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Communication Cues to Action that Prompted Central Appalachian Women to have a
Mammogram

A thesis
presented to
the faculty of the Department of Professional Communications
East Tennessee State University

In partial fulfillment
of the requirements for the degree
Masters of Arts in Professional Communications

by
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August, 2004

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Keywords: Mammogram, Appalachian Women, Communications, Cues to Action, Health Belief
Model

ABSTRACT

Communication Cues to Action that Prompted Central Appalachian Women to have
Mammogram

by

Kathryn Bond McNeill

Today, mammography screening is the best method of detection for breast cancer, yet many women have never been screened and underprivileged, minority and rural women have lower screening rates than other populations. The purpose of this study, through individual interviews (N=88), was to understand the cues that women perceive to have received spurring them to participate in mammogram screening. The Health Belief Model guided this research. Media influence, Health Care Practitioner recommendation, social networks, and symptoms were the cues to action explored in this research prompting compliance to mammography screening. All four of these cues were found to influence women in screening behaviors. Family history emerged as a major overarching category as well as various cross categorical and emergent subcategories. This research provides support for the Health Belief Model and by exploring the data qualitatively, provides evidences for further research in communication cues to action prompting mammogram screening.

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CHAPTER 1

INTRODUCTION

Purpose of Research

Health communicators have a dynamic role in health promotion efforts to detect breast cancer early (Guttman, 1997). With breast cancer being one of the most common cancers diagnosed among women in the United States, there is ample evidence of the need to personalize the risk of the disease (American Cancer Society [ACS], 2003; Shenson et al., 2001). In 2003, an estimated 211,300 women were diagnosed with breast cancer in the United States and an estimated 39,800 women died from the disease (Centers of Disease Control [CDC], 2003). These statistics may appear to be just numbers to some but to many they represent mothers, sisters, aunts, grandmothers and daughters. Communicators have increasingly promoted mammography screening to women by presenting age appropriate recommendations (CDC; National Cancer Institute [NCI]; ACS) through different channels of media: advertisements on TV, radio and internet and through PR campaigns (e.g. Race for the Cure, The Avon Walk, and pink ribbons), to name just a few of the efforts. Unfortunately, many women are still not participating in preventive screening (Champion, 1999). Disparities contributing to late stage diagnosis of breast cancer, especially in rural, minority, and low-income women, leave health communicators in an indispensable position to better understand what messages are necessary to garner hope of survival, instill a sense of severity to the disease, and empower women to take ownership of their health by participating in breast screening.

Breast cancer is one of the most widely discussed diseases in print media today (Chaudhuri, 2001). Historically, health communicators had to create awareness of breast cancer, but today most people have heard of the disease and recognize many of the risk factors (“The Power of a Promise,” 2003). A major challenge now for health communicators is to personalize the risk of developing breast cancer. Although routine screening at the recommended age and intervals can reduce breast cancer mortality by 35%; 50% of women aged 50-64 report not having a mammogram in the past two years as do 60% of women over 65 years of age (Mayne & Earp, 2003). Screening rates are said to be lower for minority women, women with lower socioeconomic status, and those who live in rural areas (Bastani et al., 1995; Bryant & Mah,

1992; Cole, Bryant, McDermott, Sorrell, & Flynn, 1997; Legg, Fauber, & Ozcan, 2003; Marshall, Smith, & McKeon, 1995; Sparks, Ragheb, Given, & Swanson, 1996). The media have paid a great deal of attention to breast cancer and screening (McCaul, Jacobson, & Martinson, 1998), and mass media campaigns as well as educational interventions have tried extensively to convince people of a societal-and personal-level danger of breast cancer. The apparent lack of compliance to mammography screening for women, especially rural women, may indicate that the motivating factors leading to action are not well understood. Within the Health Belief Model (HBM), this research will inquire about the perceived internal and external cues women in Central Appalachia received influencing them to have or not to have mammograms. This exploration into the impact of cues on screening behaviors was examined through individual interviews with women diagnosed with breast cancer.

Risk Communication Efforts

Campaign efforts, educational interventions, and product endorsements typically incorporate risk communication to promote screening. Slogans saying, “Arrest Cancer, Its Wanted for Murder” (ACS, 2004) and “Get a Mammogram: Do it for yourself, Do it for Your Family” use the threat of death to promote screening. The products endorsements and campaign efforts use similar tactics: wear Avon lipstick and “Kiss breast cancer goodbye,” eat Dreyer’s ice cream to “Have a taste for life,” when opening Yoplait yogurt, make sure you “Save your lid to save lives” and use American Express to “Charge for a cure” (Presley, 2003). The fund-raising events include Komen’s “Race for the Cure,” Avon’s “Walk for Breast Cancer,” and the American Cancer Society’s, “Making Strides Against Breast Cancer,” just to name a few of the many efforts that extend across the country today. The risk communication is evident but the success of these approaches has been poor. While these messages have spurred women to shop, run, and walk for a cure, screening participation has not shared the same positive outcome; many women today have still never had a mammogram (Champion, 1999).

Breast cancer communication efforts have taken two main approaches to promote mammography screening: (1) to scare women into a mammogram through risk communication and (2) to ignore existing barriers of screening by campaigns that promote pink and never address barriers such as cost and access to care issues (Kahl & Lawrence-Bauer, 1996).

Understanding that breast cancer is a terrifying disease and that in order to promote the benefits of screening, the barriers (i.e. fears, cost, pain) must be lowered may be vital to health communicators (Strecher, Champion, & Rosenstock, 1997). Tailored messages have proven to help women who lack resources (i.e. cost, accessibility) for breast screening to seek it (Lauver, Setterson, Kane, & Henriques, 2003). Typically rural women have lower screening rates than their urban counterparts (Mayne & Earp, 2003). In order for health communicators to be effective, tailored messages must be instituted to better reach the low-income, minority, and rural women who are not participating in the benefits of screening (Lauver et al., 2003).

Over the past decade, there have been many efforts by health communicators to persuade women to have a mammogram through efforts that raise individuals' risk perception of certain diseases. Risk perception derives from threat appraisal, "which is considered to be a major motivating factor in preventive and protective health behaviors" (Vernon, 1999, p. 101). Threat appraisal is based on beliefs about disease risk and severity. For example, the Health Belief Model proposes that if a woman perceives her risk of breast cancer to be high and she understands the severity of the disease, she is more likely to participate in mammograms (Strecher et al., 1997). Perceived risk has been used to explain cancer screening behaviors and promote cancer screening (Vernon, 1999).

Risk communication has been a widely used approach to "scare" women into mammogram participation by overly escalating the consequences of not participating in screening. Some women do not undergo the test because of fear, some because of cost constraints or access to care issues, and others due to false beliefs or erroneous information (Kahl & Lawrence-Bauer, 1996). It has been reported (Gottlieb, 2001) that some women fear breast cancer more than any other disease and this fear is mainly due to the abundance of stories about breast cancer in magazines. These barriers can limit the effectiveness of messages promoting mammography. Kahl and Lawrence-Bauer (1996) state, "Messages that attempt to scare women into getting mammograms play on fears that women already harbor and result in an overload of anxiety that often prevents them from either learning or taking action." Slovic (1987, p. 281) adds:

Risk assessment is clouded by difficulties in understanding probabilistic processes, biased media coverage, misleading personal experiences, and the anxieties generated by

life's gambles cause uncertainty to be denied, risks to be misjudged (sometimes overestimated and sometimes underestimated), and judgments of fact to be held with unwarranted confidence.

Based on this explanation, health communicators have an excruciating job to figure out a way to meet different audiences, with different beliefs, biases, and past experiences to prompt women to participate in mammography screening. Several internal and external cues were assessed in this study in order to better understand what women perceived to have spurred them to have a mammogram. This understanding will aid health communicators in future research to effectively reach different audiences through several source approaches.

Creating a Personal risk Level

A person's perception of the risk of developing a disease is believed to be an important determinant of his or her health-related behaviors (Vernon, Vogel, Halabi, & Bondy, 1993). A fundamental goal of health communication is to help people understand the important health risks they face (Schwartz, Woloshin, & Welch, 1999). The main risk factors of breast cancer are being a woman and getting older (NCI, 2003). Therefore, every woman has a risk of developing the disease. This disease affects individuals and each individual is prompted via different mechanisms. Cancer is a frightening word and people often fear that cancer could cause pain and body disfigurement, or result in financial ruin (Burman & Weinert, 1997). The feelings and changes a woman endures as a result to breast cancer often go unheard but one purpose of this study is for women's stories to be heard:

Breast cancer attacks the woman's body; but perhaps just as importantly, it attacks her body image, her sense of self-identity, and her perception of control over her life and body—including her sexuality, womanhood, and financial resources. When a woman is diagnosed with breast cancer, she experiences fear about possibly dying, anxiety about the pain of treatment, and stigma of perhaps having a mastectomy and being left not a "whole woman" (Keeley, 1996).

A challenge for health communicators seems to be in addressing the "internal" woman, not just the disease or women's products. The difficulty for health communicators lies in the fact that some women do not fear the disease, some ignore their fear, and others are crippled by their

fear. Communicators target women and through fear appeals in order to promote mammograms. But living inside each woman may already live those fears (Kahl & Lawrence-Bauer, 1996). Thus, women may decide to be screened because they feel vulnerable to cancer; or other women may feel a lack of vulnerability leading to reduced motivation for breast cancer screening. Perceived risk is also related to worry about cancer and each of these factors (invulnerability or worry) may affect screening behaviors (McCaul & Tulloch, 1999). Fear appeals were introduced into our society long ago in order to promote action towards health initiatives, but today many women are not being screened even though the fear appeals exist. A major component of effective health promotion efforts is to understand the target population. Perspectives for campaigns promoting mammography may need to be changed in order to reach minority, low-income and rural women (Kahl & Lawrence-Bauer 1996).

Appalachian Region

As cited by Hall, President John F. Kennedy defined Appalachia as ““a region apart geographically and statistically”” (Hall, Rogers, Weir, Miller, Uhler, 2000, p. 1593). Appalachia is often associated with being rural, suffering from problems of poverty, and having high numbers of uninsured or underinsured people (Behringer, 1992). Rural residents are thought to be independent and self-sufficient and often view health as the ability to work and be productive (Winert & Burman, 1994). These communities are often close-knit and members tend to rely on friends, neighbors and families for health information (Burman & Weinert, 1997). Rural health is “challenging,” due to low numbers of health professionals in these areas, poverty, and geographical hindrances (Cain, 2001, p.1). Cancer in Appalachia is often associated with death and this has been noted as a barrier to screening (Randolph, Viswanath, Moser, & Rimer, 2004).

Appalachian women often live in rural areas and are typically underserved, socio-economically disadvantaged and lacking in education; all associated with higher cancer rates and less screening participation (Couto et al., 1994; Bryant & Mah, 1992; Hall et al, 2000). Rural and urban screening differences have been predominantly associated with socio-demographics which in-turn is believed to influence health knowledge, attitudes, and beliefs (Bryant & Mah, 1992). Previous research has found that risk perceptions about cancer vary by demographic characteristics, cultural characteristics, and interactions with health care providers.

Behavioral Risk Factor Surveillance System (BRFSS) data report that women who live in metropolitan areas are 10% more likely to have received a mammogram within the past two years (75.4%) compared to women who live in rural areas (66.7%)(CDC, 2003). Health care concerns must be properly addressed for this segment of Appalachia in which the majority are low-income, elderly, generally lack insurance, and have low levels of education. The fact that the rural population makes up about 20% of U.S. citizens but is served by only about 10% of the nation's physicians, most of whom are generalists in the practice, not specialists, is also a major issue contributing to lower access to quality care (Spanier, 2001).

Introduction to Study

Participating in preventive screenings for breast cancer is the best way to detect a breast lump early and have increased treatment options along with greater chances of survival. Breast cancer preventive behaviors and screening activities require the active participation of the individual for them to be effective. It is important that the public understands the potential risks that lead to cancer and the actions they can take to lower their chances of getting cancer. As illustrated, different populations have different perceptions of cancer. These impressions and beliefs about cancer have been shown by previous research to be influenced by people's socio-demographic status, their access to health care, their exposure to entertainment and news media and their attentiveness to health information (Randolph et al., 2004). This study seeks to better understand the cues to action that women in Appalachia perceive to have received prompting them to participate in mammogram screening. The four external and internal cues that will be investigated in this study are media influence, a recommendation from a health care practitioner, the influence of a social network, and symptoms.

Media

Mass media have been proven to be effective in disseminating information to vast quantities of people (Valente & Saba, 1998). The goal of these messages has been to inform the public about health behavior and environmental dangers, motivate them to reduce risks, and enable them to adopt more healthful lifestyles (McGuire, 1984). Media efforts have done an amazing job at creating awareness of breast cancer in the past decade. A disease that was once

taboo to refer to is now common dinner conversation. Unfortunately, the different media (e.g. print, news, campaigns, internet) used to disseminate news concerning mammography screening have not always report factual information properly (Gottlieb, 2001). Broadcast and print news stories, for example, tend to dramatize the messages of public health campaigns resulting in more confusion over screening guidelines by focusing on questionable issues currently debated by the scientific world (i.e. efficacy of mammogram, false-positive, or false-negative results) instead of concentrating on facts that have been formally accepted (Kahl & Lawrence-Bauer, 1996). Stories about breast cancer in popular magazines have consistently misrepresented age distribution of the disease, emphasizing atypical cases of early-onset breast cancer and their social consequences. This has aroused some unnecessary fears in younger women whose risk of breast cancer is much lower than older populations (e.g. aged 50 and older). For example a woman's lifetime risk of developing breast cancer is 1 in 8, but for a woman, between 40 and 50 years of age has a 1 in 68 risk of developing breast cancer (NCI, 2004). The media have not represented these risks appropriately. A study looking at the presence of age-related themes with breast cancer found that out of 172 vignettes in the articles studied, 84% of the vignettes were about women diagnosed with breast cancer before 50 years of age and 47% were about women diagnosed with breast cancer before age 40. Realistically, the expected percentages should be 16% and 3.6% (Burke, Olsen, Pinsky, Reynolds, & Press, 2001).

Campaign messages have also functioned considerably less effectively than they could, predominantly because they fail to reach an appropriate middle-line between being overly scientific and unscientific in messages concerning mammography (Kahl & Lawrence-Bauer 1996). Often this occurs because there is no mention of women's fears about the process, and because they frequently disregard cost and access to care concerns. This said, media attention also has some very positive outcomes. The increased awareness of breast cancer has increased screening tremendously and has saved numerous lives. Nicholson, Grason, and Powe (2003, p. 580) explain that:

Health information resources, which includes print media, broadcast media, computer-based resources, and health organizations, are the primary communication methods used by health care providers and policymakers to disseminate health care information to consumers and to guide health behaviors.

Many women have received their health information from the media and responded to the initiatives (Kahl & Lawrence-Bauer, 1996). This study examines the participants' perception of the influence they received from media by examining perceived cues to action.

HCP Recommendation

Physician recommendation is one of the strongest predictors of mammography use. Research has shown that physicians are perceived to be the best and the most reliable and credible source of health information (Becker & Janz, 1990). Much research (Bryant & Mah, 1992; Halabi, Skinner, Samsa, Strigo, Crawford, & Rimer, 2000; Mayne & Earp, 2003,) has reported the effectiveness of a physician recommendation in motivating health behavior changes in patients. In fact, women who have talked with their doctor about mammography screening and interval guidelines are seven times more likely to participate in screening mammograms than those who have not discussed mammography with their doctor (Bickell, 2002). This is true for low-income women as well (Lauver et al., 2003). Reminder cards, calls, and interaction with nurse practitioners have also been influential components of a HCP recommendation (McCaul & Tulloch, 1999).

