. (1993). The influence of relationship enhancement training on differentiation of self. *Journal of Marital Family Therapy, 19 (3)* 267-272.

Gorin, S., Wang, C., Raich, P., Bowen, D., & Hay, J. (2006). Decision making in cancer primary prevention and chemoprevention. *Annals of Behavioral Medicine, 32*, 179-187.

Hallowell, Arden-Jones, Eeles, Foster, Lucassen, Moynihan, & Watson (2005). Men's decision-making about predictive BRCA1/2 testing. *Journal of Genetic Counseling,* 14(3), 207-217.

Hainsworth, M, Eakes, G., & Burke, M. (1994). Coping with chronic sorrow. *Issues in Mental Health Nursing, 15*, 59-66.

Hair, J., Anderson, R., Tatham, R. & Black, W. (1998). *Multivariate Data Analysis.* Prentice Hall: New Jersey.

Harris, R., Dew, M., Amaya, M., Buches, L., Reetz, D. & Coleman, C. (1995) The role of religion in heart-transplant recipients' long-term health and well-being. *Journal of Religion and Health,* 34, 17-32.

Harvey, D., Bray, J., Curry, C. (1991). Individuation and intimacy in intergenerational relationships and health patterns across two generations. *Journal of Family Psychology, 5(2)*, 204-236.

Hay, J., McCaul, K. & Magnan, R. (2006). Does worry about breast cancer predict screening behaviors? A meta-analysis of the prospective evidence. *Preventive Medicine 42*, 401–408.

Hodgson, J., Shields, C. & Rousseau, S. (2003). Disengaging communication in later-life couples coping with breast cancer. Families, Systems & Health, 21, 145-162.

Idler, E. & Kasl, S. (1997) Religion among disabled and nondisabled persons II: Attendance at religious services as a predictor of the course of disability. *Journal of Gerontology*, 52, 306-316.

Kiecolt-Glaser, J. & Newton, T. (2001). Marriage and health: His and hers. *Psychological Bulletin*, 127(4), 472-503.

Kiecolt-Glaser**,** J., McGuire, L., Robles, T., Glaser, R. (2003). Psychoneuroimmunology: Psychological influences on immune function and health. *Journal of Consulting and Clinical Psychology, 70*(3), 537- 547.

Katapodi, M. & Aquizerat, B. (2005). Do women in the community recognize hereditary and sporadic breast cancer risk factors? *Oncology Nursing Forum, 32*(3), 617-623.

Katerina, H. & Northcott, S. (2006). Social support in people with chronic aphasia Aphasiology, 20(1), 17-36. Kerr, M. & Bowen, M. (1988). *Family Evaluation*, New York: Norton.

Kiecolt-Glaser, J. & Newton, T. (2001) Marriage and health: His and Hers. *Psychological Bulletin*, 127(4), 472-503.

Kinney, A., Emery, G., Dudley, W. & Croyle, R. (2002). Screening behaviors among African-American women at high risk for breast cancer: Do beliefs about god matter? *ONF, 29*(5), 835-843.

Klever, P. (2005). Multigenerational stress and nuclear family functioning. *Contemporary Family Therapy, 27*(2), 233-250.

Lazarus, R & Folkman. (1984) *Stress, appraisal, and coping.* New York: Springer Publishing.

Lazurus, R.S. & Lazurus, B.N. (1994). *Passion and reason: Making sense of our emotions.* New York: Oxford University Press.

Lavallo, W. & Gerin, W. (2003). Psychophysiological reactivity: Mechanisms and pathways to cardiovascular disease. *Psychosomatic Medicine*, 65 (1), 36-45.

Lowenstein, G. (2005). Hot-cold empathy gaps and medical decision-making. *Health Psychology, 24*, S17-S56.

Lukago, S., Kreuter, M., Buchhotz, S. (2001). Development and validation of brief scales to measure collectivism, religiosity, racial pride, and time orientation in urban African-American women. *Family Community Health, 24,* 63-71.

Luce, M. (2005). Decision making as coping. *Health Psychology, 24*(Suppl.) s23-s28.

Luce, M., Bettman, J. & Payne, J. (1997). Choice processing in emotionally difficult decisions. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 23 (2), 384-405.

Macrodimitris, S. & Endler, N. (2001). Coping, control, and adjustment in type 2 diabetes. *Health Psychology*, 20(3), 208-216.

Maes, S., Leventhal, H., & DeRidder, D. (1996) *Coping with chronic diseases*. In M. Zeider & N. S. Endler (Eds), Handbook of Coping: Theory, research, applications (pp.221-251). New York: Wiley.

Maly, R., Leake, B. & Sillman, R. (2004). Breast cancer treatment in older women: Impact of the patient-physician interaction. *Journal of the American Geriatric Society, 52*, 1138-1145.

Markey, C., Markey, P. & Birch, L. (2001). Interpersonal predictors of dieting practices among married couples. *Journal of Family Psychology, 15(3),* 464-475.

McCaul, K., Reid, P., Rathge, R. & Martinson, B. (1996). Does concern about breast cancer risk promotes or inhibit breast cancer screening? *Basic and Applied Social Psychology, 18*(3), 182-194.

McCubbin, H., Joy, C., Cauble, A., Comeau, J., Patterson, J. & Needle, R. (1980). Family stress and coping: A decade review. *Journal of Marriage and the Family, 42, 855-871.*

McCubbin, H. & Patterson, J. (1983). *Social Stress, and Family: Advances and developments in family stress theory and research.* New York: Haworth Press.

McDaniel, S., Weber, T. & McKeever, J. (1983). Multiple theoretical approaches to supervision: choices in family therapy training. *Family Process, 22*, 491-500.

McGoldrick, M., Gerson, R. & Shellenberger, S. (1999). *Genograms: Assessment and intervention.* New York. W. Norton & Co, Inc. Miller (1995)

Miller, I., Ryan, C., Keitner, G., Bishop, D. & Epstein, N. (2000). The McMaster

approach to families theory, assessment, treatment, and research. *Journal of Family Therapy, 22,* 168-189.

