CALIFORNIA STATE UNIVERSITY SAN MARCOS

THESIS SIGNATURE PAGE

THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE

MASTER OF ARTS

IN

PSYCHOLOGY

THESIS TITLE The Relationship Between Women's Decisions Concerning Hormone Therapy (HT) and Media Coverage of HT Scientific Findings

AUTHOR: Bonnie S. Hepburn

DATE OF SUCCESSFUL DEFENSE: December 03, 2004

THE THESIS HAS BEEN ACCEPTED BY THE THESIS COMMITTEE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN PSYCHOLOGY

Dr. Marie Thomas	Marie Thomas	12/3/04
THESIS COMMITTEE CHAIR (TYPED)	SIGNATURE	DATE
Dr. Sharon Hamill	Sharon B. Hamill	12/3/04
THESIS COMMITTEE MEMBER (TYPED)	SIGNATURE	DATE
Dr. Elisa Grant-Vallone	E G-V	12/3/04
THESIS COMMITTEE MEMBER (TYPED)	SIGNATURE	DATE

Running head: MEDIA AND WOMEN'S HORMONE THERAPY DECISIONS

The Relationship Between Women's Decisions Concerning Hormone Therapy (HT) and Media Coverage of HT Scientific Findings

Bonnie S. Hepburn

California State University, San Marcos

The Relationship Between Women's Decisions Concerning Hormone Therapy (HT) and Media Coverage of HT Scientific Findings

The modern western world currently is faced not only with a greater number of people but also with a "graying" population (Northrup, 2001; Samsioe, 1995). Women aged 50 and over are estimated to comprise 17 to 18% of the total U.S. population (AACE, 2003; Samsioe, 1995). By the end of 2004, over 50 million women will have reached menopause (AACE, 2003). Moreover, given that the average life expectancy for a woman is between 78 to 84 years, a woman can expect to live 30 to 40 years past menopause (Wagner, Kuhn, Petry, & Talbert, 1995). Changes that may accompany menopause (e.g., decreased hormone levels), combined with a longer life span, can raise a woman's risk for health problems, such as osteoporosis, heart disease, stroke, hypothyroidism, and dementia (AACE, 2003; Jones, 1997; Northrup, 2001; Samsioe, 1995). Any one of these health risks has the potential to affect a woman's quality of life. Therefore, it is no surprise that women's midlife health, with an emphasis on menopause, is a "hot" topic not only for researchers, consumers, physicians, and drug regulators, but the media as well (Andrist, 1998; Sweet, 2003).

Adding to the interest in women's health and menopause is the controversy surrounding the most widely recommended prevention of disease and treatment of menopausal symptoms in American women – hormone replacement (Andrist, 1998; Breslau, Davis, Doner, Eisner, Goodman, Meissner, Rimer, & Rissouw, 2003; Henderson, 2000; Sibbald, 2002; Sweet, 2003; Watkins, 2003). Even the

classification as hormone replacement therapy (HRT) or estrogen replacement therapy (ERT) came under scrutiny when the U.S. Food and Drug Administration on August 12, 2002 excluded the word "replacement" from the description of hormone therapy (HT) (Breslau et al., 2003). However, the real controversy surrounds the potential risks and benefits of HT for women.

Although questions about the risks and benefits of HT have been around for years, the controversy escalated in July 2002 with the announcement by the Women's Health Initiative (WHI) that a long-term study on more than 16,000 women taking "Prempro," a hormone replacement therapy (HRT) that is a combination of synthetic estrogen ("Premarin") and synthetic progesterone ("Provera"), had been abruptly halted due to the number of women encountering serious medical problems such as an increased risk for breast and heart disease (Writing Group for the Women's Health Initiative Investigators, 2002). Then in March 2004, a second arm of the WHI studies on women taking synthetic estrogen ("Premarin") alone was halted due to increased risk for stroke (The Women's Health Initiative Steering Committee, 2004). What followed was a flood of media attention reporting scientific results in which the risks of HT were showcased.

Many scientists view the media coverage of the WHI research as selective reporting, sensationalism, creating unneeded alarm, and a disservice to women (Sibbald, 2002; Sweet, 2003; Watkins, 2003). Reasons cited include the fact that all the positive findings of prior studies of estrogen's role in the prevention of diseases, such as heart disease and osteoporosis, were excluded (Sibbald, 2002;

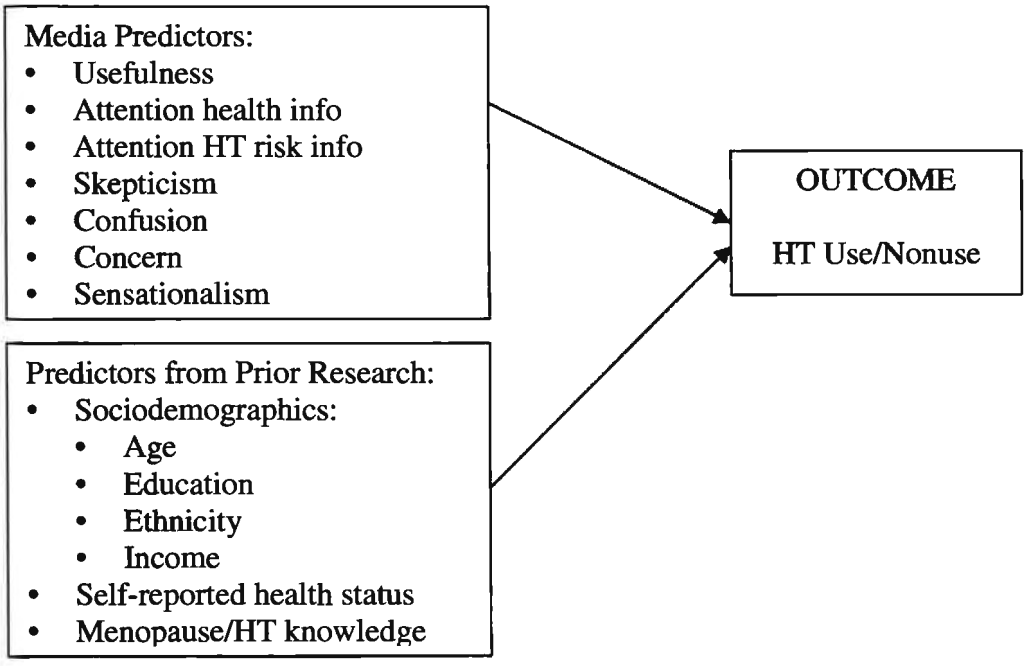
Sweet, 2003; Watkins, 2003). Plus, the increase in relative risks, rather than absolute risks, was reported (Sweet, 2003). In addition, "Prempro" and "Premarin" were the only forms of HT used in the WHI studies. Many researchers believe that there was (and still remains) a need for more natural human hormones to be tested before the media operated somewhat like a jury and reported the WHI findings as a verdict about hormone therapy in general (Sibbald, 2002; Sweet, 2003; Watkins, 2003).

Of major concern is the possible influence the media may have on women's decisions regarding health issues, including menopause. Several factors have exacerbated this concern. First, research has shown that women's attitudes and decisions can be greatly influenced by media reports (Andrist, 1998; Bond & Bywaters, 1999; Chen & Siu, 2001; Kalbfleisch, Bonnell, & Harris, 1996). Second, evidence shows that the media -- television, Internet, radio, magazines, newspapers, and books – is a primary source by which women acquire health and scientific information (Breslau et al., 2003; Carr, 1996; Griffiths, 1999; Kaufert, Boggs, Ettinger, Woods, & Utian, 1998; Liao & Hunter, 1995). Third, 30% of women over 40 do not discuss menopause and HT with their physicians (AACE, 2003; Conboy, Domar, & O'Connell, 2001). Fourth, recent research has shown that there is a gap between women's desire for HT information and what information actually is available from health care providers (Bastian, McBride, Fish, Lyna, Farrell, Lipkus, Rimer, & Siegler, 2002; Breslau et al., 2003). Lastly, while the media can serve to proliferate health information and provide a greater awareness

of women's health issues, the media also can sensationalize, over generalize, provide misinformation, and report the information as the final word on a particular issue (Andrist, 1998; Sibbald, 2002; Sweet, 2003; Watkins, 2003). The end result can be that women are confused as to what to believe and that they are left trying to make sense of all the information as it relates to their personal health (Andrist, 1998; Chen & Siu, 2001; Phillips, Kanter, Bednarczyk, & Tastad, 1991). Taking all of the above factors into account, the suggestion is that the media may play a critical role in influencing decisions that a woman makes concerning her midlife transition and menopause, such as whether to start, stop, or continue HT. In turn, a woman's decision about HT can ultimately impact her current state of wellbeing (e.g. temporary symptom relief) and/or long-term health (e.g., risks and benefits).

Whereas much research has been done on the impact of media attention in areas such as self-image, drug use, eating disorders, smoking, alcohol use, and violence, research is limited in the area of media influence on women's decision regarding HT. The little research that has been done in this area found women's decisions and responses to be mixed regarding recent and past HT medical information that was presented by the media. Some women were found to stop medication immediately (Breslau et al., 2003; Carr, 1996; Cousins & Edwards, 2002), many others sought advice from their health care providers before making a decision (Bond & Bywaters, 1999), while others continued taking HT (Col, Eckman, Karas, Pauker, Goldberg, Ross, Orr, & Wong, 1997).

Drawing from the communication model of persuasion theory, the goal of this study is to investigate the influence of the media on women's knowledge of, attitudes about, and decisions regarding HT relative to the most recent research findings of the WHI studies. Many questions need to be answered. For example, did the media coverage lead to treatment being stopped? If yes, did the women who stopped taking HT do so because they were confused or concerned about the information provided by the media or was it because they searched for more information? What are women's attitudes and intentions regarding HT use in the future? In addition to providing answers to such questions, another objective of this study is to determine if variables such as media influence (e.g., usefulness, attention), health status, and/or sociodemographic characteristics (e.g. income, education) can predict whether a woman does or does not use HT. The following figure illustrates this model.



In the first section of this thesis, a general introduction to the topic of menopause will be presented. Then, hormone therapy will be discussed including a brief history, predictors of use in women, and recent research findings. After that, media will be discussed from the perspective of past research, the communication model of persuasion as a theoretical framework to explain processes involved in influencing an individual's decisions, and the role of the media in health and HT information. Then, the use of the Internet as a research tool will be explored. Next, research questions and hypotheses will be presented. Subsequently, methods and procedures will be detailed. After that, research results will be presented. Finally, a discussion of results and implications of this study's findings will be offered.

Menopause

Menopause, as defined from a biological perspective, is the point in a woman's life when menstruation diminishes and eventually ceases, and her childbearing capabilities end (AACE, 2002; Bloch, 2002; Sommer, Avis, Meyer, Ory, Madden, Kagawa-Singer, Mouton, Rasor, & Adler, 1999). Human females are the only mammals that live past the ability to reproduce (Samsioe, 1995). Physiologically, menopause results from the ultimate loss of the ovarian follicles leading to a decline in estrogen and no further production of progesterone (Mader, 1998; Samsioe, 1995).

Although the average age of the onset of menses has decreased and life expectancy has increased, in western industrial countries the cessation of menses still occurs around the age of 50 which is deemed to be the normal age for the onset

of menopause (Bloch, 2002; Matthews, 1992). However, menopausal symptoms can begin in the middle to late thirties and early forties (Mader, 1998; Northrup, 2001).

There are three distinct states of menopause: pre, peri, and post. Each of these stages most often is defined by current menstrual status as follows: 1) premenopause: regular menstrual pattern over prior 12 months, 2) perimenopause: changes in flow or length of menstrual cycle (irregular pattern in the prior year), and 3) post menopause: no menstrual period in the previous 12 months (Avis & McKinlay, 1991; Bell, 1995; Liao & Hunter, 1995; Morse, Smith, Dennerstein, Green, Hopper, & Burger, 1994).

In the United States menopause is primarily represented as a medical condition in which associated body changes are described as symptoms in need of treatment (Bloch, 2002; Jones, 1997; Matthews, 1992; Matthews, Wing, Kuller Meilahn, Kelsey, Costello, & Caggiula, 1990; Morse et al., 1994). Menopause as a disease is defined as a deficiency of the sex hormones – estrogen and progesterone, with short-term and long-term effects (AACE, 2003; Jones, 1997; Northrup, 2001).

The short-term effects that accompany decreased levels of hormones include a wide variety of symptoms that have become directly associated with menopause (Conboy et al., 2001; Matthews et al., 1990; Noller & Fish, 1974). Research has shown that the ten symptoms menopausal women report most often on average include: 1) aches, pain, and stiffness in the joints and muscles, 2) lack of energy, 3) nervous tension, 4) vasomotor symptoms, such as hot flashes, 5) sleep

disturbances, 6) headaches, 7) forgetfulness, 8) irritability, 9) feeling blue or depressed, and 10) weight gain (Conboy et al., 2001; Matthews et al., 1990).

Long-term effects of hormone deficiencies during menopause include an impact on the bones, cardiovascular system, and cognitive functions (AACE, 2003; Jones, 1997; Northrup, 2001; Samsioe, 1995). Specifically, decreased estrogen levels have been connected to increased levels of cholesterol, which can lead to heart disease (AACE, 2003; Jones, 1997; Northrup, 2001; Samsioe, 1995). A decrease in estrogen also speeds up bone loss and increases the risk for osteoporosis (AACE, 2003; Jones, 1997; Northrup, 2001; Samsioe, 1995). Furthermore, some research suggests a possible connection between estrogen deficiency and Alzheimer's disease (Schneider, Farlow, & Pogoda, 1997).