Similarly, the lack of a doctor's recommendation has also been reported as a reason for not participating in mammography screening (Lauver et al., 2003; Mayne & Earp, 2003). For example, many women who have had a mammogram report that a physician recommended it whereas many women who have not had a mammogram report the opposite; "My doctor never told me to have one" (McCaul & Tulloch, 1999). Rimer et al. (1989) reported that women who did not participate in age-appropriate mammogram screening did not understand the benefits and limitations of mammography, reported not having enough information to make decisions about mammograms and were confused about frequency of screening. Physicians have also expressed confusion about recommending mammograms. Studies that include physicians' rationale for not recommending mammograms recorded such excuses as: the inconvenience of the cost to the patient especially low-income patients, lack of faith in mammograms, patient inconvenience, radiation exposure, and the perception that mammography is unnecessary in the absence of symptoms (Rimer et al., 1989). Although women themselves must bear considerable responsibility for their own education on health topics, physicians, too, are responsible for part

of the burden for saying nothing or for misinforming their patients (Kahl & Lawrence-Bauer, 1996). Individual interviews with breast cancer patients participating in this study intended to reveal the influence of a recommendation from a health care practitioner.

Social Network

Sufficient evidence has revealed that social networks play an important role in individual health and health behavior (Suarez et al., 2000). Women have reported having large social networks, receiving vital emotional support, and experiencing feelings of great satisfaction with the support of their social circle (Patrick, Cottrell, & Barnes, 2001). Social networks have also been found to be beneficial to the health of members by influencing the use of preventive health practices (Hurdle, 2001). Social relationships appear to be particularly important to women, thus it may be beneficial for communication efforts to target women's social network (e.g. places of work, churches, and social organizations) as information carriers. Social networks have been found to help people learn new skills and behaviors to change unhealthy habits or promote positive lifestyles (Hurdle, 2001).

Recent research suggests that among underserved minority women, strong social networks can positively affect cancer screening participation. Rural residents have been found to place special importance on neighbors and family members as a source of health information and support in dealing with health problems much more often than professional care providers (Weinert & Burman, 1994). Just as interactions inside a social network can positively affect women to seek mammography, the opposite is true as well. Advice, stories and communication of personal fears of cancer screening can also affect women negatively leading to avoidance of screening guidelines (Kang & Bloom, 1993). Conversations including misinformation, false beliefs, and fears can be detrimental to other listeners inside social networks.

Symptoms

Lumps, swelling, skin irritation, nipple pain, redness or discharge, are all common symptoms of breast cancer (ACS, 2003). Unfortunately, they can all easily go unnoticed. The main risk factors of breast cancer are being a woman and getting older (NCI, 2003) and breast self exam (BSE) coupled with clinical breast exams (CBE) and mammograms are the most effective ways to detect a breast lump early (NCI, 2003). Though symptoms are essentially a highly influential way for a woman's body to communicate and to send the message to her brain that she needs to get screened, it is at this point that diagnosis follows. Preventive screening is available for the purpose of preventing the disease or detecting the disease in an asymptomatic stage (Nielson, 1990). Preventive mechanisms such as mammogram screenings can detect the lump on average two years before any signs or symptoms (Champion, 1999). This method of detection is recommended in place of self-detection in order to reduce the suffering and death due to breast cancer.

Women with breast problems are more likely to have had a mammogram than women without breast problems (McCaul & Tulloch, 1999). Data have shown that symptoms prompt screening, but increased worry and anxiety have also resulted from symptoms and paralyzed some women from seeking care. Two responses typically occur when a symptom of breast cancer is recognized: (1) delay in seeking care, and (2) promptness in seeking care (Lauver, Coyle, Panchmatia, 1995). This study sought to examine the influence of symptoms in woman motivating them to have a mammogram.

Significance of this Study

These four cues make up the external and internal communication cues that will be studied throughout this research to better understand what motivated these Central Appalachian women to participate in mammography screening. This knowledge could aid health communicators in preparing messages that effectively reach their target audiences. There has been tremendous increase in mammography screening nationwide but low-income, minority, and rural women predominantly remained unscreened (Bryant & Mah, 1992). The missing link in many of the messages that women receive about mammography involve unsuccessful efforts to educate women about the disease in ways that promote action (Kahl & Lawrence-Bauer, 1996).

This research investigates the cues that women perceive to have received and the influence these cues had in motivating them to participate in mammography screening.

Appalachian culture has been characterized as independent, self-reliant, and resistant to change (Winert & Burman, 1994). It has also been associated with high death rates due to cancer and lack of compliance to screening recommendations. Low use of screening, typically in underserved groups consisting of older women with low SES who are uninsured or underinsured is an imperative issue. Typically, rural women have lower screening rates than their urban counterparts. This poses major difficulties in early detection because when these cancers are found they have potentially grown and are less likely to be treatable. Thus the perception of death, a barrier to screening, associated with a cancer diagnosis is formed. Other beliefs are formed this way and in a lower socioeconomic setting, false beliefs are often correlated with lower use of preventive services along with being older, poor, or a minority; having less physician access; and a greater scarcity of medical resources (Mayne & Earp, 2003). Breast cancer can be a curable disease if detected early and efforts are needed to reduce unnecessary mortality.

Approaches to increase screening in Appalachia must begin with understanding subsets of the population in order to administer tailored health messages in the region. Issues of fear appeals, promoting perceived susceptibility and severity of the diseases need to be assessed in order to better understand how women in this region react to fear tactics. Also of high importance are the barriers limiting Appalachian women from participating in screening and their perception of the benefits to preventive screening. These components will be identified through the Health Belief Model as a theoretical guide to better understand how cues to action prompt women to participate in mammography.

CHAPTER 2

LITERATURE REVIEW

The Health Belief Model

Based on the risk perception data, researchers conclude that individuals must be convinced that they are personally at risk before they will change (Slovic, 1987). Risk perception is a central construct of the Health Belief Model (HBM) (Vernon, 1999), which predicts that as an individual's level of risk assessment regarding a disease increases, chances of compliance with the recommended prevention will also increase (Mattson, 1999). Risk appraisal involves individuals' perceptions of the severity of a disease and their perceptions of susceptibility to the disease. Many efforts in the last decade have been aimed at trying to discover factors that influence women's decisions to participate in breast cancer screening (Bastani et al., 1994). The HBM has been tested in multiple fashions to determine what turns knowledge into action concerning preventive health behaviors. The questions of why some women get annual mammograms and some women do not has also been evaluated by the HBM. The HBM has been proven useful in both descriptive and intervention work for various populations (Champion, 1999) and served as the theoretical framework for this study.

The Health Belief Model has been and continues to be a major organizing framework for explaining and predicting compliance to health and medical care recommendations (Janz & Becker, 1984). The HBM, in particular cues to action, served as the theoretical framework for this research to better understand the internal and external cues that women perceive to have received and the possible impact cues have on woman's screening behaviors. As will be briefly discussed, the Health Belief Model is made up of four main constructs including: perceived susceptibility (e.g. believe they could get breast cancer), perceived severity (e.g. believe that breast cancer is a serious, often deadly, disease), perceived benefits (e.g. believe that early detection brings more treatment options and a better chance of survival), and perceived barriers (e.g. cost, time, pain). Theoretically, before health-promoting behaviors will occur, a woman must perceive that breast cancer is both serious and there is a possibility that she is personally at risk for the disease (Champion, 1999). For example, if a woman believes that she is personally vulnerable to breast cancer (susceptibility) and that she can have breast cancer without

symptoms (severity) these beliefs will enable her to be ready to participate in mammography as long as she perceives the benefits of screening outweigh the barriers (Taylor, Taplin, Urban, White, & Peacock, 1995).

Additional motivation is often necessary to elicit the health-decision making process. These stimuli are called cues to action and self-efficacy (Strecher et al., 1997). Throughout the literature, cues to action and self-efficacy have rarely been described as independent variables of the HBM and few studies have attempted to assess the role of cues in predicting health action (Meiller, Lund, & Kok, 1997). Like Mattson (1999), the focus of this study seeks to explore cues to action as a critical factor in the Health Belief Model. The Health Belief Model is frequently used to help develop messages that are effective in persuading individuals to make health-related decisions (Champion, 1999; Janz & Becker, 1984; Tirrell & Hart, 1980), and this research focuses on cues to better understand their perceived impact in motivating women to participate in screening mammograms (See Table 1 in Appendix A for more details).

History of HBM

In the early 1950s, social psychologists developed the Health Belief Model in an attempt to understand the persisting lack of compliance for preventive health measures in asymptomatic diseases (Strecher et al., 1997). The model has been refined over the years and expanded for use in determining patients' responses to symptoms and patients' compliance to health recommendations. The basic components of the HBM are derived from psychological and behavioral theories that hypothesize that behavior depends on the value placed on a specific goal (e.g. to avoid illness or to get well), and the individual estimate of the probability that a given action will achieve this goal (e.g. prevent illness) (Janz & Becker, 1984). Since the 1950s, the Health Belief Model has been one of the most widely used frameworks to better understand health-related behaviors (Strecher et al., 1997). For example, the model has been used to explain breast screening behaviors in a number of populations groups including Chinese, Hispanic, Mexican, and African American and across a wide range of cultural and health delivery systems (Jirojwong & MacLennan, 2003). In a meta-analysis that summarized the results of 46 studies using the health belief model, each concept of the HBM was found to be significantly associated

with the health-related behaviors under study. In this meta-analysis, preventive health behaviors, sick-role behaviors, and clinic use were researched in prospective and retrospective studies over a continuum of wide-ranging cultural and socioeconomic backgrounds (Janz & Becker, 1984). The HBM has exhibited tremendous versatility throughout the previous research.

Rosenstock stated that preventive behavior is an “activity undertaken by a person who believes herself to be healthy for the purpose of preventing disease or detecting disease in an asymptomatic stage” (Nielsen, 1990, p. 374). Interventions based on the Health Belief Model have been shown to increase breast cancer screening and other preventive behaviors across many accords (Champion, 1999). Mammography compliance in relation to belief variables indicated that compliant women perceived breast cancer as more serious, perceived more benefits and fewer barriers to mammography screening, were motivated toward health behaviors in general, and believed that they had more personal control (Miller & Champion, 1997).

Components of HBM

Multiple studies have used the HBM to identify factors associated with the practice of disease detection screenings and health promotion behaviors (Bastani et al. 1994; Champion, 1999; Lerman, Rimer, Trock, Balshem, & Engstrom, 1990; Rimer, Trock, Engstrom, Lerman, & King, 1991; Taylor et al., 1995). Champion (1999, p. 342) states, “the ability to identify the relationships between susceptibility, benefits and barriers, and compliance with mammography recommendations has been critical in determining their influence on screening behaviors.” The HBM has also been used to predict compliance with preventive health recommendations, among them mammography screening recommendations (Aiken, West, Woodward, & Reno, 1994; Champion, 1999). The four components of the Health Belief Model are often paired (i.e. severity and susceptibility/benefits and barriers) and will be briefly discussed below.

Severity and Susceptibility. Breast cancer can disrupt a woman’s health, comfort, emotions and her perceived attractiveness and perceived severity is the acknowledgement of these disruptions. Susceptibility on the other hand is the knowledge of the risk factors combined with an assessment of one’s own personal risk of the disease (Yarbrough & Braden, 2001). Perceived susceptibility has consistently been shown to be related to mammography behavior

(Miller & Champion, 1997). Taylor et al. (1995, p. 409) states, “A woman who perceives herself as being vulnerable to breast cancer is more likely to report repeat mammograms.” HBM predicts that as an individual's level of risk assessment regarding a disease increases, chances of compliance with recommended screening guidelines will also increase (Mattson, 1999). This combination of susceptibility and severity towards a disease fuels the power for a woman to take action towards mammography (Strecher et al., 1997). For example, Champion (1994) found that women who perceived breast cancer as serious and felt susceptible to breast cancer more often expressed intent to undergo future mammograms.

Benefits and Barriers. While perceptibility and severity accept the threat of a disease, perceived benefits and barriers determine a women’s attitude toward the promoted health behavior (e.g. mammograms) (Strecher et al., 1997). Benefits have been defined as “the individual’s beliefs regarding the effectiveness of strategies designed to decrease vulnerability or reduce the threat of illness” (Mattson, 1999, p. 242). For example, benefits of mammography screening are recognizing that curing the disease is possible, realizing that treatment is less severe with early diagnosis and believing that early detection will allow a woman to remain healthy (Yarbrough & Braden, 2001). Barriers are, “the assessment of potential negative consequences that may result from taking particular health actions” (Mattson, 1999, p. 242). Barriers include: lack of a recommendation from a HCP, cost, and access to care, just to name a few. For an individual to take health-related action, the perceived benefits (e.g. increases chances of survival) must outweigh the perceived barriers (e.g. cost, time, pain) (Wallace & Gupta, 2003). Therefore, the perception of benefits in addition to perceiving or having fewer barriers directs the course of action leading to mammography (Strecher et al., 1997). Many investigators have verified the usefulness of perceived benefits and barriers in predicting mammography behavior (Champion, 1999).

The four components together suggest that a woman is more likely to obtain a mammogram if she believes that she is personally vulnerable to breast cancer without symptoms (susceptibility), she recognizes the gravity of the disease (severity) she understands that the procedure is effective in early detection (benefits) and that the benefits outweigh any barriers involved (cost, time, pain) (Lerman et al., 1990; Rimer et al., 1991). This combination of all

four constructs of the HBM reveals that susceptibility and severity towards a disease fuels the power to act and the perception of benefits (fewer barriers) directs the course of action (Strecher et al., 1997). Previous research has shown that HBM is effective in understanding health behavior and it has been shown to increase breast cancer screening (Champion, 1999). The Health Belief Model is the theory driving and interpreting this research. The HBM has shown throughout previous research significant ability to understand, promote and predict health behaviors. The researcher sought to understand the cues that women perceive to have received prompting them to have a mammogram.

Limitations of HBM

Despite the consistency of significant results using the health belief model, there are some limitations with the theory because it is based on a psychosocial model. The Health Belief Model was developed on the assumption that health is a highly valued concern or goal for most individuals and it assumes that cues exist in every person's environment. If this is not correct for the situation, then the model is likely to be unhelpful in understanding and promoting health related behaviors (Strecher et al., 1997). For example, if no risk is perceived concerning breast cancer, a recommendation by any source or of any form for a mammogram screening may not be persuasive despite the benefits of early detection and increased treatment options (Abood, Coster, Mullis, & Black, 2002). The model is also not useful for explaining behaviors; it simply recognizes attitudes and beliefs towards health recommendations. Fulton et al. (1991) reported that the model is most successful when applied to immunization and screening programs and foresees that it is less clear how useful the model is for understanding health behaviors that involve lifestyle changes. Therefore, a motivated woman who is concerned about her health and well-being is more likely to be in favor of using mammography screenings than a woman that is not worried about her health and not interested in changing her lifestyle in order to promote her health (Petro-Nustas, 2001).

In a meta-analysis conducted by Yarbrough and Braden (2001, p. 677) on "the utility of the HBM as a guide for explaining or predicting breast cancer screening behaviors," found that the application of the HBM to the study of breast cancer screening was not uniform across

studies. They found that the relationship between HBM variables and screening behavior were specified as linear rather than multiplicative in many studies and that factors (e.g. SES, age, education, etc) influence people's behaviors, which affects the utility of the model. The Health Belief Model does not directly address attributions of cause, or individual definitions of breast cancer; however, it appears to be a salient framework for describing breast cancer screening.