Miller, S. M. (1987). Monitors vs. blunters: Validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology, 52*, 345-353.

Miller, S. M. (1995). Monitoring versus blunting styles of coping with cancer influence the information patients want and need about their disease. *Cancer, 76*, 167-177.

Mitchell, J., Mathews, H. & Mayne, L. (2005). Differences in breast self-examination techniques between Caucasian and African American women. *Journal of Women's Health, 14*(6), 476-484.

Monnier, J. & Cameron, R. (2000). Direct and crossover effects of prosocial and antisocial coping behaviors. *Journal of Family Psychology*, *14(*4), 570-585.

Moultrop, D. (1990) *Husbands, wives, & lovers. The emotional system of extramarital affairs.* New York: Guilford Press.

Murdock, N. & Gore, P. (2004). Stress, coping, and differentiation of self: A test of bowen theory. *Contemporary Family Therapy, 26*(3), 319-335.

National Center for Heath Statistics (2003). Cancer: Breast Cancer. Center for Disease Control and Prevention, Hyattsville, MD.

Nelson, W., Stefanek, M., Peters, E. & McCaul, K. (2005). Basic and applied decision making in cancer control. *Health Psychology*, 24(4, Suppl), S3-S8.

Ozanne, E., Klemp, J. & Esserman, L. (2006). Breast cancer risk assessment and prevention: A framework for shared decision-making consultations. *The Breast Journal, 12,* 103-113.

Peleg-Popko, O. (2002). Bowen theory: A study of differentiation of self, social anxiety and physiological symptoms. *Contemporary Family Therapy, 24*(2), 355-369.

Plunkett, S., Henry, C. & Knaub, P. (1999). Family stressor events, family coping, and adolescent adaptation in farm and ranch families. *Adolescence, 34,* (133), 147-168.

Radina, M. & Armer, J. (2001). Post-breast cancer lymphedema and the family: A qualitative investigation of families coping with chronic illness. *Journal of Family Nursing, 7*(3), 281-299.

Raucher, G., Hawley, S. & Earp, J. (2005). Baseline predictors of initiation vs. maintenance of regular mammography use among rural women. *Preventative Medicine, 40,* 822-830.

Rempel, L & Rempel, J. (2004). Partner influence on health behavior decision-making: Increasing breastfeeding duration. *Journal of Social & Personal Relationships, 21*(1), 92-111.

Roberto, L. (1992). *Transgenerational family therapies*. Guilford Press, New York, NY.

Russell, K., Swenson, M., Skelton, A., & Shedd-Steele, R. (2003). The meaning of health in mammography screening for African-American women. *Health Care for Women International, 24,* 29-30.

Sheridan, S., Harris, R. & Wolfe, S. (2004). Shared decision making about screening and chemoprevention. *American Journal of Preventative Medicine, 26* (1), 56-66.

Shifren, K. (2003). Women with heart disease: Can the common sense model of illness help? *Health Care for Women International, 24,* 355-368.

Shoshana, S., Gerad, L. & Goldman, B. (2006). Patient's information needs and decision-making processes: What can be learned from genetics counselees? *Health Psychology, 25*(2), 211-219.

Skowron, E. A. (2000). The role of differentiation of self in marital adjustment. *Journal of Counseling Psychology, 47,* 229-237.

Skowron, E. A., & Friedlander, M. L. (1998). The Differentiation of Self Inventory: Development and initial validation. *Journal of Counseling Psychology*, *45*, 1–11.

Snethen, J., Broome, M., Knafl, K., Deatrick, J., Angsts, D. (2006). Family Patterns of Decision-Making in Pediatric Clinical Trials. *Research in Nursing & Health, 29,* 223–232.

Stanton, A., Danoff-Burg, S., Cameron, C., Bishop, M., Collins, C., Kirk, S., Sworowski, L. & Twillman, R. (2000). Emotionally expressive coping predicts psychological and adjustment to breast cancer. *Journal of Consulting and Clinical Psychology, 68 (5),* 875-882.

Swartz, M, Peshkin, B., Tercyak, K., Taylor, K. & Valdimarsdottir, H. (2005). Decision making and decision support for hereditary breast-ovarian cancer susceptibility. *Health Psychology, 24*, S78-S84.

Taylor, S. (2007). *Social Support.* University Press, New York, NY, US.

Trevena, L. & Barratt, A. (2003). Integrated decision-making: Definitions for a new discipline. Patient Education and Counseling, 50, 265-268.

Trunzo, J. & Bernardine M. (2003). Social Support as a Mediator of Optimism and Distress in Breast Cancer Survivors. Journal of Consulting and Clinical Psychology, Volume 71(4).

Voss, U., Kolling, T. & Heidenreich, T. (2006). Role of monitoring and bunting coping styles in primary insomnia. *Psychosomatic Medicine*, 68(1), 110-115.

Williams-Piehota, P., Schneider, T., Pizarro, J., Mowad, L. & Salovey, and P. (2003) Matching health messages to information-processing styles: Need for cognition and mammography utilization. *Health Communication, 15*(4), 375-392.

Weihs, K., Fisher, L. & Baird, M. (2002) Families, health, and behaviors. *Families, Systems & Health,* 20, 7-46.

Wu, S., Yu, Y., Yang, C., Che, H. (2005). Decision-making tree for women considering hysterectomy. *Journal of Advanced Nursing, 51*(4), 361-368.

