MAGAZINE COVERAGE OF BREAST CANCER IN 1993 AND 2003: A QUALITATIVE CONTENT ANALYSIS

A Thesis

by

NAOMI LOUISE REYES

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements of the degree of

MASTER OF SCIENCE

May 2005

Major Subject: Science and Technology Journalism

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Approved as to style and content by:

Barbara Gastel (Chair of Committee)	Susanna Priest (Member)
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ABSTRACT

Magazine Coverage of Breast Cancer in 1993 and 2003:

A Qualitative Content Analysis. (May 2005)

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Breast cancer has touched the lives of countless people, yet many women have misconceptions about the disease. One of the most common sources for breast cancer information used by American women is popular magazines. The current study sought to describe the content of magazine articles on breast cancer from 1993 and 2003 in an attempt to determine whether article content differed, and if so, in what ways and for what reasons. Topical theme, identification of risk factors, preventive measures, and sources mentioned were categories developed to determine possible differences in content between the two years. Twice as many articles on breast cancer appeared in 1993 as in 2003. In 1993, living with breast cancer was a theme of many articles, while in 2003, hormone replacement therapy was a dominant theme. Family history was emphasized as a risk factor in articles from 1993, while long-term hormone-replacement therapy was emphasized in 2003. In general, articles in 2003 focused on overall health practices in the possible prevention of breast cancer. Social, political, and scientific occurrences relating to breast cancer that took place from the early 1990s through 2003

were considered when analyzing content. Most of the differences in content appeared to reflect such occurrences.

DEDICATION

I could not have completed this thesis without the constant support and encouragement of my husband, Matthew. Thank you, Matthew, for loving me in all the ways you do and for being the man of God you were created to be. I love you with all my heart.

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CHAPTER I

INTRODUCTION

In 2003 breast cancer claimed the lives of more than 39,800 American women, and an estimated 211,300 new cases of invasive breast cancer were diagnosed in the United States. According to the American Cancer Society, an American woman's current lifetime risk of developing breast cancer is 13.7 percent, meaning one in eight women will develop the disease (ACS: Breast Cancer Facts & Figures 2003-2004).

Every day women read facts about breast cancer, followed by messages telling them to get mammograms, perform breast self-examinations, exercise regularly, and maintain a healthy diet to reduce their risk of developing breast cancer. Information about breast cancer such as risk factors, preventive measures, and findings of recent studies about the disease frequently appear in the media.

The media play a large role in the public understanding of many health issues, and the information relayed to the public through the media often influences health behavior (Kreps & Viswanath, 2001; Kreps, 2003). For example, in the early 1970s several well-known women including Shirley Temple Black, Betty Ford, and Happy Rockefeller publicly announced that they had breast cancer, making them some of the first to openly discuss their battle with the disease. Their announcements seemed to trigger increased press coverage about breast cancer, which coincided with a record

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This thesis follows the style of the *Journal of Health Communication*.

number of women calling to schedule mammograms (Corbett & Mori, 1999; Olson, 2002). A similar, more recent example is Elizabeth Edwards' announcement that she has breast cancer. Her announcement in November 2004 appeared to trigger an increase in breast cancer coverage, with a focus on her personal experience.

Knowing the ability of the media to influence health behavior, it is increasingly important to understand the content of the media's messages. Women look to magazine articles as a main source of health information, and breast cancer has been one of the most common women's health issues to appear on the pages of magazines each year for many years (Freimuth et al., 1984; Johnson, 1997).

Since 1980 the incidence of breast cancer has increased each year (ACS: Breast Cancer Facts & Figures 2003-2004). The National Cancer Institute announced in 1993 that an American woman's lifetime risk of developing breast cancer had been recalculated from one in nine to one in eight (Olson, 2002). In 2003, an estimated 211,300 cases of breast cancer were diagnosed, approximately 30,000 less than 182,000 women diagnosed with the disease in 1993 (Blair, 1993). The incidence of breast cancer has continued to increase in recent years; however, fewer women are dying of the disease. Between 1990 and 2000 the mortality rate decreased by 2.3 percent annually (Ries et al., 2003). In 2003, an estimated 39,800 American women died of the disease (ACS: Breast Cancer Facts & Figures 2003-2004), close to 6,000 fewer than the 1993 estimation of 46,000 (Blair, 1993).

As the number of American women diagnosed with breast cancer and the number of women dying of breast cancer have changed in the past decade, and changes have

occurred in scientific knowledge, society, and politics, the question remains of whether the information reported in magazines about breast cancer has changed as well. To address this question, the content of magazine articles from 1993 and 2003 were analyzed. Aspects studied consisted of the inclusion of personal stories, theme, the mention of risk factors and preventive measures, and the use of sources.

Objectives

1. Determine whether the content of articles on breast cancer in women that were published in U.S. magazines in 1993 differs from that of those published in 2003.
2. If differences exist, determine in what ways the content differs, what factors may have caused the differences, and how the findings compare to similar research.

Research Questions

Does the content of U.S. magazine articles published on breast cancer in 2003 differ from that of those published in 1993? If so, what are the differences and what factors may be responsible?

Definition of Terms

The following terms are used throughout this thesis:

- *Risk factor*: "Something that may increase the chance of developing a disease" (National Cancer Institute, 2004). In the case of breast cancer in women, risk factors include increased age, personal or family history of breast cancer, early menarche (start of menstruation), late menopause, having a first child late in life or never having children, smoking, and heavy alcohol use.

- *Preventive measure*: Action taken to prevent disease (Medline Plus, 2004). In the case of breast cancer, preventive measures may include actions taken to reduce the likelihood of developing the disease or dying as a result of it. For breast cancer, possible preventive measures include getting regular mammograms, performing breast self-examinations, breastfeeding, exercising regularly, and eating a healthful diet. In certain cases, an early diagnosis of breast cancer may help to prevent death as treatment would likely take place soon after diagnosis. As some forms of the disease are more aggressive, however, an early diagnosis may have no bearing on preventing death.

CHAPTER II

REVIEW OF LITERATURE

Popular media provide American women with much of what they know about breast cancer. The role of the media includes relaying the results of research on the disease, describing advances in treatment, and promoting fundraising events. Breast cancer is a much discussed topic by the media as well as the medical community, and has been the subject of extensive research. In addition, studies have been conducted on how information about breast cancer is presented to the public and how the public responds to that information.

Background on Breast Cancer

Breast Cancer: "a malignant growth that begins in the tissues of the breast. Over the course of a lifetime, one in eight women will be diagnosed with breast cancer" (MedlinePlus Medical Dictionary, 2004).

Several types of breast cancer exist. In addition, breast cancers are diagnosed at various stages in their development. The type of breast cancer and how advanced the cancer is influence the prognosis. More advanced breast cancers are often defined by how far they have spread to the tissue surrounding the breast or the lymph nodes. The type of breast cancer also influences which treatment regimens tend to be most suitable (Merck Manual of Diagnosis and Therapy, 1999).

Treatments for breast cancer include surgery, radiation therapy, chemotherapy, and hormone therapy. Lumpectomy, mastectomy, modified radical mastectomy, and occasionally radical mastectomy are surgical procedures to treat breast cancer.

Lumpectomy is the removal of only the cancerous tissue plus a small portion of closely surrounding healthy tissue. A mastectomy is the removal of the entire breast. A modified radical mastectomy entails the removal of the entire breast and the lymph nodes under the arm. A radical mastectomy includes, in addition, the removal of the underlying chest wall muscle. Radical mastectomies are now seldom performed, as less invasive and disfiguring surgeries have proven as effective. A woman who has a lumpectomy followed by radiation therapy compared with one who undergoes a mastectomy is often expected to have the same long-term survival (Olson, 2002; ACS: Breast Cancer Facts & Figures 2003-2004). Radiation therapy is used to destroy remaining cancer cells after surgery. Adjuvant or supplemental therapies include chemotherapy, "the use of chemical agents in the treatment or control of disease," and hormone therapy, the "therapeutic use of hormones" (MedlinePlus Medical Dictionary, 2004). Types of hormone therapy include tamoxifen (an antiestrogen drug used to treat breast cancer) and several relatively new hormone-based medications such as trastuzumab (trade name Herceptin) and a combination of capecitabine (trade name Xeloda) and docetaxel (trade name Taxotere).

Some items, known as risk factors, increase the likelihood that a woman will develop or die of breast cancer. Others, known as preventive measures, decrease this likelihood. Known risk factors include increased age, personal or family history of breast cancer, early menarche, late menopause, having a first child late in life or never having children, smoking, and heavy alcohol use. Preventive measures include getting

regular mammograms, performing breast self-exams, breastfeeding, exercising regularly, and eating a healthful diet.

The commonly cited statistic that one in eight women will develop breast cancer refers to a woman's lifetime risk of developing the disease. A woman's risk of developing breast cancer increases with age. Between ages 30 and 40, the risk is one in 252; between 40 and 50, it is one in 68; between 50 and 60, it is one in 35; and between 60 and 70, it is one in 27 (Ries et al., 2003).

The incidence of and death rates from breast cancer vary by race and ethnicity. Before age 40, the incidence rate is higher among African American women than among white women; after age 40, the reverse is true. However, at all ages African American women are at a greater risk of dying from breast cancer. From 1992 to 2000 the incidence of breast cancer increased in Asian and Pacific Islander, Hispanic, and white women. During the same time period it decreased in American Indian and Alaska Natives and remained stable in African American women.

Since 1990 there has been an overall decline in breast cancer mortality. Between 1990 and 2000, the mortality rate decreased by 2.3 percent annually (Ries et al., 2003). The American Cancer Society attributes the decline in mortality to the emphasis on early detection and to improvements in breast cancer treatment (ACS: Breast Cancer Facts & Figures 2003-2004).

Breast Cancer: Recent Historical Context

A variety of advances in the understanding and treatment of breast cancer—socially, politically, and scientifically—have occurred in recent years (Appendix A). Socially,

breast cancer has gone from being a condition nobody dared to discuss to a cause many people want to be a part of. One force that brought breast cancer into the public arena was when several well-known American women shared with the nation that they had breast cancer. Betty Ford and Happy Rockefeller announced publicly that they had breast cancer in 1974, Ann Jillian in 1985 (Cancer-Free, 2004), Nancy Reagan in 1987 (Olson, 2002), Olivia Newton-John in 1992 (Yahoo! Health, 2004), Linda McCartney in 1996 (BBC News, 1998), and Suzanne Somers in 2001 (CNN.com, 2001). In 1990, *Susan Love's Breast Book* became a bestseller, providing women with one of the first user-friendly resources on breast health. In 1982, Nancy Goodman Brinker founded the Susan G. Komen Breast Cancer Foundation in memory of her late sister, Komen, who died of breast cancer. By establishing the foundation, Brinker kept a promise she made to Komen—to find a way to increase breast cancer research (Peterson, 2003). The foundation has become one of the most recognized breast cancer organizations and established the now-well-known fundraising event Race for the Cure.