Barriers

Findings suggest that a certain amount of knowledge, especially an understanding of risk and early detection benefits, is important for contemplating mammography, but barriers may affect whether contemplation leads to action (Skinner et al., 1998). This was true for a study conducted by Champion (1999) in which, barriers demonstrated the greatest difference with benefits being second and susceptibility third. In Champion's study, barriers consisted of: afraid something was wrong with breasts, other problems, too old, don't understand procedure, don't know how, embarrassment, time, pain, rude personnel, radiation, and memory.

Perceived and actual barriers expand the gap between knowledge and behavior in health-related decisions. Determining motivational cues are important because barriers dissuade women from complying with mammography guidelines. Various studies have shown that women who have had a mammogram report fewer barriers than women who have not had a mammogram (Mayne & Earp, 2003; Sparks et al., 1996). For example, Sparks et al. reports that the women in her study that had never had a mammogram reported the barriers of pain (21%, compared with 12% of women who had had a mammogram in the last two years), embarrassment (19% vs. 10%), reliance on breast self-examination (33% vs. 16%), and a lack of efficacy on the part of mammography (20% vs. 11%). Perceived barriers shown throughout the literature inhibiting mammography use include, but are not limited to, fear of radiation, cost, pain, not realizing that mammograms are needed in the absence of symptoms, inconvenience, and lack of physician recommendation (Glanz, Resch, Lerman, Blake, Gorchov, & Rimer, 1992; Halabi et al., 2000; Lerman et al., 1990; Maxwell et al., 2001; Rimer et al., 1991; Zapka, Stoddard, Costanza, & Greene, 1989). Generally older women, rural women, poor women, minority women and women with fewer years of formal education have lower rates of mammography use (Bastani, et al., 1995; Bryant & Mah, 1992; Cole et al., 1997; Legg et al.,

2003; Sparks et al.). Individuals who report these barriers to having a mammogram are less likely than others to have annual mammograms because the perceived barriers tend to outweigh the perceived benefits.

Additional barriers seem to be present in rural populations. A study of Appalachian women revealed rural residence, geographic isolation, poverty, unemployment, lack of education, lack of child care services, and attitudinal and cultural factors as barriers to cancer screening (Hall, Uhler, Coughlin, & Miller, 2002). Physician recommendation to obtain mammography has consistently been reported and strongly been associated with mammography use in rural communities (Aiken et al., 1994; Bryant & Mah, 1992; Halabi et al., 2000; Lerman et al., 1990; Mah & Bryant, 1997; Mayne & Earp, 2003; Sparks et al., 1996; Zapka et al., 1989). Other factors include availability and social influences in the workplace, neighborhood and family (Lerman et al., 1990). A study conducted by Bryant and Mah (1992) revealed that rural women were 60% less likely to have had a mammogram as the urban women in the study and they were equally less likely to have had a physician recommend one. Another study of rural women asked why certain women did not participate in their screening program and answers were as follows: there was no need because they regularly examined their breasts, it was difficult to find time to attend, it was inconvenient and it was not a priority to them (Speedy & Hase, 2000). Other women in this study said that they were either too young or too old, never thought to have one, it was their doctors' responsibility, they were unaware of the service, the procedure was too painful, they had concern over the effects of radiation and their previous negative and humiliating experience prevented them from going through it again. The opportunity clearly exists to better understand the vital role cues to action play in motivating individuals to overcome their barriers in order to present for mammogram screenings.

Barriers Affecting Cancer Risk Communication in Appalachia

The majority of Appalachian counties are rural, and cancer death rates in these areas are high. The Appalachian region is made up of 406 counties in 13 states and is populated by about 22 million people ranging from Mississippi to New York (Friedrich, 2002). The Appalachian region suffers from problems of poverty, high numbers of underinsured and uninsured patients, and a large elderly population (Behringer, 1992). Several factors have been identified that

contribute to these high rates of cancer. They include high rates of tobacco use and physical inactivity as well as barriers to accessing health care in the mountains due to weather constraints and lack of health care facilities and practitioners (Friedrich, 2002). Screening rates are typically lower in Appalachia for older, less educated, uninsured, or unemployed women (Hall et al., 2002). A lack of knowledge and cost were other frequent reasons for not participating in mammogram screenings found in this study. Rural women often associate death with a cancer diagnosis and Randolph et al. (2004) stated that people with fatalistic attitudes about cancer prevention may be more likely to not attempt cancer prevention behaviors because they feel it will not do them any good. There is limited research published about screening rates among women in the Appalachian region, but those that have been conducted have found that lower rates of breast screening were among older, less educated, unemployed, and uninsured women (Hall et al., 2002).

Adherence to screening recommendations and communication efforts are often contingent upon barriers to submit to health initiatives. It is essential for health communicators to know the population in which they are serving in order to understand the barriers the women must overcome in order to participate in mammogram screening. Health communicators can play a vital role by tailoring messages to Appalachian women by addressing these barriers and creating opportunities for the barriers to be limited, thus making preventive screening possible (Lauver et al., 2003). Cues to action are often the source of these health promotion efforts.

Many women in rural Appalachia can be associated with having low education levels and low per capita incomes as well as poor access to care and widespread unemployment (Amonkar & Madhavan, 2002). Barriers can be physical (e.g. unable to go for screening), psychological (e.g. denial of risk), emotional (e.g. scared or embarrassed), or financial (e.g. lack of insurance). Barriers can be modified, especially those barriers that are perceived (e.g. fear), but actual barriers (e.g. cost, access to care) have equally been a hurdle for women and health professionals. For example, in a study conducted by Amonkar and Madhavan (2002) on screening rates in Appalachian women found that women who complied with other recommendations from a HCP (e.g. flu shots, cholesterol screening, and pneumonia vaccinations) were more compliant than women who did not participate in other preventive services, as were women with a higher education and insurance coverage.

Cues to Action

Cues to action are an essential component in prompting women, even women with barriers, to comply with screening recommendations. Cues to action are the least studied construct in the HBM (Strecher et al., 1997). Initially health behavior research focused mainly on increasing women's knowledge about their need for mammograms in order to promote action (Meillier et al., 1997). Research then extended its focus to examine women's knowledge, attitudes and beliefs in order to prompt women to participate in mammography. Approximately 50% of women aged 50-64 and 60% of women older than 65 have not had a mammogram in the past two years (Mayne & Earp, 2003). This suggests that changes in health habits are drastically more complicated. Cues to action are the specific motivators necessary to prompt appropriate health behavior (Mattson, 1999). They are the determinants that trigger change and cues may be internal (i.e. symptoms) or external (e.g. mass media or interpersonal interactions) (Janz & Becker, 1984; McGuire, 1984). "Cues to action, such as personal experience, mass media messages, or interpersonal communication with medical personnel (e.g. reminders) may engender a heightened state of involvement or personal relevance, thereby influencing one's overall assessment of a given health condition" (Li et al., 2003, p. 41).

The Health Belief Model predicts that if the perceived threat is high and perceived benefits outweigh perceived barriers, a cue to action can prompt or trigger an individual to take a particular health action, thus bridging the gap between knowledge and behavior (Strecher et al., 1997). For example, if a woman realizes that she is susceptible to breast cancer and she understands the seriousness of the disease, hearing a health message promoting mammography screening could spur her to make an appointment. Screening is linked to perceptions of risk, benefit and barriers through a reasoning process that includes personal and social influences and attitudes. Mattson (1999, p. 243) stated, "A central focus on cues to action is important because individual beliefs and perceptions about health and illness are socially constructed and contingent upon social interaction." This research studies the possible cues to action influencing women in Central Appalachia to pursue breast cancer screenings.

Specific Cues to Action

The literature has consistently identified three major external ‘cues’ for participating in mammography. These cues are the mass media (Altpeter, Earp, & Schopler 1998; McGuire, 1984; Valente & Saba, 1998), a recommendation from a health care practitioner (Aiken et al., 1994; Bryant & Mah, 1992; Halabi et al., 2000; Lerman et al., 1990; Mah & Bryant, 1997; Mayne & Earp, 2003; Sparks et al., 1996; Zapka et al., 1989), and positive and negative influences inside a woman’s social network (Marshall, Smith, & McKeon, 1995; Meillier et al., 1997; Suarez et al., 2000). Only one internal cue (i.e. symptoms) has been examined in the literature (Janz & Becker, 1984; Rimer et al., 1991; Strecher et al., 1997). All of these cues have greatly influenced participation in screening.

External Cues

Mass Media

Media frequently show us ourselves, our cultural images, and our values; media not only entertain, they also inform. A significant source of health information is presented to our society through the unrivaled forms of mass media available (e.g. television, radio, print, movies, internet), and vast public attention is given to understanding diseases through these various sources (Clarke, 1992). One area the media often inform us about is the world of health, illness, and disease (Clarke, 1999).

In the early 1980s it was hard to get women to say ‘breast cancer’ (“The Power of a Promise,” 2003). In those days, education meant creating an awareness of breast cancer in women. Since then, print coverage of breast cancer has flourished. In 1960, only three stories in all U.S. magazines and the *New York Times* were published. However, in 1995, 149 stories on breast cancer were published (Corbett & Mori, 1999). With such widespread appearances of breast cancer in the media through advocacy efforts, education, and stories, most people are no longer afraid to talk about breast cancer; in fact it has become a war that many people and organizations are helping to fight (“The Power of a Promise,” 2003). PR efforts launched by companies spanning from Avon to General Motors are supporting the fight for the cure. Magazine ads, shopping bags, ribbons, yogurt lids and light bulbs are all screaming, "pink," in support of the cause. Articles entitled “If you miss getting a mammogram, think of what you’d

miss” (“Adweek,” 2000) to “Mammograms Save Lives” (ACS, 2003) in magazines ranging from *American Rifleman* to *Newsweek* to *Vogue*, are all contributing to the battle against breast cancer. In a research grant funded by the National Cancer Institute, researchers investigated the representation of breast cancer using a Web-based search engine. They determined that out of 73 women’s, men’s, and news magazines, 697 articles were about breast cancer. They compared these results to articles pertaining to heart disease; a greater threat to women’s health, and only 546 articles pertained to heart issues (“Reuters Health Information,” 2003). Another study assessed the media coverage of cancer in newspapers and a quarter of the media coverage was devoted to breast cancer (Chaudhuri, 2001).

Individual behavior is shaped by the social, structural, and economic context that can facilitate or pose barriers to the behavior (e.g. community disadvantage and geographic isolation). This suggests that efforts to promote health behavior can be enhanced by interventions that reflect the interplay of individual system and environmental factors (Legler et al., 2002). In a meta-analysis of the frequency of mass-media coverage of health related topics targeted to influence the behavior of health professionals and patients, all of the studies but one concluded that mass media were effective. Another study focused on women of low socioeconomic status reported that 31%-63% volunteered that a doctor or HCP was the source of health information, 21% reported the television, 18% reported a hospital or doctor’s office, 17% reported books, 15% reported magazines, 11% reported brochures/pamphlets, and 8% reported the radio (O’Malley, Kerner, & Johnson, 1999).

The mass media and campaign strategies have the advantage of sending messages across large distances to reach countless numbers of people and disseminate messages that may have never reached certain populations (McCaul et al., 1998). Although awareness has significantly increased, some say this heightened awareness of breast cancer has caused unnecessary fears in women (Gottlieb, 2001). Often the fear appeals used in the media (print, news, campaigns, and internet) tend to dramatize the messages to increase readers by focusing on questionable issues (Kahl & Lawrence-Bauer, 1996). Media often provide the coverage that the people demand which often results in not reporting the most important information for behavior change (Mattson, 1999).

Campaign messages have also been criticized but for the contrary approach. Campaigns tend to promote the “happy” side of breast cancer through pink ribbon campaigns that support survivorship and promote camaraderie without any mention of screening barriers, false-positive/false-negative diagnoses, and death (Kahl & Lawrence-Bauer, 1996). These abstract messages are often perceived as less personally relevant allowing for denial of personal risk (Mattson, 1999). This is often why campaign efforts only bring about awareness, not behavior changes. Health communication experts believe that lack of personal assessment occurs because people tend to consider themselves to be exceptions to the risk at hand and disproportionately apply the risk to others instead of themselves (Mattson, 1999). Unfortunately, many health promotion and health education efforts targeting behavior change do not typically reach minority and economically disadvantaged communities, leaving these individuals even less equipped to make health behavior decisions (O’Malley et al., 1999). Flora (2001) reports that media messages combined with interpersonal communication are often more effective than media messages alone. Mattson (1999) affirms Flora by reporting that media alone have not been found to be very effective in influencing people to change behavior. These findings do not disregard the work of media messages and campaign efforts. Campaigns have increased awareness of breast cancer and have aided in the increase in screening behaviors. Although scholars have argued the efficacy of media health promotion efforts, the advantage of reaching and educating numerous people, cultures, and societies across the nation has proven significant (Valente & Saba, 1998).

Research Question #1: What perceived role do mass media messages play in participants seeking mammography?

Health Care Practitioner Recommendation

A frequently cited reason by women for seeking mammography is the recommendation of the test by a health care practitioner (HCP) (Aiken et al., 1994; Lauver et al., 2003). In a study of 1,184 women, 45% said they had never had a mammogram. Forty-five percent of these women reported that they did not feel it was necessary and/or that they felt healthy, and 24% said their doctor had never recommended it. All women were asked if they would have a mammogram in the next year if their doctor recommended it, and 83% said they were certain

that they would (Zapka et al., 1989). This is true among rural, minority, and low-income women as well (Lauver et al., 2003; Mayne & Earp, 2003). Rural women are less likely to have a doctor's recommendation than urban women (Bryant & Mah, 1992). In a study of 830 rural women, only 13% received a mammography referral (Mayne & Earp, 2003). Similarly women report the lack of HCP recommendation as a primary reason for not obtaining mammography (Lauver et al., 2003). Another study indicated that 90% of the women of rural status stated that a doctor's recommendation to have breast cancer screening is very important. None of the unscreened women in that study reported a physician or nurse recommendation to have a mammogram (Sparks et al., 1996).

In a survey conducted on physicians in 1990, one third of the doctors studied chose not to recommend mammograms to all of their patients because of cost, presumed risk from radiation, and a perception of low diagnostic yield (Vogel et al., 1990). Other studies have shown similar results indicating the main reasons for physicians not referring patients for mammograms are: perceived low yield from the examination, cost, patient inconvenience, and exposure to radiation, and the patient's lack of insurance (Lane & Messima, 1999; O'Malley et al., 2001; Rimer et al., 1989). Studies have shown extensively that the recommendation of physicians for mammograms plays a major role in a patient's participation in screening.

Research Question #2: What role do participants perceive their health care practitioner in prompting them to seek mammography?

Social Networks

A social network is person-centered and refers to various relationships among individuals within their social circles (i.e. coworkers, family, neighbors, church, and organizations) (Israel & Schurman, 1990). Studies have revealed that social relationships play an essential role in individual health and health behavior (Broadhead et al., 1983; Cassel, 1976; Kang & Bloom, 1993; Suarez et al., 2000). Cancer control and prevention research have shown that it is vital to consider the social networks of women (Marshall et al., 1995; Suarez et al., 2000), especially rural women who are less likely to participate in breast cancer screening because of societal and economic barriers (Mayne & Earp, 2003; Sparks et al., 1996). Studies have indicated that a woman's social network, especially her family and friends, have strong effects on her use of

preventive health behaviors (Hurdle, 2001). Beliefs and experiences have also been found to predominantly circulate through informal networks and have a tendency to spread quicker than actual facts (Bernardi, 2002).