APPENDIX A

FAMILY HEALTH DECISION-MAKING MODEL

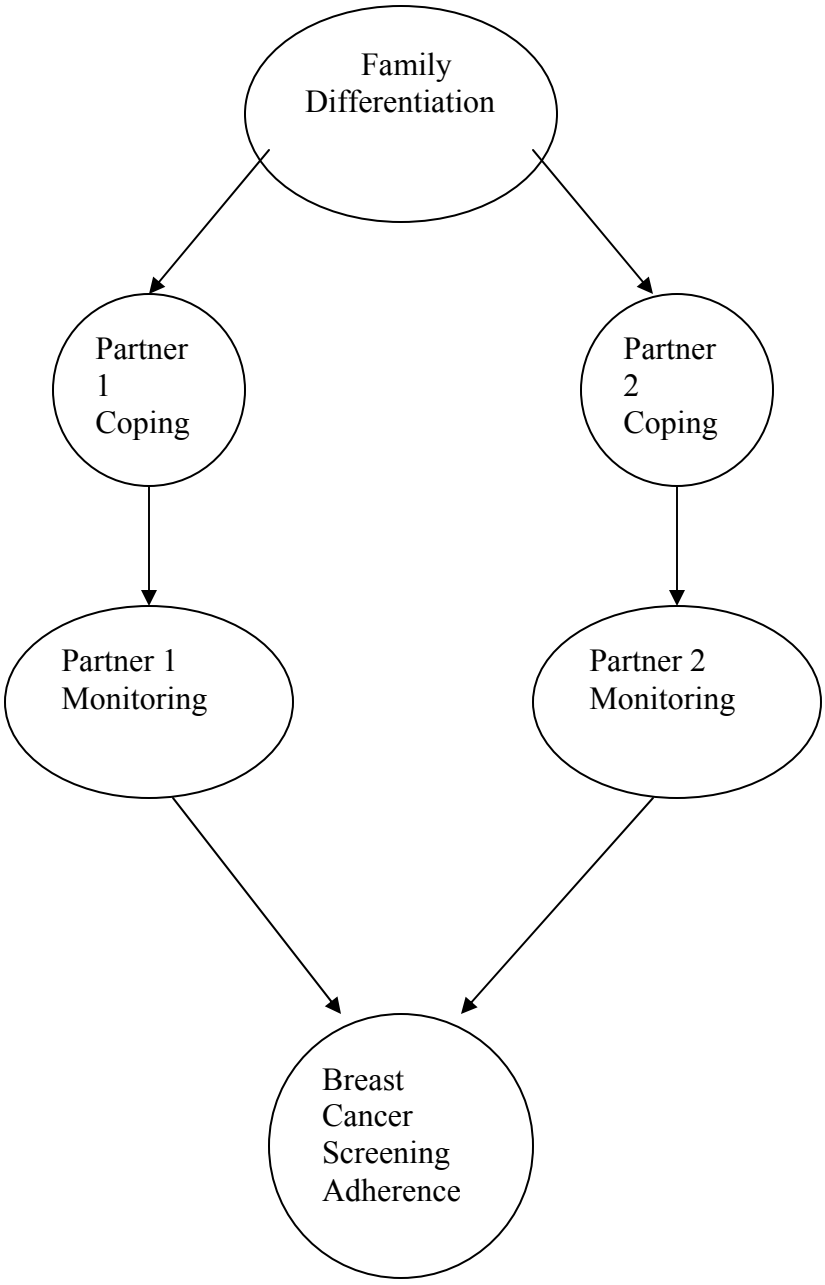


Figure 1. The Family Health Decision-Making Model

APPENDIX B

SAMPLE RELATIONSHIP STATUS

Relationship Status	Frequency	Percentage
Partner/Spouse	25	53.2
Daughter	7	14.9
Son	5	10.6
Mother	3	6.4
Sister	2	4.3
Uncle	1	2.1
Other	1	2.1
Total	44	93.6
Missing	3	6.4
Total	47	100

Table 1. Relationship Status (N=47)

APPENDIX C

ETHNICITY OF SAMPLE

	Participants		**Partner**	
	Frequency	Percentage	Frequency	Percentage
African-American	23	48.9	22	46.8
Caucasian	23	48.9	21	44.7
Asian	0	0	1	2.1
Native American	0	0	1	2.1
Hispanic	0	0	1	2.1
Missing	1	2.1	1	2.1
Total	47	100	47	100

Table 2. Ethnicity of Sample (N=47)

APPENDIX D

RELIGION OF SAMPLE

	Participants		**Partner**	
	Frequency	Percentage	Frequency	Percentage
Protestant	23	48.9	30	63.8
Catholic	6	12.8	4	8.5
Other	17	36.2	11	23.4
Missing	1	2.1	2	4.3
Total	47	100	47	100

Table 3. Religion of Sample (N=47)

APPENDIX E

AGE OF SAMPLE

Participants		Partners	
Mean	**Range**	**Mean**	**Range**
48.76	18-73	45.43	19-81

Table 4. Age of Sample (N = 47)

APPENDIX F

MEDICAL INSURANCE OF SAMPLE

	Participants		**Partner**	
	Frequency	Percentage	Frequency	Percentage
Yes	41	89.1	37	78.7
No	2	4.3	6	12.8
Don't Know	3	6.4	0	0
Missing	1	2.1	4	8.5
Total	47	2.1	47	100

Table 5. Medical Insurance of Sample (N= 47)

APPENDIX G

RELIABILITY COEFFICIENTS OF SAMPLE

	Alpha	Number of items	Number of Subjects	Reliability In Literature
Participant Differentiation				
Emotional Reactivity	88	11	43	.84
I-Position	.50	8	43	.83
Emotional Cut-Off	.92	12	38	.82
Fusion	.82	9	41	.74
Partner Differentiation				
Emotional Reactivity	.87	11	44	.84
I-Position	.71	8	45	.83
Emotional Cut-Off	.81	12	39	.82
Fusion	.50	9	41	.74
Participant Coping				
Palliative	.72	7	47	.76 Men .64 Women
Instrumental	.92	7	47	.79 Men .64 Women
Distraction	.77	7	47	.85 Men .82 Women
Emotional Preoccupation	.75	7	47	.75 Men .78 Women
Partner Coping				
Palliative	.70	7	47	.76 Men .64 Women
Instrumental	.79	7	47	.79 Men .64 Women
Distraction	.73	7	47	.85 Men .82 Women
Emotional Preoccupation	.75	7	47	.75 Men .78 Women
Participant Monitoring				
Blunting	.51	8	47	.70
Monitoring	.50	6	47	.70
Partner Monitoring				
Blunting	.62	8	46	.70
Monitoring	.70	6	47	.70