Over the past decade or more, many individuals and organizations have brought breast cancer to the forefront politically. The National Breast Cancer Coalition (NBCC), an organization consisting of almost 200 advocacy groups, was established in 1991. The mission of the NBCC is "to eradicate breast cancer through action and advocacy" (National Breast Cancer Coalition, 2004). The organization has three main goals: increasing funding for breast cancer research, with a focus on prevention and finding a cure; increasing access to care, treatment, and breast cancer clinical trials; and increasing the involvement of breast cancer patients and activists in the development of breast

cancer legislation (National Breast Cancer Coalition, 2004). Breast cancer advocates celebrated a political victory in 1992 when Medicare began offering reimbursement for screening mammography (Olson, 2002).

Funding for breast cancer research increased greatly in the early 1990s. Congress had allocated $21 million for research on the disease in 1990 and $43 million in 1991. In 1992 the NBCC presented Congress with a 600,000-signature petition requesting additional money, and Congress responded by approving a $210 million breast cancer initiative (Olson, 2002). By 1993, funding for breast cancer research reached $343 million, a drastic increase from years past.

Breast cancer advocates had another victory in 2000 when President Clinton signed the Breast and Cervical Cancer Treatment Act into law. Signed on October 24, 2000, the Act "gives states the option to provide medical assistance through Medicaid to eligible women who were screened for and found to have breast or cervical cancer, including precancerous conditions" (Centers for Disease Control and Prevention, 2004). The National Breast and Cervical Cancer Early Detection Program provide the cancer screening. On January 15, 2002, President Bush signed the Native American Breast and Cervical Cancer Treatment Technical Amendment Act of 2001, which ensures that Indian women eligible under the Indian Health Service or a tribal organization are allowed the same Medicaid services provided by the Breast and Cervical Cancer Prevention and Treatment Act of 2000 (Centers for Disease Control and Prevention, 2004).

The medical community has been active in researching the treatment of breast cancer. For example, researchers reported in *The New England Journal of Medicine* in 1989 that the antiestrogen drug tamoxifen may decrease the likelihood that the disease will recur (Fisher et al., 1989). In 1991, the National Institutes of Health launched the Women's Health Initiative, a longitudinal study of cardiovascular disease, osteoporosis, and cancer in post-menopausal women. Breast cancer was among the types of cancers studied. Although the follow-up phase of the study is still under way, the estrogen plus progestin hormone therapy portion of the study was halted in 2002 because of an increase in breast cancer among study participants (Women's Health Initiative, 2002). In 1992, the National Institutes of Health approved a study to determine whether tamoxifen can help prevent breast cancer in high-risk women (Olson, 2002).

Breast cancer coverage peaked in 1994 with the announcement of the discovery of a "breast cancer gene," BRCA1, and with the controversy surrounding a project headed by Dr. Bernard Fisher (Olson, 2002). Fisher served for 27 years as chairman and principal investigator of the National Surgical Adjuvant Breast and Bowel Project, funded in part by $119 million from the National Cancer Institute. As part of this project, he showed that in most cases lumpectomy and mastectomy were equivalent for the treatment of breast cancer. The controversy occurred when some portions of the project, done by researchers with whom Fisher had contracted, were found to include falsified data (Breast Cancer Updates, 1997; Corbett & Mori, 1999; Olson, 2002).

The controversies surrounding breast cancer research did not end with Fisher. In 1994 the *Journal of the National Cancer Institute* published a study possibly linking

abortion and breast cancer (Daling et al., 1994). In response to previous studies on this topic that proved inconclusive, researchers at the Fred Hutchinson Cancer Research Center in Seattle, Washington, tracked 1,800 women—half of them breast cancer patients—for seven years. Researchers found that women aged 45 and younger who had undergone induced abortions had a 50 percent higher risk of developing breast cancer than those who had never undergone an abortion. Although researchers clarified that the association between abortion and breast cancer did not necessarily indicate causation, when the study was reported by the mainstream media, it became a point of contention between pro-life and pro-choice groups (Olson, 2002). For example, Abortion Industry Monitor, a pro-life organization, distributed a pamphlet titled "Before You Choose: The Link Between Abortion & Breast Cancer" (Olson, 2002).

Mammography has also been the subject of controversy. In 1996 the American Cancer Society and the National Cancer Institute disagreed about whether women should begin getting annual mammograms at age 40 (Olson, 2002), causing public confusion. The National Cancer Institute ended up retracting its support for annual mammograms starting at age 40, expect of course for women at high-risk of developing breast cancer (Olson, 2002). The American College of Physicians and the American College of Family Practice took the strongest stance against mammography, stating that routine mammography is not necessary (Olson, 2002).

Additionally, in 1995 *The New England Journal of Medicine* and *JAMA: The Journal of the American Medical Association* published contradictory reports on whether a link exists between the use of hormone-replacement therapy (HRT) and an increased

breast cancer risk (Olson, 2002). The study in *The New England Journal of Medicine* (Colditz et al., 1995), which tracked 121,700 breast cancer patients for 15 years, found that women who had taken estrogen for more than five years have a 30 to 40 percent greater risk of developing breast and endometrial cancer than women who had not taken HRT. Three weeks later, *JAMA* published a study of 660 women and found no link between HRT use and breast cancer when estrogen was taken alone or with progestin (Stanford et al., 1995). Therefore, many women taking HRT were confused about whether to continue its use (Olson, 2002). Almost ten years later, in 2002, the National Institutes of Health halted the portion of the Women's Health Initiative that studied estrogen plus progestin use. Researchers determined that the study was not worth continuing based on the high incidence of breast cancer in study participants (Women's Health Initiative, 2002).

Thus, breast cancer has been associated with advancements and controversy since at least the early 1990s. As knowledge of some of the potential causes and treatments of breast cancer grew, much of this knowledge was brought to the public through the media.

Women's Perceptions of Breast Cancer

Although breast cancer has been one of the most publicized women's health topics, women still have misconceptions about the disease. Despite what many believe, breast cancer is not the number one killer of women in the United States. In 2000, heart disease claimed the lives of 366,000 American women, compared with 42,000 lives taken by breast cancer (NHLBI: The Heart Truth, 2004). Heart disease or stroke kills

one of every two women in the United States, and heart disease itself has a mortality rate almost nine times that of breast cancer. However, recent research indicates that women fear breast cancer more than heart disease and other more common diseases (Mosca et al., 2000; Covello & Peters, 2002).

A study of 1,000 women found that 61 percent of women aged 45 to 64 years old identified breast cancer as the condition they most feared, whereas nine percent said they most feared heart disease. Fifty-eight percent of the respondents said they believed they were as likely, if not more likely, to die of breast cancer than heart disease (Mosca et al., 2000). A survey published in 2002 found similar results. In addition to finding that breast cancer was the condition the women most feared, the researchers found that a third of the women surveyed said they believed that breast cancer was the disease with the greatest impact on a woman's quality of life, more so than Alzheimer's disease and heart disease (Covello & Peters, 2002). Similarly, an American Heart Association survey and a *New York Times*/CBS News survey indicated that most women consider breast cancer the greatest threat to their health (Covello & Peters, 2002).

In addition to overestimating the relative likelihood of developing breast cancer, many women have misconceptions about breast cancer itself. In a study of African American women, the respondents said they believed that breast cancer was predominantly a hereditary disease and greatly underestimated the impact of other factors on breast cancer incidence. The participants indicated that they felt that if someone in their family had breast cancer, they were destined to develop the disease, too. The study indicated that this belief diminished women's desire to seek information

about breast cancer and kept many women from engaging in preventive measures such as mammography (Duncan, 2001). In a poll of 1,045 women in Great Britain, 58 percent of the respondents indicated that they believed that breast cancer was more likely the result of genetics rather environmental, lifestyle, or behavioral factors (Spittle, 1999). The reality is that genetics plays a predominant role in only about 10 percent of breast cancers diagnosed each year (Cowley, 1993).

Media Coverage of Breast Cancer

Health care consumers take a more active role in their health than ever before, and they show increased interest in health information published in popular literature (Moyer et al., 1995). The public views the media as an important source of information on science, health, and wellness issues (Houn et al., 1995; Andsager & Powers, 1999). Participants in a study were asked "Where do you get your most useful information about how to prevent illness and improve your health?" Print media was one of the most common answers, second only to physicians (Meissner et al., 1992). The public relies on the media for health information, which allows journalists to greatly influence health behaviors and shape the public's perception of health-related issues (Moyer et al., 1995; Kreps, 2003).

Americans rely on magazines as a major source of information on cancer, and women look to magazines for breast cancer information (Freimuth et al., 1984; Johnson, 1997). Magazines include a variety of breast cancer information such as information on risk factors, diagnostic methods, and treatment options (Andsager & Powers, 1999). A study of approximately 400 women age 40 and older found that the participants

considered magazines a more useful source of cancer information than other types of media, such as newspapers and television (Johnson et al., 1992). For many women, magazines provide basic health information, and this information serves as a point of comparison for the additional health information they may receive. In some situations, a woman may have some of the symptoms discussed in a magazine article and become motivated to consult a physician. Additionally, magazines often provide an outlet for disseminating information on technical advances related to cancer (Johnson & Meischke, 1993).

Information about breast cancer appeared in magazines as far back as May 1913, when *Ladies' Home Journal* published an article titled "What can we do about cancer?" (Carter, 2003). From 1987 to 1990 the number of breast cancer articles appearing in women's magazines increased 33 percent, making breast cancer the most common type of cancer discussed (Gerlach et al., 1997). Print coverage of breast cancer increased dramatically from 1960 to 1995; three articles on breast cancer appeared in *The New York Times* and U.S. magazines in 1960, but 149 articles appeared in 1995 (Corbett & Mori, 1999).