Rural women are associated with being older, poorer, and uneducated and having less physician access and scarcity of medical resources (Mayne & Earp, 2003). For women who are undereducated and without easily accessible access to health care services or health information, informal support networks may be particularly crucial, providing the only means for receiving information about cancer screening (Suarez et al., 2000). Studies show that women prefer to receive health information from friends and family (Hurdle, 2001; Marshall et al., 1995) and that interaction with one's social network may affect the decision to seek or avoid cancer screening (Kang & Bloom, 1993). Cancer, especially in rural communities, is often associated with death (Burman & Weinert, 1997). The anxiety that arises from these beliefs may produce inaccurate knowledge that can cause delay in screenings and bring about fears. Fears about potential cancer symptoms, possible consequences of cancer, and perceptions of cancer treatments may attract or repel women from seeking treatment (Lauver et al., 1995). Fears, stimulated by misinformation or false beliefs of cancer and cancer treatment can lead to delays in preventive care (Burman & Weinert, 1997). False beliefs about diseases, as well as thoughts of what is considered an acceptable risk, may originate and spread in informal networks as rapidly as correct beliefs (Bernardi, 2002). Studies have also revealed that social networks strongly influence women to participate in screening for breast cancer, but the perceived support of the social network has not been fully measured (Kang & Bloom, 1993; Suarez, Lloyd, Weiss, Rainbolt, & Pulley, 1994; Suarez et al., 2000).

Research Question #3: What role do participants perceive their social network in prompting them to participate in mammography?

Internal Cues to Action

Symptoms

Rimer et al (1991) reported that the two main reasons for women having a mammogram were (1) a doctor's recommendation and (2) they had symptoms. Unfortunately, breast cancer can occur without any known symptoms and that is why screening is so important (Humphrey, Helfand, Chan, & Woolf, 2002). The American Cancer Society (ACS) and the National Cancer Institute (NCI) highlight several changes in the breast (e.g. lump or mass, swelling of the breast, skin irritation, nipple pain or changes in the nipple, or lump in the underarm) that women should be aware of. By checking breasts regularly women become more aware of changes in their breasts. Although the majority of women know about breast self-exams (BSE), most studies report a monthly BSE practice rate of approximately 30%, which varies with racial and ethnic background (Winstead-Fry et al., 1999).

In a study of 359 women, one of the leading cues to having a mammogram was the discovery of symptoms of breast cancer. The majority of these women learned about symptoms of breast cancer through their doctor, friends, or the media (Nielson, 1990). Also, in a study previously cited (Zapka et al., 1989), 45% of the women that had never had a mammogram did not feel it was necessary because they did not have symptoms and they felt healthy. Attitudes and beliefs can influence a woman's response to breast symptoms. Some women seek treatment immediately after finding a breast lump while others wait due to the anxiety and fear that symptoms bring (Lauver et al., 1995). Women's beliefs about the advantages and disadvantages of care can influence their response to a breast symptom.

Because perceived vulnerability is believed to be related to screening participation and symptoms of breast cancer increase one's vulnerability to the disease, data have shown that symptoms predict higher screening rates (Taplin, Anderman, & Grothaus, 1989). For example, women with breast problems have been found to be more likely to have had a mammogram (McCaul & Tulloch, 1999). Data have also shown that women who have received false-positive (i.e. a lump diagnosed as malignant when really it is benign) or false-negative (i.e. a lump diagnosed as benign when really it is malignant diagnosis) results are more likely to obtain future mammograms as recommended by screening guidelines (McCaul & Tulloch, 1999).

Therefore, previous efforts report both anxiety due to symptoms leading to action and also anxiety due to symptoms leading to delay in seeking care (Lauver et al., 1995). This study sought to find how symptoms affected the women in this subset of Central Appalachia (i.e. cause them to seek or avoid care).

Research Question #4: What role do internal cues seem to play in prompting participants to seek a mammogram?

As reported throughout the literature and by previous studies, media, HCP recommendation, social network, and symptoms have all prompted women to either seek or avoid mammograms. This study, through individual, semi-structured interviews will examine how a subset of women in Central Appalachia reacted to the cues they perceive to have received prompting them to seek mammograms. This study examines women with breast cancer in order to understand how they were affected by the influence of internal and external cues across a screening continuum (initial, repeat, and diagnostic) in order to provide information for future initiatives focused on spurring action in women towards preventive mammogram screening.

CHAPTER 3

METHODS

Selection of Subjects

This study was part of an omnibus study (Krishnan, 2002), conducted by the Rural Appalachian Cancer Demonstration Program (RACDP). The population for this study (N=88) consisted of Central Appalachian women (i.e. Northeast Tennessee and Southwest Virginia) previously diagnosed with breast cancer who were seeking treatment for breast cancer at area cancer centers. Interviews were conducted via the telephone with women who had previously agreed to participate in an exploratory study with the RACDP (Krishnan, 2002). The first component of the omnibus study collected data from patients' charts on breast cancer patterns of care from each of the cancer centers (one in Tennessee and one in Virginia). Patients signed Institutional Review Board (IRB) consent forms agreeing to participate in all initiatives of this study.

The participants were recruited through doctor/patient interaction in a cancer center in Tennessee and one in Virginia. In Tennessee, participants were referred from surgery, medical oncology or radiation oncology doctors. Also, two primary care doctors agreed to participate in recruiting patients. Recruitment consisted of the doctor explaining the research project and asking the patient if they were willing to be a part of the study conducted by the RACDP. If the patient consented, then the doctor would give RACDP information to contact the patient and if the patient declined, then there was no further interaction on the subject. Women in Virginia were recruited through a smaller treatment center that is a satellite facility of a hospital that included medical and radiation oncology. Patients from Tennessee and Virginia were extremely willing to participate in this study, with over 90% successful recruitment among the women approached.

Participants

During the summer of 2003, 88 women were interviewed from Tennessee ($n=69$) and Virginia ($n=19$) (Krishnan, 2002). Participants were divided into age appropriate categories based on mammogram screening guidelines from the Centers of Disease Control and Preventions (CDC, 2003). Women under 50 are recommended to have a mammogram every one-two years

comprising the (<50) age category and women over 50 are to have mammograms annually. For the larger omnibus study (Krishnan, 2002) the women over 50 were further split (50-64) (65+) for insurance purposes. Insurance, along with age, is a major component of mammography screening and is often reported as a barrier to screening in the literature (Amonkar & Mandhavan, 2002; Hall et al., 2002). Medicare is administered at age 65 reducing the issue of insurance thus making the third category 65 and older. Therefore, the age categories for this study were <50, 50-64 and 65 and older. There were ($n=24$) women 65 years and older; ($n=38$) women between the ages of 50-64; and ($n=26$) women under age 50. Eighty-two of the women in this study had insurance at the time of their detection leaving six women without insurance at the time of detection. Twenty-four of the 88 women had Medicare.

Previous research has found that uneducated women are less likely to participate in mammography (Amonkar & Mandhavan, 2002). Unfortunately, those who do not participate in mammography typically self-detect their lump resulting in a later stage of cancer at diagnosis. Rates of late stage diagnosis in Appalachian have typically been higher than the National SEER (Surveillance, Epidemiology, and End Results) data (SEER, 2003). The educational background of the women in this study was analyzed to better understand their screening behaviors in relation to their education. In this study 33% of the women with less than a high school education detected their lump through a mammogram and 67% of the women with less than a high school education self-detected their lump. Of the women in this study with a high school education 68% detected their lump through a mammogram and 32% self-detected their lump. Women with some college experience had 53% detected by mammogram and 47% self-detected. Of women with a college degree 77% detected their lump through a mammogram and 23% self-detected their lump. The women with more than a college degree had 60% detect their lump by a mammogram and 40% self-detected their lump. In total, 59% detected their lump by a mammogram and 41% self-detected their lump. These statistics indicate that less educated women in this study were more likely to self-detect their lump than more educated women, but at each educational level self-detection occurred. Also, as will be further noted in the analysis, self-detected lumps were not indicative of lack of mammogram screening; 50% of the women between the ages of 50-64 were having regular mammograms but self-detected their lumps.

Interviews

The data were gathered through an exploratory approach of semi-structured, open-ended interviews with women. Semi-structured interviews are especially useful in studying knowledge, attitudes and behaviors, as well as exploring lifestyles and contextual issues (Power, 2002). Using open-ended questions allows respondents to elaborate on their experience and attitudes. Though the questions were predetermined, additional probes allowed for further thoughts from the participants through researcher prompts. These questions concerning the internal and external cues were administered with additional prompts to enforce elaboration on the women's responses in order to gain a better understanding of the influence of these cues. The open-ended nature of the questions reveals the topic of investigation but provides the interviewer and interviewee freedom to discuss the questions and responses in more detail (Hancock, 2002).

The interview questions were developed based on findings from literature reviews that indicated specific cues that motivated women to participate in mammography screening and also to better understand screening behaviors of women in this area of Central Appalachia. The questions were developed and pretested by the author on two breast cancer patients in order to determine the effectiveness of the general layout of the questions, the sensitivity of the questions, and the content. Necessary changes were made to ensure internal validity of the interview questions. One hundred women were called for the interviews and 88 women participated. The 12 women not included in the study either changed their phone number, chose not to continue to be a part of the study, or were away during the designated interview sessions. The entire set of interview questions can be found in Appendix B.

At the onset of the telephone call each woman was instructed on the purpose of the study, and asked some preliminary questions to start the interview:

“Hi my name is _____, and I am working with the Rural Appalachian Cancer Demonstration Project. I know that you have spoken with someone before from this project and we would just like to follow up on a few things. We would really like your help in gathering more information on how your breast cancer was detected. Would it be okay for me to ask you a few questions? Is this a good time for you to talk or is there a better time for you?”

After agreeing to the interviews, the opening questions began. These questions mainly require a yes or no answer that was then used to understand potential barriers to each woman in mammogram participation. For example, because lack of insurance can be a barrier to many women especially in rural communities, question number three asks, “Did you have insurance at the time of your detection?” If the patient has insurance then that is not a barrier of theirs in showing for screening but if the patient does not have insurance then it could potentially be a barrier to screening. The questions were asked as follows:

- 1) I would first like to confirm how old you were when you found your breast lump?
- 2) Did you have a regular doctor when your lump was found?
- 3) Did you have insurance at the time of your detection?
- 4) Were you taking a Hormone Replacement Therapy when your lump was found?
- 5) Had you already been through menopause?

These initial questions were designed to help understand potential barriers to mammography and risk factors these women were exposed to prior to finding their lump (see appendix B for results). The following questions determined the course of the participants’ interview. These next three questions were asked in order to confirm that the patient information previously collected from the larger omnibus study (Krishnan, 2002) was correct before proceeding with the interview. For example, if the participant had self-detected her lump, she would be asked question number one and then her interview would take the “self-detected” interview course of questions. If the patient’s file indicated that her doctor detected the lump, then she would be asked question #2 and so on:

- 1) You told us that you found your breast lump. Is this correct?
- 2) You told us that your breast lump was found by a doctor. Is this correct?
- 3) You told us that your breast lump was found through a mammogram. Is this correct?

At this point, the questions used to better understand the cues that women perceived to have received motivating them to have a mammogram were administered. These questions were:

- 1) Prior to finding your lump, why were you having regular mammograms?
 - a. Probes: Did your doctor recommend it? Had you read about mammograms?
Were you afraid of getting cancer?

- 2) Lots of women don't get mammograms regularly; can you tell me why you weren't having regular mammograms?
 - a. Probes: Did you think they were painful? Were the mammograms too expensive? Did you think that mammograms were scary?
- 3) Lots of women don't have mammograms; can you tell me why you never had a mammogram?
 - a. Probes: Did you think they were painful? Were the mammograms too expensive? Did you think that mammograms were scary?

Due to the nature of these interviews, sampling bias was likely to occur. These women were already diagnosed with breast cancer and, therefore, had some history of screening whether annually, irregularly, or diagnostically. These interview questions and answers reflect these women's experiences from a retrospective view. These women had already experienced the dreaded recall and diagnosis of breast cancer and are reflecting on their screening lives prior to cancer. This does not delineate their responses by any means, but sampling bias was likely to occur.

Data Analysis

Thomas (2000) reports that inductive analytical approaches are intended to aid in the understanding of meaning in complex data through the development of themes or categories from the interview data. The basic outline of this analysis involves data reduction, data display and drawing conclusions. Inside this simple format lies an intricate analysis of these women's responses to the interview questions. A crucial discipline of qualitative research that makes it distinct of quantitative is that the data analysis process, although it has a format, is a fluid process; movement back and forth throughout the steps (i.e. data reduction, data display, drawing conclusions) is likely (Berkowitz, 1997).

Data reduction is defined as, "the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written field notes or transcriptions" (Berkowitz, 1997, p. 1). The data have to be condensed for the sake of manageability but more importantly to bring forth the "meat" of the data or the recurring thoughts, patterns, or ideas. The two major steps of data reduction are (1) to reduce extensive and wide-ranging responses from the interview

questions into a brief summary, and (2) to establish a clear connection between the research objectives and the summary findings resulting from the interview data and to ensure these associations can be replicated by others to enhance further research on this topic (Berkowitz, 1997). The answers to the interview questions were hand-written during the interviews by the author and subsequently reduced during analysis.

The data reduction process aids in highlighting the guiding and initially unknown categories that emerge at this point in the analysis. This study, though influenced by grounded theory, did not start from the ground and move up. This study allowed the research preceding it to do the ground-work and used recurring themes from previous research to guide the interview questions. As the categories emerged (open coding) data were charted and cross category analysis began (axial coding) (Strauss & Corbin, 1990). One way that qualitative data differ from quantitative is that qualitative analysis deals in words, not numbers. Qualitative analysis provides ways of discerning, examining, comparing and contrasting, and interpreting meaningful patterns or themes by cross category analysis and deliberate rounds of revisiting the data with new questions, connections, and formulations in order to deepen the understanding of the data (Berkowitz, 1997). Drawing conclusions stems from the comparisons and cross category analysis of axial coding. Conclusions are drawn by examining the repetitions, categories, and themes revealed during the interpretive and descriptive accounts of the data.

Open Coding

Data were analyzed using open and axial coding to better explore recurring thoughts, patterns, and themes throughout the text (interview scripts) and to connect categories with underwritten subcategories (Strauss & Corbin, 1990). This qualitative approach is anchored in thematic content analysis with influences from grounded theory (Altheide, 1996). Glaser and Strauss originated grounded theory on the basis that, “the inductive approach ensures that any category or subcategory is grounded in original data” (Power, 2002, p. 89). Grounded theory is a qualitative approach that generates theory from observation. It does not test a hypothesis; it is unambiguously emergent (Strauss & Corbin, 1990). This data analysis uses the coding procedures of grounded theory, while instituting elements of content analysis. Content analysis can be analyzed in two ways: (1) Manifest-this is a basic level of analysis in which a descriptive account of the data is assessed (e.g. reveals what was said with nothing read into it and nothing

assumed about it) and (2) Latent-this is an interpretive account concerned with what was meant by the response (e.g. what was inferred or implied) (Hancock, 2002). Manifest analysis focuses on repetitions, metaphors and analogies, transitions, and similarities and differences in order to identify themes (Ryan & Bernard, 2003). Manifest analysis for this study was generated by creating a list using *Roget's International Thesaurus*, of all the different words related to "recommendation." For example, for the category of "a recommendation from a health care practitioner," the list of words generated included, "urge," "advise," "propose," "commend," "insist," "prescribe," and "pose." An example if this taken from the women's responses is; "My doctor recommended them," (P34) and "My doctor insisted I have one," (P49) both fit under the category of "a recommendation from a HCP." People often express their thoughts, behaviors and experiences with analogies and metaphors. This aspect of Manifest analysis emerged most readily in the "symptoms" category. The different terms for self-detection of a lump were as follows, "a thickness that turned cancerous," (P4), "lump popped up," (P73) "I accidentally found the mass," (P82) and, "I just randomly noticed it" (P64). These are just a few examples of the descriptive accounts that were analyzed from the data.