For American women, the most widely recommended and prescribed treatment of long-term and short-term effects of declining hormones during menopause is hormone therapy (HT) (Andrist, 1998; Breslau et al., 2003; Sibbald, 2002; Sweet, 2003; Watkins, 2003). However, the decision to take or not take HT seems much like the treatment's history – a virtual roller coaster of risks and benefits. In the next section, hormone therapy is discussed including a brief history, predictors of use in women, and recent research findings.

Hormone Therapy

History and Early Research

In 1949, "Premarin," a synthetic estrogen derived from the urine of pregnant mares, was introduced as the first estrogen replacement (Northrup, 2001). Over fifty years later, Premarin still remains synonymous with hormone therapy (Northrup, 2001). However, Premarin has not maintained its position as "the queen" of estrogen therapy without a series of up and downs (Andrist, 1998; Northrup, 2001).

In the mid- to late-1970s, evidence began to surface that women who took estrogen replacement were at much higher risk for developing uterine cancer than women who did not take Premarin (Smith, Prentice, Thompson, & Herman, 1975). The demand and sales for Premarin crashed (MacPherson, 1991).

In the early-1980s, research began to report evidence of estrogen protecting against osteoporosis (Weis, Ure, Ballard, William, & Daling, 1980). During the same time period, studies showed that the risk of uterine cancer could be greatly reduced by adding progesterone to a woman's estrogen therapy (Northrup, 2001). Progesterone's role was to prevent excessive buildup of the endometrial lining thereby reducing carcinoma risk (Northrup, 2001). This new combination of estrogen and progesterone became more commonly known as HRT (Andrist, 1998). "Provera," a synthetic progesterone, was prescribed to all women taking estrogen (Premarin) except for those who had had hysterectomies (Northrup, 2001).

Doctors reasoned that there would be no need for concern about endometrial cancer, or progesterone, if the uterus had been removed (Northrup, 2001).

In the mid-1980s and early-90s, numerous studies also demonstrated estrogen's role in effectively protecting against cardiovascular disease – the number one killer of postmenopausal women (Bush, Barrett-Connor, Cowan, Criqui, Wallace, Suchindran, Tyroler, & Rifkind, 1987). Premarin sales soared to an all-time high (Andrist, 1998). Premarin was touted and prescribed as somewhat of a panacea for any and all menopausal symptoms, from hot flashes to depression, and as preventive medicine for everything from osteoporosis to Alzheimer's disease (Northrup, 2001).

However, in the mid-1990s some studies reported evidence of increased risks of breast cancer with the supplementation of combined estrogen/progestin (Collaborative Group on Hormonal Factors in Breast Cancer, 1997). Nevertheless, women were encouraged to continue taking HRT because the cardiovascular benefit was perceived to outweigh the risk for breast cancer (Northrup, 2001).

In 2000, physicians wrote 46 million prescriptions for Premarin making it the second most often prescribed drug in the United States and equating to sales greater than $1 billion (Kreling, Mott, Wiederhold, Lundy, & Levitt, 2001). Numerous other prescriptions also were written for "bioidentical" hormones that are designed to be an exact match of a woman's natural hormones with effects that are more consistent with a woman's biochemistry and with less chance of side

effects (Northrup, 2001). Given that hormone therapy has been so widely prescribed, it is important to understand what variables predict HT use and nonuse.

Predictors of HT Use

Over the years, estimates of HT use in women in the Western population have varied between 20 and 50% (Lagro-Janssen, Rosser, van Weel, 2003). A study in 2001 found overall prevalence rate of HT use to be 40% (Finley, Gregg, Solomon & Gay, 2001). However, in July 2003 the estimate was that 28% of American women aged 50 to 74 were HT users (Hersh, Stefanick & Stafford, 2004). Whether to use HT or not is a complex decision and most likely is influenced by a woman's beliefs, attitudes, and her personal characteristics (Ghali, Freund, Boss, Ryan, & Moskowitz, 1997; Jensen & Hilden, 1996; Keating, Cleary, Aossi, Zaslavsky, & Ayanlan, 1999). Studies have attempted to identify the social and behavioral differences between women who choose to take HT and those who do not (Brett, 2002; Ekstrom, Esseveld, & Hovelius, 2003; Finley, et al. 1999; Ghali et al., 1997; Jensen & Hilden, 1996; Keating et al., 1999; Matthews, Kuller, Wing, Meilahn & Plantinga, 1996; Morse et al., 1994). This research underscores the role of age, race, education, health and knowledge in predicting HT use.

Researchers have found age to be associated with HT use with younger postmenopausal women more likely to use HT than older women (Finley, et al. 1999; Keating, et al., 1999; Tang, Jacobs, Stern, Marder, Schofield, Gurlan, Andrews, & Majeux, 1996). For example, the Manhattan Study of Aging followed 156 users and 968 nonusers of HT from 1 to 5 years and found that users were

significantly younger than nonusers (Tang, et al., 1996). Furthermore, Finley et al. (2001) found in a study of 428 women aged 50 to 70 that odds of HT use among those women who were in their 60s was 40% lower than younger women.

Investigators also have found a tendency for white women to be more likely to take HT than women of color (Keating et al., 1999). For example, the National Center for Health Statistics analyzed data from the 1999 and 2000 National Health Interview Surveys (NHIS) to investigate the possibility of race as a predictive factor in HT use (Brett, 2002). Compilation of the 19,405 responses revealed that the ratio of white women using HT was double that of black women. One reason for such a finding might be that white women have greater access to health care and/or may be more able to afford the treatment because of higher income levels.

Other sociodemographic variables found to be statistically significant in women who use and want to use HT are higher education and higher income levels (Ghali et al., 1997; Jensen & Hilden, 1996; Keating et al., 1999). For example, Keating, et al. (1999) examined a national sample of 495 postmenopausal women to investigate individual characteristics and preferences that may influence HT use. The researchers found that HT use was significantly more common in college graduates than in women with less education. The researchers also investigated the possibility of higher education levels being correlated to the higher earnings they found among HT users. However, when they controlled for income and several other factors (e.g., access to health care and disease risk), none of the other

variables was able to explain the strong association found between education level and HT use.

Health status and lifestyle behaviors (e.g., exercise, weight) also have been found to be associated with HT use (Hulley & Grady, 2004; Morse et al., 1994). For example, a prospective study of 541 premenopausal subjects found that women who started using HT after menopause were healthier before use in terms of physical health status (e.g., blood pressure, cholesterol), weight and exercise than nonusers (Matthews, et al., 1996).

Women's knowledge, or lack of knowledge, as well has been found to be significantly associated with menopause symptoms (Hunter & O'Dea, 1999) and HT use (Bastian et al., 2002). For example, Hunter & O'Dea (1999) found that women who had significantly greater knowledge of menopause attributed fewer physical and wellbeing symptoms to menopause than controls. Additionally, Ghali, et al. (1997) found that in 182 women aged 50 to 70, more knowledge about HT was correlated to higher use. This knowledge seems to be related to health decisions. Bastian, et al. (2002) found that women with more information had more confidence in making decisions about HT relative to their own personal health (e.g., at higher risk for diseases such as osteoporosis or breast cancer) than women with less knowledge.

In summary, a number of sociodemographic and psychosocial variables have been found to be significantly associated with women's use of HT. Predictor variables include: younger age, white ethnicity, higher education and income

levels, better health and more knowledge about menopause and HT. The reasons for such findings might lie in the fact that white women are more likely to have opportunities for higher education, which has been correlated to higher income and, in turn, to greater access to health care. However, another suggestion is that higher educated women may be more likely to seek information about HT through sources such as the Internet, reading articles, or discussions with their physicians (Keating et al., 1999). The information that women find through different sources is influenced by research results on the benefits and risks of HT.

Current HT Research

With the dawn of the second millennium, research findings began to challenge the link between HT and reduced risk of heart attack or other heart disease (Northrup, 2001). Numerous studies had provided evidence that estrogen therapy (ET) alone would reduce menopausal symptoms such as vasomotor instability and vaginal atrophy (MacLennan, Lester, & Moore, 2001), help prevent bone loss (Aitken, Hart, & Lindsay, 1973), lower the risk for osteoporosis (Ettinger & Grady, 1994), reduce cardiovascular disease risk (Mendelsohn & Karas, 1999), and lower the risk for dementia and Alzheimer's disease (Hogervorst, Williams, Budge, Riedel, & Jolles, 2000). However, research evidence about the potential benefits and risks of adding progestin to the hormone cocktail was slow in coming and limited (Lacey, Mink, Lubin, Shgerman, Troisi, Hartge, Schatzkin, & Schairer, 2002).

Everything changed when the government-funded WHI conducted the first randomized primary prevention trials to assess the potential health benefits and risks of postmenopausal hormones (Writing Group for the Women's Health Initiative Investigators, 2002). From 1993 to 1998, the WHI recruited 161,809 postmenopausal women from 40 U.S. clinics. One arm of the study investigated long-term use of the most commonly prescribed HT in the United States, "Prempro" (a combination of Premarin and Provera), as a preventive strategy for heart disease, breast and colorectal cancer, and fractures in postmenopausal women. The participants were 16,608 women 50-79 years old with an intact uterus. Women randomly assigned to the experimental group received a combination of estrogen (0.625 mg.) and progestin (2.5 mg.) provided in a daily tablet of Prempro. Six-month clinical follow-ups with an annual visit to the clinic for a mammogram and breast exam were required. At annual follow-ups during years 3 and 6 electrocardiograms were administered. Monitoring of the trial began in 1997 with a planned duration of 8.5 years; the study was expected to culminate in 2005. In 1999 after 5 interim analyses, early but small adverse effects in cardiovascular results were observed. The participants were notified of the findings and informed that the research was "continued because the balance of risks and benefits remained uncertain." However, when updated analyses revealed an increase in the risk for breast cancer and that a cardiovascular risk persisted, the researchers decided the treatment was causing more harm than good. After an average follow-up of 5.2 years, the trial was stopped on May 31, 2002. For the women taking Prempro

compared to placebo, the relative risk of harm was reported as: 29% higher for cardiovascular disease, 41% higher for stroke, two times greater for pulmonary emboli, 26% higher for invasive breast cancer, 37% decrease in colorectal cancer, and 23% decrease in osteoporosis fractures.

In March 2004, the federal government dealt a final blow to hormone treatment when the seven-year estrogen-only arm of the WHI research was halted (The Women's Health Initiative Steering Committee, 2004). For this study, nearly 11,000 women, 50-79 years old, were recruited and received the same follow up as the women in the WHI "Prempro" trial previously described. However, all participants in this study had undergone a hysterectomy and received either estrogen-alone in the form of "Premarin" (0.625 mg.) or a placebo. The trial was halted early because there was an increased risk of stroke (33%) and no beneficial effect on heart disease risk was observed in the Premarin group. However, the risk of fractures was reduced as follows: hip 30%, vertebra 30% and osteoporosis-related 39%. The intended completion date of this trial was in 2005.

With the sudden end of the WHI studies came a barrage of media coverage which some scientists view as one-sided and a disservice to women (Sibbald, 2002; Sweet, 2003; Watkins, 2003). For example, the media failed to present positive findings from past research or report the fact that the WHI trials were conducted using only one type of HT (Prempro or Premarin). Of major concern is the possible influence the media may have on women and their decisions about HT use. Women should not make important health decisions based on media reports

without considering personal health factors such as genetic makeup or family history, and/or individual risk for disease such as breast cancer, osteoporosis, heart disease, and dementia. In the upcoming section, the media and how it is suggested to influence attitudes and behavior is discussed.

Media

Much research has been done on the impact of media on virtually all aspects of human behavior and social interaction (Carll, 2003). The influence of the news media is so pervasive and powerful that it has been said to function as "the gatekeeper of our perceptions of the world" (Carll, 2003). Findings have consistently demonstrated that the media plays an important, influential role in attitudes and behavior in such areas as self-image (Blowers, Loxton, Grady-Fleser, Occhipinti, & Dawe, 2003; Field, 2000; McCabe & Ricciardelliu, 2001), eating disorders (Martinez-Gonzalez, Gual, Lahortiga, Alonso, de Irala-Estevez, & Cervera, 2003), violent behavior in young viewers (Cantor, 2003), and even sexuality (Brown, 2002). To develop a better understanding of how the media influences attitudes and human behavior, research on the impact of the mass media on sexuality is presented.

According to Brown (2002), the ever increasing portrayals of sexuality on television, in magazines, movies, the Internet and so on, influence young people as they develop beliefs about sexuality and behavior patterns. For example, in a national survey of both male and female high schools students, more than half said they had learned about sex-related issues, such as birth control, from television and

63% of the girls and 40% of the boys claimed they had learned about similar sex topics from magazines (Sutton, Brown, Wilson & Klein, 2002). The suggestion is that the media influences sexuality by continuously keeping sexual behavior in the public's eye and, in turn, on personal agendas (Brown, 2002). Unfortunately, the media seldom represents sexually responsible models and, thereby, reinforces a somewhat negative set of sexual and relationship norms. Even news stories about presidential sexual affairs can provide a reference point about what is important and may help define appropriate and inappropriate behavior. Theoretical perspectives, such as social learning, cultivation theory, agenda setting/framing, and communication model of persuasion often are used to explain why media content may influence humans.

For example, social learning theory suggests that people observe and imitate behavior of others that has either been rewarded or has not been punished (Brown, 2002). Imitation, or modeling, occurs more readily if the model is perceived as attractive and if the behavior to be modeled is simple and possible. In the case of sexual behavior, the theory would predict that individuals who attend to media depictions of attractive characters having sex with virtually no negative outcomes would then imitate such behavior. However, in the case of health-related messages, such as HT, the communication model of persuasion has been chosen as a more appropriate theory to explain media impact.