People are more influenced by and more likely to pay attention to risk messages concerning their health when a human interest story or case history is included rather than only medical or scientific data (Covello & Peters, 2002). The media often include the personal stories of women with breast cancer when reporting on the disease. The 1999 study by Corbett and Mori found that media coverage of breast cancer peaked in 1974, probably because that year two prominent American women, Betty Ford and

Happy Rockefeller, told to the public they had breast cancer and had undergone mastectomies. Women responded to media reports on Ford and Rockefeller by phoning cancer hotlines and scheduling mammograms in increased numbers (Corbett & Mori, 1999). Another study, including a content analysis of 74 breast cancer articles from women's magazines in 1990 to 1997, found that more than one-third included personal stories. The researchers found that the articles often discussed survival from a first-person point of view, which they felt may invoke a greater response by the reader to the information contained in the articles. The information may motivate women to take preventive measures such as performing a breast self-exam or scheduling a mammogram. Articles that included a personal story tended to discuss risk factors, diagnosis, and treatment (Andsager & Powers, 1999).

Much of the research on the coverage of breast cancer has discussed the inclusion of information on risk factors, often followed by information on prevention, such as steps that may be taken to reduce certain risk factors. Corbett and Mori found that coverage in the 1980s and 1990s focused primarily on possible causes of breast cancer, specifically a high-fat diet, family history of the disease, alcohol consumption, hormonal history, and "the breast cancer gene" (Corbett & Mori, 1999). Moyer and colleagues similarly found that breast cancer risk factors were frequently included in media coverage in the early 1990s. New treatments for the disease and information on the benefits and risks of mammography were also prominent in media coverage during that time period (Moyer et al., 1995). A comparison of how news magazines and women's magazines framed breast cancer in the 1990s identified prevention, risk factors, and

personal stories as topics of coverage from 1990 through 1997 (Andsager & Powers, 1999). The inclusion of information on both risk factors and preventive measures makes sense, as preventive measures attempt to reduce risk factors. Furthermore, a study published in 1992 found that an important problem in cancer control is the public's lack of knowledge about the causes of cancer, including the topic of possible cancer prevention (Johnson et al., 1992).

In addition to the concepts included in articles on breast cancer, studies on the sources mentioned in these articles have also been conducted. The Andsager and Powers study of how news magazines and women's magazines framed breast cancer in the 1990s found that the two types of magazines mentioned similar types of sources of information. In both types of magazines doctors were the most commonly identified source (Andsager & Powers, 1999). News articles also often mentioned journal articles as a source of information (Houn et al., 1995, Corbett & Mori, 1999). *JAMA* and *The New England Journal of Medicine* were among the most commonly cited medical journals (Houn et al., 1995).

Additionally, the issuing of a press release by a medical journal appears to increase the likelihood that a medical article receives press coverage (deSemir, Ribas & Revuelta, 1998). Researchers who studied press releases issued by seven high-profile medical journals write that press releases provide "an opportunity for journals to influence how the research is translated into news" (Woloshin & Schwartz, 2002). Journalists tend to depend mostly on information sources they deem legitimate, credible, and newsworthy (Andsager, 2001; Gandy, 1980; Turk, 1985; Turk & Franklin, 1987).

Many women look to magazines as a source of health information (Freimuth et al., 1984; Johnson, 1997). The content of what people read in magazine articles is influenced by a variety of factors including societal conditions, political issues, and scientific advances. Prevention and risk factors are some of the most commonly discussed topics with regard to breast cancer (Moyer at al., 1995; Andsager & Powers, 1999; Corbett & Mori, 1999), with doctors and medical journals most frequently used as sources (Houn et al., 1995; Andsager & Powers, 1999). Studies have focused on how information on the disease is communicated and how the public responds to that information. The content of magazine articles on breast cancer merits study because most women consider breast cancer the greatest threat to their health (Covello & Peters, 2002) and many have misconceptions about the disease (Spittle, 1999).

This thesis seeks to determine whether differences exist in the content of articles on breast cancer from 1993 and 2003 by expanding on what researchers have found regarding media coverage of breast cancer. If differences existed, they were determined through the analysis of content such as theme, the inclusion of risk factors and preventive measures, and sources mentioned. Additionally, the ways in which the content differed and factors that may have contributed to the differences will be explored.

CHAPTER III

RESEARCH METHODOLOGY

Both medical advances and controversies make the 1990s and early 2000s an interesting period to study. The current study focused on magazine coverage of breast cancer in the years 1993 and 2003. The year 2003 was chosen because it is the most recent complete year for which magazine articles were available. The year 1993 is 10 years prior and serves as a logical starting place because the early 1990s saw considerable activity concerning breast cancer—socially, politically, and scientifically.

Magazine articles—rather than newspaper articles, footage from news programs, or other media were chosen as the medium of study for two reasons. First, research (Freimuth et al., 1984; Johnson, 1997) indicates that women look to magazine articles as a source of information on breast cancer. Second, articles appearing in major American magazines in 1993 and 2003 could be readily identified through the Reader's Guide to Periodicals Full Text within the H.W. WilsonWeb database, hereafter referred to as Reader's Guide to Periodicals. The Reader's Guide to Periodicals is "a database containing comprehensive indexing and abstracting of the most popular general-interest periodicals published in the United States and Canada" (H.W. WilsonWeb database, 2004). The use of Reader's Guide to Periodicals enabled identification of articles representative of what an ordinary American woman may read.

Copies of the articles were obtained, and a qualitative content analysis was done to identify themes, risk factors mentioned, preventive measures mentioned, and sources cited in the articles. A content analysis was the method of analysis because it enabled

identification of certain words or concepts within the articles (Writing@CSU: Writing Guide, 2004). The author of this study did the coding for analysis.

The decision to code each article for theme, risk factors, preventive measures, and sources mentioned was based on several considerations. Previous research investigated common themes in the media coverage of breast cancer in the 1980s and 1990s. Risk factors, such as family history and hormonal history, and preventive measures, such as mammography, were identified as some of the most common themes by past studies (Moyer et al., 1995; Corbett & Mori, 1999). This study follows up and expands on past research not only by continuing to look at article theme, but also by investigating in greater detail the mention of risk factors and preventive measures. The sources mentioned in the body of magazine articles indicate in part where or from whom the authors sought information. Coding for sources mentioned can help determine what sources were used and whether the sources differed in 1993 and 2003. Researchers (Houn et al., 1995; Andsager & Powers, 1999; Corbett & Mori, 1999) have studied the use of doctors, breast cancer patients, and medical journal articles as sources. Therefore, to expand on previous studies the current study sought to determine if and to what extent other sources, such as the American Cancer Society and the National Cancer Institute were mentioned in magazine articles on breast cancer. Considering sources mentioned along with other information in the articles can aid in identifying factors that may have contributed to differences, if any, in content in 1993 and 2003.

Identification of Articles

The Readers' Guide to Periodicals database was used to search for articles. The terms *breast cancer* and *women* were used for two searches–one for the year 1993 and one for 2003. The search identified 101 articles published in 1993 and 47 published in 2003. Search results included, in addition to magazine articles, articles appearing in newspapers and peer-reviewed journals. However, newspaper and journal articles were excluded from the content analysis as they may not represent what women commonly read. Once newspaper and journal articles were excluded, 79 articles remained for 1993 and 40 remained for 2003, for a total of 119 articles. All 119 articles were obtained in full-text form for analysis. Copies of the articles were obtained through Texas A&M University Libraries and its affiliates. Those articles not directly available through Texas A&M Libraries were obtained through deliverEdocs and Interlibrary Loan Services, a program that allows libraries throughout the United States and the world to share items such as articles and books (DeliverEdocs/ILL Policies, 2004). All the articles were then read an initial time. On the basis of this initial reading a total of nine additional articles were excluded from each year's collection because they focused primarily on topics other than breast cancer (for example, ovarian cancer or heart disease). The final sample for analysis consisted of 70 magazine articles published in 1993 (Appendix B) and 35 magazine articles published in 2003 (Appendix C), for a total of 105 articles.

Data Collection and Analysis

As mentioned above, each of the original 119 articles was read once to ascertain its general idea. During this initial reading, the coder made note of the themes, risk factors, preventive measures, and sources mentioned that seemed to appear most frequently in the set of articles as a whole. Based on the findings of the initial reading, a data collection sheet (Appendix D) was created.

Second, each of the 105 applicable articles was read a second time and analyzed for specific information. The coder underlined risk factors, preventive measures, and sources mentioned within each article. On completion of the second reading, information about each article was recorded on the data collection sheet. The data collection sheet included identifying information such as the article title, the publication date, and the name of the magazine in which the article appeared. It also included a section in which the coder circled *yes* or *no* as to whether the article was a cover story (the article associated with the photo or other art that appears on the front of the magazine). Listings in the Reader's Guide to Periodicals indicate whether an article is a cover story. In this same section of the data sheet, the coder circled *yes* or *no* as to whether the article included a personal story and whether the subject of the personal story was a well-known/famous person, such as a public figure or actress. If the person was well-known/famous, the coder filled in the name of that person. In addition, the data collection sheet included the following list of theme categories from which the coder selected the one theme that predominated in the article. Themes were defined as follows:

- Fundraising: Non-legislative activities to raise monies for breast cancer research, patient treatment, or prevention services.
- Hormone-replacement therapy (HRT): The possible link between the use of HRT and an increased risk of breast cancer.
- Living with breast cancer: Women who currently had breast cancer or had survived breast cancer. (Articles focused on women's feelings about the disease or how their lives were or were not changed by the disease.)
- Mammography: The use of mammography, a common screening technique for the detection of possible breast cancers.
- Politics: Political issues associated with breast cancer, such as legislation regarding the allocation of government funding for research on breast cancer.
- Role of genetics: Possible influence of genetics on a woman's risk of developing breast cancer.
- Treatment: Any of several available surgeries or therapies for breast cancer.
- Other: Themes other than those listed above. (If *other* was selected, the coder filled in the theme.)

Also included on the data collection sheet was the following list of sources from which the coder selected all that applied: breast cancer patient, relative of a breast cancer patient, National Cancer Institute, American Cancer Society, medical journal(s), physician(s) or scientist(s), and other. If a medical journal was cited, the coder specified which one. Physicians or scientists were identified by the presence of the title Dr., or the

degrees MD or PhD. If physicians or scientists were cited, the coder listed their name and affiliation.

The coder selected risk factors mentioned from the following: increased age, early menarche, exposure to environmental pollutants, family history, having first child after age 30, having no children, having a non-cancerous breast condition, heavy alcohol use (defined as 2 or more drinks per day by the American Cancer Society), long-term HRT use (defined as 5 or more consecutive years by the American Cancer Society), late menopause, being of a certain race/ethnicity, or other. Last, the coder selected all that applied from the following list of preventive measures: breastfeeding, breast self-exams, clinical breast exams (exams performed by a physician), healthful diet, limiting estrogen exposure, mammograms, tamoxifen, and other. In this study, preventive measures included both actions to prevent the development of breast cancer and actions taken to reduce the likelihood that the disease would be fatal. For example, mammograms may identify the presence of breast cancer, and because of the early detection, prevent women from dying of the disease.