The latent analysis is different from the manifest analysis in that it is not descriptive in nature: it is interpretive. For example, the women in this study did not say, "I trust my doctor," but latent analysis allowed this message to emerge through the obedient nature of the patients in response to their doctor's health recommendations. For example, "I was having yearly mammograms because my doctor recommended them," (P61). P61 exhibits trusting her doctor's recommendation by taking action towards the suggested health behavior (i.e. mammograms). Latent analysis correlates with analytical induction, a concept of Grounded Theory. The advantage of combining elements of content analysis with grounded theory is that it allows an interaction between the inductive and deductive methodology with open and axial coding. This combination and interplay has created insightful results by scrutinizing the data for emergent patterns and themes (Altheide, 1996).

As suggested by Altheide (1996), categories and variables initially directed the study, but new themes were expected to emerge throughout the research. The open-coding process consisted of naming, labeling, and categorizing the data (Strauss & Corbin, 1990). The data from the interviews were broken down, examined, compared, and conceptualized into categories

and subcategories (Strauss & Corbin, 1990). Familiarity of the data was accomplished by reading and rereading the participants' answers to the interview questions in order to discover the themes or categories that emerged. The interpretive process of open coding identified situations from the women's responses that lead to greater understanding of the categories that emerged (Strauss & Corbin, 1990). The following categories guided and emerged through open coding procedures (See Table 2 in Appendix C for more coding examples). As will be discussed in further detail, an independent coder aided in the open-coding process. The independent coder coded the entire data set separate from the author using a similar format to the one below as a guide in order to account for trustworthiness in this research.

Categories

Internal Cues

(1) Symptoms

Definition: detection of a lump, pain, abnormalities of breast, or feeling unhealthy.

Example: "I felt a lump on my breast."

(2) Family History of Cancer

Definition: Presence of cancer in immediate family

Example: "My sister had breast cancer."

External Cues

(1) Mass Media:

Definition: influence from print, television, radio and internet

Example: "I read about breast cancer"

(2) Recommendation from a Health Care Practitioner

Definition: referral from a doctor, nurse, or reminder card

Example: "My doctor recommended them."

(3) Social networks

Definition: influence from family, friends, or coworkers

Example: "My friend told me they were terribly painful."

The open-coding process revealed communication cues that defined the categories with emerging themes appearing to add depth and further analysis to these categories. Axial coding was implemented to make connections between these categories and the sub-categories that were developed during open-coding.

Axial Coding

Axial coding is the process of relating categories to each other through inductive and deductive thinking (Strauss & Corbin, 1990). Axial coding was used to better understand how the above categories interacted with one another. The women, through repetition in their answers, revealed definite interactions between the categories. For example, “I read watch TV and listen to my friends; I know... (P29).” This excerpt exhibits the influence a woman received from two cues (media and social network) that worked simultaneously to enforce her breast screening knowledge.

Comparing categories also showed how multiple influences convince women to have a mammogram: “Breast cancer runs in my family and my doctor recommended mammograms, so I decided to start having them (P64). This excerpt highlights the influence of internal and external cues through a recommendation from a health care practitioner and the existence of a family history of cancer. Also, influences from cues at different stages of compliance with mammography screening, was recognized through a process of axial coding. An example of this type of influence on participants included a recommendation from a HCP (cue) that motivated initial and repeat screening behaviors and symptoms (cue) that ultimately prompted diagnostic screening: “I was having yearly mammograms because my doctor recommended them. Six months after having a mammogram I thought my nipple looked distorted and so I went back to the doctor for more procedures” (P81). Different cues spurred women to pursue care at different times along the screening continuum. The subcategories listed below were the major cross-categorical examples that appeared in the data analysis. Other emergent subcategories are illustrated in the results section.

Subcategories

(1) Symptoms and HCP Recommendation

Definition: participant reported both symptoms and HCP recommendation as the cues spurring her to have a mammogram.

Example: “My doctor recommended mammograms because I had a large lymph node underneath my right arm (P72)

(2) Symptoms, Family History, and HCP Recommendation

Definition: Participant reported symptoms, family history and a HCP recommendation as her cues to action

Example: “Breast cancer runs in my family and my doctor recommended mammograms....then I found a lump” (P64).

(3) HCP Recommendation and Family History

Definition: HCP recommended mammograms and participant had a family history of cancer.

Example: “My sister was diagnosed with breast cancer, my other sister died of breast cancer and my doctor recommended them” (P34).

(4) Symptoms and Family History

Definition: Had symptoms of breast cancer and also had a family history of cancer

Example: “My brother died of cancer and so I thought I should start checking my breasts for lumps. I found one on my right breast” (P2).

(5) Social Network and Symptoms

Definition: Influence from social network and symptoms

Example: “I self-detected my lump and waited for awhile before seeing the gynecologist. I had never had a mammogram because I had heard such bad things about them” (P75).

These are just a few of the subcategories that emerged from axial coding. A few of the cross-categorical subcategories were not listed due to lack of reference to these multiple cues by the women in this study. Deeper in-depth analysis of the data emerged from axial coding as illustrated in the results section.

Trustworthiness

In assessing qualitative research, issues of trustworthiness and evaluation arise because researchers’ biases, preexisting knowledge, and life-experiences may skew interpretations (Altheide & Johnson, 1994). In order to assure trustworthiness, an independent coder was chosen and trained. An independent coder allows for a clearer understanding of the categories

and their meaning and is one way of removing researcher bias. The author of this project conducted the coding and analysis of this text and asked an independent researcher to also code the interview notes to attain reliability. Training was instituted by using samples of the data with three categories to choose from. The independent coder worked for RACDP, had a Masters in Science, was well trained in research methods, was familiar with the dataset, but was unfamiliar with the theoretical structure of the analysis. Due to confidentiality constraints and guidelines, a person from RACDP was chosen to ensure privacy for the patients. The independent coder was given the entire data set to code. The author and independent researcher met with each other to review discuss and refine the coding method. Disagreements in coding were discussed by the author and the independent coder in order to achieve clarity and to make the appropriate changes. Issues arose defining the interpretation of 'media influence' and 'attained knowledge' that garnered further discussion and refined the coding procedure. The percentage of authenticity was found by dividing the number of agreements by the total number of possible agreements plus the number of disagreements. The coding procedure achieved 82% authenticity through this formula. All disagreements were discussed and coding corrections were made accordingly. This 'consistency check' assessed the trustworthiness of the data analysis (Thomas, 2000).

The researcher sought to obtain the women's perspectives on their social reality in getting a mammogram. Of course women have different perspectives and all were heard, recorded, summarized, and categorized in order to allow themes to emerge from the interviews and to reduce researcher bias. The researcher also sought to understand the perspectives of these women with breast cancer in order to better understand the cues that they received and the influence the cues had on their behavior. The hope for this research is that all of the women in this study (N=88) will be heard and that their stories will aid in discovering more efficient ways to communicate cues to action in order to increase screening behaviors as well as increase research efforts in this field.

CHAPTER 4

RESULTS

The results of this analysis are founded upon the individual interviews employed to better understand the cues women perceived to have received motivating them to participate in mammogram screening. Eighty-eight women participated in these interviews. There were 24 women 65 years and older, 38 women between the ages of 50-64, and 26 women under age 50. Media influence, symptoms, social network, and a recommendation from a health care practitioner were the major categories leading this research. Family history emerged through the interviews as a major overarching category influencing women to participate in mammography screening.

Results appear as follows: media influence 5% ($\underline{n}=4$); symptoms 54% ($\underline{n}=48$); social network 7% ($\underline{n}=6$); family history of cancer 15% ($\underline{n}=13$); and a recommendation from a health care practitioner 64% ($\underline{n}=56$). The results have been further broken-down by age to exhibit how each age group was influenced by the each specific cue to action (these results can be found in Appendix D). The cross-sectional subcategories were also broken down to exhibit the influence these multiple cues had on these women. The cross-sectional subcategories consisted of symptoms and HCP recommendation ($\underline{n}=19$); symptoms, family history and HCP recommendation ($\underline{n}=4$); HCP recommendation and family history of cancer ($\underline{n}=6$); social network and symptoms ($\underline{n}=4$); Symptoms and family history of cancer ($\underline{n}=7$). Age-group breakdowns for these subcategories also appear in Table 3 of Appendix D. Some of the cross-sections are not listed because no women fit into these subcategories. The majority of women across all three age groups were influenced by a health care provider, symptoms, or both a HCP and symptoms.

Women in this study reported a few major barriers. Barriers dissuade women from complying with mammogram guidelines and are necessary to understand because barriers often negate the efforts of cues to action. The barriers reported in this study were: didn't take doctor's recommendation ($\underline{n}=5$); no recommendation from a doctor ($\underline{n}=6$); negligence ($\underline{n}=2$); stories ($\underline{n}=4$); thought that x-ray was just as bad ($\underline{n}=2$); and didn't think of her health ($\underline{n}=2$). For example, P32 stated, "I wasn't having mammograms, just negligence I guess," and P73 said, "I

never had a mammogram, my doctor never recommended it.” The most prevalent barrier reported in this study was lack of insurance. P16 stated, “I didn’t have insurance. I felt my lump and went to the downtown clinic.” Insurance can become a barrier when a doctor recommends another mammogram but the insurance only covers one screening per year. For example, P85 states, “I was told to return in six month, but in six months my insurance didn’t cover it.” She waited a year and was diagnosed with late stage breast cancer. These barriers will be further expanded on throughout the following sections.

Research Question #1

Research question #1 asked: What perceived role do mass media messages play in participants seeking mammography? As will be illustrated through excerpts, media messages in this study educated and empowered. Participants in this category expressed knowledge gained through a media message.

P23, a woman in this subset, was not previously getting screened until a recommendation from her family changed her behavior. Her family gained their knowledge from the media. P23 stated, “My family heard on TV that women over 50 needed to have a mammogram. I’ve been having regular mammograms ever since.” P23’s family reportedly gained their information/knowledge from an informational commercial or program on television. Another woman reported gaining her own knowledge from television. She reports being personally informed about mammograms via the media by stating, “I had heard so much about breast cancer that at 40 I just decided to start having them...it was my own decision” (P56). Not only did P56 gain knowledge by repeatedly hearing messages recommending screening, this knowledge spurred her to action. Another way that media educate is by reporting controversy over screening recommendations, screening efficacy, and screening behaviors. P29 expressed gaining knowledge about a controversial screening issue and told her doctor about what she heard. She stated, “I read, watch TV and talk to my friends...I know there is controversy” (P29). All three of these women reported being educated about screening through the media. All three of these women were educated at different points along the screening continuum. P23 had never had a mammogram until her parents heard that she needed one, P56 began having them when she reached the age appropriate time to begin screening and P29 reportedly was having

mammograms and used the media as a source of updates for breast health. The majority of women in this subset reporting media influence were between the ages of 50-64. Media have targeted this age group specifically because screening is most beneficial and crucial for women aged 50 to 69.

Subsequently, the influence of media was more often reported as influential when coupled with another cue. For example, “My family heard on TV that women over 50 needed to have a mammogram. I’ve been having regular mammograms ever since (P23). “I read, watch TV and talk to my friends...I know there is controversy” (P29). This suggests that media coupled with interpersonal interaction are more influential than media alone.

Research Question #2

Research question #2 asked: What role do participants perceive their health care practitioner in prompting them to seek mammography? Participants frequently expressed feelings of trust leading to a response based on a HCP recommendation. “My doctor recommended it” was the most recurring expression by the recipients (n=56). This included 18 women <50 years, 22 women between the ages of 50-64, and 16 women 65 and older. HCP recommendations came in the form of a doctor recommendation (n=54), a phone call from a nurse practitioner (n=1), and a reminder card (n=1).

A recommendation from a doctor was taken as “truth” and held in high regard. The influence of these women’s doctors had the ability to persuade or convince them of a personal-level need for a mammogram through a recommendation. The three reasons reported for a doctor’s recommendation were: (1) age, (2) a woman’s role, and (3) another cue (e.g. symptoms or family history). Two other forms of recommendation from a health care provider were a phone call and a reminder card. P69 stated, “My nurse practitioner called to remind me,” and P37 recalled that she got reminders from the mammography place. Other than these two women, a doctor was the most influential source of a recommendation from a health care practitioner.

My Doctor Recommended It

Participants communicated an active response to a doctor’s recommendation. For example, P11 stated, “I have yearly mammograms; my doctor recommended them.” Similarly

P38 states, “I was having regular mammograms, my doctor always recommended them.” A doctors’ recommendation seemed to personalize the disease causing perceived susceptibility in these women. P3 stated, “After I hit 50, I started having mammograms because my doctor told me to.” Age is a risk factor and women over 50 are urged to have annual screening mammograms. This woman reported hearing this message from her doctor and complying with the recommendation. This was a common reason reported throughout the interviews: P9 stated, “My doctor recommended them...it’s a routine thing because of my age.” All it took for many of the women in this subset was a doctor’s recommendation. P49 stated, “My doctor insisted that I have a mammogram because of my age. I had never had a mammogram before because I didn’t think I needed one.” Prior to her doctor’s recommendation, this woman did not think she needed a mammogram. After her doctor’s recommendation, she realized her personal risk/susceptibility of the disease and consented to have a mammogram. This portrayal of the influence of a doctor’s recommendation on a woman was commonly heard throughout the interviews: “My doctor told me that I needed to have a mammogram. I didn’t know I needed one” (P86). P86 was 65 years old and prior to her doctor’s recommendation she had never heard that “she needed” a mammogram even though she was about 15 years overdue for one based on screening guidelines. P86 had heard of mammograms, she just didn’t know that she needed one. Her doctor personalized the disease.

A doctor’s recommendation not only initiated screening behaviors it also rejuvenated those who had lost the recognition of the importance of screening. P32 stated, “My doctor recommended mammograms and although I had been having them religiously, I missed a few years...I guess due to negligence.” P32 had actually stopped having mammograms yet after her doctor recommended them she returned to having regular mammograms. This is a good indication that a doctor’s recommendation is influential and is beneficial for women to receive yearly as a reminder. P32 obviously did not feel like she needed to have a mammogram again until her doctor re-recommended them to her. She immediately complied with his recommendation. P71 also complied with her doctor’s recommendation by having a baseline mammogram at 35 and then regular screening at age 40:

I had a baseline mammogram when I turned 35 and then when I turned 40 my doctor sent me to have another one. At that appointment the mammogram detected my lump. (P71)

This is the regimen many doctors recommend to endorse breast health. As seen, a doctor's recommendation was influential in and of itself. None of the above women mentioned another cue that they received spurring them to have a mammogram. These women consented to having mammograms because their doctor recommended them.

Additionally, some women reflected the belief that mammogram screenings are part of the "role" of being a woman. These women received a doctor's recommendation and inevitably perceived all women to be at risk of the disease and consented to comply with screening guidelines. This means that these women did not just perceive a personal level risk and comply but also perceived a societal-level risk and complied. P21 states, "That's what women do." P21 along with P31 and P9 had a societal and personal level acknowledgment of the risk of breast cancer:

Just something you have to do. (P31)

It's a routine thing because of my age. (P9)

This is the goal of most health promotion efforts; for women to know that being a woman and increasing in age are the two main risk factors of breast cancer, thus all women are susceptible to the disease.