Table 6. Reliability Coefficients of Sample

APPENDIX H

HISTOGRAM OF SAMPLE DIFFERENTIATION

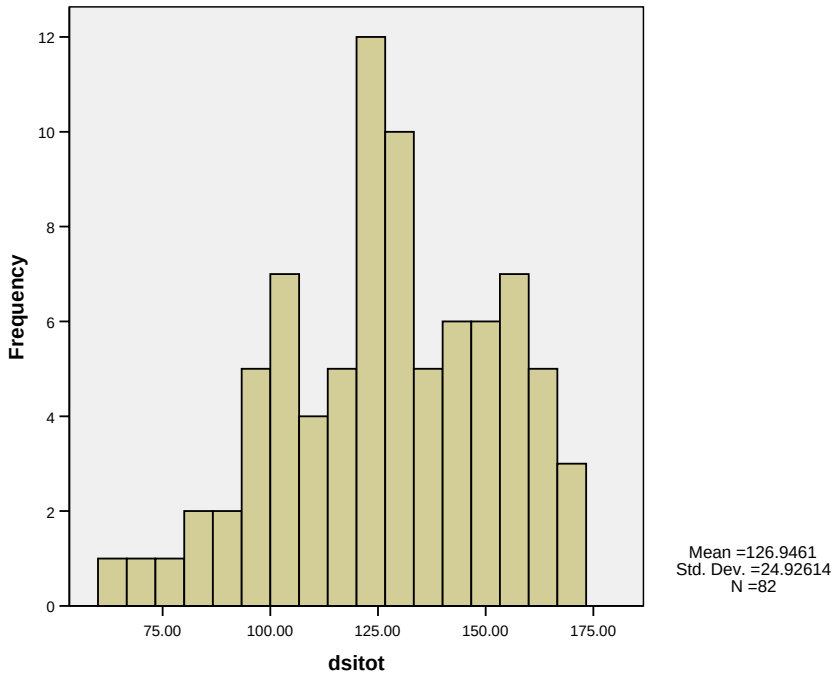


Figure 2. Histogram of Sample Differentiation Scores (DSI)

APPENDIX I

HISTOGRAM OF SAMPLE COPING

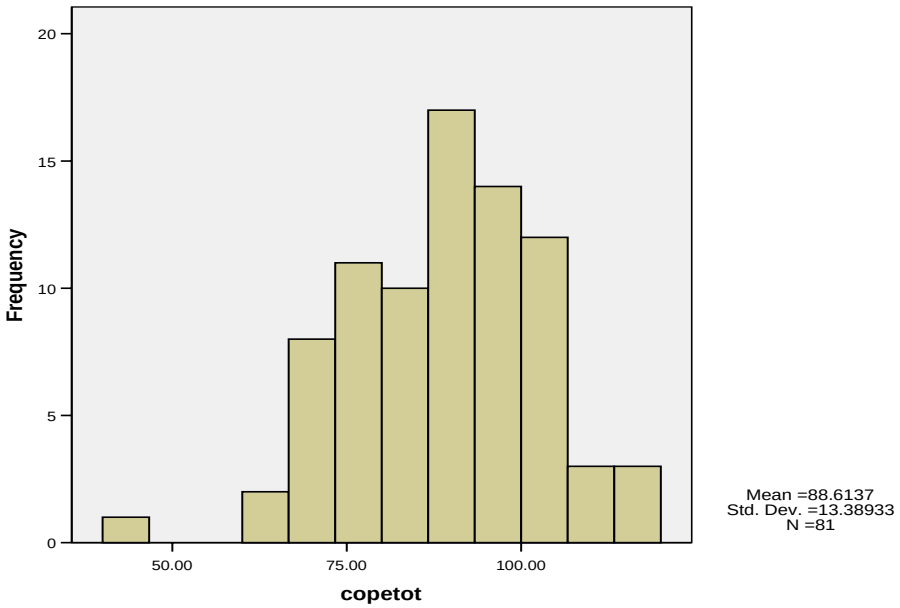


Figure 3. Histogram of Sample Total Coping Score (CHIPS)

APPENDIX J

HISTOGRAM OF SAMPLE MONITORING

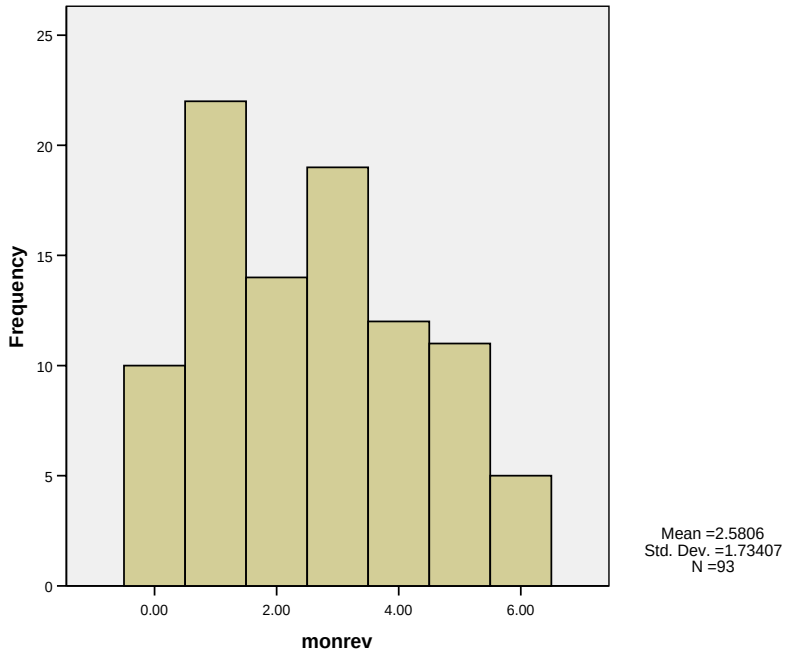


Figure 4. Histogram of Total Monitoring Score (MBSS)