The Communication Model of Persuasion

To understand media's role as a potential agent in women's decisions regarding HT, it is important to first address the processes that may be involved. More specifically, how might media content get into the minds of women and shape their attitudes, assumptions, and behaviors? In the 1940's, Lasswell proposed the hypodermic needle model – the speculation and assumption that as consumers of media information we absorb information much like a sponge, passively and unchallenged (McQuail, 2000). However, many current theories acknowledge that more complex dynamics such as existing worldviews, schemas, personal experiences, and/or persuasion are involved (McQuail, 2000; Lippa, 1994). The communication model of persuasion is a theoretical framework that may provide a possible explanation of how the media may influence women's HT decisions. The model focuses on four broad factors that are involved in persuasion (Lippa, 1994). The first factor is communicator variables (who), the second is message variables (what), then channel variables (by what means), and the fourth is audience variables (to whom). In other words, the "who says what by what means to whom" (Lippa, 1994).

Communicator variables refer to those aspects of the "who" that influence the speaker's persuasiveness (Lippa, 1994). These variables include communicator characteristics such as, perceived credibility, attractiveness, status, and/or trustworthiness. In studies of communicator characteristics and influence, results have shown that persuasion can be a result of speaker appeal such as attractiveness

rather than the receiver's logic, or the believability or rationale of the message itself (Hovland & Weis, 1951; Andreoli & Worchel, 1978).

Message variables refer to three specific message characteristics or factors that influence persuasion (Lippa, 1994). The first factor is the degree to which fear is evoked by the message. For the fear factor to effectively change an individual's attitude, the message must meet certain conditions (Leventhal, 1970). The message must first arouse substantial fear. For example, a woman must be convinced that taking HT is dangerous. Second, she must be convinced that if she does not heed the message warning/recommendation but instead decides to take HT, disease (a fearful outcome of the message) is quite likely to occur. And lastly, she must be convinced that if she does in fact heed the message's warning about HT that she will eliminate or reduce her risk of disease (eliminates the fearful outcome of the message) by not using HT. However, the suggestion is that a fearful message must provide an easy solution to the fear for it to be persuasive; if not, the message may be rejected or ignored by the recipient (Jepson & Chaiken, 1986). Specically, the fear from a frightening message about HT and disease risk must incorporate an easy solution – do not use HT – to be persuasive.

The second factor in message variables is the presentation of a message as a one-sided or two-sided argument (Lippa, 1994). The question of whether one-sided or two-sided messages are more persuasive varies depending on whether individuals agree or disagree with the message (Lippa, 1994). As a general rule, one-sided arguments are more effective when individuals already agree with the

communicator's message. For example, if the media were to present negative messages about HT, such as that treatment increases risk for heart disease, the argument may be more effective with women who already have concerns about potential HT health risks than women who believe there are more benefits than risks associated with the treatment. On the other hand, two-sided arguments are more effective when individuals disagree with the communicator's message. Another advantage of two-sided messages is what is referred to as the "inoculation" theory. According to McGuire (1964) people can be "inoculated," or become more resistant, to later arguments if both "pro" and "con" arguments are provided. Presenting both sides (two-sided messages) gives the receiver the opportunity to build defenses against future arguments. For example, if the media were to discuss positive along with negative HT research findings, women who believe there are more benefits than risks associated with the treatment (thereby disagreeing with the negative message) may be reinforced by the two-sided message and, therefore, become more resistant to further negative media messages about HT.

The third factor in message variable is repetition, how often the message is repeated (Lippa, 1994). Evidence strongly suggests that the more times a message is repeated the more persuasion is enhanced (Lippa, 1994). Research on the "mere exposure effect" (repeated exposure to a stimulus increases liking for that stimulus) also has investigated repetition of messages, or arguments, and has found positive effects on comprehension and, ultimately, persuasion (Bornstein, 1989; Arkes, Boehm, & Xu, 1991). For example, Wilson and Miller (1968) investigated the

effect of repetition of a legal argument in a jury trial on the subjects' remembering and agreement with the argument. Results showed that when the researchers repeated an argument three times to a jury, the jurors were not only better able to recall the legal argument but they were likely to agree more strongly with the argument than those subjects who received only one presentation of the legal argument. Therefore, repetition may be viewed as an effective means of influencing positive agreement with a message.

Channel variables -- the means by which messages are received -- also have been explored. Television, radio, Internet, newspapers, and magazines (mainstream mass media) are all channels of communication with one not being considered better than another in delivering a persuasive message (Lippa, 1994). However, mass media in general does have a major advantage over face-to-face communication (e.g., doctors or other health care professionals) in that huge numbers of people can be reached virtually instantaneously. Furthermore, print media has an additional advantage – the opportunity for the individual to comprehend and think more critically about the message/information being delivered by rereading information that was missed or misunderstood the first time (Maier & Thurber, 1968).

The final factor in the communication model of persuasion is target or audience variables such as intelligence, gender, and personality traits (e.g., self-esteem). Research regarding the ability of these variables to influence has proved to be somewhat confusing since opposing effects can take place at different stages

of the persuasion effect (Petty & Cacioppo, 1981; Rhodes & Wood, 1992). For example, intelligence has been found to increase an individual's comprehension of a message and at the same time decrease the persuasion effect. Self-esteem has been found to have similar effects on comprehension and persuasion as intelligence (Rhodes & Wood, 1992). However, the suggestion is that individuals with moderate self-esteem may be more easily persuaded than those who have high or low self-esteem. One rationale for this finding is that moderate self-esteem individuals pay closer attention to the information and are more open to changing their pre-existing position, attitude, or behavior (Lippa, 1994).

In summary, the main findings about the different variables – communicator, message, channel and audience, suggest that a communication process is the most direct approach to persuasion. More pertinent to this research project, the communication model of persuasion is an appropriate theoretical framework to address the question of how media content might get into the minds of women and shape their attitudes, assumptions, and behaviors about using HT. As discussed in the next section, there also are other factors that serve to increase the impact or power of the media.

Role in Health Information

With regard to medical and health information, the news media is a main source of information for the general public (Chen & Siu, 2001). Furthermore, according to the National Health Council Survey (Roper Search, 1997), 75% of Americans pay average to close attention to medical and health information

reported in the news. In addition, 58% used the information they read or heard in a news report and/or changed their behavior. The media's ability to disseminate massive amounts of information is a powerful tool that can be either positive or negative (Carll, 2003). An increase in health information in the news can be viewed as positive as long as the information provided is accurate and not sensationalized (Carlson & Eisenstat, 1996). For example, because of media attention the average woman of today is better informed about health matters, such as cholesterol and breast screenings, eating healthy, and exercise, than women were twenty years ago (Carlson & Eisenstat, 1996). However, if the health issue is controversial, like HT, the topic is more likely to receive media attention and the possibility for sensationalism and/or inaccurate reporting increases. Information that is sensationalized, incorrect, or presented as the last word instead of as a piece of knowledge, can leave a viewer, reader, or listener somewhat confused as to what to believe when trying to make sense of the information relative to their personal health (Andrist, 1998; Sibbald, 2002; Sweet, 2003; Watkins, 2003).

There are several circumstances or factors that can contribute to sensationalized coverage and/or suboptimal medical and health information being reported by the media (Chen & Siu, 2001; Johnson, 1998; Moynihan, Bero, Ross-Degnan, Henry, Kirby, Watkins, Mah & Soumerai, 2000; Nelkin, 1996; Ransohoff & Ransohoff, 2001; Shuchman & Wilkes, 1997; Steinbrook, 2000). One factor is that most news reporters and journalists lack training in scientific methodology and what constitutes good research (Johnson, 1998). A dramatic example is the

national media reporting of an Alzheimer study on an experimental treatment that involved only four patients (Johnson, 1998). Whereas scientists are aware that many factors, including adequate sample size, must be taken into consideration before research findings can be viewed as reliable, reporters are generally unaware of the scientific process and often overemphasize any finding as definitive. Another factor is that competition to be the first to break a major story is fierce (Chen & Siu, 2000). For example, the complexity of a biomedical research report may be sacrificed for a simple, yet gripping, story of a family pet that returns home after having been missing for 7 years. An added factor is that the audience must be "hooked" as quickly as possible to capture and maintain viewers' attention (Ransohoff & Ransohoff, 2001). For instance, the public often is "hooked" with tag lines such as "coffee causes cancer" when, in fact, the findings do not support such a statement (Ransohoff & Ransohoff, 2001). Plus, airtime and/or space frequently can be limited which can lead to a one-sided reporting since all the facts do not get aired (Chen & Siu, 2000). An example is that relative risks (how much the risk increased in the experimental group compared to the control group) rather than absolute risks (the difference between the outcome rates in the experimental and control group findings) are often reported about chemicals such as dioxin. An additional factor can be that research findings often are reported one time only with no follow-up stories (Shuchman & Wilkes, 1997). A good example was the rush to break the inaccurate story that an "alcohol gene" had been discovered. However, there was no follow-up report to tell the public that in actuality there was no such

gene. A final factor is that sometimes the media is used by researchers and medical institutions to increase public awareness, thereby increasing the probability that their future research will be funded, or simply to promote their research position, or to increase prescription sales as in the case of pharmaceutical companies (Johnson, 1998; Shuchman & Wilkes, 1997). For example, an expert the media chose to quote about the anti-aging properties of melatonin actually was the researcher and author of a popular book on the hormone who stood to gain a lot from the publicity (Shuckman & Wilkes, 1997).

Any one of the above factors can jeopardize the accuracy and/or quality of the information that is presented to the public by the media. For example, Moynihan et al (2000) reviewed the media coverage of three medications: pravastatin, alendronate, and aspirin. Of the 187 newspaper articles and 27 television reports assessed, quantitative benefits were not presented by 40% of the reporters/journalist, side effects were not discussed by 53%, treatment costs were not mentioned by 70%, and conflict of interest due to financial involvement was not disclosed by 50% of the experts who were referenced in the written or reported news. In summary, sensationalized and/or suboptimal reporting has a profound effect on the quality of the medical and health information that the public relies on to make decisions about their personal health. Given that news media is a main source of health information, it is important to consider the role it plays in HT.

Role in HT

Whereas the news media is a main source of health information for many people, for women it appears to be a particularly important source of information, including information about HT (Andrist, 1998; Breslau et al., 2003; Carr, 1996; Griffiths, 1999). This is of major concern for several reasons. For one, the media coverage of HT tends to be sensationalized and somewhat inaccurate. A good example is the media frenzy that followed the abrupt halting in July 2002 of the WHI long-term study on 16,000 women taking combined (estrogen and progesterone) hormone treatment. According to many scientists, the flood of media attention was one-sided. (NAMS, 2002; Sibbald, 2002; Sweet, 2003; Watkins, 2003). Specifically, none of the positive findings of estrogen's role in disease prevention from numerous past studies was reported (NAMS, 2002; Sibbald, 2002; Sweet, 2003; Watkins, 2003). Moreover, relative rather than absolute risks were reported. Specifically, relative risk of cardiovascular disease was reported as a 29% increase whereas the absolute risk is 7 more cases. Although it is appropriate to report trial results in relative risk terms for such disease risk, to apply and/or report the findings to laypersons, absolute risks also should be calculated and reported (NAMS, 2002). When translating the WHI findings, the North American Menopause Society (NAMS, 2002) points out that the absolute risk for harm (cardiovascular disease, stroke, blood clots and invasive breast cancer) in 10,000 women who take Prempro for a year in comparison to placebo is considered small– 100 in 10,000 women, or 1 per 100 women.

Another reason for concern about the media being the main source of information for women is that many women do not talk to their physicians about menopause or HT. Instead, women rely on the media, rather than experts, to supply them with important health and HT information (AACE, 2003; Conboy et al., 2001). For example, the AACE (2003) claims 30% of women 40 and over do not discuss menopause or menopause related issues with their physicians. The Conboy, et al. (2001) findings were similar; however, these researchers also found that, when women did talk to their physicians, the conversations were unbalanced. Specifically, slightly more than half (54%) of the women remembered HT benefits being discussed. On the other hand, only about 40% remembered having discussed HT risks. In addition, a mere 5% said their discussion included costs of HT and 17% said no alternatives were discussed.

An added reason for concern about the importance of the media as a main source of information for women is that women want more information about HT than what is available from health care providers (Bastian et al., 2002; Breslau et al., 2003). For example, Breslau, et al. (2003) found that nonwhite women and those with lower levels of income had the least amount of information and knowledge about HT and also were the women who were the least likely to seek information about HT. Perhaps this was because they believed they could not afford the treatment or did not know where to get information. However, almost 80% of these women stated that they wanted more information. Overall, consensus seems to be that women in general want more information about menopause and

HT than they receive and that lack of information impedes their decisions about HT (Hampson & Hibbard, 1996; Roberts, 1991). As a main source of information, this finding puts an added importance to the media reporting accurate findings and information.

Finally, research is limited in the area of the media's influence on women's decisions concerning HT. The research that has been done has resulted in mixed findings regarding women's decisions and responses to past HT coverage in the news media. For example, some women stopped taking HT (Carr, 1996; Cousins & Edwards, 2002; Meyer, 2001), others sought additional information from their physicians before making a decision (Bond & Bywaters, 1999), and some other women continued to take HT (Col et al., 1997). Conceivably, these findings could be due to the media presenting sensationalized, confusing, or one-sided information. Research regarding media coverage of the first WHI trial findings and its impact on women's decisions about HT also has produced mixed results. To my knowledge, there have been no studies conducted since the second WHI trial on estrogen-only (Premarin) was halted. However, shortly after the first trial on estrogen and progesterone (Prempro) was abruptly ended, Breslau, et al., (2003) conducted a national random-digit-dialing telephone survey to investigate women's knowledge and reaction to the research findings. A total of 818 women aged 40 to 79 were interviewed. Since most of the subjects were white women with higher levels of education, the sample was weighted to replicate the national distribution of women by census region, age, race or ethnicity, and educational attainment. The

participants were asked questions about a variety of issues including HT use/nonuse, knowledge of and response to the WHI findings, perceived risk for health conditions, information seeking behaviors, sources of health information, degree of satisfaction with information, sociodemographic and health characteristics, and attitudes toward health studies. Almost two-thirds (64%) of the women had heard some recent information about the HT study findings. However, nearly three-fourths (74%) were confused and more than half (57%) were worried about the study's findings and HT use. More than half (56%) also felt they were uninformed about HT. The majority of the women (79%) wanted more information about HT. Yet, additional HT information was sought by only about one-fourth (24%) of the women who knew about the WHI research. Sources most often used for health information were the media (67%) and health care professionals (48%). Many of the women had never used HT (63%), only 12% were past users, and less than a fourth (20%) were currently using HT. The researchers concluded that there is a great need for continued information that is accurate in order for women to be able to make educated decisions about HT.