For other women in this study, their compliance to their doctor's recommendation was coupled with another cue, symptoms. It cannot be concluded that these women would not have participated in mammography screening with just a doctor's recommendation and no apparent symptoms, but coupled with a symptom women in this subset stayed faithful to repeat mammogram screenings. P48 stated, "My doctor recommended them because I have fibrocystic tumors...I was switching off every 6 months between mammograms and ultrasounds." The intersection of these cues influenced women in this subset to come for screening every six months. P78 stated, "My doctor recommended them because of my fibrocystic lumps." Again, a personal level risk was perceived by these women from their symptoms thus they complied with screening guidelines specific to their breast health. A doctor's recommendation was also influential when coupled with a family history of breast cancer. "My doctor recommended mammograms; both of my sisters had breast cancer and one died from the disease" (P34). Similarly, P10 stated, "My doctor recommended mammograms and my sister had breast cancer." These quotes illustrate the additional influence of other cues coupled with a doctor's

recommendation. Family history and symptoms added evidence of susceptibility to the disease for some women, which increased screening behaviors.

Another form of a personal level risk illustrated was the combination of a doctor's initial recommendation for screening and a recall on the previous mammogram. Women reported being prompted to return for screening because of a recall on their previous mammogram. After being asked why they were having regular mammograms these women volunteered this information:

P33 stated, "I was recalled the year before to have another picture taken of my left breast."

P35 stated, "I was recalled on my previous mammogram."

Possibly the scare of a previous abnormal mammogram made mammography screening an important component of these women's breast health. Symptoms of breast cancer make the disease personal especially if there is suspicion over a particular spot or lump on a woman's breast. Their anxiety about the recall did not hinder them; they returned for another screening. These results indicate that for the women in this category, a doctor's recommendation alone is influential and coupled with a symptom or a family history only increased their compliance. The participants recognized both the doctor's recommendation and either a symptom or a family history as influential cues.

All of the women that consented to their doctor's recommendation ($n=56$) revealed a trust leading to action based on health advice from a doctor. For example, "My doctor told me it was good to have mammograms every year" (P24). Doctors have been deemed the most influential component of mammography screening compliance and these women ($n=56$) echoed those findings of previous researchers.

I was having yearly mammograms because my doctor recommended them. (P61)

My doctor recommended them. (P26)

Though none of these women verbally stated, "I trust the advice of my doctor," all of their actions of compliance to a doctor's recommendation spoke this trust. None of these women voiced any questions towards following the advice of their doctor's they all responded accordingly.

My Doctor Told Me It Was Nothing to Worry About

Just as a recommendation from a health care practitioner can lead to positive health behavior by a patient, it can also have the reverse effect. Advice from a health care practitioner can also lead to distrust, disillusionment, and discouragement:

I had yearly mammograms. I had my mammogram in January and in September I found a lump while doing BSE. I called my gynecologist and he said it was nothing to worry about that I had a history of fibrocystic tissue. So I waited. In November I called my primary care doctor, he got me an appointment and I had cancer. (P13)

This woman received poor advice from her HCP and as a result had her cancer diagnosed late causing fewer treatment options to be available. She was not passive in her approach but instead exhibited ownership of her health (e.g. “I had my mammogram, I found a lump, I called my doctor”), but she trusted her doctor and took his/her advice (e.g. she didn’t worry about it; she waited), and as a result she was disappointed. Two months later, the lump was still there, she had lost some faith in her doctor and went to a different HCP. Her symptom spurred her to take further ownership of her health and seek care. She was not alone in her experience. P80 and P81 along with others had similar experiences:

My mom was diagnosed with breast cancer and her doctor told her to tell her daughters to get a mammogram. So, I asked my doctor for a mammogram and he said, no, that when I turned 35 I could have a baseline mammogram. Seven months later I felt a lump on my breast and had a mammogram. I had to have a radical mastectomy. (P80)

I was having regular mammograms. Six months after my mammogram I thought my nipple looked distorted. My doctor thought it was just an infection and gave me some cream. After waiting 3-4 months a biopsy determined the spot malignant. (P81)

The advice of a health care practitioner was undoubtedly influential among the participants in this study. The sizeable number ($n=56$) who reported a recommendation from a health care practitioner leaves little room to dispute this conclusion. The incidental side of this is that many of these women perceived their doctor to be in control of their health. Many health commercials say, “Consult your doctor before trying this.” These women consulted their doctor but were devastatingly misled. Unfortunately, the trust a patient can place on a health care practitioner leaves little room for failure. For these women this failing was detrimental; it caused them to

wait for necessary care leading to more radical procedures and less treatment options. This trust is based on one recommendation from a doctor; one sentence for one life.

Interestingly, although considerable trust and value were reportedly placed on a recommendation from a HCP as illustrated by numerous respondents, for some it still wasn't enough to motivate them to action. As seen in the literature often barriers can deter patients from pursuing the benefits of preventive screening. The following are a few of the barriers revealed in the interviews: "I thought I was healthy, I didn't think it would happen to me" (P68). This woman had a false-sense of self causing denial in her assessment of her breast cancer risk. Barriers (e.g. negligence, false-beliefs, and false-sense of self) prevented some women from pursuing a mammogram even though their doctor recommended them. "I didn't want to be bothered by it and I didn't think the x-ray was safe" (P40). Different mentalities are underwritten in these responses. P40 had a belief that the x-rays are just as bad for a woman as breast cancer. This may reveal a lack of perceived severity for the disease as well as a false belief that x-rays are as detrimental to a woman's health as breast cancer.

Barriers can be found in women's attitudes and beliefs, not just in access or cost issues and this is a vital area for health communicators to intercede. Women in this study expressed attitudes that were barriers to care: "Just negligence I guess" (P32), "I just forgot, I wasn't thinking about my health" (P50), "I lost faith in them" (P69). P32 and P50 weren't thinking about their health indicating a lack of both perceived susceptibility and severity and P69 had lost faith in mammograms. Often a deterrent to preventive screening is the thought that, "if there is nothing broken, why fix it?" In a sense this mentality plagues our community and can hinder preventive health initiatives. If nothing hurts and there is no problem, why worry with these procedures; the long-term scope is the picture health communicators have to paint.

For these women, although they received a doctor's recommendation, inevitably a symptom of breast cancer prompted them to have a mammogram, which is what preventive screening is trying to prevent. Just as a recommendation from a health care practitioner can be motivation for mammography, the lack of a recommendation was also noted as a barrier.

No Dr. Recommendation

Women ($n=6$) reported that the lack of a doctor's recommendation was a barrier to seeking care. For example one participant said, "I never had a mammogram, my doctor never recommended it" (P73). This woman reported that the lack of a doctor recommendation contributed to her not pursuing mammography sooner. P82 and P2 report similar situations:

I heard they were uncomfortable and my doctor never recommended them (P82).

I never thought about it and my doctor never recommended it (P2).

As found in the literature, a doctor's recommendation is the most influential cue for women to seek a mammogram and without one many women do not participate in mammogram screening (Lauver et al., 2003). Thus said, the lack of a doctor's recommendation was reported as a barrier. Further illustrating the influence of a doctor's recommendation in making the disease personal; these women did not know they needed a mammogram

Research Question #3

Research question #3 asks: What role do participants perceive their social network in prompting them to participate in mammography?

Advice that complimented personal fears seem to influence the women in this category and became a barrier to screening recommendations. As seen in the literature, frequently reported barriers to mammograms are pain and fear. Both of these barriers were communicated in these answers coupled with a friend or relative affirming these fears, causing these women to remain unscreened:

I was afraid; people had told me horrible stories about them. (P47)

I was afraid of them because I had heard people talk about them. (P75)

P47 and P75 first voiced that they were afraid and then revealed that they had heard mammograms were bad. These women's fears were affirmed by other women's experiences resulting in lack of compliance to mammogram screening. Only one woman reported her social network to prompt her to have a mammogram:

My family insisted that I have a mammogram. (P23)

Women responded to a friend's advice similar to how they responded to a doctor's recommendation. Participants took their relatives' word. P82 stated, "I heard they were

uncomfortable and my doctor never recommended them.” She “heard” that mammograms were painful and since her doctor never made her risk of breast cancer personal (“my doctor never recommended them”), she didn’t feel the need to pursue the test. Fear without contradiction led to complacency in the women in this category. For example, P7 states, “My daughter-in-law told me they were terribly painful and I have a fear of pain so I never went to have one.” Social network appeared to be effective without intersections from other cues based on these women’s comments. “My daughter-in-law told me,” “I heard people talk about them,” “people told me horrible stories.” In this study, the influence of social network was as effective as that of a doctor’s recommendation, yet it was detrimental to these women’s health. These women received advice that detonated their perception of their risk of the disease by focusing on a barrier (pain) instead of the benefits of screening. It was a symptom, in the end, that prompted these women to have a mammogram. Their social network inevitably participated as a barrier preventing them from seeking care.

Research Question #4

Research question #4 asked: What role do internal cues seem to play in prompting participants to seek a mammogram? Forty-three of the 88 women interviewed expressed the role of symptoms as a cue to action in having a mammogram; namely diagnostic mammograms. Symptoms were subcategorized in three ways: (1) “suspicious spot,” (2) “putting the disease first,” and (3) “semiannual appointments.” Suspicious spots or symptoms had two effects on women: (1) the women accepted their doctor’s advice and returned in six months, and (2) the women put their breast health first and actively pursued a diagnosis.

Suspicious Spot

The main symptom reported by women was a “suspicious spot.” These symptoms retained women to continue screenings; sometimes they were screened every six months:

On my previous mammogram they took a biopsy of a “suspicious spot” but found nothing. When I returned in six months the lump was diagnosed as malignant. (P23)

Common practice in cancer diagnosis is to keep a close eye on a “suspicious spot.” This practice was reported frequently by women in this study indicating that suspicions of breast cancer

retained these women to continue screening as well as to heed their doctor's advice by returning semiannually. This was illustrated by P84 and P33:

There was something suspicious on my mammogram so the doctors watched it for six months and then the cancer was detected. (P84)

The previous year I was recalled to have another picture of my left breast. That's the breast where my lump was detected. (P33)

These women revealed no questions about their diagnosis. "The previous year I was recalled to have another picture of my left breast. That's the breast where my lump was detected (P33)." Although recall (i.e. asked to return for further tests) is a common procedure that occurs after mammography screenings, not one of the women fitting into this category contested her doctor's recommendation to wait six months. No one reported pursuing a second opinion or questioning her doctor's advice; every woman in this category accepted her prognosis and returned in six months or a year. Symptoms did work to retain women in order to continue their screening regimen and ultimately their cancer was detected.

Putting the Disease First

This category illustrates how a symptom can evoke perceived susceptibility in a woman causing her to put her health first. Symptoms not only retained women for repeat screening, symptoms also initiated action in women. P76 states, "I usually had regular mammograms, but I was really late having this mammogram because some things came up. My breast became sore though and it was draining and bleeding so I made an appointment with my doctor and he scheduled me a mammogram." P76 was late for her mammogram because some other things had come up. The symptoms that she experienced moved her health to the front of these "other things." The following examples show similar results; symptoms initiated action:

I tend to run as far away from doctors as I can, but my gynecologist insisted that I have a mammogram so I did. There was a suspicious spot on the results and so I went back in six months for another one. After my lump was determined malignant I have had yearly mammograms. (P40)

P40 was not having mammograms but due to a suspicious spot she decided to go back for another one in six months. For a woman who, "tends to run as far away from doctors" as she

can, two appointments in six months was a huge commitment and as a result of her diagnosis she now goes every year. Her health became more important than her feelings towards doctors because of a symptom. Symptoms made health important for women all across the screening continuum:

I was having yearly mammograms but I scheduled this one early because I was having some pain. (P42)

P42 was having yearly mammograms but rescheduled her appointment due to some pain she was feeling. Symptoms were exhibited as a cue to action. Of the three women above, (P40) was not having mammograms and decided to based on a symptom; (P76) was having them irregularly and decided to based on a symptom; and (P42) was having them regularly but chose to schedule an early appointment based on a symptom. Symptoms spoke to women in all three stages of the screening continuum (e.g. never had mammogram, have mammograms irregularly, have regular mammograms). Obviously a symptom of breast cancer (e.g. lump, pain, abnormalities) is not desired but the outcome in which symptoms achieved (spurring women to have a mammogram) was effective.

Semiannual Appointments

These women were being watched closely by their doctor due to fibrocystic tumors. Twelve women in this study reported fibrocystic tumors. Fibrocystic tumors were reported by ($n=6$) women between the ages of 50-64, ($n=5$) women less than 50, and ($n=1$) woman 65 years and older. Fibrocystic tumors generally disappear after menopause as evidenced by these age separations. These examples illustrate the perceived susceptibility of these women and their doctors concerning breast cancer due to fibrocystic tumors:

I had fibrocystic tumors and was switching off every six months between mammograms and ultra sounds. (P48)

Symptoms defined for each of these women a “perceived susceptibility” to breast cancer by alarming themselves and their doctors to take added precautions. The HBM predicts that as an individual’s level of risk assessment regarding a disease increases, chances of compliance with recommended screening guidelines would also increase (Mattson, 1999). This is further seen in the following examples:

I was having semiannual mammograms because I had fibrocystic disease (P18).

I had fibrocystic disease and my doctor told me a long time ago that I would eventually get cancer. I was seeing my doctor every six months for CBE and having yearly mammograms. (P30)

The subcategory “Symptoms and HCP recommendation” was the most commonly identified combination of cues spurring women to mammography. Nineteen women reported being influenced by both a symptom and a recommendation from a HCP. Looking closer at these women’s stories, it became clear that a recommendation from a health care practitioner was most commonly attributed to initial and repeat screening and symptoms were more prevalent in diagnostic screening.

Family History: An Emergent Category

It runs in my family. Having breast cancer or cancer in general in the participants’ family was not a cue originally identified or researched for this study but was repeatedly reported as a motivating factor in mammogram screening. This theme emerged in this study with several women ($n=13$) reporting cancer in their family as a reason for pursuing mammograms.

P10 stated, “I’ve been having yearly mammograms ever since my sister was diagnosed with breast cancer.” P10 expressed that since her sister was diagnosed with breast cancer; she recognized her susceptibility to the disease and went for her mammograms. P62 and P34 equally expressed this knowledge of their personal susceptibility to breast cancer based on a sibling or mother’s experience with the disease:

“One of my sisters’ died of breast cancer and my other sister was recently diagnosed. I’ve been having yearly mammogram forever” (P34). By examining P34’s response it is evident that as a result of one sister’s death from breast cancer and another sister’s recent diagnosis, she was committed to having yearly mammograms based on her perceived susceptibility and severity of the disease. Breast cancer can be genetic and women have great reason for concern when it appears in their families. An example of this concern was illustrated by P62: “Breast cancer runs in my family so I decided to start having mammograms.” Women in this subset communicated that this concern led them to action (i.e. having a mammogram). Women in this subset also indicated that breast cancer in the family initiated proactive responses when risk factors of the

disease came “close to home.” The women in this subcategory took ownership of their health by pursuing preventive screening due to the experience of a family member. The following women responded proactively (i.e. initiated a diagnosis instead of waiting) when perceived susceptibility was high, impart due to their family history of cancer.