After data collection sheets were completed for all articles, items listed in the *other* categories for theme, risk factors, and preventive measures were reviewed. If an item appeared in the *other* category three or more times, it became a new category. No categories were added to the theme and preventive measures sections, but for risk factors, the new categories high fat diet, use of oral contraceptives, and smoking were added to the list.

Once data collection sheets were completed for all articles and additional categories were established, the data were transferred to two spreadsheets, one for articles published in 1993 articles and one for those published in 2003. The spreadsheets were created using Microsoft Excel. When the data were transferred, the type of magazine the in which the article appeared was added to the spreadsheets. Types of magazines were identified by the following codes: H = health and fitness magazine, N = news magazine, S = science magazine, W = women's magazine, and O = other type of magazine. Concerning the *physician(s) or scientist(s)* category of the sources cited section, if a physician or scientist's name appeared on three or more data collection sheets, it was listed on the spreadsheets. The title of each medical journal mentioned, regardless of the number of times it appeared, was also recorded on the spreadsheets. The purpose of recording each medical journal title was to enable the coder to easily find the corresponding journal article, if needed, when interpreting the results of the study. Additionally, the *other* category in the sources cited section was analyzed for names, organizations, etc. that appeared three or more times. The Nurses' Health Study and the Women's Health Initiative were referred to 3 or more times and therefore were listed separately as sources on the spreadsheets.

Charts and graphs presenting the data were created using Microsoft Excel. Themes, risk factors, preventive measures, and sources were compared to determine whether they appear to have changed in the last decade.

The findings were considered in the context of sociocultural, political, and scientific occurrences during and shortly before the period studied. These occurrences

included scientific advances, changes in the incidence of breast cancer in some socioeconomic or cultural groups, and political decisions.

CHAPTER IV

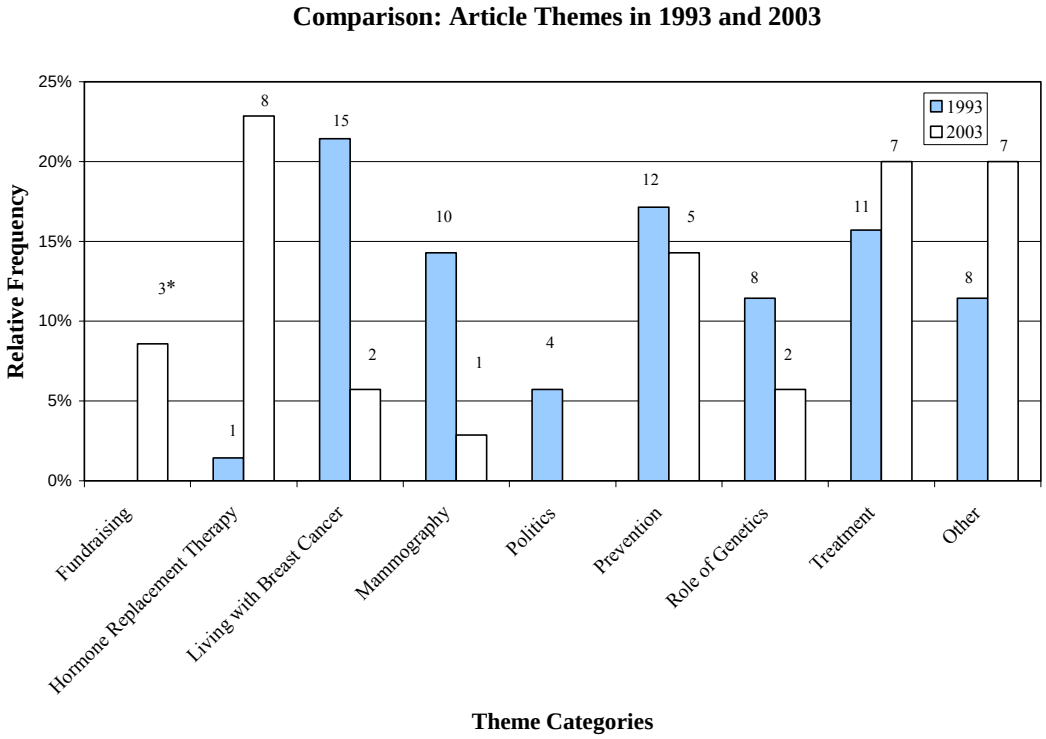
RESULTS

A total of 70 magazine articles on breast cancer were identified from 1993, and 36 (half the number) were identified from 2003. Of the 1993 articles, more than one third (n = 25) appeared in women's magazines, 16 in health magazines, 12 in news magazines, 8 in science magazines, and 9 in magazines classified as other. In 2003, almost one third (n = 11) of the articles appeared in news magazines, nine in women's magazines, four in health magazines, two in science magazines, and nine in magazines classified as other. In 1993, 11 (16 percent) articles on breast cancer in women appeared as cover stories, compared with 1 (3 percent) in 2003. In 1993 the cover of *The New York Times Magazine* featured a self-portrait of Matuschka, a breast cancer patient. Two stories appeared to result from the publication of Matuschka's portrait that year (Gleick, 1993; Matuschka, 1993).

Articles from 2003 were slightly more likely (46 percent) than articles from 1993 (39 percent) to include the personal story of a breast cancer patient. In 1993, personal stories were more likely to appear in women's magazines (44 percent) than any other type and in 2003 personal stories appeared equally as much in women's and news magazines (17 percent each). Of the 16 personal stories included in articles from 2003, 5 (14 percent of total) were the stories of well-known/famous women; of the 27 personal stories in 1993, 6 (9 percent of total) were those of such women.

The most common themes of the articles from 1993 and 2003 differed greatly. Twenty-one percent of the articles from 1993 were assigned to the living with breast

cancer theme category (Figure 1) and a majority of those articles were found in women's magazines. Six percent of articles in 2003 were classified in the living with breast cancer theme category. In 2003, the largest percentage of articles, 23 percent, was classified in the hormone-replacement therapy (HRT) theme category; 1 percent of 1993 articles appeared in the HRT category. In 2003, several articles were devoted entirely to the discussion of HRT's possible risks, including "Relief That May Be Too Risky—Hormone Replacement Therapy" (Shmerling & Kantrowitz, 2003) and "The End of the Fountain of Youth" (Laurence, 2003). The politics theme category comprised six percent of the articles that appeared in 1993 but no articles in 2003. Conversely, nine percent of the articles from 2003 were assigned to the fundraising theme category, but no articles from 1993 were assigned to this category. The 1993 and 2003 samples included similar percentages of articles in the prevention and treatment theme categories. Articles from 1993 comprised a slightly greater percentage than articles from 2003 in the prevention theme category, at 17 percent. However, a slightly greater percentage of treatment themed articles, 20 percent, was found in articles from 2003. In 1993, treatment was commonly discussed in terms of surgical procedures, such as in "Surviving Breast Cancer," (*McCall's*, 1993) but in articles from 2003 it was discussed more commonly in terms of cancer-fighting drugs like in "Breast Cancer Breakthrough" (Breu, 2003) and "Searching for the Next Tamoxifen" (Hobson, 2003).



* Numbers appearing above bars represent the number of articles with that theme. Percentages are used because twice as many articles appeared in 1993 as in 2003.

FIGURE 1 Comparison: Article Themes in 1993 and 2003

Similar to the themes, the risk factors included in articles from 1993 and 2003 differed to a great extent. In 1993, a family history of breast cancer was the most commonly mentioned risk factor, appearing in 41 percent of the 1993 articles. Having a first child after age 30 and early menarche were the second and third most commonly mentioned risk factors in articles from 1993, respectively. An emphasis on modifiable behavior was apparent in the most frequently mentioned risk factors in articles from 2003. Long-term HRT was the most commonly mentioned risk factor in 2003, found in 34 percent of the articles. Family history of breast cancer and heavy alcohol use were

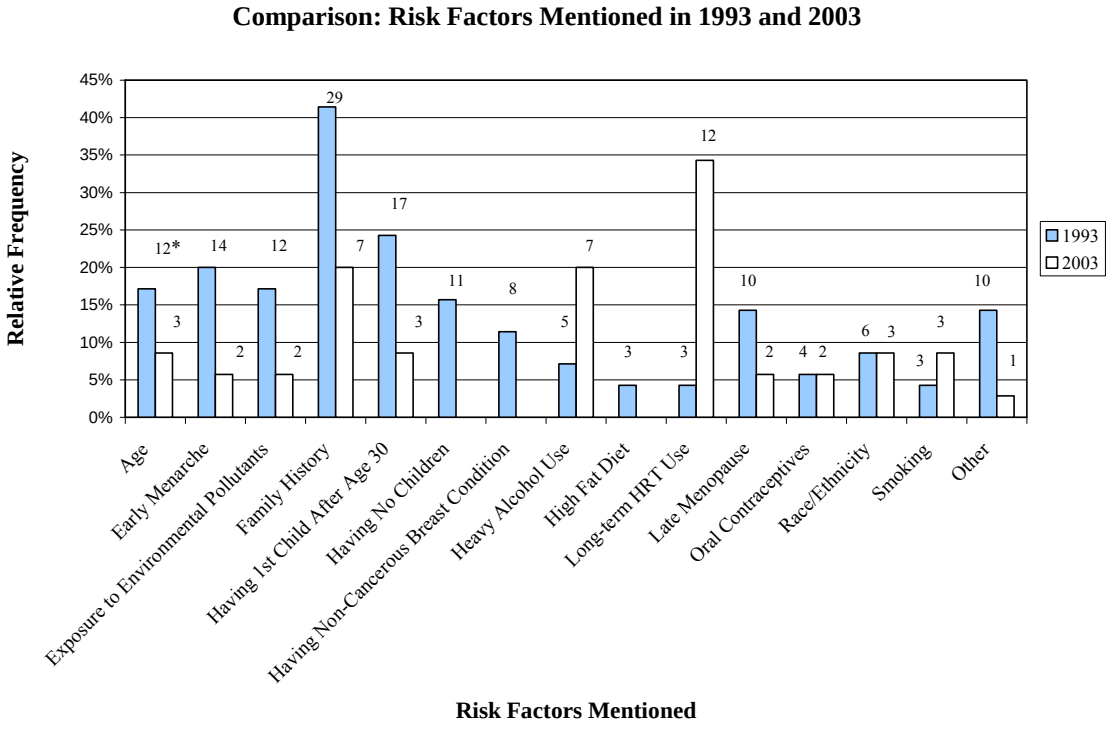
the second most frequently mentioned risk factors, with each mentioned in 20 percent of the articles from 2003. One article in 2003 discussed how alcohol consumption combined with the use of HRT may increase breast cancer risk (Minikin, 2003).