APPENDIX K

CORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Ethnicity	1.00	-.070	-.217	.083	.137	.044	.493**	-.154	-.119	-.220	.023	.240	-.153	.095
2. Religion		1.00	-.421**	-0.19	.069	-.178	-.096	.257	.211	.072	.086	-.036	-.036	-.161
3. Age			1.00	-0.98	-.219	.120	-.098	-.032	.124	.066	-.006	-.325*	.058	.190
4. Insurance				1.00	.100	-.048	.209	.089	-.342*	-.263	-.064	.112	.089	.081
5. Emotional Reactivity					1.00	.151	.280	-.124	.036	.063	-.101	-.069	-.123	-.229
6. I-Position						1.00	.374*	.106	.207	-.045	-.285	-.284	.114	.055
7. Cut-off							1.00	.133	.092	-.227	.008	-.064	-.042	.115
8. Palliative								1.00	.405**	.129	.235	-.020	.248	-.042
9. Instrumental									1.00	.706**	.085	-.394**	.168	.248
10. Distractive										1.00	.146	-.169	.112	.168
11. Emotional Preoccupation											1.00	.415**	-.321*	.112
12. Monitoring												1.00	-.212	.122
13. Breast Self Exam													1.00	.288
14. Clinical Breast Exam														1.00

Table 7. Correlations for all participant variables, *p<0.05, **p<0.01

	1	2	3	4	5	6	7	8	9	10	11	12
1. Ethnicity	1.00	.183	-.158	-.227	.123	-.213	-.061	-.109	-.263	-.278	-.139	.032
2. Religion		1.00	-.191	.070	-.329*	-.150	-.217	078	-.227	-.097	.109	.106
3. Age			1.00	-.226	.101	.115	.081	.126	.308*	.103	-.083	.048
4. Insurance				1.00	-.582**	.221	.420**	.123	.149	.062	.371**	.141
5. Emotional Reactivity					1.00	.359**	.542**	-.014	-.013	-.207	-.586**	-.412**
6. I-Position						1.00	.460**	.236	.296*	.235	-.249	-.389**
7. Cut-off							1.00	-.001	.219	.061	.464**	.309*
8. Palliative								1.00	.437**	.380**	.080	.046
9. Instrumental									1.00	.482**	-.095	-.009
10. Distractive										1.00	.355**	.076
11. Emotional Preoccupation											1.00	.323**
12. Monitoring												1.00

Table 8. Correlations for all participant variables, ∗p<0.05, ∗∗p<0.01

APPENDIX L

ENTER METHOD REGRESSION PREDICTING DYAD MONITORING

IV	Beta	t-value	p
Cutoff	-.269	-1.630	.111
Emotional Reactivity	-.036	-.208	.836
I-Position	-.258	-1.539	.132

Table 9. Regressions Model for Predicting Dyad Monitoring from Dyad Differentiation subscales. $R^2 = .152$, $F(3, 42) = 3.51$, $p < .05$

APPENDIX M

ENTER METHOD REGRESSION PREDICTING PARTNER MONITORING

IV	Beta	t-value	P
Cutoff	-.049	-.280	.781
Emotional Reactivity	-.291	-1.745	.088
I-Position	-.222	-1.405	.168

Table 10. Regressions Model for Predicting Partner Monitoring from Partner Differentiation subscales. $R^2 = .147$, $F(3, 44) = 3.53$, $p < .05$

APPENDIX N

ENTER METHOD REGRESSION PREDICTING DYAD MONITORING

IV	Beta	t-value	P
Instrumental	-.098	-.600	.552
Distractive	-.086	-.519	.606
Emotional Preoccupation	.496	3.414	.001

Table 11. Regressions Model for Predicting Dyad Monitoring from Dyad Coping subscales. $R^2 = .217$, $F(3, 44) = 5.05$, $p < .05$

APPENDIX O

ENTER METHOD REGRESSION PREDICTING PARTNER COPING

IV	Beta	t-value	P
Cutoff	.056	.318	.752
Emotional Reactivity	-.481	-2.882	.006
I-Position	.276	1.751	.087

Table 12. Regressions Model for Predicting Partner Coping from Partner Differentiation subscales. $R^2 = .148$, $F(3, 44) = 3.54$, $p < .05$

APPENDIX P

ENTER METHOD REGRESSION PREDICTING MAMMOGRAPHY

IV	Beta	t-value	P
Monitoring	-.361	-2.572	.014

Table 13. One Regression Model for Predicting Mammography from Participant Monitoring. $R^2 = .111$, $F(1, 45) = 6.61$, $p < .05$

APPENDIX Q

COVARIANCE MATRIX FOR THE FHDMM

	CBE	Mon1	Mon2	EP1	EP2	ER1	ER2	IP	CUT
CBE	1.0								
Mon1	-.031	2.84							
Mon2	0.05	.30	2.92						
EP1	-.081	4.31	1.39	31.23					
EP2	-2.06	3.57	3.03	16.45	28.34				
ER1	-0.40	0.01	-0.04	-0.88	-0.20	1.32			
ER2	0.52	-.040	-0.71	-1.07	-3.46	-0.07	1.13		
IP	-0.19	-0.25	-0.47	-1.19	-1.07	0.14	.025	0.59	
Cut	0.08	-0.47	-0.43	-1.97	-2.02	0.07	.050	0.31	0.84

Table 14. Covariance Matrix for the FHDDM Model.