Proactive Responses

Proactive responses were common behaviors among women with a family history of breast cancer. For example, P5 states, “My mother had breast cancer and I was told that I had some calcifications but to just wait because they didn’t think it was anything to worry about. I said why don’t we find out for sure that it is not cancer instead of waiting. It turns out I had cancer.” This woman was given a diagnosis “some calcifications,” and told to, “just wait.” Instead of agreeing with this health advice from a HCP, she took ownership of her health and demanded a malignant/benign diagnosis of the calcifications. This is very different from the responses previously heard from the women that did not have a family history of cancer but had symptoms of breast cancer and were told to wait six months to a year for further evaluations. For example, P33 said, “The previous year I was recalled to have another picture of my left breast. That’s the breast where my lump was detected” (one year later). The women with a family history of breast cancer in this subset were not willing to “just wait:”

My brother died of stomach cancer so I thought I better feel around and I felt a lump on my right breast. I had never had a mammogram before. (P2)

Even though her brother’s cancer is not related to hers, P2 recognized cancer in the family as alarming and reacted by performing breast self-examination (BSE). Her brother’s experience turned her knowledge (cancer runs in family) into action (performing BSE). This action was repeatedly reported as a result of a family history:

My mother and sister were diagnosed with breast cancer so I asked my doctor to set up an appointment. (P74)

P74 did not even wait for her doctor to recommend screening to her; she recommended screening to her doctor. Previously in the stories listed in the analysis of “a recommendation from a HCP,” multiple women reported having mammograms solely because their doctor recommended it.

This woman is reporting recommending her mammograms to her doctor. She took ownership of her health based on the history of cancer in her family.

The women with a family history of breast cancer were spurred by the devastating experience they witnessed of their loved ones. These women knew the risk and the risk was personal because breast cancer can be genetic. Fear of the disease did not encumber them but spurred them to action. Cancer in the family, specifically breast cancer, alluded to more proactive responses to “suspicious lumps” and “spots” on mammograms. These participants seemed to know the severity of cancer; specifically breast cancer and as a result wanted to detect any possible lumps early rather than late.

Mammograms Save Lives

Another theme that emerged from these interviews was feelings of betrayal after being told, “mammograms save lives” from doctors, campaigns, and media messages, yet their mammogram missed their lump. The false negative rate (10-15%) has been a deterrent keeping physicians from recommending mammograms and has been a source of dissatisfaction for women when breast lumps, masses, or calcifications fail to show on mammograms (Hollingsworth, Taylor, & Rhodes, 1993). Fifty percent of the women between the ages of 50-64 were having regular mammograms but self-detected their lumps. One woman stated:

I was having yearly mammograms. I had a mammogram and an ultrasound in November of 1999 and was told everything was normal. I found a lump on my breast in the shower in March of 2000. I was sure it was nothing since I just had a mammogram...I waited 4 months to go to the doctor...the mammogram caused me to ignore my lump. (P6)

Often too much confidence is placed in the efficacy of mammograms (e.g. “I was sure it was nothing since I just had a mammogram”) and that is why breast self-exam (BSE) (remind reader) and clinical breast exam (CBE) (remind reader) are the other two components to maintain breast health. So much controversy revolves around mammogram efficacy, and these women’s experiences illustrate the discouragement and dissatisfaction caused by believing that “mammograms save lives.” P65 and P57 report similar experiences:

I was having yearly mammograms and I perform BSE monthly. I thought the lump was just an injury from working so hard. The lump kept growing so I called my doctor. (P65)

It was obvious, it got real sore, but I kept thinking it would go away; I just had a mammogram six months ago. (P57)

Discouragement and helplessness were expressed by these women during the interviews. They believed that mammograms worked and, therefore, disregarded possible symptoms.

Mammography is the best method today for detecting breast lumps early, but it is not 100% accurate. False-positive results falsely alarm women and false negative reports falsely put women at ease. These results reveal an ungrounded trust in health care and in systems that are not fully trustworthy. These results also reveal that when perceived susceptibility is low, women are less likely to seek care.

Possible Reflections of the Limitations of Retrospective Interviews

I just did it. “I just did it,” was another theme that emerged from the interviews. Lack of recall towards the actual cue, which gave knowledge or spurred action, was ‘forgotten’ by four of the women in the study. These women reported “just knowing” they needed a mammogram. This knowledge has to be attributed to a source, but none of the women could identify where this knowledge came from; they just knew. Often media messages are heard and listened to but not identified as the source. Women reported:

I just did it; I don’t remember if my doctor recommended them or not. (P27)

I just had them because I knew it was the thing to do...I am pretty aware of how to take care of myself. (P29)

I just decided to go for them myself. (P22)

This is a limitation to retrospective interviews in which women recall ‘cues’ that they received spurring them to have a mammogram. Based on all that the women have been through that participated in these interviews, it is surprising that only a few could not recall the cues that they perceive to have received prompting them to have a mammogram.

The categories and themes represented here reflect the analysis of this research. Mass media, HCP recommendation, Social Network, and Symptoms were all regarded as cues to action from these women. Family history also emerged as an influential cue to action for the women in this subset. These results garner evidence of the need to further research the influence cues to action have on screening behaviors.

In summary, the health belief model and its three main components (perceived severity, perceived susceptibility, and perceived barriers) were each addressed by different cues to action in the research, thus depicting the influence of cues to action on the Health Belief Model. Cues have been slightly ignored in the study of this model and this research gives ample evidence that cues play an important role in addressing the main components of the HBM. Without these cues it seems that screening would not have taken place in many of these women's lives. Cues to action, provoked perceived susceptibility and severity in these women as was recorded through these interviews. The HBM is a vital component of health messages and should be further researched in similar contexts.

CHAPTER 5

DISCUSSION

Previous research provided little insight into the impact of cues to action on the Health Belief Model and on spurring women to participate in mammography. This study does not represent women as a whole, as it is just a subset of society, and, therefore, no conclusions can be made concerning the HBM or cues to action. Although, through a systematical exploration of the data, results revealed that when perceived threat and severity is high and perceived benefits outweigh perceived barriers, cues prompted some women to seek mammography (as indicated by the HBM) (Stretcher et al., 1997). This study adds ample evidence that internal and external communication cues impacted these women's decisions to have a mammogram and presents reasons to further investigate the effects of communication cues to action in prompting women to participate in mammography screening.

This research was led by four research questions concerning internal (symptoms) and external (media influence, HCP recommendation, and social network) cues to action. Data were qualitatively analyzed through an interchange of thematic content analysis and grounded theory. The influence of a family history emerged as a major overarching category from the interviews. Eighty-eight individual interviews were conducted and analyzed for the impact of cues on screening behaviors. The women ($N=88$) were from Tennessee ($n=69$) and Virginia ($n=19$) and were recruited through local cancer centers.

Considering this is a qualitative study consisting of a small number of participants ($N=88$), it was not the goal of the study to test the effectiveness of the Health Belief Model nor is the intention to draw generalizable conclusions based on the impact of cues to action on the HBM or in initiating health related behavior. This study sought to explore the notion that cues to action are an influential component of the health belief model and are vital in initiating health behavior action in women towards mammography. Given this, the results of this study do complement the health belief model in all four of the cues to action explored in this study and will be explained in further detail throughout this chapter.

Influence of Internal and External Cues to Action on the HBM

This discussion represents the results found in the data and serve to represent the effects of internal and external cues to action on the women in this subset. The data explored here compliments the Health Belief Model as a practical theoretical framework to study health related behaviors. The findings presented here in the context of the external and internal cues to action revealed influence upon the four components of the HBM. For example increased barriers revealed decreased screening behaviors as heard from the participants: “I didn’t have insurance” (P16); “My doctor never recommended it” (P73); “I thought I was healthy” (P68); and, “People had told me horrible stories about them” (P47). The increased barriers prevented these women from pursuing breast cancer screening and ultimately a symptom spurred them to seek care. Increased susceptibility also increased screening behaviors in some of the women in this study. A doctor’s recommendation was the greatest example of this with P61 stating, “I was having yearly mammograms because my doctor recommended them.” Symptoms also increased susceptibility to the disease spurring preventive screenings.

The opposite was true as well; decreased susceptibility resulted in decreased screening. Unfortunately this was seen in women who were participating in screening mammograms, but self-detected their lump after a normal mammogram report. P81 stated, “I was having regular mammograms. Six months after my mammogram I thought my nipple looked distorted. My doctor thought it was just an infection (because my mammogram was normal) and gave me some cream. After waiting (an additional) 3-4 months a biopsy determined the spot malignant.” The normal mammogram reports lowered these women’s perceived susceptibility to breast cancer causing them to delay care when symptoms arose. Symptoms and a family history also illustrated components of the HBM with increase susceptibility and severity prompting increased screening behaviors. For example, P34 stated, “One of my sisters died of breast cancer and my other sister was recently diagnosed. I’ve been having yearly mammograms forever.” Seeing the effects of the disease on family members increased the participant’s knowledge of breast cancer thus causing increased susceptibility and severity prompting screening behaviors.

Media Influence.

Summary of the Results

Media messages seemed to influence the women in this subset in three ways: (1) educate and empower, (2) coupled with another cues media were highly influential, and (3) Media can be controversial and women are being informed by these messages. Media were effective in raising risk awareness, educating, and spurring women to have a mammogram. Further explorations of media as a cue to action are needed to better understand how women are affected by campaigns, magazine articles, and news stories, to name a few of the media venues targeting women.

Implications of Media influence

Research has revealed that the most effective messages and campaign functions have relied on the mass media to disseminate information about health behavior changes or initiatives in order to increase awareness and then interpersonal communication and education programs are implemented to further persuade individuals to adopt the innovation that the mass media disseminated (Valente & Saba, 1998). Flora (2001) reports that media messages combined with interpersonal communication are often more effective than media messages alone. This could possibly be an implication of media's influence on women toward health behaviors; another cue may be necessary to prompt action. Awareness does not always equal change and although media does an excellent job of promoting mammograms and informing women of their need to participate in mammography screening, often the advice is not heeded. Awareness is one of the first steps to behavior change and media messages, campaigns, and initiatives have consistently targeted women with mammography messages (Valente & Saba, 1998). Unfortunately, many health promotion and health education efforts targeting behavior change do not typically reach minority and economically disadvantaged communities, leaving these individuals even less equipped to make health behavior decisions (O'Malley et al., 1999). This limitation could be detrimental to raising awareness and educating women in rural areas, specifically Central Appalachia.

Another implication of media influence is its ever-changing nature due to medical findings and discoveries. Mammography reports are often controversial and result in women

wondering if they work or if they do not work. This could limit participation in the procedure. Media messages, specifically news stories, have been criticized for highlighting controversial issues in health instead of merely reporting the facts. This could contribute to the lack of numeric responses reporting the influence of media messages in motivating participants to have a mammogram. The women that reported the media as influential in their choice to participate in mammography were deeply affected by the message, but the media have questioned the safety of mammograms, the efficacy of mammograms, and the importance of mammograms based on the information from recent medical journal reports (Nekhlyudov & Partridge, 2003). It has been reported that, “Some scientists have challenged the utility of mammography for women younger than age 50 years and even for women at any age. Emerging from these debates is a growing consensus that to make good decisions about screening, the public needs access to balanced information about its potential benefits and harms” (Shwartz, Woloshin, Fowler, & Welch, 2004). In this study, trust was revealed as a key component of receiving information and acting on it. Since health information repeatedly changes based on advances in research, and because media tend to report controversial components of health initiatives, it would be beneficial to know more about what women think of the media and if they trust the reports that they hear in the media based on its’ ever-changing nature.

Future Research

As stated above, an aspect of this study that, with further research, could be highly effective in planning health messages is the question: “Do women trust the media?” Journal articles have suggested that the information and messages media report are often skewed, that it highlights some areas of research over others, and that it is ever changing, making the recommendations for health screening hard to follow. This study, along with many others, reported the influence of a recommendation from a health care practitioner as strongly associated with women’s compliance to mammogram screening. This influence stems from a trust and a respect for a doctor’s knowledge and belief in a health procedure. It would be interesting and beneficial to know if women place this same trust in the media.

The Influence of a HCP Recommendation

Summary of the Results

Multiple women ($n=56$) in this study ($N=88$) attributed a recommendation from their HCP as an influential factor in pursuing mammography. Some of the women in this study revealed a sense of a personalized risk as a result of a doctor's recommendation. A recommendation from a health care practitioner revealed to these women that they were personally susceptible to the disease and by recommending a mammogram the HCP revealed support of the procedure. A recommendation from a doctor was perceived as personal thus creating an awareness of a personal-level risk of the disease, which in turn prompted mammogram screening in some of these women.

As seen in this study, barriers can eliminate the influence of cues by dissuading women from complying with mammogram screening by turning their focus to the perceived negative consequences of the health-related behavior. The barriers reported as deterring women in this study from pursuing mammograms were lack of insurance, lack of a recommendation from a HCP, negligence, stories, misperception of the danger of x-rays, and not thinking of their own health. These women had a misperception of their risk and attributed this misperception to their barriers. As seen in the literature, the lack of a recommendation from a HCP was also noted as a barrier to mammography screening. The disease was not made personal these women. This indicates that a doctor's recommendation seems to raise perceived susceptibility for some women spurring or deterring them to have a mammogram based on a recommendation or a lack of a recommendation from their HCP.

Interestingly, a doctor's recommendation was not always reported affirmatively. Women indicated feeling a decreased susceptibility to the disease due to a 'normal' mammogram report and as a result recounted a lower rate of repeat follow-up screening because they 'trusted' the mammogram report and their doctor's advice to, "just wait." Just as increased susceptibility increased screening, decrease susceptibility decreased screening.

The Implications of a HCP Recommendation

Research has shown (and it was revealed in this study) that a doctor's recommendation is one of the most influential cues to action for women seeking mammograms (Bickell, 2002). Lauver et al. (2003) reported that the recommendation of a mammogram by a health care practitioner is one of the strongest predictors of mammography use in women. This was also said to be true for low-income women as well and similarly the lack of a HCP recommendation is reported for not obtaining mammograms (Lauver et al., 2003). These research findings were also evident in this study.

Alarmingly, this study revealed that some women rely on their doctors' so heavily that they do not take ownership of their health. This can be an implication to the recommendations women receive because doctors and mammograms are not always 100% accurate. Rural women are typically less educated than their urban counterparts and this could contribute to their high regard for their doctor's recommendations or lack of recommendations. Bryant and Mah (1992) found that rural women are less likely to receive a recommendation from their doctor as are urban women. This could be attributed to the high turnover rates of doctors in rural areas or the use of clinics instead of private practices. These implications to rural health care could negatively affect women from pursuing preventive services.

Future Research

As seen in this study and in many previous studies, a recommendation from a health care practitioner is the greatest motivator to promote mammography screening. Bickell (2002) reported that even though physicians have been credited as a source of influence turning knowledge into action for women and screening mammograms, little interventions have targeted physicians. This is a crucial aspect of the "fight for the cure." If women all across the country are attributing their compliance to screening mammography to a recommendation from a health care practitioner, there needs to be more pressure placed on doctors to recommend this health behavior. Many physicians have reported that if they do not think a woman can afford a mammogram, then they won't recommend it. Despite this belief, women without insurance are having mammograms solely on the basis that they received a mammogram recommendation

from their doctor. Doctors need to be aware of the trust women are placing in their recommendations and the influence their recommendation has in making this disease personal.

Influence of a Social Network

Summary of the Results

The women in this category overwhelmingly received encouragement to avoid care instead of to seek it. The influence of a social network in this study lowered women's susceptibility to the disease and their perceived severity of breast cancer by affirming their fears. In doing so, the barriers to screening increased (i.e. pain, discomfort, etc) and women did not pursue screening. Information from these women's social network was just as influential as a doctor's recommendation (for the women fitting in that category), prompting behavior that fit the recommendation. Unfortunately the influence of a social network in this study served as a barrier to care instead of a promoter of screening.