The most obvious difference in the mention of risk factors between the articles appearing in 1993 and 2003 was found with long-term HRT use (Figure 2). Four percent of 1993 articles but 34 percent of 2003 articles mentioned long-term HRT use as a risk factor. The second largest difference regarded the mention of having a family history of breast cancer, which was found in 41 percent of the 1993 articles but 20 percent of the 2003 articles. No difference in percentage was found between 1993 and 2003 regarding the mention of oral contraceptives and race/ethnicity as risk factors; in both years oral contraceptives were mentioned in six percent of the articles and race/ethnicity was mentioned in nine percent. Exposure to environmental pollutants was mentioned in 17 percent of articles in 1993 but six percent in 2003.

Compared with risk factors, the articles from 1993 and 2003 were more similar in their mention of preventive measures. In the articles from 1993, having a mammogram was the most commonly mentioned preventive measure, appearing in 40 percent of the articles, followed by performing breast self-exams and using tamoxifen, each appearing in 26 percent of the articles for that year. In articles from 1993 that included tamoxifen as a preventive measure, seven of the 18 (39 percent) included discussion of the drug's side effects and two of the seven (29 percent) articles from 2003 did. In 2003, performing breast self-exams and limiting estrogen exposure were the two most commonly mentioned preventive measures, with each mentioned in 26 percent of

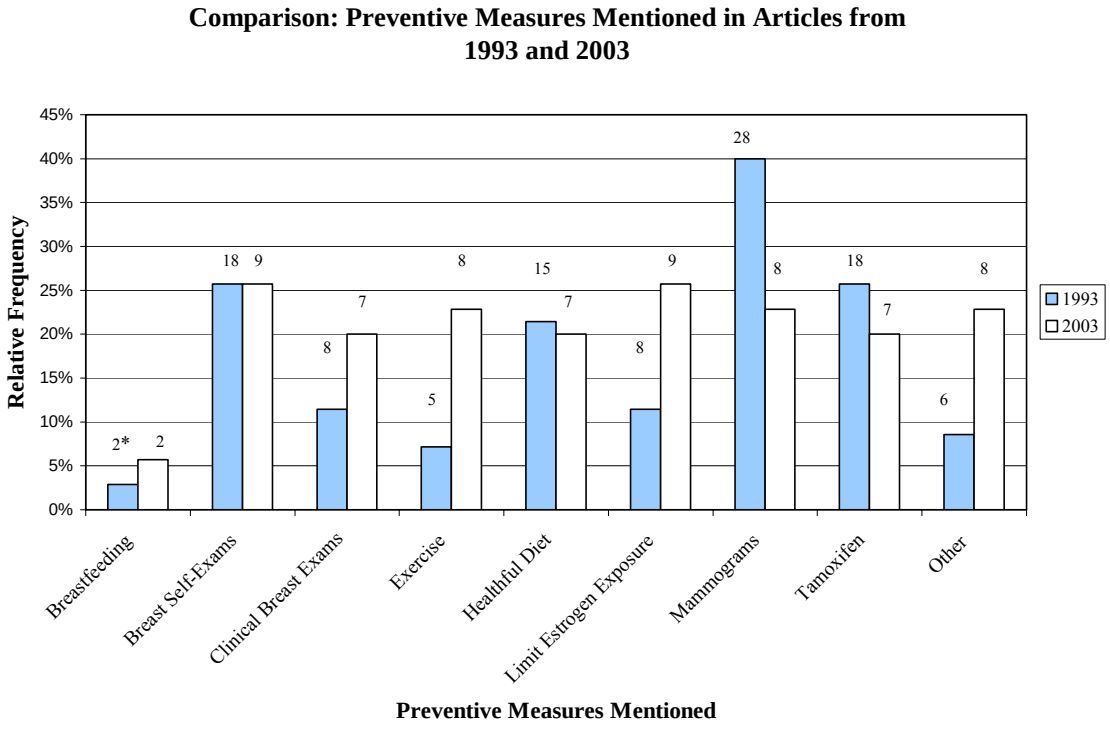
the articles; having a mammogram and exercising were the next most commonly mentioned preventive measures, each appearing in 23 percent of articles.

The greatest differences between the years regarding preventive measures included the mention of having a mammogram, exercising, and limiting estrogen exposure (Figure 3). Forty percent of articles from 1993 but 23 percent from 2003 mentioned having a mammogram. In 2003, however, some articles mentioned alternative breast cancer screening methods including ultrasound, digital mammography, and magnetic resonance imaging (MRI). Exercising and limiting estrogen exposure



* Numbers appearing above bars represent the number of articles that mention each risk factor.

FIGURE 2 Comparison: Risk Factors Mentioned in Articles from 1993 and 2003



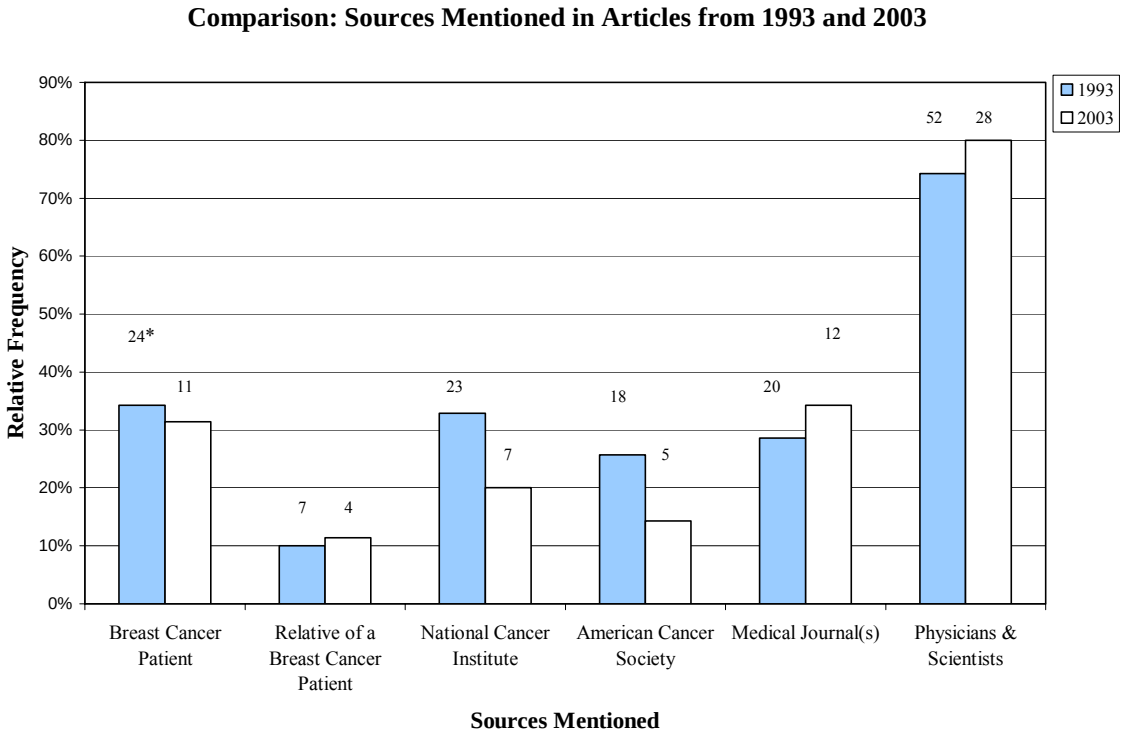
* Numbers appearing above bars represent the number of articles that mention each preventive measure.

FIGURE 3 Comparison: Preventive Measures Mentioned in Articles from 1993 and 2003

were more likely to be mentioned as preventive measures in 2003. Although exercise was mentioned as a preventive measure, it appeared, along with a healthy diet, to be most commonly associated with helping to maintain a healthy body weight. The percentages of articles mentioning breastfeeding, performing breast self-exams, eating a healthful diet, and using tamoxifen were fairly consistent in 1993 and 2003. Performing breast self-exams was mentioned in 26 percent of articles in both years, eating a healthful diet appeared in 21 percent of articles from 1993 and 20 percent of articles

from 2003, and the use of tamoxifen appeared in 26 percent of articles from 1993 and 20 percent of articles from 2003.

Although articles appearing in 2003 were more likely to include a personal story, breast cancer patients were slightly more likely to be used as sources in articles from 1993 than in articles from 2003, with 34 and 31 percent, respectively, of stories from the two years using a patient as a source (Figure 4). The National Cancer Institute and the American Cancer Society were mentioned less as sources in 2003 than in 1993. Medical journals and physicians and scientists were slightly more likely to be mentioned as sources in articles from 2003 than in articles from 1993. Thirty-four percent of articles from 2003 and 29 percent of the articles from 1993 mentioned at least one medical journal. The medical journals most commonly mentioned differed from 1993 to 2003 (Tables 1 & 2). In 1993, The *Journal of the National Cancer Institute* was mentioned in 11 percent of articles, followed by *Cancer* and *The Lancet*, with each mentioned in 7 percent of articles from that year. *The Lancet* was the only medical journal mentioned with frequency in both 1993 and 2003. In 2003, both *The Lancet* and *The New England Journal of Medicine* appeared as sources in 11 percent articles and 9 percent mentioned *JAMA*.



* Numbers appearing above bars represent the number of times that source was mentioned.

FIGURE 4 Comparison: Sources Mentioned in Articles from 1993 and 2003

TABLE 1 Medical Journals Mentioned in Articles from 1993

Journal Name	Number of Times Mentioned	Percentage of Articles Mentioning Journal
Archives of Internal Medicine	3	4%
Cancer	5	7%
Cancer Research	1	1%
Fertility & Sterility	1	1%
JAMA	3	4%
Journal of Current Clinical Trials	1	1%
Journal of the National Cancer Institute	8	11%
Journal of Women's Health	2	3%
The Lancet	5	7%
The New England Journal of Medicine	1	1%
Preventive Medicine	1	1%

TABLE 2 Medical Journals Mentioned in Articles from 2003

Journal Name	Number of Times Mentioned	Percentage of Articles Mentioning Journal
Annals of Internal Medicine	3	9%
British Medical Journal	1	3%
JAMA	3	9%
Journal of the National Cancer Institute	2	6%
Journal of Obstetrics & Gynecology	1	3%
The Lancet	4	11%
The New England Journal of Medicine	4	11%
Radiology	1	3%

In total, 74 percent of articles from 1993 and 80 percent of articles from 2003 mentioned at least one physician or scientist as a source (Tables 3 & 4). Susan Love, M.D. was the physician or scientist most commonly mentioned as a source in both years; she was mentioned in 10 percent of the articles from 1993 and 11 percent from 2003. Mary-Claire King, Ph.D., Malcolm Pike, Ph.D., and Mary Wolff, Ph.D, were each mentioned as sources in six percent of the articles from 1993. Larry Norton, M.D., was mentioned in three percent of articles from 1993; he was mentioned more commonly in 2003, appearing in nine percent of the articles.