APPENDIX R

MODEL TEST FOR THE FAMILY HEALTH DECISION-MAKING MODEL

	CBE	Mon1	Mon2	Dyad Cope	Diff1	Diff2
CBE	1.0					
Mon1	.03(.10)	1.0				
Mon2	0.14(0.09)		1.0			
Dyad Cope	-0.17(0.07)	0.24(0.10)	0.21(0.10)	1.0		
Diff1	-3.03(1.08)	.00(.09)	.00(.08)	-3.03(1.08)	1.0	
Diff2	0.01(0.39)	-.73(31)	-62(.30)	0.01(0.39)	0.01(0.18)	1.0

Table 15. Tested Model of FHDMM

Model Fit χ^2 (23) =46.24, p=.0028: RMSEA=.16 CFI = .78, GFI = .80

APPENDIX S

MODEL FOR THE FAMILY HEALTH DECISION-MAKING MODEL

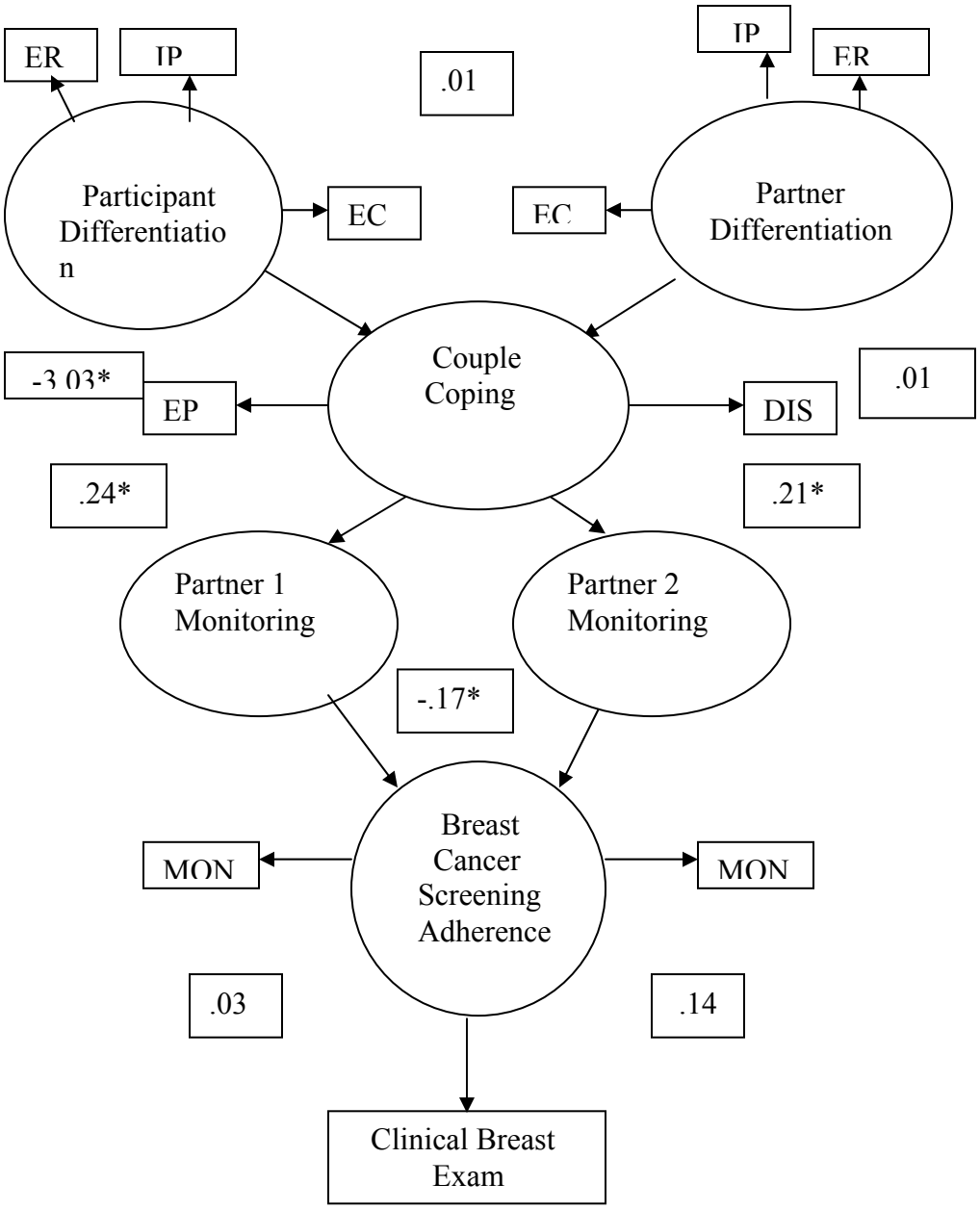


Figure 5. Unstandardized LISREL Estimation Model for the FHDMM.

APPENDIX T

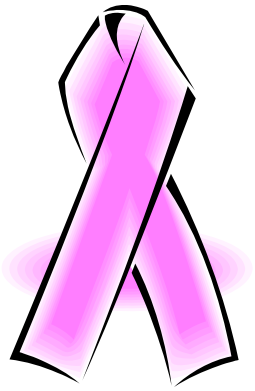
REGRESSION MODEL PREDICTING PARTICIPANT MONITORING

IV	Beta	t-value	P
Distraction	-.207	-1.277	.209
Emotional Preoccupation	.465	3.263	.002
Palliative	-.153	-.952	.347

Table 16. Regression Model for Predicting Participant Monitoring from Dyad Coping subscales. $R^2 = .246$, $F(3, 44) = 5.77$, $p < .05$.

APPENDIX U

QUESTIONNAIRES GIVEN TO PARTICIPANTS



The Breast Cancer Education Project

Suzanne Bartle-Haring, PhD.
Principle Investigator

Department of Human Development and Family Science, College of Human Ecology

Circle the best answer:

Gender: Male Female

Religion: Protestant Catholic Jewish Islamic Other

Ethnicity: African American Caucasian
Hispanic American Indian/Alaskan Native
Asian Native Hawaiian or Other Pacific Islander
Ashkenazi Jewish Decent Other

Do you currently have health insurance that covers mammography? YES NO DON'T KNOW

Age: _____

Age at first menstruation: _____

Age at first live birth: _____

Have you ever been diagnosed with breast cancer? YES NO

Have any of your "first degree" blood relatives (mother, father, sisters, brothers) been diagnosed with breast cancer?