Although Breslau et al. (2003) provided the first hint of women's reactions to the WHI estrogen and progesterone findings, a second WHI estrogen-only study has since been halted (March 2004) and decisions about HT continue to be difficult choices. More questions need to be answered. Did the media coverage lead to treatment being stopped? Did the women who stopped taking HT do so because they were confused or concerned about the information provided by the media or

was it because they searched for more information? What are women's attitudes and intentions regarding HT use in the future?

These kinds of questions are best answered through survey methodology. One method of obtaining a large survey sample is through Internet technology. In the next section, the use of the Internet as a research tool will be explored. First, the number of people that use the Internet to access health information will be presented. Next, the advantages and disadvantages of Internet methodology will be offered. Then, research on menopause and HT using the Internet will be discussed.

The Internet as a Research Tool

Internet Usage and Health Information

By Spring 2002, 58% of all American adults were using the Internet (Lenhart, Horrigan, Rainie, Allen, Boyce, Madden & O'Grady, 2003). The number of Americans who have access to the Internet increased from 22 million in 1995 to 185 million as of September 2003 (Neilsen//NetRatings, 2003). That number is estimated to be increasing at a rate of 10% each month (Negroponte, 1995). By 2010, 90% of all U.S. households are projected to have Internet access (Feld, 2001).

As rapidly as the Internet population has grown, so has interest in its use for access of health information and possible role in health care (Campbell & Wabb, 2003; Chamberlain, 1996). According to the Pew Internet & American Life Project, 7 million people search the Internet daily for health-related information (Fox & Rainie, 2000). Moreover, women (63%) are more likely than men (48%) to

use the Internet to access health-related information (Brodie, Flounoy, Altman, Blendon, Benson & Rosenbaum, 2000). Women use the Internet as a source of information about such issues as menopause and HT (Conboy et al., 2001). The Internet is an avenue by which both women and men can learn about health issues, illnesses, disease prevention, and promoting good health practices (e.g., exercise, nutrition, supplements). The Internet also provides users with information from which they can evaluate disease or illness treatments and learn about other treatment options.

According to Fox and Rainie (2000), 70% of Internet users who search for online medical information claim that their opinion of how a disease or illness should be treated was influenced by the information they found. Moreover, 50% state that Web information led them to get a second opinion or ask their doctor new questions. Furthermore, 28% report that online information swayed their decision as to whether they should or should not see a doctor. For example, Chen and Siu (2001) explored patient and physician use of the news media and the Internet as sources of medical information looking at the outcome on treatment decisions and the patient-doctor relationship. The researchers conducted a survey of 191 cancer patients and 410 oncologists. The Internet was the most popular choice as a source with over 50% of the patients reporting that they had searched the Web for information about their illnesses. Furthermore, more than 70% of the oncologists reported that they paid special attention to medical and health information in the media and the Internet. However, 90% of the doctors reported that medical

information provided by the media and Internet was difficult for their patients to interpret and understand the correct meaning. This suggests that there are advantages and disadvantages of using the Internet to investigate health issues.

Advantages and Disadvantages

The Internet has become a popular medium for data collection because it offers access to millions of potential research subjects, including unique populations (e.g., menopausal women) with minimal risk involved (Binik, Mah, & Kiesler, 1999; Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004; Schmidt, 1997). The Board of Scientific Affairs' Advisory Group for the American Psychological Association claims that collecting data via the Internet makes research easier to conduct surveys and "decreases the cost of recruiting large, diverse, or specialized samples of research subjects" (Kraut, et al., 2004).

Another benefit is that a "human experimenter" is not needed to greet each new subject, deliver instructions, or supervise collection of the data (Kraut, et al., 2004). Plus, in comparison to paper and pencil surveys, Internet surveys offer flexibility (e.g., skip logic allows participants to respond to a question based on their answer to a prior question; Kraut, et al., 2004). Unlike conventional questionnaires, Internet survey response items can be set up to randomize automatically, which assists in eliminating response bias. Furthermore, because no "human transcription" of data is required, there is less chance for error (Kraut, et al., 2004).

An additional advantage of Internet research is that it involves minimal risk (Kraut et al., 2004). In fact, Kraut et al., (2004) suggest that Internet surveys "may be less risky" than telephone surveys, or experiments, because social pressure is reduced and it is much easier for participants to quit if they feel any discomfort.

Debriefing also can be simpler with Internet research (Kraut et al., 2004). By simply selecting a "leave the study" option, participants can be debriefed at any point that they might choose to leave the study.

On the other hand, there are challenges with Web research. A formidable disadvantage of the Internet is what has been termed the "digital divide" (Brodie, et al., 2000; Lenhart, et al., 2003). The digital divide refers to the fact that not everyone has access to the Internet and, even among groups with access, there are demographic gaps (Brodie et al., 2000; Lenhart et al., 2003). Demographics of those who have Internet access and are actual Internet users differ from those that do not have Internet access and are nonusers by race, gender, age, education, and income (Best, Krueger, Hubbard, & Smith, 2001; Brodie et al., 2000; Lenhart et al., 2003). Internet users are more likely to be white (77%) in comparison to black (8%) or Hispanic (9%). As for gender, Internet use is evenly split (50-50); however, there are more women (52%) in the national population than men (48%), which means that in actuality fewer women have access to the Web (Lenhart et al., 2003). Age gaps in Internet use exist between the 30-49 age group (47% of this group are Internet users) and 50+ age group (22% are Internet users; Lenhart et al., 2003). However, there are more people in the national population who are 30-49

years old (42%) than in the 50+ age group (35%; Lenhart et al., 2003). In comparison to nonusers, users also have higher levels of education (71% have more than a high school education) and income (44% earn $50,000 or more; Lenhart et al., 2003). However, gaps in the "digital divide" have narrowed since the 1990s (Kraut, et al., 2004). For example, although many Internet consumers are young, 55+ users are suggested to be the fastest growing segment of Internet clients at an estimate of 18.4% per year (Feld, 2001).

Generalizability of Internet survey data also has been questioned since there is no way to conduct a random sample of Internet users (Kraut, et al., 2004). However, research on Internet surveys has been conducted to address generalizability issues (Best et al., 2001; Bimber, 1998; Krantz, Ballard, & Scher, 1997; Kraut, et al., 2004). For example, Best and colleagues (2001) investigated the assumption that Internet users employ similar decision-making processes as those of the general population. Specifically, they wanted to know if Internet users make use of their attitudes and beliefs in the process of making a decision. The researchers conducted a study in which they investigated sampling method (Internet and telephone) effects on "preference formation" in two familiar political decisions (presidential approval and vote choice). The Internet and telephone samples generated statistically similar responses. The researchers concluded that psychological mechanisms that generate attitudes and beliefs are not a function of the Internet and, therefore, would not directly impact the dependent variable or indirectly mediate or moderator other factors that could possibly influence the

dependent variable. In other words, the decision-making process that produces attitudes and beliefs is the same in Internet users as in the general population.

Another concern is the potential for loss of control in monitoring who the actual participants are in the study (e.g., Is the participant actually a woman?), or if the participant is submitting multiple surveys and/or distorted information (Kraut, 2004). Although there is no sure solution to eliminating participants from reporting inaccurate, or even false information from any survey research, there are many software packages and services, such as SurveyMonkey, that have checks and balances in place that virtually eliminate the duplicate response issue. But how might a researcher employ the Internet to address topics relevant to middle-aged American women?

Internet Methodology for HT Research

Although limited, the World Wide Web has been used to conduct Internet surveys on issues pertinent to middle-aged American women (Campbell & Wabb, 2003; Conboy et al., 2001). For example, Conboy, et al. (2001) surveyed 448 women about issues related to menopause: attitudes, beliefs, symptoms, choice of treatment, and information sources. The 189-item survey also included quality of life measures and questions relative to lifestyle habits, stress, and anxiety. Survey results indicated that women receive most of their information about HT and general health from sources other than health care providers (e.g., magazines and books, other women, the Internet, TV, and radio). More symptoms were found to be positively associated with greater anxiety. More menopausal symptoms also

were found to be positively associated with higher stress scores. However, a negative relationship was found between lifestyle habits and symptoms. The researchers concluded that because their results were similar to those discovered through sizeable randomized telephone survey methods, the Internet was a reliable, convenient means for collecting data concerning health issues such as menopause.

For this research project, the Internet provided a venue to access subjects with similar demographics. Specifically, Internet demographics of female users closely match the demographics of women who intend to or do use HT: white, higher levels of education and income. Moreover, Internet data collection was done in a convenient, reliable, and economical manner.

Research Questions and Hypotheses

The first goal of this study was to answer, through survey methodology, questions about women's use of HT, and how HT use has been affected by media coverage of the WHI findings. Some of the questions of interest are: Why do women start taking HT (e.g., symptoms, disease prevention, panacea against aging)? From what source(s) (e.g. magazines, Internet, TV) did they first learn of the WHI findings? Did the media coverage cause confusion and concern? Did media coverage lead to treatment being stopped? What are women's attitudes and intentions regarding HT use in the future?

A second goal of this study was to look at predictors of HT use/nonuse in menopausal women. Previous research has shown that younger women of white ethnicity, who have higher income and education level, better health and have more

knowledge about menopause and HT are more likely than other women to use HT. Media coverage of women's health issues in general and the WHI findings in particular, may play an additional role in the prediction of HT use. Therefore, two hypotheses were tested:

H1: Sociodemographic variables (age, income, education, ethnicity), self-reported health status and knowledge about menopause and HT will predict HT use/nonuse.

H2: Use of the media as a source of information about women's health issues, and knowledge and attitudes about the media coverage of the WHI study findings will significantly add to the prediction of HT use/nonuse over that afforded by the above variables.

Method

Participants

Participants were 886 women who ranged in age from 40 to 84 years old. Mean age was 52.73, $SD = 7.6$.

The sociodemographic characteristics of the sample are displayed in Table 1. The majority of the participants were white (87%) with close to 30% reporting a household income of more than $100,000. In terms of education level, close to 40% were postgraduates. Forty states of residence were represented with the largest group of respondents living in California.

Twenty-three percent of the respondents were premenopausal, 16% were perimenopausal, 38% were postmenopausal and 23% had experienced surgical

menopause. The mean ages of the four menopausal status groups were: 45.36, 49.14, 57.48 and 54.96 respectively.

Survey Description

The survey used in this study (see Appendix for survey) was administered through the Internet and took approximately 10-15 minutes to complete. Due to item branching, the number of items participants answered varied from a minimum of 59 to a maximum of 74 items. For example, if a participant had never taken hormone therapy she was not presented with items about treatment. The survey items were grouped into seven sections: Menopausal status and hormone therapy (HT) experience, Media coverage of WHI study findings, Health, Menopause and hormone therapy (HT) knowledge, Women's health information sources, Attitudes toward the media in general, and Sociodemographic characteristics. Following is a discussion of each section.

Menopausal status and hormone therapy (HT) experience. The first question of the survey assessed menopausal status (pre, peri, post, or surgical). Next, an item categorized participants into one of four groups: 1) women who have never taken HT, 2) those who are current users and have never stopped treatment, 3) those who stopped taking HT, and 4) those who stopped taking HT but started again. Menopausal status and HT group items were based on questions asked in the Breslau, et al. (2002) telephone interview.

Table 1

Sociodemographic characteristics of sample

Characteristic	%
Ethnicity (n =816)	
White	87.0
Black or African American	6.1
Hispanic or Latino	2.9
Asian	1.2
Multiethnic	1.0
American Indian	.6
Other	1.1
Household Income (n = 756)	
Less than $25,000	4.2
$25,000 to $50,000	18.9
$50,000 to $75,000	23.5
$75,000 to $100,000	24.1
More than $100,000	29.2
Education Level (n = 813)	
Less than high school	.2
High school graduate	7.6
Post high school	27.8
Nursing (RN)	1.7
College graduate	26.2
Postgraduate	36.4
State of Residence (n = 813)	
California	41.1
Virginia	8.2
New York	7.4
Kentucky	6.5
Florida	4.3
New Jersey	4.2
Texas	3.0
Other	25.3

Media coverage of WHI study findings. This section was referred to differently in the survey according to how the participants categorized their HT experience. As an example, the section for the subjects who indicated they had never taken HT was entitled, "Never Taken Hormone Therapy (HT)." This section investigated the influence the media coverage of WHI study findings may have had (or will have) on women's decisions about HT use. Participants first were asked if they were aware of the WHI study findings. Women in all HT status groups who were aware of the WHI reports then were asked to identify from a selection of nine source(s) from where they received most of their information. The selection choices were: other women, newspaper articles, television, health care provider, books, radio, scientific journal articles, magazine articles, and the Internet. These items were based on those used by other researchers (e.g., Breslau, et al., 2002; Conboy, et al., 2001).