TABLE 3 Physicians or Scientists Most Commonly Mentioned as Sources in Articles from 1993

Physician or Scientist	Affiliation	Number of Times Mentioned	Percentage of Articles Mentioning Physician or Scientist
Mary-Claire King, Ph.D.	University of California at Berkeley School of Public Health	4	6%
Susan Love, M.D.	University of California at Los Angeles Breast Center	7	10%
Larry Norton, M.D.	Breast & Gynecological Services, Memorial Sloan-Kettering	2	3%
Malcolm Pike, Ph.D.	University of Southern California School of Medicine	4	6%
David Spiegel, M.D.	Stanford University School of Medicine	3	4%
Mary Wolff, Ph.D.	Department of Community Medicine, Mount Sinai Medical Center	4	6%

TABLE 4 Physicians and Scientists Most Commonly Mentioned as Sources in Articles from 2003

Physician or Scientist	Affiliation	Number of Times Mentioned	Percentage of Articles Mentioning Physician or Scientist
Susan Love, M.D.	Susan Love M.D. Breast Cancer Research Foundation	4	11%
Larry Norton, M.D.	Breast & Gynecological Services, Memorial Sloan-Kettering	3	9%

Additional organizations mentioned in articles from both 1993 and 2003, that appeared most frequently in the *other* category in the sources cited section of the data collection sheet included the Women's Health Initiative (WHI), the Nurses' Health Study, and the National Women's Health Network (NWHN). The WHI was mentioned in two (3 percent) articles in 1993 and five (14 percent) in 2003; the Nurses Health Study appeared in six (9 percent) articles in 1993 and one (3 percent) article in 2003; and the NWHN was mentioned in five (7 percent) articles in 1993 and one (3 percent)in 2003.

Breast Cancer in Specific Populations

Few articles that addressed breast cancer among African American women or among older women appeared in the current study. The Reader's Guide to Periodicals search listed two articles from magazines for African American women on breast cancer and women in 1993. One of the articles appeared in *Jet* and was the first-person story of a

female African American minister who survived breast cancer (Williams, 1993). The other article, published in *Essence*, was excluded from the final analysis because it focused on heart disease (Villarosa, 1993). The search for articles published in 2003 revealed one article in an African American women's magazine. The article appeared in *Ebony*, and was titled "Breast Cancer: The Increasing Threat to Young Black Women" (Kinnon, 2003).

Although age was mentioned as a risk factor in articles from 1993 and 2003, most of the articles that included a personal story tended to focus on younger women. One article (Zahn, 2003) featured the story of an older breast cancer patient (age 61).

CHAPTER V

CONCLUSION

The content of American magazine articles published on breast cancer in 1993 appears to differ somewhat from that of those published in 2003. The differences seem to reflect social, political, and scientific occurrences over the period studied. The reasons for several of the differences seem apparent, whereas factors contributing to other differences seem to warrant additional investigation.

Numbers and Publication Sites of Breast Cancer Articles

Twice as many magazine articles on breast cancer appeared in 1993 than in 2003. This decrease may reflect a recent emphasis on the coverage of other health issues affecting women, such as heart disease. Although one survey respondent noted, "Breast cancer is now considered *the* woman's disease" (Covello & Peters, 2002), the statistics indicate that heart disease is actually *the* women's disease in that 366,000 American women died of heart disease in 2000 but 42,000 that died from breast cancer that year (NHLBI: The Heart Truth, 2004). The fact that 11 cover stories relating to breast cancer in women appeared in 1993 but one appeared in 2003 may further indicate a movement toward coverage of other women's health issues rather than breast cancer. Most magazines tend to have a limited amount of space to devote to health coverage, forcing editors to select health topics they feel are most timely.

The rise of the Internet in recent years as a source of health information may also explain why fewer magazine articles on breast cancer were published in 2003 than in 1993. At a time when more than 50 percent of patients use the Internet to access

medical information (Meric et al., 2002) the publication of fewer magazine articles on breast cancer seems to make sense. According to a presentation by Public Services Division of the National Institutes of Health, breast cancer was already one of the most frequently searched for health topics in March 2000 (Lacroix, 2000). A 2000 Internet search using the search engine Google to access English language web sites about breast cancer generated a list of approximately 600,000 sites (Meric et al., 2002). In comparison a September 26, 2004 Internet search for breast cancer using Google revealed approximately 5,230,000 English language web sites about the disease, an increase of more than 800 percent. A search using Yahoo! as the search engine also conducted on September 26, 2004 displayed a list of approximately 6,980,000 English language web sites about breast cancer. Although fewer magazine articles about breast cancer were published in 2003 than 10 years ago, it appears that ample information about breast cancer is available via the Internet.

Magazines specifically on cancer-related issues may also serve as a resource for people seeking additional information about breast cancer in more recent years. *MAMM* magazine, for example, which was first published in October 1997, is "devoted to meeting the needs of women diagnosed with breast and reproductive cancer" (mamm.com, 2004). Articles in the magazine discuss topics such as current clinical trials, political and legislative activity relating to cancer, and personal stories of women with breast or reproductive cancer. Other magazines designed for individuals affected by cancer include *CURE: Cancer Updates, Research & Education* and *Coping with Cancer*. With magazines such as these, breast cancer patients, survivors, and families

affected by the disease need not rely on the mainstream media for the latest information about breast cancer.

The types of magazines that published articles about breast cancer in women differed in 1993 and 2003. In 1993 articles were most likely to appear in women's magazines. This finding is consistent with findings of a study of how news and women's magazines framed breast cancer in the 1990s (Andsager & Powers, 1999), which found that a greater number of breast cancer articles appeared in women's magazines than in other types of magazines. In 2003 articles were most likely to appear in news magazines. Additionally, a greater percentage of articles appeared in health magazines in 1993 than in 2003. The difference may reflect an increase in the coverage of women's health issues other than breast cancer by women's magazines, as previously mentioned. Or, the difference may reflect a greater emphasis placed on women's health issues in general by news magazines. The decrease in the percentage of breast cancer articles published in health or science magazines in 2003 may further indicate that breast cancer is now considered more of a mainstream health issue, meriting more coverage in news magazines such as *Time*, *Newsweek*, and *U.S. News & World Report*.

The lack of articles about breast cancer in magazines designed for African American women is worth commenting on, especially given that it is consistent with previous research (Andsager & Powers, 1999; Andsager, 2001). As mentioned in Chapter II: Review of Literature, African American women are more likely to die of breast cancer than white women (ACS: Breast Cancer Facts & Figures 2003-2004). Additionally, in a study of African American women, the respondents commonly said

they believed that breast cancer was predominantly a heredity disease and greatly underestimated the impact of other factors on breast cancer incidence (Duncan, 2001). Media coverage specific to breast cancer and African American women is a possible way to reach this population. However, the results of the current study suggest that that opportunity may not be getting met. Only three such articles appeared in the sample from 1993 and 2003. The Reader's Guide to Periodicals includes mainstream periodicals, including publications such as Essence, Jet, and Ebony that are designed for an African American audience. However, magazines with much smaller circulations, including those specific to Latinas, Asians, and Native Americans are not available through Reader's Guide to Periodicals. Therefore, the current study does not include the coverage of breast cancer in such publications.

Content of Breast Cancer Articles

Several trends emerged through the current study. One trend was that articles from 1993 published in women's magazines tended to have a living with breast cancer theme. More articles from 1993 appeared in women's magazines than any other type of magazine and living with breast cancer was the most common theme of articles that year. Tying in with this theme, women's magazines published in 1993 were the most likely type of magazine to include a personal story. Andsager and Powers (1999) similarly found that women's magazines were much more likely to include personal stories than news magazines were. Articles published in 2003 were even more likely than those from 1993 to include a personal story. A majority of articles from 1993 that included a personal story often had a living with breast cancer them. In contrast, most

articles from 2003 that included personal stories had treatment, prevention, or fundraising themes.

The inclusion of personal stories in magazine articles was similar in 1993 and 2003. It was in 1993 that the National Cancer Institute announced that the lifetime risk of developing breast cancer was one in eight, rather than one in nine (Olson, 2002), and that year the personal side of breast cancer was illustrated to readers through several articles. That year *The New York Times Magazine* ran on its cover a self portrait of Matuschka, a New York City artist, which revealed her chest, scarred from a mastectomy (Ferraro, 1993). Women responded in varying ways to the magazine cover, likely encouraging the media to write more articles about Matuschka (Gleick, 1993) and other women who had dealt with breast cancer. Matuschka responded to the publicity by writing an article for *Glamour* about why she allowed the self portrait to appear on the cover (Matuschka, 1993). Authors who include personal stories of breast cancer patients or survivors may be doing their female readers a favor. Women tend to respond positively to the inclusion of personal stories, particularly those of well-known/famous women, and may be more likely to apply the health advice included in the article to their own lives than if such stories were not included (Corbett & Mori, 1999). Often, people are more influenced by a case history or a human interest story than by medical or scientific information (Covello & Peters, 2002).