Mother YES NO

Father YES NO
Sisters YES NO
Brothers YES NO

How many have been diagnosed? _____

Have you ever been diagnosed with ovarian cancer? YES NO

Have any of your "first degree" blood relatives (mother, father, sisters, brothers) been diagnosed with ovarian cancer?

Mother YES NO

Father YES NO
Sisters YES NO
Brothers YES NO
How many have been diagnosed? _____

Have you even been diagnosed with any other cancer? YES NO

Have any of your "first degree" blood relatives
(mother, father, sisters, brothers) been diagnosed with any other cancers?

Mother	YES	NO
Father	YES	NO
Sisters	YES	NO
Brothers	YES	NO

How many have been diagnosed? _____

How many breast biopsies have you had? _____

Breast Cancer Knowledge

Please circle true or false after each of the following statements. We will be covering a lot of this information during the program, so please don't be embarrassed if you don't think you know the answers.
You'll get a second chance after the program.

1. Out of every 100 women who are diagnosed with breast cancer, 75 are alive and well after 10 years.	**True**	**False**
2. Stress have been proven to increase the risk of breast cancer.	**True**	**False**
3. Women who are over 50 years of age are more likely to get breast cancer than are younger women.	**True**	**False**
4. Over a lifetime, 1 out 9 women will develop breast cancer.	**True**	**False**
5. Swelling or enlargement of one breast is a possible sign of breast cancer.	**True**	**False**
6. Chemotherapy is always used in the treatment of breast cancer.	**True**	**False**
7. Women over age 50 should have mammograms at least every two years.	**True**	**False**
8. Testing for breast cancer gene mutations will tell a woman if she has breast cancer.	**True**	**False**
9. Men cannot inherit breast cancer gene Mutations.	**True**	**False**
10. A women whose mother was diagnosed with breast cancer at age 69 is considered to be at	**True**	**False**

high risk for breast cancer.		
11. Ovarian cancer and breast cancer in the same family can be a sign of hereditary breast cancer.	**True**	**False**

Tell us about how much you think about breast cancer.

1. How often will you worry about getting breast cancer? Circle the number that best describes how often you worry about getting breast cancer.				
1	**2**	**3**	**4**	**5**
Never				**Always**

2. On a scale from 1-5, how would you rate how worried you are about getting breast cancer now? Please circle the number that is closest to how worried you are.				
1	**2**	**3**	**4**	**5**
Never				**Always**

3. Now, thinking about breast cancer makes me feel upset and frightened. Circle the number that is closest to how much you agree with this statement.			
1	**2**	**3**	**4**
Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**

4. What do you think your chances are for getting breast cancer in your lifetime? Circle your best estimate.				
0-10%	**21-30%**	**41-50%**	**61-70%**	**81%-90%**
11-20%	**31-40%**	**51-60%**	**71-80%**	**91-100%**

5. What do you think your chances are for inheriting a gene that causes breast cancer? Circle your best estimate.				
0-10%	**21-30%**	**41-50%**	**61-70%**	**81%-90%**
11-20%	**31-40%**	**51-60%**	**71-80%**	**91-100%**

We'd like to know about your participation in breast cancer screening?

1. Do you perform breast self-examination?	Yes	No
If YES, how often do you perform breast self-examination?	Daily	Weekly
	Monthly	Occasionally

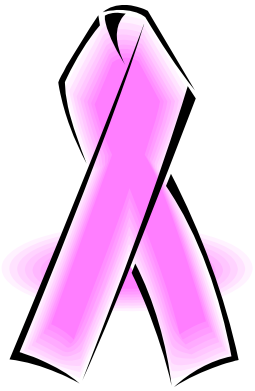
2. Have you have a breast examination performed by your physician?	Yes	No
If YES, when was the last time you had a physician		

perform a clinical breast examination? _____ month/year		

3. Have you had a mammogram?	Yes	No
If Yes, when was the last time you had a mammogram? _____ month/year		

APPENDIX V

QUESTIONNAIRES GIVEN TO PARTICIPANTS AND PARTNERS



The Differentiation and Family Coping Research Project

Suzanne Bartle-Haring, PhD.
Principle Investigator

Paula Toviessi, MS
Research Associate

Department of Human Development and Family Science, College of Human Ecology

Circle the best answer:					
Age _____					
Gender:	Male Female				
Religion:	Protestant	Catholic	Jewish	Islamic	Other
Ethnicity:	African American Hispanic Asian Islander Ashkenazi Jewish Decent		Caucasian American Indian/Alaskan Native Native Hawaiian or Other Pacific Other		
Do you currently have health insurance?			YES	NO	DON'T KNOW

The following questions are about how you cope with health problems and injuries. Think back to your last illness, sickness, or injury and indicate how much you engaged in these types of activities when you encountered this health problem, answer by circling
1 to 5 for each of the following items. PLEASE ANSWER ALL QUESTIONS AS HONESTLY AND ACCURATELY AS YOU CAN. If you are not sure how to answer a question please give the best possible.