Women who were aware of the WHI findings also responded to the following three items: "The media's reports on the WHI study confused me," "The media's reports on the WHI study caused me concern," and "I am skeptical of the media's reports on the WHI study's HT findings." Original intentions were to combine these three items; however, due to lack of scale reliability, the decision was made to investigate the items individually. A fourth item was geared to each specific group. For women who had never taken HT the item was: "The media reports on the WHI findings will affect, or have affected, my decision to take HT." For current HT users who have never stopped treatment, the item was: "Despite the

media reports, I intend to keep taking HT." The item that was presented to both women who have stopped HT and those who stopped HT but started again was: "The media reports on the WHI study influenced my decision to stop taking HT." A five-point unipolar response scale, from 1 "strongly disagree" to 5 "strongly agree," was used for all these items. These items were based on questions asked in the Breslau, et al. (2002) study.

Health. This section included 11 items about the participants' current health and lifestyle choices that affect health (e.g., exercise and weight). The original plan was to assign points to each item and create an overall "Health Score." However, the decision was made to separate self-reported health status and lifestyle choices as a more effective means of investigating possible differences in HT experience groups. The first item in this section subjectively assessed health based on a single self-rated health question (Idler & Benyamini, 1997). Survey participants were asked to rate their own health on a 5-point scale that ranged from "excellent" to "poor." Next participants responded to ten items about their lifestyle that affect their health. For example, women were asked to rate themselves with regard to their ideal weight. The set of response alternatives were: 20+ pounds over ideal weight; Less than 20 pounds over but more than 10 pounds over ideal weight; Less than 10 pounds over but more than 5 pounds over ideal weight; Less than 5 pounds over ideal weight; Ideal weight; More than 5 pounds under but less than 10 pounds under ideal weight; and More than 10 pounds under ideal weight. Items in this

group were based on previous studies investigating health and lifestyle habits in menopausal women (e.g., Matthews, et al., 1996; Morse, et al., 1994).

Menopause and hormone therapy (HT) knowledge. Items in this section included ten True/False questions about the effects of hormone changes during the stages of menopause and health risks and benefits associated with hormone therapy. These items assess level and accuracy of knowledge about menopause and HT. The items were written specifically for this study using prior research findings as a guideline (e.g., The Women's Health Initiative Steering Committee, 2004; Writing Group for the WHI Investigators, 2002). Content validity of the items was established by having two experts rate the questions (McIntire and Miller, 2000). Dr. Erica Breslau with the National Cancer Institute in Bethesda, Maryland and health educator Linda Shaffer of MiraCosta College in Oceanside California, two experts in the field of women's health, rated each knowledge item's relevance to HT and menopause as necessary, useful but not necessary, or not necessary. Items were retained or eliminated based on the experts' judgments. An example item states: "Menopause results from a decline in estrogen and no further production of progesterone." A "Menopause and HT Knowledge Score" was computed for each participant with scores ranging from zero to ten. Each correct answer was worth one point; the knowledge score consisted of the number of correct items. Therefore, higher scores were indicative of a woman with more menopause and HT knowledge than women with lower scores. An internal consistency reliability

analysis revealed a modest Chronbach's alpha reliability coefficient of .69 for the ten items.

Women's health information sources. A total of 21 items in this section determined: 1) the sources participants use to obtain information about women's health issues such as HT, 2) the women's assessment of the usefulness of these sources, 3) the attention they give to these information sources, and 4) their attitudes towards media as a source of health information. Source usefulness, attention to media, and attitudes towards the media items were based on questions asked in the Griffin, Neuwirth, Giese and Dunwoody's (2002) study on health risk-information seeking. Participants first were asked to identify their sources for HT and other health-related information. Next, participants rated source usefulness on a scale of 0 ("No useful information) to 10 ("A lot of useful information"). After that, participants rated on a scale of 0 ("None") to 10 ("A lot") how much attention they give to different sources when the topic is about women's health issues or about risk associated with HT. Lastly, participants were asked to provide information about their attitudes towards the media using a five-point unipolar response scale, from 1 "strongly disagree" to 5 "strongly agree.

Items in this section were used to form three scales to measure media influence with regard to women's health issues. The first scale, "Media Usefulness," summed the usefulness ratings for the five media sources: newspapers, Internet, television, radio, and magazines. Scores ranged from 1 to 55, with a higher score indicating that the participant believes the media sources

provide useful information about health issues such as menopause and HT. (Scores on this and the two "attention" scales were recoded so that they ranged from 1 to 55 instead of 0 to 50 because SurveyMonkey uses "0" as a default value for missing values.) An internal consistency reliability analysis revealed a modest Chronbach's alpha reliability coefficient of .65 for the five media sources. For the second scale, "Attention to Media Health Information," ratings about the attention participants give to various media sources of health information were summed. Scores on this measure ranged from 1 to 55, with higher scores representing greater attention paid to media sources of health information. Chronbach's alpha was .77 for the five health information items. For the third scale, "Attention to Media HT Risk Information," ratings about the attention participants give to various sources of information on HT risk were summed. Scores on this measure ranged from 1 to 55, with higher scores presenting greater attention given to media sources of HT risk information. Chronbach's alpha was .81 for the five risk information items. Validity for these scales was established through pilot test participants' ability to successfully identify the constructs.

Attitudes toward the media in general. In the survey this section was referred to as "Your Opinion." Originally, the plan was to create an "Attitude Towards the Media" scale by combining the following three items: "The media often exaggerates and sensationalizes news stories," "News stories with statistics are more believable than those without statistics," and "When the information appears in many places, I'm more likely to believe it." Because pilot study results

indicated that the scale did not meet a minimum level of reliability, the items were assessed individually.

Sociodemographic characteristics. Measured sociodemographic characteristics (referred to as "About You" in the survey) included age, ethnicity, education, and household income. The ten sociodemographic questions and categories in this section were based on a variety of studies on menopause and HT (e.g. Breslau, et al., 2002; Gahli et al., 1997; Jensen & Hilden, 1996; Sommer, et al., 1999). Age was an open-ended response item. The set of response alternatives for ethnicity were: Alaska Native, American Indian, Asian, Black or African American, Hispanic or Latino, Native Hawaiian or Other Pacific Islander, Multiethnic, White, and other. For education, the fixed set of responses were: Less than high school, High school graduate, Post high school, Nursing, College graduate, and Postgraduate. The household income response categories were: Less than $25,000, $25,000 to $50,000, $50,000 to $75,000, $75,000 to $100,000, and More than $100,000.

Survey Development

The initial step was to create and pretest a pencil and paper survey with individuals who shared similar characteristics with the target group to be studied – women 40 and older. To gather input about the survey, the women, all instructors or employees of MiraCosta College in Oceanside, California, were asked to annotate in the right margin of their surveys any comments, questions, confusion and/or suggestions. Following participants' completion of the survey, a short

pencil and paper questionnaire was administered and a half hour focus group took place to discuss the survey, research topic, and the participants' impressions of the items.

SurveyMonkey.com software was used to convert the finalized pencil and paper survey into an Internet-ready survey (see Appendix for survey). SurveyMonkey has the capability to present a variety of item types (e.g., multiple choice, rating scales) and, where appropriate, to randomize answer choices to eliminate bias. In addition, custom skip logic guided a participant to the next appropriate question based on the respondent's answer which then eliminated the need for the woman to view items not applicable to her. For example, if a participant responded that she had not heard about, or read media reports on the WHI study, a branch took her directly to the "Health" section, skipping all other questions related to the WHI research.

The Internet version of the survey was pilot tested with 18 women who ranged in age from 40 to 57. The sample was very diverse in terms of age, ethnicity, education level, and household income. All stages of menopausal status (pre, peri, post, and surgical) were represented. In addition, participants' experience with HT represented all possible response selections (never taken, currently taking, stopped HT, stopped HT and started again).

To more closely match the actual research situation, each woman who initially agreed to participate was sent an E-mail that included a web link to the survey. By simply clicking on the link, each participant accessed the survey and

responded to the survey items applicable to her HT experience. The participants' data were collected electronically by SurveyMonkey. Once data collection was complete, the survey was closed and the data were downloaded into Excel and then SPSS for analyses. The participants also were sent by E-mail a questionnaire asking if they were able to identify the construct being measured for each set of items.

As part of the pilot study, a group of graduate students also were sent the survey and given the task of attempting to "trick" it. The objective was to ensure that false surveys and bogus information could be identified.

The pilot study data were used to establish that all branching logic was working appropriately, and to assess data handling capacity. In addition, final versions of scales were constructed. Items were retained or deleted based on the results of the internal consistency reliability analyses (Cronbach's alpha) and validity was established as described in the appropriate section under survey development.

Procedure

A number of recruitment alternatives were investigated, such as posting the survey at Web sites that provide information, advice, and services about women's health issues, using a commercial service to post the survey to a nationally representative panel, or advertising on "Google." However, the decision was made to start with "snowballing," a nonprobability method of sampling used when the desired sample characteristic is not the norm or it would be extremely difficult or cost prohibitive to locate subjects in such a situation (Mutchnick & Berg, 1996).

The technique relies on referrals from initial subjects to generate additional subjects and has been used to study a variety of topics such as substance use in teenagers, public health nutrition, and illicit drug dealing (e.g., Hughes, 2003; Boys, Marsden, Griffiths, Fountain, Stillwell & Strang, 1999; Walters & Biernack, 1989). In this study, E-mail contacts were asked to pass the survey on to others. The survey also was posted to the Social Psychology Network, a Web site that specializes in advertising research opportunities. The plan was to employ other alternatives if, after a reasonable period of time, the 500 respondents necessary for an adequate sample size were not obtained.

Beginning July 13 through July 20, 2004, a total of 107 potential participants were sent an E-mail containing the link to this study's Internet survey. Within eight days, the initial goal of 500 respondents was reached. In mid-August, the survey site was closed with a sample of 985 respondents. Only two subjects responded through the Social Psychology Network website. Since there were so few subjects, the decision was made to not mix data obtained from two different sampling techniques.

From the solicitation E-mail, participants clicked on the web link to access the survey. After reading an introduction that included a statement of consent and confidentiality, the participant could click "Next" to respond to the survey items applicable to her HT experience. Since risk was low to respondents, continued participation in the online survey signaled consent. At any point before submission of the completed survey, subjects could choose not to continue to participate by

clicking the "Exit this survey" button. Once a subject completed the survey items, she was thanked, given the opportunity to request results of this research, and asked to forward the E-mail to other women.

To protect participant confidentiality, a computer "cookie," rather than name and E-mail address, was used to identify, transmit and store data. All data were collected electronically by SurveyMonkey. Once data collection was complete, the survey was closed and the data for the 985 respondents were downloaded from SurveyMonkey into Excel. The data were then filtered and extensive data cleaning was done using the computer "cookies" to identify and remove identical entries and/or records that were missing much of the data. Once data cleaning was complete, there were 886 total cases that were downloaded into SPSS for statistical analyses.

Results

The main variable of interest in this sample is the respondents' use or nonuse of HT. Therefore, subsequent results are based on the four groups of HT experience and will be referred to as follows: 1) "Never Taken," 2) "Current Users," 3) "Stopped," and 4) "Started Again."

Sample Characteristics

Of the 886 women, 55% reported they had "Never Taken" HT," 13% were "Current Users," 26% "Stopped," and 6% reported their HT experience as "Started Again." Percentages of respondents by HT group and menopausal status are presented in Table 2. Unless otherwise noted, descriptive analyses were conducted

on the full sample; the logistic regression analyses testing the study's hypotheses only utilized menopausal participants (peri, post, surgical menopause).

Table 2

Percentage of Respondents in Each HT Group by Menopausal Status

HT Group	HT % (N = 886)	Menopausal Status			
		Pre %	Peri %	Post %	Surgical %
Never Taken (n = 487)	55.0	40.7	23.8	38.2	8.8
Current Users (n = 115)	13.0	2.6	7.8	31.3	58.3
Stopped (n = 233)	26.3	.9	5.6	65.2	28.3
Started Again (n = 51)	5.8		5.9	43.1	51.0
	Menopausal Status % (N = 886)	22.9	15.9	38.4	22.8

Two one-way ANOVAs were run to determine whether the HT groups and the menopausal groups differed by age (see Table 3 for mean ages by HT and menopausal status). A two-way ANOVA with menopausal status and HT group as the independent variables was not performed because of large discrepancies in cell sizes.

A one-way ANOVA looking at age differences by HT group was significant (F (3, 805) = 57.51, p < .001), with post hoc Tukey tests revealing that the "Never Taken" group was significantly younger than the other groups. In addition, the "Currently Taking" group was significantly younger than the "Stopped" group.

Similarly, a one-way ANOVA comparing the ages of the menopausal status groups also was significant (F (3, 805) = 195.00, $p < .001$), with post hoc Tukey tests showing that each group was significantly different from the other groups. It is not surprising that the "Never Taken" group is significantly younger than the other HT experience groups as a high percentage of women in the "Never Taken" group were premenopausal.

To investigate whether the premenopausal women were responsible for the age differences, another analysis was conducted on just the menopausal (peri, post, and surgical) respondents. Age differences among the HT groups also were found for the menopausal women (F (3, 617) = 14.48, $p < .001$); post hoc tests showed that the "Never Taken" and "Currently Taking" groups were significantly younger than the "Stopped" group.

Table 3

Mean Ages of HT and Menopausal Status Groups

HT Group	HT	Menopausal Status			
		Pre	Peri	Post	Surgical
	M	*M*	*M*	*M*	*M*
Never Taken	49.97	45.29	49.03	57.25	53.26
Current Users	54.06	52.00	49.33	55.44	54.09
Stopped	57.17	45.50	49.77	58.09	56.97
Started Again	55.98		50.50	57.60	55.04
	Menopausal Status *M*	45.36	49.14	57.48	54.96

Chi-Square analyses were used to investigate whether HT status was related to four sociodemographic characteristics. However, no significant relationships were found for HT status and ethnicity (χ^2 (18, N = 798) = 23.7, p = .16), education (χ^2 (15, N = 798) = 17.47, p = .29), income (χ^2 (12, N = 744) = .81, p = .85), and state of residence (χ^2 (117, N = 696) = 109.44, p = .68).