An emphasis on long-term hormone-replacement therapy (HRT) use in 2003 was a major finding of the current study. HRT use was the theme of 23 percent of the articles published in 2003, making it the most common theme. Additionally, one-third

of the articles from 2003 mentioned its use as a risk factor for the development of breast cancer. In comparison, only one of 70 articles from 1993 had an HRT theme, and less than five percent of articles that year mentioned it as a risk factor. The increase in magazine articles focusing on HRT in 2003 may reflect the release of the results of several studies relating to HRT and breast cancer since 1995. Health coverage is often influenced by the research of physicians and scientists in the medical community (Corbett & Mori, 1999). In 1995, *The New England Journal of Medicine* and *JAMA* published contradictory reports on whether HRT is associated with an increased breast cancer risk (Olson, 2002). The possibility of a link between HRT and breast cancer was debated throughout most of the latter 1990s and early 2000s. In 2002, the National Institutes of Health halted its estrogen plus progestin study of the Women's Health Initiative in part because of an increase in breast cancer among study participants receiving HRT (Women's Health Initiative, 2002). Articles published in 2003 may have reflected the concern that women who used HRT for five or more consecutive years may be at an increased risk of breast cancer. For example, *Newsweek* published an article titled "Relief That May Be Too Risky—Hormone-Replacement Therapy," which said many doctors encouraged women to take HRT because they felt it prevented heart disease in postmenopausal women, only to find that it may increase breast cancer risk and not do much for the prevention of heart disease after all (Shmerling & Kantrowitz, 2003). *Ladies' Home Journal* ran a similar article titled "The End of the Fountain of Youth" (Laurence, 2003), and *Prevention* published an article that discussed how

alcohol consumption combined with the use of HRT may increase breast cancer risk (Minkin, 2003).

Treatment was a theme category in 16 percent of articles from 1993 and 20 percent of articles from 2003. Articles in this theme category from 1993 tended to discuss treatment in terms of surgical procedures, but articles from 2003 were more likely to discuss treatment in terms of new cancer-fighting drugs. For example, in 1993 *McCall's* published an article titled "Surviving Breast Cancer," in which several breast cancer survivors, including Nancy Reagan, discussed why they had chosen certain types of surgery to remove the cancer. "Searching for the Next Tamoxifen" (Hobson, 2003) and "Breast Cancer Breakthrough" (Breu, 2003) are examples of articles from 2003 that focused on cancer-fighting drugs. Magazines tend to focus on what is new, and the shift in the way breast cancer treatment was discussed may reflect the approval and success of several cancer-fighting drugs, such as the use of tamoxifen (trade name Nolvadex) to prevent breast cancer in high-risk women. Additionally, the drug trastuzumab (trade name Herceptin) was approved to treat breast cancer in 1999 (Olson, 2002), and in 2001 a combination of capecitabine (trade name Xeloda) and docetaxel (trade name Taxotere) was approved to treat the disease (FDA, 2001).

As successful as tamoxifen may be for the treatment and prevention of breast cancer, it has been associated with serious side effects such as an increased risk of endometrial cancer, blood clots, and liver disturbances (Brown, 2002; JAMC, 2002; Cersosimo, 2003). Other adverse effects associated with the drug include hot flashes, nausea, and vomiting (JAMC, 2002). Less than half of the articles from 1993 and 2003

that mentioned tamoxifen as a preventive measure included the drug's side effects. In 1998 when the Food and Drug Administration approved tamoxifen for reducing breast cancer incidence in high risk women, the agency noted that "caution must be used in prescribing the drug because of its potentially serious side effects" (FDA, 1998). Given this information, it is surprising that only two articles published in 2003 included side effects in their discussion of tamoxifen. The lack of information about the tamoxifen's side effects may reflect an increase in the coverage of newer drugs used for similar treatment.

Family history as it relates to breast cancer risk received quite a bit of attention in the early 1990s. In 1993, family history was mentioned as a risk factor in 41 percent of the articles, making it by far the most commonly mentioned risk factor; however it was mentioned in 20 percent of articles from 2003. The high percentage of articles including family history as a risk factor may reflect the fact that breast cancer genetics was a productive field of research in the early 1990s. Since the early 1970s, Mary-Claire King, Ph.D., and her team at the University of California at Berkeley had been working on locating BRCA1, a breast cancer gene (Cowley, 1993; Olson, 2002). In 1994, BRCA1was cloned and sequenced by researchers at the University of Utah (Olson, 2002). The emphasis on family history as a risk factor in some articles from 1993 may have done some women a disservice (Freimuth et al., 1984; Johnson, 1997). Contrary to the beliefs of many women, breast cancer is not generally an inherited disease (Cowley, 1993). The misconceptions many women have about heredity and breast cancer may cause some women to refrain from taking measures to reduce their risk of developing or

dying from the disease (Lipkus, 2001; Covello & Peters, 2002). Mentioning family history in conjunction with other risk factors for breast cancer, as was done in articles from 2003, may more accurately portray how most women should understand family history as a risk factor. Family history, long-term HRT use, heavy alcohol use, and smoking were some of the most commonly mentioned risk factors in articles from 2003. The three latter risk factors are considered modifiable, meaning women can eliminate these certain behaviors that may increase their risk of developing breast cancer (ACS: Breast Cancer Facts & Figures, 2003-2004). The inclusion of modifiable risk factors in health literature may empower women eliminate certain behaviors to reduce their risk of disease.

Having a mammogram was by far the most commonly mentioned preventive measure in 1993, appearing nearly 40 percent of the articles. Although having a mammogram was among the preventive measures mentioned in articles from 2003, the emphasis on mammograms was not as pronounced as in 1993. In 1996 the National Cancer Institute retracted its position that women should begin having annual mammograms at age 40 (Olson, 2002), which may have contributed to a lesser emphasis on mammography. Although mammograms are considered a valuable tool for the detection of abnormal masses in the breast, it is understood that mammography may fail to detect abnormalities in denser breast tissue, such as that of younger women (Loecher, 2003). In addition, techniques such as magnetic resonance imaging (MRI), are now used to locate breast cancer. Some articles from 2003 discussed techniques, in addition to mammography, used to detect breast tumors. For example, “Breast Cancer: The News

You Need to Know" (Zahn, 2003) mentioned ultrasound, digital mammograms (mammograms in which the X-ray image is recorded in computer code rather than on X-ray film), and MRI as screening methods.

Articles from 2003 focused on prevention in terms of lifestyle—eating a healthful diet and exercising regularly were some of the most commonly mentioned preventive measures. Most of the preventive measures mentioned reflect lifestyle practices that also can help prevent many other diseases. Andsager and Powers (1999) found prevention to be the most common theme in their study of articles from news and women's magazines from the 1990s. The current study found prevention to be one of the more common themes in articles from 1993 and 2003, but article from 2003 mentioned preventive measures more often. The increased mention of preventive measures might have reflected in part the 1995 publication of a report from the National Cancer Institute stating that lifestyle choices were perhaps the cause of greater breast cancer incidence (Olson, 2002).

The use all types of sources was fairly consistent in 1993 and 2003. As in several other studies on the coverage of breast cancer (Andsager & Powers, 1999; Andsager, 2001), physicians and scientists were the most commonly mentioned sources. At least one physician or scientist was mentioned in 74 percent of articles from 1993 and 80 percent from 2003. Susan Love, M.D., and Larry Norton, M.D., were the only physicians or scientists mentioned in both 1993 and 2003; Love was mentioned more than Norton, appearing 10 percent of articles in 1993 and 11 percent in 2003. Love has described herself as a "surgeon, breast cancer advocate and champion of breast cancer

patients" (Love, 2003). *Dr. Susan Love's Breast Book* is still referenced in articles about breast cancer 14 years after the first edition was published (Matthews, 2004). A second edition was published in 1995 and a third in 2000. Understandably then, Love was the most frequently used source in the articles given her more than decade-long advocacy for the detection and treatment of breast cancer (Olson, 2002).

Implications of the Study

While some implications of the current research are found in the details of the findings, others are more general. An emphasis on overall health habits for the prevention of disease in general, not just breast cancer, is apparent in this study. Most noticeably, the frequent mention of preventive measures—such as diet and exercise—in articles from 2003 indicates an emphasis on lifestyle choices. Given that research had linked obesity to greater estrogen exposure (Brody & Rudel, 2003; Love, 2003; Rosen, 2003), diet and exercise were most commonly mentioned in the context of helping to maintain a healthy weight.

Surveys indicate that many women overestimate their risk of developing breast cancer compared with other diseases such as lung cancer or heart disease (Mosca et al., 2000; Duncan, 2001; Covello & Peters, 2002). Magazine articles could be contributing to this misconception. Age is a known risk factor for breast cancer—a woman's risk of developing the disease increases with age. Few articles thoroughly addressed age as a risk factor, and even fewer included personal stories of women older than age 50. Most of the articles that included personal stories focused on breast cancer patients who developed the disease in their 30s and 40s. This portrayal is inaccurate given that the

average risk of a woman developing breast cancer between the ages of 30 and 40 is about one in 252 and between 40 and 50 it's one in 68, compared with one in 25 between ages 70 and 80 (Matthews, 2004). The problem with exaggerated perceptions of breast cancer risk for women of any age is that it may translate into the neglect of other serious health risks (Covello & Peters, 2002). The decrease in the presence of breast cancer articles in 2003, however, may be indicative of more balanced coverage of the range of women's health issues.

Long-term HRT use and its link to breast cancer, as both the dominant theme and risk factor in articles from 2003, may encourage women to learn more about HRT and other such treatments before deciding whether to use them. Some women may be more likely to discuss the potential side effects of HRT with their doctors after reading about its possible link to breast cancer. The dissemination of this information is important given that an estimated 15 million women used HRT in 1999 (Thomas, 2004).

In more recent years breast cancer has become more popularized—namely through fundraising activities. This is indicated in part by the presence of a fundraising theme in three articles from 2003, compared with none in 1993. The media coverage of fundraising events such as the Susan G. Komen Race for the Cure and the Avon Walk for Breast Cancer indicate a proactive approach to the disease and an emphasis on research and survivorship. Recently, though, fundraising has gone beyond just events. The October 2004 issue of *Real Simple* discussed eight products whose purchase donates a portion of the proceeds to organizations like the Susan G. Komen Breast Cancer

Foundation, the Houston M.D. Anderson Breast Center, and the Women's Cancer Research Fund (Chang, 2004).

Other Issues That Merit Media Coverage

Discussion of several issues was largely missing from the articles studied. As noted, few articles discussed breast cancer risk among African American women, and few addressed age as a major risk factor. Health insurance coverage for women with breast cancer was not discussed in articles from 1993 or 2003. Andsager and Powers (1999), however, did find mention of insurance, albeit rare, in their study. Health insurance is an important issue for women, regardless of their health status. Annual doctor visits, mammograms, and surgery, if needed, are difficult to arrange for women with inadequate or no health insurance. The National Breast Cancer Coalition acknowledges this problem and supports legislation to improve access to breast cancer screening, diagnosis, treatment, and care for women. According to the articles in this study, though, the media fails to discuss health insurance for women with breast cancer as though it is a major issue.