Implications of a Social Network

Kang and Bloom (1993) suggest that social networks can play an important role in the use of preventive screening. Studies have also shown that friends and family are the most influential sources of health-related information (Hurdle, 2001). They report that interaction within one's social network may encourage a decision to seek or avoid cancer screening. This was evident in this study and was found to be very detrimental to some of the participants. Researchers have found that residents in Appalachian communities tend to get their health information from friends and family members, not health care practitioners (Burman & Weinert, 1997). This could be a major implication if experiences, false beliefs, and fears continue to infiltrate social interactions. Beliefs and experiences have also been found to predominantly circulate through informal networks and have been said to have a tendency to spread quicker than actual facts (Bernardi, 2002). This is a major implication of the influence social networks have in rural settings.

Future Research

Unfortunately, advice, stories, and communication of personal fears or experiences of cancer screening can negatively affect other women who relate to these fears and experiences and these stories seem to spread quickly through social circles (Kang & Bloom, 1993). Based on this study, more research is needed to better understand women's social network in order to educate women on the facts to counteract the bad experiences and false beliefs that entangle social circles. These women believed their peers and family members and if misinformation continues to be spread through social circles it could be damaging to mammogram screening and to women's health as a whole. Studies show that women prefer to receive health information from friends and family (Hurdle, 2001; Marshall et al., 1995) and that interaction with one's social network may affect the decision to seek or avoid cancer screening (Kang & Bloom, 1993).

A challenge for health communicators will be to fight women's poor experiences with mammography or poor experiences with doctors in general, with women-centered messages that initiate action and carry facts to fight fears. As of now, the information spreading through these circles may be damaging current messages and campaigns. Recent research has revealed that underserved minority women, especially Hispanic women, have strong social networks that tend to have positive effects on their cancer screening participation (Suarez et al., 2000). Further research in Hispanic populations may garner more information on how to better target social networks to promote mammography screening. A larger sample or more defined sample of research may provide different results, but the research presented here deserves future initiatives to aid in health promotion efforts.

Symptoms

Summary of the Results

Women reported 'suspicious spots' as the main reason for a repeat screening or biannual appointment keeping them aware of their breast health. Like the HBM suggests, increased susceptibility (a symptom), increased severity (recognizing the disease as serious), and increased benefits (realizing that early detection garners greater hope than late detection) helped influence these women to return in six months for screening. Again, these women trusted the advice of their doctors and took their word for the assessment of their breasts by returning in six months.

Symptoms not only influenced women for repeat screening, but symptoms also initiated action in women. Symptoms prompted increased susceptibility and severity of the disease by making breast cancer personal. This lowered barriers and increased screenings. For example, women who ignored a doctor's recommendation, listened to poor advice from a friend or family member, or allowed barriers to outweigh the benefits of mammograms, ultimately were diagnosed with breast cancer because of a symptom. These women represented symptoms as a diagnostic cue instead of a preventive cue to action.

Implication of Symptoms

Although symptoms were reported as prompting women to take action, symptoms do not occur in every breast cancer patient and often lumps are self-detected at a later stage than a mammogram can detect. Psychological factors, such as feelings and beliefs, can influence women's behavior regarding breast symptoms resulting in either forcing these women to put their health first or causing increased anxiety or fear in women resulting in delay of seeking care (Lauver et al., 1995). Symptoms are not the ideal cue to initiate action, they are more of a last resort because symptoms are in fact what preventative screening is trying to prevent. Mammograms can detect breast lumps up to two years before any signs or symptoms (Champion, 1999) and often self-detected lumps are in a later stage and result in less treatment options. Therefore mammograms, clinical breast exams and breast self-exams are all three components proposed to ensure breast health

Because perceived vulnerability is believed to be related to screening participation, and symptoms of breast cancer increase one's vulnerability to the disease, data have shown that symptoms predict higher screening rates (Taplin, Anderman, & Grothaus, 1989). This was seen in this study through screening retention and diagnostic screening procedures. Often there is later stage diagnosis of breast lumps in rural communities, mainly due to self-detected lumps. Later stage diagnosis leads to less treatment options and lower survival rates causing self-detection of lumps to be an implication to the benefits of preventive care.

Future Research

Future research for symptoms relates to the suggestions for the external cues to action. Health communicators must learn how to effectively target women in such a way as to prompt action. This influence can be found through media efforts, a recommendation from a HCP and/or interactions within a social network.

Family History

Summary of the Results

Perceived susceptibility and severity was expressed through these women's experiences of seeing a relative suffer from the disease (severity) and knowing that cancer can be genetic (susceptibility) as well as personalizing the disease through a lump or abnormality. A family history of cancer can also lead women to take ownership of their health and react proactively when their breast health is in question. The women in this study with cancer in their family seemed to know the severity of the disease and were taking added precautions to sustain their breast health.

Implications of Family History

Vogel et al. (1990) reported that risk perception is influenced strongly by having a mother, daughter, or sister affected by breast cancer. This was true among this subset of women. Breast cancer can be genetic, and there has been ample evidence that women's risk increases when breast cancer runs in the family (NCI, 2004). Although there is an increased risk of women with a history of breast cancer, heredity is the most frequently cited reason for perceived risk of the disease (Vernon, 1999). Research also suggests that women who have been informed of the disease through the experience of a family member have a greater perception of their own risk based on observing the severity of the disease (Absetz, Aro, & Sutton, 2003). This has also been associated with increased mammography screenings. The women in this study with cancer in their family seemed to know the severity of the disease and were taking added precautions to sustain their breast health. The women in this subset acknowledged family history of breast cancer as a motivating factor in their screening behavior. More women believe that they are at risk of breast cancer as a result of a family history of the disease. This perceived risk of the

disease prompts screening but it also increases personal anxiety about developing breast cancer. Media have exaggerated the risk of family history to some degree and fear of breast cancer can prompt or discourage a woman to pursue care.

Limitations

The results of this research are limited geographically to an area in the Central Appalachian region of the United States. Further, this study is not a random sample and represents only a small subset of society. All of these women had been diagnosed with breast cancer and were either having regular mammograms or had had one as a diagnostic tool. Women not participating in mammography or participating for the first time may provide different cues and barriers. Additionally the answers given in these interviews were based on self-report in recalling perceived cues. Although self-report has been shown to be valid in numerous studies, Champion, Menon, McQuillen and Scott (1998) report two errors in recall: (1) non-deliberate recall and (2) deliberate misreporting. Often if there is a socially desired response (e.g. yearly mammogram screening) deliberate misreporting occurs. The two most recurrent examples of non-deliberate recall are (1) underestimating the amount of time that has elapsed since the most recent mammography, and (2) the tendency to over-report compliance with screening. Cues to action have not been reported regarding validity of recall.

Further limitations included the fact that this research originated through a grant and was then adopted by the author. The interviews were not taped or transcribed, leaving room for question on internal validity. The original setting for this research was to be in Breast and Cervical Early Detection Program clinics that served low-income women in NE Tennessee. The study was designed to research the cues to action that prompted women to go for their first mammogram or their first mammogram in the last five years. Unfortunately, due to confidentiality issues inside the Breast Cancer Early Detection Program (BCEDP, 2003) the interviews were not cleared by the Regional Health Department. And then due to time and accessibility constraints these 88 previously conducted interviews (by the author) were assessed to better understand the cues that women with breast cancer perceive to have received prompting them to have a mammogram.

Although this research had limitations, it should not dispute the results of the study. These women should be heard and their stories should be acted upon so that screening behaviors are more preventive instead of reactive. These women know the pain of misinformation, late diagnoses and lack of compliance. They also know the fight for life, the power to endure, and the hope of tomorrow. Their stories are worthy of future research on cues to action prompting mammography screening in women.

Strengths

This research steps into a rich field of information that needs to be further assessed and analyzed in order to more effectively target women in their cultural setting. Every person is different and there is not one sure way to approach mammograms because as Slovic (1987, p. 281) stated, “The anxieties generated by life’s gambles cause uncertainty to be denied, risks to be misjudged (sometimes overestimated and sometimes underestimated), and judgments of fact to be held with unwarranted confidence.” Additionally, breast cancer is a personal disease and each woman is concerned with various aspects of the disease (i.e. death, body image, finances, etc). Media influence, a recommendation from a HCP, influence of a social network, symptoms and family history are all important components for prompting women to have a mammogram. This study steps into each one of these cues, but much more insight is needed in order to better understand how to effectively reach women and prompt them to have a mammogram. This study pulled from the data alarming incidences of social network exhibiting itself as a barrier to care instead of a promoter of mammograms, an immense trust towards a doctor’s recommendation causing women to release their ownership of their health, and women who ultimately responded to a symptom for a diagnostic mammogram instead of seeking preventive care. The interviews also confirmed the influence of a doctor’s recommendation, the awareness media arises, and that symptoms retain women to continue to seek care. These findings could be extremely beneficial to health communicators as they continue to fight for a cure through influential cues that prompt women to take action.

Given the lack of research regarding the impact of cues on the Health Belief Model, efforts to advance health communicator’s knowledge of the influence of internal and external communication cues on preventive screening behaviors are needed in this field to more

effectively promote health initiatives. In addition, research should address different subsets of society (e.g. rural, low-income, minority, first-time screeners, repeat screeners, and diagnostic screeners) to better understand which cues are most influential to certain cultures, people groups, and levels of screening behaviors. For example, this research revealed that a doctor's recommendation was most influential towards first-time and repeat mammograms and that symptoms were most influential towards diagnostic mammograms. Understanding the dynamics of messages at certain stages of screening behaviors may help promoters to better address their audience.

Overall, recommendations are to expand researchers' emphasis on cues to action in order to better understand the sources that women perceive to be trustworthy and to infiltrate health messages through these sources. The Health Belief Model states that if a woman believes she can get breast cancer, and she recognizes that breast cancer is a serious disease; then as long as the benefits outweigh the barriers, compliance to mammography will occur. The majority of research using the HBM has focused mainly on these four basic components of the model and given little attention to the stimulus cues to action provide. This study suggests that further research should adopt the idea that cues to action are highly influential upon compliance to health initiatives. Furthermore, it seems that the influence of multiple cues was highly effective on the women that perceived receiving them and that cues could expand to influence each other. If media effectively promote mammography and create awareness, and health communicators emphasize to health care practitioners the tremendous influence they have upon their patients thus spurring more recommendations to their patients about screening, then conversation inside a social network may be more positively associated with mammogram screening and might initiate action without the presence of symptoms.

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APPENDICES

APPENDIX A

Table 1

The Health Belief Model

<i>Concept</i>	Definition	Application
Perceived Susceptibility	One's opinion of chances of getting breast cancer	Define population(s) at risk, risk levels; personalize risk based on a person's features or behavior; heighten perceived susceptibility if too low
Perceived Severity	One's opinion of how serious breast cancer is and its consequences	Specify consequences of the risk and the condition
Perceived Benefits	One's opinion of the efficacy of the advised action to reduce risk or seriousness of impact	Define action to take; how, where, when; clarify the positive effects to be expected
Perceived Barriers	One's opinion of the tangible and psychological costs of the advised action	Identify and reduce barriers through reassurance, incentives, assistance.
Cues to Action	Strategies to activate "readiness"	Provide how-to information, promote awareness, reminders
Self-Efficacy	Confidence in one's ability to take action	Provide training, guidance in performing action

Appendix B

Interviews

Hi my name is Kate McNeill and I work with Sandi Kindsvater on the Rural Appalachian Cancer Demonstration Project. I know that you have spoken with Sandi before and we would just like to follow up on a few things. We would really like your help in gathering more information on how your breast cancer was detected. Would it be okay for me to ask you a few questions? Is this a good time for you to talk or is there a better for you? (Date_____, Time_____)

I would first just like to confirm how old you were when you found your breast lump?

Did you have a regular doctor when you found your lump?
How often were you seeing your doctor?...What kind of doctor?

Did you have insurance at the time of your detection? YES NO

Was it Private, TN Care, Medicaid, Medicare?

Were you taking HRT when you found your lump?

Had you already been through menopause?

The following questions are regarding your breast cancer detection.

Found Cancer By Doctor

You told us that your breast lump was found by your doctor. Is this correct?

YES NO

1. Was this detected at a routine visit?

YES NO

2. Was your lump found by your regular doctor?

3. What was the next step after finding the lump? (Did he schedule a mammogram for you?)

4. Had you ever had a mammogram before your lump was found?

YES NO

5. (If yes), were you getting regular mammograms?

6. Comments

Found Cancer By A Mammogram

You told us that your breast lump was found through a mammogram. Is this correct?

YES NO

1. Was this your first mammogram?

2. Why did you get this mammogram?

Did your Dr. recommend it?

Had you read about regular Mammograms?

Were you afraid of getting cancer?

3. When was your previous mammogram before finding the lump?

4. Did you get yearly mammogram screenings prior to finding your breast lump?

YES NO

5. (If over 65) Were you getting yearly mammograms prior to being on Medicare?

Regular Mammograms

1. Prior to finding your lump, why were you having regular mammograms?
Were you concerned that you might get cancer?

2. What were the results of your previous mammograms prior to finding your lump?

NORMAL ABNORMAL

Did you ever have a biopsy or any other procedure after a mammogram?

3. When was your last normal mammogram prior to detection?

4. Comments

*Did your Dr. Recommend yearly Mammograms?
Does your insurance cover Mammograms?*

Not Having Yearly Mammograms

1. Lots of women don't get mammograms regularly; can you tell me why you weren't having regular mammograms? (Give examples, pain, cost, time, embarrassment, exposure to radiation, fear, afraid something was wrong, insurance, distance to doctor, etc)
2. Lots of women don't have mammograms; can you tell me why you never had a mammogram?

3. COMMENTS

Appendix C

Table 2

Coding

Component	Example
Label of Category	HCP Recommendation
Description of Category	HCP Recommendation HCP made a reminder call HCP sent out reminders
Text or data associated with category	“My doctor recommended them” “I received reminders from the breast center.” “My nurse practitioner called me to see if I had made my appointment.”

Appendix D

Table 3

Results Separated by Age

Age	Media Influence	HCP Recommendation	Social Network	Symptoms	Family History
<50	1	18	2	18	3
50-64	3	22	3	18	6
65+	0	16	1	12	4

Age	Symptoms / HCP	Symptoms/ History/HC P	HCP/ History	Social Network/ Symptoms	Symptoms / History
<50	9	0	1	2	
50-64	7	1	2	1	4
65+	3	3	3	1	1

VITA

Kathryn Bond McNeill

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Place of Birth: Alexandria, Louisiana
Marital Status: Married

Education: Public Schools, Webster Groves, Missouri
East Tennessee State University, Johnson City, Tennessee;
Sociology, B.A., 2001
East Tennessee State University, Johnson City, Tennessee;
Professional Communications, M.A., 2004

Professional

Experience: Graduate Assistant, East Tennessee State University, Office of Student Life and Leadership, 2002-2003
Research Assistant, Rural Appalachian Cancer Demonstration Program, 2003
Graduate Assistant, East Tennessee State University, Rural Appalachian Cancer Demonstration Program, 2003
Health Communications Intern, National Institute of Health, National Cancer Institute, 2004

Honors and

Awards: Dean's List (1998, 2000)
Scholar Athlete (1998, 2001)
All-American Scholar Athlete (2001)
Gamma Delta Phi (Honors Society)
Athletic Scholarship (1998-2001)