Reasons for HT Use

The reasons that women reported for using HT are presented in Table 4. Menopausal symptoms, advice of a health care provider, and osteoporosis prevention were the three responses chosen by the most women. Over three-quarters of the "Current Users" and "Started Again" groups, and two-thirds of the "Stopped" HT group reported menopausal symptoms as a reason for using HT. However, close to three-quarters of the "Stopped" HT group and almost 70% of the "Current Users" group selected health care provider as a reason for using HT.

Table 4

Factors Influencing the Decision to Use HT

Influences	HT Group		
	% of Current Users (n = 111)	% of Stopped HT (n = 230)	% of Started Again (n = 49)
Menopausal Symptoms	75.7	67.8	89.8
Health Care Provider	69.4	73.5	37.2
Osteoporosis Protection	45.9	49.1	24.5
Youthful Appearance	17.1	10.0	6.1
Heart Disease Protection	16.2	27.0	14.3
Sex Revitalization	13.5	7.4	10.2
Friends/Family	9.0	3.9	2.0
Colon Cancer Protection	2.7	6.1	2.0
Other	20.7	11.3	20.4

Media Coverage of WHI Findings

Descriptive analyses were conducted on women's awareness of the media coverage of the WHI research and HT experience. Close to two-thirds (62%) of the respondents were aware of media reports on the WHI research. The percentage of awareness for each HT group is presented in Table 5. A Chi-Square analysis revealed that greater awareness was related to current or prior use of HT, χ^2 (6, N = 877) = 64.11, $p < .001$. Specifically, a significantly higher percentage of the "Never Taken" HT group did not have knowledge of or were not sure if they knew about the WHI media coverage in comparison to the other HT groups.

Table 5

Women's Awareness of WHI Media Coverage, and Means of Items Measuring Concern, Confusion, and Skepticism about the Media

			Mean Attitudes Towards Media Coverage		
			Concern	Confused	Skeptical
HT Group	*n*	% Aware	*M*	*M*	*M*
Never Taken	487	50.8	3.73	2.82	2.75
Current Users	115	75.2	3.71	3.42	3.41
Stopped	233	74.1	3.93	2.86	2.64
Started Again	51	82.7	3.97	3.19	3.32
Total	886	62.4	3.81	2.96	2.87

Women's attitudes about the WHI media coverage were investigated through several items measuring concern, confusion and skepticism about the media's reports. The overall percentage of women who agreed and strongly agreed

that the media coverage caused them concern was 75%. Over one-third found the media reports confusing (37%), and 27% were skeptical of the reports. The means for concern, confusion and skepticism about the media's reports also were computed and are presented in Table 5. One-way ANOVAs were used to assess mean differences in these variables for the four HT experience groups. Significant F-ratios were followed by post hoc Tukey tests. The groups were found to differ in concern about the media's reports on the WHI study and HT experience (F (3, 528) = 2.94, $p < .05$). However, post hoc tests did not reveal the sources of the difference. A statistically significant difference was found in confusion about the media's reports (F (3, 529) = 8.69, $p < .001$). Post hoc tests showed that "Current Users" reported greater confusion than women who had "Never Taken" HT or women who "Stopped" HT. A significant difference in skepticism also was found among HT groups (F (3, 529) = 17.75, $p < .001$). Specifically, "Current Users" and those who had "Started Again" were more skeptical of the media reports than those women who had "Never Taken" HT or had "Stopped" treatment.

Women who were aware of the media's coverage of the WHI research were asked from what source or sources they received most of their information. The percentages of women in each HT group who chose each of the sources are presented in Table 6. The five most frequently chosen sources were: newspaper articles, television, magazines, other women, and health care provider. "Current Users" were different from the other three groups in that the most frequently chosen source was health care provider. However, newspaper articles were a close

second response for "Current Users." The "Started Again" group was different from the other three groups in that the Internet was chosen as frequently as other women as a source of information about the media's coverage of the WHI research.

Table 6

Sources of WHI Media Coverage Information

Sources	% Total cases (N = 543)	HT Group			
		% Never Taken (n = 243)	% Current Users (n = 86)	% Stopped (n=172)	% Started Again (n = 42)
Newspapers	68	65.8	60.5	74.4	69.0
Television	58	59.3	50.0	58.7	57.1
Magazines	48	48.1	45.3	47.7	59.5
Other Women	40	40.3	39.5	41.9	35.7
Health Care Provider	36	16.9	62.8	47.1	47.6
Internet	25	23.5	23.3	23.8	35.7
Radio	23	31.3	19.8	20.9	31.0
Scientific Articles	17	13.2	24.4	19.8	14.3
Books	<1	4.9	9.3	3.5	7.1

Women who, at some point, had stopped HT were asked whether they had been influenced by the media coverage of the WHI study. Over half of the women in the "Stopped" (57%) and "Started Again" (59%) groups agreed or strongly agreed that the media did influence their decisions to stop. In addition, many of the "Never Taken" group (58%) indicated that media reports had affected or will affect their decision about HT. However, 94% of the "Current Users" agreed or strongly agreed that they would continue to take HT despite the media reports.

Nearly two-thirds of the women in both the "Stopped" (61%) and "Started Again" (63%) groups sought additional advice before stopping the treatment.

Health care provider was the most frequently chosen source for additional information for both the "Stopped" (94%) women and the "Started Again" (87%) respondents. The second most frequently chosen source for both groups was other women ("Stopped" 34%; "Started Again" 36%). Sixty-five percent of the women in the "Started Again" group sought additional information or advice before they began using HT a second time. The most frequently chosen source of information was a health care provider (90%). The Internet (39%) was the second most frequently chosen source for information.

Health Status

The self-reported health status of the sample was: 28% excellent, 40% above average, 28% average, 4% below average, and 3% poor. Health status was not related to menopausal status or HT experience.

Chi-Square analyses were run to investigate whether HT status and health behaviors were related to each other. No significant relationships were found for exercise (χ^2 (3, N = 849) = .81, p = .85), smoking (χ^2 (3, N = 853) = 3.18, p = .37), or weight (χ^2 (15, N = 846) = 15.17, p = .44). However, descriptive statistics revealed that 46% of the women were 20+ pounds overweight and another 20% were more than 10 pounds over their ideal weight. Only 12% considered their weight to be ideal. Almost 60% of the women exercised on a regular basis (3 or more times a week). The majority of the respondents (89%) did not smoke.

Menopause and HT Knowledge

Participants answered questions assessing their knowledge of the effects of hormone changes during the stages of menopause and health risks and benefits associated with hormone therapy. The sample mean knowledge score was 4.5, *SD* = 2.4, out of a maximum of 10 points. A one-way analysis of variance showed a significant difference in knowledge scores by HT experience (F (3, 882)) = 12.28, $p < .001$). Women who had "Never Taken" HT ($M = 4.07$, $SD = 2.36$) knew less about menopause and HT than the other three groups: "Currently Taking" ($M = 4.98$, $SD = 2.47$), "Stopped" ($M = 5.13$, $SD = 2.53$), and "Started Again" ($M = 5.14$, $SD = 2.42$).

Health Information Sources

Women were asked from what source or sources they received most of their health information. Of the total number of women who responded ($n = 818$), the five sources most often chosen were: other women, health care provider, newspapers, magazines, and television (see Table 7).

The respondents also were asked to rate the usefulness of the health information that the sources provided and how much attention they give to those sources when health information is presented. Ratings for the five media sources, newspapers, Internet, television, radio, and magazines, were used to calculate a media usefulness score. The respondents' overall mean rating of media usefulness was 25.6 ($SD = 10.49$) out of 55 maximum points. No mean differences in media usefulness ratings were found for HT experience.

Table 7

Women's Health Information Sources

Sources	% Cases (n =818)
Other Women	76.8
Health Care Provider	68.5
Newspapers	62.6
Magazines	61.7
Television	51.6
Internet	40.3
Books	29.2
Radio	23.6
Scientific Journals	20.9

Two scores, attention to media health information and attention to media HT risk information, also were calculated. Out of a maximum of 55 points for each scale, the respondents' mean attention to media sources for health information was 29.9 (SD = 10.56) and mean attention to media sources for HT risk information was 29.3 (SD = 11.44). No significant differences were found for HT experience in attention participants give to media sources (newspapers, Internet, television, radio, and magazines) for health information. However, a one-way analysis of variance showed a significant difference in attention participants give to media sources for HT risk information ($F, (3, 807) = 3.07, p = < .05$). Specifically, women who had "Stopped" (M = 30.9, SD = 10.45) taking HT had significantly higher mean scores in attention given to media sources for HT risk information than women who had "Never Taken" HT ($M = 28.4$, $SD = 11.75$).

Attitudes Toward the Media in General

Overall, the respondents agreed that the media exaggerates and sensationalizes news stories ($M = 4.2$, $SD = .78$). A significant difference for attitudes about media exaggeration and sensationalism of news stories was found among HT experience groups (F (3, 814) = 4.29, $p = .005$). Specifically, women who were "Current Users" ($M = 4.42$, $SD = .68$) were more likely to agree that the media exaggerates and sensationalizes news stories than those women who had "Never Taken" HT ($M = 4.18$, $SD = .79$) or those women who were taking HT but "Stopped" ($M = 4.12$, $SD = .79$).

Participants were relatively neutral when given the statements "News stories with statistics are more believable" ($M = 3.54$, $SD = .92$) and "Information appearing in many places is more believable" ($M = 3.96$, $SD = .72$). The HT groups did not differ in their ratings of these variables.

Prediction of HT Use

This study's hypotheses focused on what variables may be involved in predicting women's decisions to use, or not use, HT. Because group membership (HT use, HT nonuse) was predicted from a mix of variables, including continuous (e.g., age, media usefulness) and discrete (e.g., education, ethnicity), sequential logistic regression analysis (Tabachnick & Fidell, 2001) was used to predict HT use and HT nonuse in menopausal women who were aware of the WHI research media coverage ($n = 354$). Four logistic regressions were conducted: the first compared women who had "Never Taken" HT with all women who had ever used HT

("Current Users," "Stopped," and "Started Again"); the second compared women who had "Never Taken" HT with women who were "Current Users" of HT; the third compared "Current Users" with women who had "Stopped" using HT; and the fourth compared women who had "Stopped" using HT with women who had stopped HT but "Started Again." Each analysis was conducted using a two-step process. In the first step, predictors for HT use that have been established through previous research were loaded into the regression equation (Hypothesis 1). These predictors included sociodemographic variables, health status, and menopause and HT knowledge. Sociodemographic predictors were age, ethnicity (Caucasian or other), education and household income. The health predictor was self-reported health status. The knowledge predictor was the "Menopause and HT Knowledge Score." In the second step, seven attitudes toward the media predictors were loaded into the equation to see if they significantly improved prediction of HT use above the original model (Hypothesis 2). Media attitudinal predictors were usefulness, attention to health information, attention to HT risk information, skepticism, confusion, concern, and sensationalism.

The goodness-of-fit statistic χ^2 was used to evaluate the overall fit of the prediction model. To determine whether the media variables significantly improved the prediction of HT use status, a comparison was made of the chi-squares for the first and second models. To evaluate the contribution of each predictor to the equation, the regression coefficient and the Wald statistic (regression coefficient

divided by its standard error) were used. In addition, the percentage of each group correctly classified was noted.

In the first logistic regression analysis, women who had "Never Taken" HT were compared to all women in the sample who were currently taking or had ever taken HT. There was a good model fit on the basis of the four sociodemographic predictors, knowledge and health predictors, χ^2 (6, N = 348), 32.22, p = < .001; these results support Hypothesis 1. After the addition of the seven media attitudinal predictors, the overall model was statistically significant, χ^2 (13, N = 341) = 48.71, p < .001. Comparison of the models with and without the media attitudinal variables showed reliable improvement with the addition of the media attitudinal predictors, χ^2 (7, N = 347) = 16.49, p = .021. Hypothesis 2 was, therefore, supported.

Overall classification was unimpressive. On the basis of the four sociodemographic predictors, knowledge and health predictors alone, correction classification rates were 24% for the women who had "Never Taken" HT and 93% for all other women in the sample who were currently taking or had ever taken HT; overall classification was 70%. There was a slight improvement to 72% with the addition of the seven media attitudinal predictors reflecting success rates of 36% and 91% for the two groups respectively.

Table 8 shows the contribution of the individual predictors to both models. Age, health, confusion and concern were statistically significant predictors of HT use or nonuse. Specifically, older, healthier women with greater confusion and concern about the media coverage of the WHI research were more likely to have used or are currently using HT than those who had "Never Taken" HT.

Table 8

Logistic regression results: Women who have never taken HT vs. women who have ever used HT

Variables	*df*	χ^2	*B*	Wald Test (*z* test)	*p*
First model					
Age	1		.094	17.484	.000
Income	1		.150	1.983	.159
Ethnicity	1		-.040	.011	.917
Education	1		-.101	1.226	.268
Knowledge	1		.142	5.122	.024
Health	1		.337	5.601	.018
All variables	6	32.218			.000
Second model					
Age	1		.112	22.254	.000
Income	1		.160	2.112	.146
Ethnicity	1		.009	.001	.982
Education	1		-.084	.779	.377
Knowledge	1		.100	2.337	.126
Health	1		.319	4.683	.030
Usefulness	1		-.001	.007	.935
Attention health	1		-.021	.414	.520
Attention risk	1		.023	.552	.458
Skeptical	1		.162	1.157	.282
Confusion	1		.316	5.102	.024
Concern	1		.297	4.131	.042
Sensationalism	1		-.037	.042	.838
All variables	13	48.707			.000

In the second logistic regression analysis, women in the "Never Taken" HT group were compared to women in the "Current Users" group. There was not a good model fit on the basis of the four sociodemographic, knowledge, and health predictors, χ^2 (6, N = 176) = 9.90, p = .129; therefore, Hypothesis 1 was not supported. After the addition of the seven media attitudinal predictors, the overall model was statistically significant, χ^2 (13, N = 175) = 46.46, p < .001. Comparison of the models with and without the media attitudinal variables showed reliable improvement with the addition of the media attitudinal predictors, χ^2 (7, N = 179) = 36.56, p < .001; as a result, Hypothesis 2 was supported.