Additionally, exposure to certain environmental factors, such as toxins or radiation, and their role in the possible development of breast cancer received much less attention in 2003 than in 1993—and the attention was minimal in 1993. Research indicates certain environmental factors may cause breast cancer (Laden & Hunter, 1998; Lichtenstein et al., 2000) and the public deserves to be educated about those factors—especially if exposure is avoidable. The effect of environmental factors on breast cancer development is a timely issue, indicated by the National Institutes of Health's 2003

announcement of the establishment of four Breast Cancer and the Environment Research Centers "to study the prenatal-to-adult environmental exposures that may predispose a woman to breast cancer" (NIEHS, 2003).

Recommendations for Further Study

This study analyzed magazine articles from 1993 and 2003. It would be worthwhile to analyze coverage for the years in between to gather additional data on trends in coverage. A comparison of breast cancer coverage in magazine articles and other forms of media such as newspaper articles would serve as a logical next step. The findings from the current study could then be compared with data collected from other types of media to determine whether coverage varies, and if so, in what ways. Perhaps breast cancer articles that appeared in newspapers were more likely to address issues such as health insurance for breast cancer patients which were generally not addressed in the magazine articles analyzed.

An in-depth study of the coverage of well-known/famous women with breast cancer would likely prove quite interesting. For example, a comparison of the media coverage of Betty Ford's, Nancy Reagan's, and Elizabeth Edwards' experience with breast cancer could be conducted. Specifically, the research could look at which aspects of each woman's experience received the most coverage and whether those aspects varied with each individual. The study could also include a search for possible reasons for difference in coverage.

A study comparing the content of magazine articles on breast cancer with the content of medical journal articles on the disease may also make for interesting research.

A comparison such as this could investigate whether medical journals play an agenda-setting role to mainstream media. It would also be interesting and worthwhile to evaluate the accuracy of information that appeared in magazine articles on breast cancer that were based on articles from medical journals. Similar studies have been conducted (Houn et al., 1995; Moyer et al., 1995) and could easily provide a foundation for such research using the articles collected in this current study.

Although this current study was data-based rather than theoretically-based, the concepts of information subsidies and framing did slightly influence the study's design. Both theoretical perspectives have been used as the foundation in health communication research (Gandy, 1980; Andsager & Powers, 1999; Corbett & Mori, 1999; Andager 2001), some of which provided the background for the current study. Related studies could expand on these concepts. For example, research could focus on the use of information subsidies in magazine articles on breast cancer—specifically on the issuing of press releases. Since press releases are often used by some medical journals to communicate with the media (Woloshin & Schwartz, 2002), and the issuing of a press release by a medical journal appears to increase the likelihood that a medical article receives press coverage (de Semir, Ribas & Revuelta, 1998), a study of the influence of breast cancer-related press releases would contribute to health communication research.

Framing influences public understanding; therefore, it is important to understand how media framing occurs (Pan & Kosicki, 1993). An expansion of the current study could look at the ways breast cancer risk and breast cancer prevention are framed in magazine articles. Such as study could further draw upon Andsager and Powers' (1999)

research that determined the way breast cancer was framed in news and women's magazines in the 1990s.

Concluding Thoughts

The content of articles on breast cancer in women that were published in U.S. magazines in 1993 does in fact differ in some ways from that of those published in 2003. The differences in content appear to reflect in part social, political, and scientific occurrences during and immediately preceding this period.

Some of the most notable differences in content include a decrease in the emphasis of family history as a risk factor from 1993 to 2003 and an increase in the discussion of limiting HRT use as a preventive measure during those years. These differences appear to reflect research that was conducted during the period studied. An overlying theme that emerged in 2003 was a focus on overall health. For example, articles from that year tended to discuss breast cancer prevention in terms of maintaining a healthy weight and diet, exercising regularly, and avoiding smoking and heavy alcohol use. Although these activities are associated with a decrease in breast cancer risk, they also reduce the risk of developing other types of cancer and heart disease. Some aspects of article content, however, did not differ much in 1993 and 2003; breast self-exams for example were mentioned in 26 percent of articles both years. Since there is still much to learn about the causes and possible cure of breast cancer, an emphasis on overall health, prevention, and early detection of the disease is part of a woman's best defense.

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APPENDIX A

TIMELINE OF RECENT BREAST CANCER-RELATED EVENTS

1971: Congress passes National Cancer Act, giving the National Cancer Institute more authority and leadership appointed by the president

1972: Shirley Temple Black announces she has breast cancer

1974: Betty Ford & Happy Rockefeller have mastectomies, and announce them publicly

1975: National Women's Health Network is founded

1976: Study in *The New England Journal of Medicine* reports ERT use may increase breast cancer risk

1976: Nurses' Health Study is established

1979: National Institutes of Health recommends biopsies and mastectomies be performed at different times, rather than as one surgery

1982: Nancy Goodman Brinker founds the Susan G. Komen Breast Cancer Foundation

1987: Nancy Reagan has a mastectomy

1989: Study in *The New England Journal of Medicine* reports tamoxifen may keep women who have had breast cancer cancer-free

1989: Nurses' Health Study II is established

1990: *Susan Love's Breast Book* becomes a bestseller

1991: National Institutes of Health launches Women's Health Initiative (WHI)

1991: Medicare offers reimbursement for screening mammography

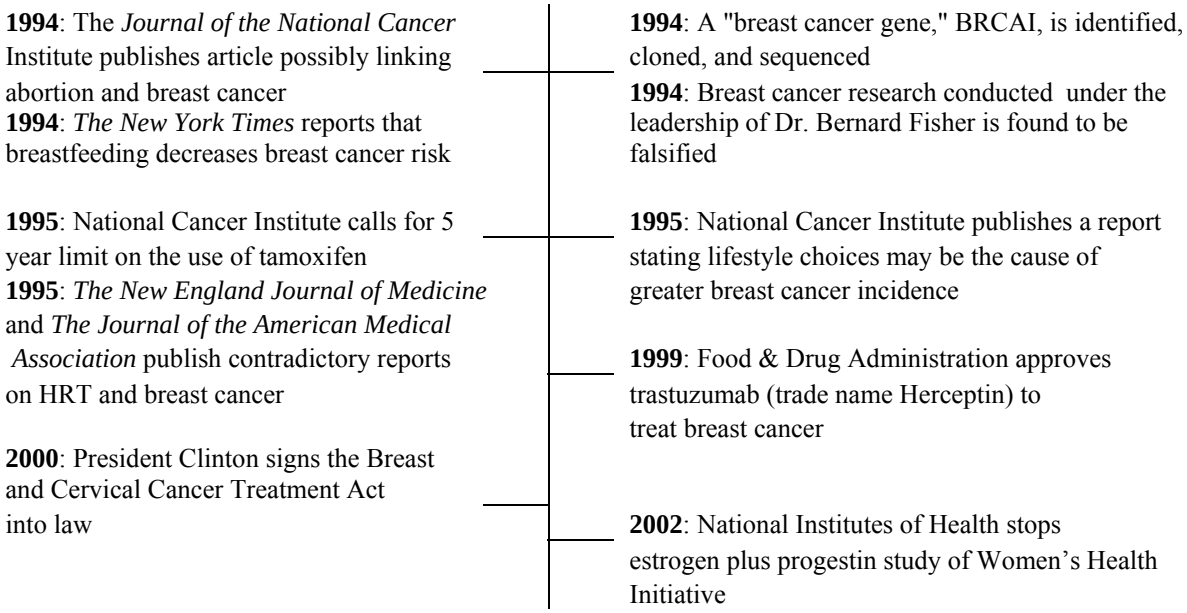
1991: National Breast Cancer Coalition is founded

1992: National Cancer Institute approves study to look at tamoxifen to prevent breast cancer

1993: U.S. funding for breast cancer research increases drastically to $343 million

1993: National Cancer Institute announces the lifetime risk of developing breast cancer is 1 in 8, not 1 in 9

1993: *The New York Times Magazine* publishes controversial cover photo of a mastectomy


1994: The *Journal of the National Cancer* Institute publishes article possibly linking abortion and breast cancer
1994: *The New York Times* reports that breastfeeding decreases breast cancer risk
1995: National Cancer Institute calls for 5 year limit on the use of tamoxifen
1995: *The New England Journal of Medicine* and *The Journal of the American Medical Association* publish contradictory reports on HRT and breast cancer
2000: President Clinton signs the Breast and Cervical Cancer Treatment Act into law
1994: A "breast cancer gene," BRCAI, is identified, cloned, and sequenced
1994: Breast cancer research conducted under the leadership of Dr. Bernard Fisher is found to be falsified
1995: National Cancer Institute publishes a report stating lifestyle choices may be the cause of greater breast cancer incidence
1999: Food & Drug Administration approves trastuzumab (trade name Herceptin) to treat breast cancer
2002: National Institutes of Health stops estrogen plus progestin study of Women's Health Initiative

APPENDIX B

ARTICLES FROM 1993

A strong circle of friends. (1993, February). *Consumer Reports, 58*, pp. 111.

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APPENDIX C

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APPENDIX D

DATA COLLECTION SHEET

<table>
<tr><td rowspan="2">Year:</td><td colspan="2">Magazine:</td></tr>
<tr><td colspan="2">Article Title:</td></tr>
<tr><td colspan="2">Cover Story: Y N</td><td>Personal Story: Y N
Well-known/famous: Y N, who:</td></tr>
<tr><td>Main Theme:
□ Fundraising
□ Hormone Replacement Therapy (HRT)
□ Living with Breast Cancer
□ Mammography
□ Politics
□ Prevention
□ Role of Genetics
□ Treatment
□ Other, specify:</td><td colspan="2">Sources:
□ BC patient(s), name:

□ Relative(s) of BC patient, name:

□ National Cancer Institute
□ American Cancer Society

□ Medical Journal(s), name(s):

□ Physician(s) or Scientist(s), name(s): affiliation(s):

□ Other, specify:</td></tr>
<tr><td colspan="2">Risk Factors Mentioned:
□ Age
□ Early Menarche
□ Exposure to Environmental Pollutants
□ Family History
□ Having 1st Child After Age 30
□ Having No Children
□ Having Non-cancerous Breast Condition
□ Heavy Alcohol Use (2+ dinks/day)
□ Late Menopause
□ Long-term HRT use (5+ consecutive years)
□ Race/Ethnicity
□ Other, specify:</td><td>Preventative Measures Mentioned:
□ Breastfeeding
□ Breast Self-Exams
□ Clinical Breast Exams
□ Exercise
□ Healthful Diet
□ Limit Estrogen Exposure
□ Mammograms
□ Tamoxifen
□ Other, specify:</td></tr>
</table>

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