	Please circle the number to each question that best describes you.	**Not at all**				**Very much**
1.	**Think about better times**	**1**	**2**	**3**	**4**	**5**
2.	**Stay in bed**	**1**	**2**	**3**	**4**	**5**
3.	**Find out more information**	**1**	**2**	**3**	**4**	**5**
4.	**Wonder "why me"**	**1**	**2**	**3**	**4**	**5**
5.	**Be with others**	**1**	**2**	**3**	**4**	**5**
6.	**Rest when tired**	**1**	**2**	**3**	**4**	**5**
7.	**Seek treatment quickly**	**1**	**2**	**3**	**4**	**5**
8.	**Feel angry**	**1**	**2**	**3**	**4**	**5**
9.	**Daydream**	**1**	**2**	**3**	**4**	**5**
10.	**Sleep**	**1**	**2**	**3**	**4**	**5**
11.	**Focus on getting better**	**1**	**2**	**3**	**4**	**5**

12.	**Become frustrated**	**1**	**2**	**3**	**4**	**5**
13.	**Enjoy attention from people**	**1**	**2**	**3**	**4**	**5**
14.	**Conserve energy**	**1**	**2**	**3**	**4**	**5**
15.	**Learn more**	**1**	**2**	**3**	**4**	**5**
16.	**Think about things I can't do**	**1**	**2**	**3**	**4**	**5**
17.	**Plan for the future**	**1**	**2**	**3**	**4**	**5**
18.	**Stay warm**	**1**	**2**	**3**	**4**	**5**
19.	**Comply with advice**	**1**	**2**	**3**	**4**	**5**
20.	**Fantasize about being healthy**	**1**	**2**	**3**	**4**	**5**
21.	**Listen to music**	**1**	**2**	**3**	**4**	**5**
22.	**Make surroundings quiet**	**1**	**2**	**3**	**4**	**5**
23.	**Follow doctor's advice**	**1**	**2**	**3**	**4**	**5**
24.	**Wish it hadn't happened**	**1**	**2**	**3**	**4**	**5**
25.	**Invite company**	**1**	**2**	**3**	**4**	**5**
26.	**Stay quiet**	**1**	**2**	**3**	**4**	**5**
27.	**Take medications on time**	**1**	**2**	**3**	**4**	**5**
28.	**Think about being vulnerable**	**1**	**2**	**3**	**4**	**5**

Instructions: Read the following statements and complete as instructed

1. Vividly imagine that you are **afraid** of the dentist and have to get some dental work done. Which of the following would you do? Check **all** of the statements that might apply to you.

___ I would ask the dentist exactly what work was going to be done.

___ I would take a tranquilizer or have a drink before going.

___ I would try to think about pleasant memories.

___ I would want the dentist to tell me when I would feel pain.

___ I would try to sleep.

___ I would watch all the dentist's movements and listen for the sound of the drill.

___ I would watch the flow of water from my mouth to see if it contained blood.

___ I would do mental puzzles in my mind.

2. Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Check **all** of the statements that might apply to you.

___	I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.
___	I would review the list of duties for my present job and try to figure o had fulfilled them all.
___	I would go to the movies to take my mind off things.
___	I would try to remember any arguments or disagreements I might have had that would have resulted in the supervisor having a lower opinion of me.
___	I would push all thoughts of being laid off out of my mind.
___	I would tell my spouse that I'd rather not discuss my chances of being laid off.
___	I would try to think which employees in my department the supervisor might have thought had done the worst job.
___	I would continue doing my work as if nothing special was happening.

Instructions: These are questions concerning your thoughts and feelings about yourself and relationships with others. Please read each statement carefully and decide how much the statement is *generally true* of you on a 1 (*not at all*) to 6 (*very*) scale. If you believe that an item does not pertain to you (e.g., you are not currently married or in a committed relationship, or one or both of your parents are deceased), please answer the item according to your best guess about what your thoughts and feelings would be in the situation. Be sure to answer every item and try to be as honest and accurate as possible in your responses.

Not at all true of me					**Very true of me**
1	2	3	4	5	6

☐ 1. People have remarked that I'm overly emotional.

☐ 2. I have difficulty expressing my feelings to people I care for.

☐ 3. I often feel inhibited around my family.

Not at all true of me					**Very true of me**
1	2	3	4	5	6

4. I tend to remain pretty calm even under stress.

5. I'm likely to smooth over or settle conflicts between two people whom I care about.

6. When someone close to me disappoints me, I withdraw from him or her for a time.

7. No matter what happens in my life, I know that I'll never lose my sense of who I am.

8. I tend to distance myself when people get too close to me.

9. It has been said (or could be said) of me that I am still very attached to my parent(s).

10. I wish that I weren't so emotional.

11. I usually do not change my behavior simply to please another person.

12. My spouse or partner could not tolerate it if I were to express to him or her my true
feelings about some things.

13. Whenever there is a problem in my relationship, I'm anxious to get it settled right away.

14. At times my feelings get the best of me and I have trouble thinking clearly.

15. When I am having an argument with someone, I can separate my thoughts about the issue from my feelings about the person.

16. I'm often uncomfortable when people get too close to me.

17. It's important for me to keep in touch with my parents regularly.

18. At times, I feel as if I'm riding an emotional roller coaster.

19. There's no point in getting upset about things I cannot change.

Not at all true of me					**Very true of me**
1	2	3	4	5	6

20. I'm concerned about losing my independence in intimate relationships.

21. I'm overly sensitive to criticism.

22. When my spouse or partner is away for too long, I feel like I am missing a part of me.

23. I'm fairly self-accepting.

24. I often feel that my spouse or partner wants too much from me.

25. I try to live up to my parents' expectations.

26. If I have had an argument with my spouse or partner, I tend to think about it all day.

27. I am able to say no to others even when I feel pressured by them.

28. When one of my relationships becomes very intense, I feel the urge to run away from it.

29. Arguments with my parent(s) or sibling(s) can still make me feel awful.

30. If someone is upset with me, I can't seem to let it go easily.

31. I'm less concerned that others approve of me than I am about doing what I think is right.

32. I would never consider turning to any of my family members for emotional support.

33. I find myself thinking a lot about my relationship with my spouse or partner.

34. I'm very sensitive to being hurt by others.

35. My self-esteem really depends on how others think of me.

36. When I'm with my spouse or partner, I often feel smothered.

Not at all true of me					**Very true of me**
1	2	3	4	5	6

37. I worry about people close to me getting sick, hurt, or upset.

38. I often wonder about the kind of impression I create.

39. When things go wrong, talking about them usually makes it worse.

40. I feel things more intensely than others do.

41. I usually do what I believe is right regardless of what others say.

42. Our relationship might be better if my spouse or partner would give me the space I need.

43. I tend to feel pretty stable under stress.