Overall classification was not impressive. On the basis of the four sociodemographic predictors, knowledge and health predictors alone, correction classification rates were 94% for the women who had "Never Taken" HT and 20% for women in the "Current Users" group; overall classification was 68%. There was a slight improvement to 73% with the addition of the seven media attitudinal predictors reflecting success rates of 85% and 50% for the two groups respectively.

Table 9 shows the contribution of the individual predictors to both models. Confusion and skepticism were predictors of HT use or nonuse. Specifically, more confusion and greater skepticism about the media coverage of the WHI research predicted current HT use.

Table 9

Logistic regression results: Women who have "Never Taken" HT vs. women who are "Current Users" of HT

Variables	*df*	χ^2	*B*	Wald Test (*z* test)	*p*
First model					
Age	1		.040	2.099	.147
Income	1		.192	1.628	.202
Ethnicity	1		.266	.218	.640
Education	1		.015	.015	.903
Knowledge	1		.171	3.603	.058
Health	1		.257	1.752	.186
All variables	6	9.900			.129
Second model					
Age	1		.051	2.364	.124
Income	1		.190	1.212	.271
Ethnicity	1		.281	.198	.656
Education	1		.030	.043	.836
Knowledge	1		.170	2.848	.091
Health	1		.2221	1.026	.311
Usefulness	1		-.002	.006	.941
Attention health	1		-.027	.327	.568
Attention risk	1		.002	.002	.966
Skeptical	1		.405	3.959	.047
Confusion	1		.643	9.476	.002
Concern	1		-.030	.020	.888
Sensationalism	1		.578	3.581	.058
All variables	13	46.460			.000

In the third logistic regression, women who were "Current Users" of HT were compared to those women who had "Stopped" using HT. There was not a good model fit on the basis of the four sociodemographic predictors and knowledge and health predictors, χ^2 $(6\ N = 195) = 11.26$, $p = .08$; again, Hypothesis 1 was not supported. After the addition of the seven media attitudinal predictors, the overall model was statistically significant, χ^2 $(13, N = 188) = 53.01$, $p < .001$. Comparison of the models with and without the media attitudinal variables showed reliable improvement with the addition of the media attitudinal predictors, χ^2 $(7\ N = 194) = 41.75$ $p < .001$; therefore, Hypothesis 2 was supported.

Overall classification was unimpressive. On the basis of the four sociodemographic predictors, knowledge and health predictors alone, correction classification rates were 3% for the women who were "Current Users" of HT and 98% for women who had "Stopped" using HT; overall classification was 68%. There was improvement to 75% with the addition of the seven media attitudinal predictors reflecting success rates of 47% and 88% for the two groups respectively.

Table 10 shows the contribution of the individual predictors to both models. Age, skepticism and sensationalism were statistically significant predictors of HT use or nonuse. Specifically, those women who were older, less skeptical of the media and do not agree that, in general, the media exaggerates and sensationalizes news stories were more likely to have "Stopped" using HT.

Table 10

Logistic regression results: Women who are "Current Users" of HT vs. women who "Stopped" taking HT

Variables	*df*	χ^2	*B*	Wald Test (*z* test)	*p*
First model					
Age	1		.073	6.588	.010
Income	1		-.051	.125	.724
Ethnicity	1		-.302	.248	.618
Education	1		-.168	2.001	.157
Knowledge	1		-.034	.174	.677
Health	1		.164	.778	.378
All variables	6	11.260			.081
Second model					
Age	1		.060	3.986	.045
Income	1		-.088	.272	.602
Ethnicity	1		.095	.018	.895
Education	1		-.074	.278	.598
Knowledge	1		-.045	.220	.639
Health	1		.171	.682	.409
Usefulness	1		.010	.141	.707
Attention health	1		-.025	.241	.623
Attention risk	1		.036	.495	.482
Skeptical	1		-.556	6.460	.011
Confusion	1		-.364	3.282	.070
Concern	1		. 272	1.357	.244
Sensationalism	1		-.834	7.115	.006
All variables	13	53.009			.000

In the fourth logistic regression, women who had "Stopped" using HT were compared to the group who had "Started Again." There was not a good model fit on the basis of the four sociodemographic predictors and knowledge and health predictors, χ^2 (6, N = 166) = 4.48, p = .612; therefore, Hypothesis 1 was not supported. After the addition of the seven media attitudinal predictors, the overall model was statistically significant, χ^2 (13, N = 159) = 26.89, p = .013. Comparison of the models with and without the media attitudinal variables showed reliable improvement with the addition of the media attitudinal predictors, χ^2 (7, N = 165) = 22.42, p = .013; consequently Hypothesis 2 was supported again.

Overall classification was not impressive. On the basis of the four sociodemographic predictors, knowledge and health predictors alone, correction classification rates were 100% for the women who had "Stopped" using HT and 0% for women who had "Started Again"; overall classification was 80%. The overall classification remained at 80% with the addition of the seven media attitudinal predictors reflecting success rates of 95% and 20% for the two groups respectively.

Table 11 shows the contribution of the individual predictors to both models. Skepticism was the only statistically significant predictor of HT use or nonuse. Specifically, those women who are more skeptical about the media coverage of the WHI research were more likely to have stopped using HT but then "Started Again" than those women who had "Stopped" and had not restarted treatment.

Table 11

Logistic regression results: Women who "Stopped" taking HT vs. women who stopped taking HT but "Started Again"

Variables	*df*	χ^2	*B*	Wald Test (*z* test)	*p*
First model					
Age	1		-.035	.892	.345
Income	1		.072	.180	.672
Ethnicity	1		-.820	1.594	.207
Education	1		-.060	.178	.673
Knowledge	1		.069	.435	.510
Health	1		-.246	1.048	.306
All variables	6	4.476			.612
Second model					
Age	1		.009	.046	.831
Income	1		.143	.577	.447
Ethnicity	1		-.730	.972	.324
Education	1		-.048	.088	.766
Knowledge	1		.051	.167	.683
Health	1		-.458	2.642	.104
Usefulness	1		-.037	1.606	.205
Attention health	1		.075	1.541	.215
Attention risk	1		-.030	.268	.605
Skeptical	1		1.052	10.611	.001
Confusion	1		-.172	.423	.516
Concern	1		.246	.540	.463
Sensationalism	1		.127	.150	.698
All variables	13	26.894			.013

Discussion

This study sought to answer questions about women's use of HT after their exposure to WHI study results suggesting that HT use is associated with negative health outcomes. Of particular interest was the role of media as an influence on women's decisions to use or not use HT.

Demographics, Knowledge, Health, and HT Use

The first intriguing finding of the present study is that fewer than 20% of the participants are currently using HT. Although prevalence rates over the years have varied widely, between 20 to 50% (Largo-Janssen et al., 2003), the most recent research suggested that 28% of women were using HT (Hersh, et al., 2004). Hence, the rate found in this study is clearly lower. Furthermore, women in this study who had stopped treatment outnumbered those currently using HT by almost 30%. A possible explanation is that the negative publicity about the WHI findings has, in fact, influenced women's decisions to stop taking HT.

Contrary to past research, virtually no differences in ethnicity, education and income were found between those women who use HT and those who do not use HT (e.g., Finley, 2001; Ghali, et al., 1997; Keating, et al., 1998; Matthews, et al., 1996). This may be due to the use of Internet methodology in this study and the close match between women who use HT and female Internet consumer demographics: white, higher levels of education and income (Best, et al., 2001; Brodie, et al., 2000; Lenhart et al., 2003). Since all the women in this sample are Internet consumers, the expectation might be that HT users and nonusers would have similar sociodemographic characteristics.

In agreement with other studies, women who were users of HT had more knowledge about menopause and HT than nonusers (Bastian, et al., 2002; Hunter & O'Dea, 1999; Ghali, et al., 1997). However, unlike the findings of previous research, no significant differences were found in self-reported health status and

health-related behaviors (exercise, smoking and weight) between HT users and nonusers. (Ghali, et al., 1997; Hulley & Grady, 2004; Matthews et al., 1996; Morse et al., 1994). This too may have been a result of the very similar demographics of Internet consumers and HT users.

As in past research, women reported relief from menopausal symptoms such as hot flashes, sleep difficulties, and forgetfulness as a main reason to use HT (Ekstrom, et. al., 2003; Hunter & O'Dea, 1999; Kaufert, et. al., 1998). This was found to be especially true for most of the women who had stopped taking HT at one point but had started treatment again. Interestingly, for those women who had stopped taking HT and did not start again, health care provider was the most frequently chosen option rather than symptoms. Perhaps these women started taking HT for other reasons than symptom relief and, therefore, found it easier to give up HT and not start again. For all groups, osteoporosis prevention was the third most frequently chosen reason for HT use.

The Role of the Media

Most women (62%) were aware of the media reports on the WHI research. Women who were current users or had ever taken HT were more likely to know about the research than those women who had never taken HT. These findings closely match those of Breslau et al. (2003), a study conducted shortly after the first WHI trial was halted, who found that 64% of women in their sample were aware of the first WHI study findings (July 2002) and that greater awareness was related to previous and current HT use.

Women's concern about the media's reports that HT increased the risk for health problems was quite evident in this study. Specifically, 75% of the women were concerned about the negative outcomes of the WHI research, whereas Breslau et al. (2003) found that only 57% of their subjects were worried about the findings. Possibly, the widespread media coverage of the halting of a second phase of the WHI research after the Breslau et al. (2003) study served to raise levels of concern even higher among women.

Even though there was more concern about the WHI research findings, the women in this study were less confused about the reports. Overall, only 37% of women found the media reports confusing which was much lower than the 74% of subjects found in the Breslau et al. (2003) study. It is possible that the "mere exposure effect" of the media coverage with the halting of another phase of the WHI research may have served to solidify claims that HT use was associated with serious health risks. Specifically, repetition of assertions -- a factor in the communication process that influences persuasion -- may have reinforced findings thereby reducing confusion (Lippa, 1994).

Nonetheless, the media was a formidable factor in women's decisions about HT. Specifically, almost 60% of the women who had never taken HT responded that the media had or would affect their decision about HT use. Similarly, close to 60% of those women who had, at some point, stopped using HT reported that the media reports had, in fact, influenced their decisions to stop. Nevertheless, before making the final decision to stop treatment almost two-thirds of both the women

who had stopped HT and the women who had started treatment again sought additional advice. The main source for more information and advice for women in both groups was a health care provider.

On the other hand, nearly one-third of the women who were aware of the WHI findings were skeptical of the media reports. Furthermore, users of HT, including those who had stopped but started treatment again, were significantly more skeptical of the media reports overall than were those women who had never or previously used HT. Of interest as well is that, although all respondents (aware and not aware of the WHI research) in general agreed that the media exaggerates and sensationalizes news stories, current users were significantly more likely to endorse this opinion than those women who had never taken or had stopped taking HT.

The social psychology theory of cognitive dissonance may offer one possible explanation as to why current users of HT were found to be more confused and skeptical of the media reports than those who do not use HT. The basic assumption of cognitive dissonance theory is that when people act inconsistently with their cognitions, they will experience a feeling of discomfort (Festinger, 1959). The only way to eliminate or reduce this discomfort (cognitive dissonance) is to change the behavior or change the attitude. Possibly, greater confusion and skepticism about the media's reports and the belief that the media exaggerates and sensationalizes news stories enables current users to rationalize their HT use. By doubting the validity of the media's message, they may reduce or eliminate the

discomfort of cognitive dissonance. More support for this theory seems to follow through when considering the finding that nearly all (94%) of the current users reported that they intended to continue taking HT despite the media reports.

Women in the sample who were aware of the WHI research received most of their information from media sources: newspapers, television, and magazines. However, for those women who were currently using HT, their health care provider was their main source of information. These findings are similar to past research in which the news media and physicians represent the main information sources utilized by U.S. women for information about HT (Breslau et al., 2003, Carr, 1996).

Interestingly, when all the women in this study (aware and not aware of the WHI research) were asked to identify their sources about women's health issues in general, "other women" were found to represent the largest source of information followed by health care provider and the media (newspapers, magazines, and television). Prior studies as well have found other women (e.g., friends, family, co-workers) to be a popular source of health information for women (Conboy et. al., 2001). The respondents also were found to be somewhat neutral when rating the usefulness of media sources and how much attention they give to health information in the media. However, women who had stopped taking HT and did not start again paid greater attention to information about HT risk in the media than did those women who had never taken HT. Perhaps this is because women who had stopped were more interested in HT than women who have never taken the

treatment. It also is possible that these women feel a continued need to justify their decision to stop HT use and information about health risks supports the decision.

Predicting HT Use

The focal point of this study's hypotheses was to identify predictors that may be involved in women's decisions to use or not use HT. Past research has focused on sociodemographic, knowledge and health predictors and has suggested that women who use HT are more likely to be younger, white, have more education and a higher income, have more knowledge about HT, and be healthier (e.g., Finley et al., 2001; Ghali, et al., 1997; Keating, et al., 1999; Matthews, et al., 1996). This study contributes to the literature by investigating whether media-related variables can be used to predict HT use/nonuse. The media attitudinal predictors explored were usefulness of media sources, attention to health information and attention to HT risk information, skepticism, confusion, concern, and media sensationalism.

Only one analysis somewhat upheld the findings of previous research. When women who had ever used HT were compared with women who had never used HT, the logistic regression findings partially supported prior studies. Specifically, the self-reported health status of HT users was higher than that of nonusers (e.g., Matthews, et al., 1996). Age also was found to be a predictor of HT use with women who had ever used HT tending to be older than women who had never used HT. However, previous research found the opposite – that younger women were more likely than older women to use HT (e.g., Finley, et al., 2001).

This finding may be an artifact of the sample. Specifically, the oldest group in the sample (postmenopausal women who had stopped taking HT) constituted a large percentage (53%) of the ever-used HT group.

In all other analyses, sociodemographic, health, and knowledge variables did not demonstrate significant ability to distinguish between the groups under study. However, the results of each logistic regression supported the study's hypothesis that media variables can play a predictive role in HT use. Women who had ever used HT were more confused and concerned about WHI media reports than those women who had never used HT. This finding is not surprising, since the media reports would be more salient for women with HT experience. In each of the other analyses, at least one media variable predicted HT use. "Current users" who had never stopped taking HT were more confused about WHI media coverage than women who had "Never Taken" HT. "Current users" also were more skeptical than women who had "Stopped" HT, and felt that the media was prone to exaggeration and sensationalism. Women who had stopped taking HT at one point but "Started again" were more skeptical of WHI media reports than women who "Stopped" but did not start HT use again.

The logistic regression results show that those women who continue HT use despite negative publicity tend to support beliefs that serve to diminish the accuracy of media reports. Such findings provide further evidence that cognitive dissonance may be an explanatory mechanism for these behaviors and attitudes.

Strengths of the Study

Whereas much research has been done on the impact of media attention in areas such as self-image, drug use, and violence, studies are virtually nonexistent in the area of the media's influence on women's decisions regarding HT. Therefore, this study not only contributes to existing scientific literature, but also provides insight into the real-world issue of media influence as applied to a novel behavior, HT use or nonuse.

In addition, this study has furthered knowledge and understanding of the advantages and disadvantages of the use of the Internet for conducting surveys. For example, Internet survey methodology provided a means of recruiting and collecting reliable data easily and economically with minimal risk to the participants. In addition, the use of the "snowballing" technique facilitated the recruitment process by reaching many women in the desired category. This study's large sample of nearly 1,000 women is a testament to the efficiency of Internet survey methodology and the snowballing technique.

Limitations of the Study

Whereas this study provides interesting insight into whether media coverage of the WHI research has influenced women's attitudes and decisions about HT use or nonuse, it does have limitations. Specifically, the sample lacked diversity, with poor representation of nonwhite women, lower income women, and less educated women. This also was a concern in the Breslau et al. (2003) randomized telephone survey study. Her solution was to weight her data "to the US population for

Census region, age, race, ethnicity, and education attainment" (p. 37) in order to make it a representative sample. However, she acknowledged the problems associated with weighting the responses of groups poorly represented in the original sample. It was felt that the lack of diversity in the present study's sample would not have allowed for accurate weighted responses.

The Internet is gaining recognition as a viable and economical means for health promotion and data collection. However, obtaining a representative sample via Internet survey methodology is difficult since there virtually is no way to achieve a random sample of Internet users (Conboy, et. al., 2001; Kraut et. al., 2004).

Finally, although snowballing can lower research costs dramatically, bias can be introduced into the sample because participants share similar characteristics and, since they are not randomly selected, results cannot be generalized to the population (Lunsford & Lunsford, 1995).

With respect to generalizability, however, it is important to note that findings in this study, such as WHI awareness and sources of information, were similar to those found in the Breslau et al. (2003) study, which used different sampling and survey methodologies. Hence, one might conclude that, despite the lack of representativeness, the present study's findings regarding women's attitudes and beliefs about the WHI research and HT use may be somewhat applicable to women in general.

Implications of the Study's Findings

Evidence from this research has practical implications not only for women and their health but the media and health care providers alike. Specifically, this study provides evidence that the media is associated with women's attitudes and the decisions they make about HT. In addition, women in this study received much of their information about the negative findings of the WHI research on HT from media sources. Furthermore, the information presented by the media often was done so from a sensationalized, one-sided, biased viewpoint (Sibbald, 2002; Sweet, 2003; Watkins, 2003). Moreover, physicians, as well as women, often are first introduced to new medical findings through the media (Shuchman & Wilkes, 1997). Given this evidence, it is important that the media and health care providers understand the impact that messages in the headlines, or even on an Internet website, can have on women and their decisions regarding treatment choices and their health. Since the media is so influential and pervasive, the message that can be taken away from this research is that the media's first responsibility is to ensure that the health facts it widely disseminates are accurate and that the information given provides consumers (women in this case) with the entire story, not just one side. Health care providers also must be conscientious in their quest for accuracy since, as discovered in this study, women often rely on their physicians to guide them in making final decisions about treatments such as HT. As for women, they must be educated that what they see, hear, or read in the media should never be accepted as the final word, especially when their health is involved.

Conclusions

The findings of the present study provide more insight into the role of the media in women's decisions about HT and contribute to a better understanding of what women know and believe about menopause and HT. Using such information, health care professionals can create appropriate educational approaches that will support women in making well-informed decisions about HT and their physical health (Breslau et al., 2003; Liao & Hunter, 1995; Wagner et al., 1995). Furthermore, educating women on the subject of the risks and benefits of HT is an extremely important challenge – one that physicians cannot do alone. The need exists not only to help women understand the array of options for promoting good health and disease prevention while negotiating the midlife transition, but to find ways to reach out to those women who lack information, or are confused, or desire more information (Breslau et al., 2003; Lagro-Janssen et al., 2003). Women who have more knowledge about health issues become equal partners in medical consultations that facilitate better decision-making about their health (Hunter & O'Dea, 1999).

This research demonstrates and reiterates the important and influential role that the media plays in attitudes and behavior, including the decision to use or not use HT. Media factors may be as, or more, strongly associated with the decision to use HT than sociodemographic, health or knowledge about HT factors. Future efforts should focus on understanding how media influences women's decisions

about HT and target ways to improve the accuracy of the information disseminated by the media.

References

AACE. (2002). American Association of Clinical Endocrinologists medical guidelines for clinical practice for the evaluation and treatment of hyperthyroidism and hypothyroidism. *Endocrine Practice, 8*(6), 457-469.

AACE. (2003). *Thyroid hormone missing from menopause discussion for millions of women.* Retrieved April 1, 2003, from http://www.aace.com

Aitken, J. M., Hart, D. M., & Lindsey, R. L. (1973). Oestrogen replacement therapy for prevention of osteoporosis after oophorectomy. *British Medical Journal, 3*, 515-518.

Andrist, L. C. (1998). The impact of media attention, family history, politics and maturation on women's decisions regarding hormone replacement therapy. *Health Care for Women International, 19*(3), 243-261.

Andreoli, V., & Worchel, S. (1978). Effects of media, communicator, and position of message on attitude change. *Public Opinion Quarterly, 42*, 59-70.

Arkes, H. R., Boehm, L. E., & Xu, G. (1991). Determinants of judged validity. *Journal of Experimental Social Psychology, 27,* 576-605.

Avis, N. E., & McKinlay, S. M. (1991). A longitudinal analysis of women's attitudes toward the menopause: Results from the Massachusetts Women's Health Study. *Maturitas, 13*, 65-79.

Bastian, L. A., McBride, C. M., Fish, L., Lyna, P., Farrell, D., Lipkus, I. M., Rimer, B. K., & Siegler, I. C. (2002). Evaluating participants' use of a hormone

replacement therapy decision-making intervention. *Patient Education and Counseling, 48*, 283-291.

Bell, M. L. (1995). Attitudes toward menopause among Mexican American women. *Health Care for Women International, 16*, 425-435.

Best, S. J., Krueger, B., Hubbard, C., & Smith, A. (2001). An assessment of the generalizability of Internet surveys. *Social Science Computer Review, 19*(2), 131-145.

Bimber, B. (1998). The Internet and political mobilization: Research note on the 1996 election season. *Social Science Computer Review, 16*, 391-401.

Binik, Y. M., Mah, K., & Kiesler, S. (1999). Ethical issues in conducting sex research on the Internet. *The Journal of Sex Research, 36*, 82-90.

Bloch, A. (2002). Self-awareness during menopause. *Maturitas, 41*, 61-68.

Blowers, L. C., Loxton, N. J., Grady-Fleser, M., Occhipinti, S., & Dawe, S. (2003). The relationship between sociocultural pressure to be thin and body dissatisfaction in preadolescent girls. *Eating Behaviors, 4*(3), 229-244.

Bond, M., & Bywaters, P. (1999). Towards understanding women's decisions to cease HRT. *Journal of Advanced Nursing, 29*, 852-858.

Bornstein, R. F. (1989). Exposure and affect: Overview and meta-analysis of research. *Psychological Bulletin, 102*, 265-289.

Boys, A., Marsden, J., Griiffiths, P., Fountain, J., Stillwell, G., & Stang, J. (1999). Substance use among young people: The relationship between perceived functions and intentions. *Addiction, 94*(7), 1043-51.

Breslau, E. S., Davis, W. W., Doner, L., Eisner, E. J., Goodman, N. R., Meissner, H. I., Rimer, B. K., & Rissouw, J. E. (2003). The hormone therapy dilemma: Women respond. *Journal of the American Medical Women's Association, 58*(1), 33-42.

Brett, K. M. (2002). Racial differences in hormone replacement therapy use: United States, 1999-2000. *AEP, 12*(7), 514-515.

Brodie, M., Flounoy, R. E., Altman, D. E., Blendon, R. J., Benson, J. M., & Rosenbaum, M. D. (2000). Health information, the Internet, and the digital divide. *Health Affairs, 19*(6), 255-2665.

Brody, S. A. (2004). The menopause question. Hormone replacement therapy may not be the answer. *The San Diego Union-Tribune*. Retrieved March 18, 2004, from http://www.signonsandiego.com/uniontrib/

Brown, J. D. (2002). Mass media influences on sexuality. *Journal of Sex Research, 39*(1), 42-45.

Bush, T. L., Barrett-Connor, E., Cowan, L. D., Criqui, M. H., Wallace, R. B., Suchindran, C. M., Tyroler, H. A., & Rifkind, B. M. (1987). Cardiovascular mortality and noncontraceptive use of estrogen in women: Results from the Lipid Research Clinics Program Follow-up Study. *Circulation, 75*, 1102-1109.

Campbell, R. J., & Wabb, J. (2003). The elderly and the Internet: A case study. *Internet Journal of Health, 3*(1), 2-17.

Cantor, J. (2003, April 10). *Neurobiological research and the impact of media and children.* Paper presented at the Senate Commerce, Science and Transportation, Washington, D. C.

Carll, E. K. (2003). Psychology, news media, and public policy: Promoting social change. *American Behavioral Scientist, 46*(12), 1591-1593.

Carlson, K., & Eisenstat, S. (1996). *Interview with Dr. Karen Carlson and Dr. Stephanie Eisenstat.* Retrieved September 26, 2003, from http://www.hup.harvard.edu/features/carhar/interview.html

Carr, R. B. (1996). HRT Manangement: The American experience. *European Journal of Obstetrics & Gynecology and Reproductive Biology, 64*, S17-S20.

Chamberlain, M. A. (1996). Health communication: Making the most of new media technologies--an international overview. *Journal of Health Communication, 1*, 43-50.

Chen, X., & Siu, L. L. (2001). Impact of the media and the internet on oncology: Survey of cancer patients and oncologists in Canada. *Journal of Clinical Oncology, 19*(23), 4291-4297.

Col, N. F., Eckman, M. H., Karas, R. H., Pauker, S. G., Goldberg, R. J., Ross, E. M., Orr, R. K., & Wong, J. B. (1997). Patient-specific decisions about hormone replacement therapy in postmenopausal women. *Journal of American Medical Association, 277*, 1140-1147.

Collaborative Group on Hormonal Factors in Breast Cancer (1997). Breast cancer and hormone replacement therapy: Collaborative reanalysis of data from 51 epidemiological studies of 52,705 women with breast cancer. *Lancet,* 350, 1047-1059.

Conboy, L., Domar, A., & O'Connell, E. (2001). Women at Mid-life: Symptoms, attitudes, and choices. An Internet based survey. *Maturitas, 38*, 129-136.

Cousins, S. O., & Edwards, K. (2002). Alice in wonderland: The jabberwocky of a medicalized middle age. *Health Care Women International, 23*, 325-343.

Ekstrom, H., Esseveld, J., & Hovelius, B. (2003). Associations between attitudes toward hormone therapy and current use of it in middle-aged women. *Maturitas, 46*(1), 45-57.

Ettinger, B., & Grady, D. (1994). Maximizing the benefit of estrogen therapy for prevention of osteoporosis. *The Journal of the North American Menopause Society, 1*(1), 19-24.

Feld, K. (2001). Online polling and survey research. *Campaigns & Elections, 22*(8), 41-43.

Festinger, L. (1957). *A theory of cognitive dissonance*. Evanston, IL: Row, Peterson.

Field, A. E. (2000). Media influence on self-image: The real fashion emergency. *Health Weight Journal, 14*(6), 88-91.

Finley, C. Gregg, E. W., Solomon, L. J., & Gay, E. (2001). Disparities in hormone replacement therapy use by socioeconomic status in a primary care population. *Journal of Community Health*, 26(1), 39-49.

Fox, S. & Rainie, L. (2000). The online health care revolution: How the Web helps Americans take better care of themselves. *The Pew Internet & American Life Project: Online life report.* Retrieved November 1, 2003 from http://www.pewinternet.org/reports/toc.asp?Report = 26>

Ghali, W. A., Freund, K. M., Boss, R. D., Ryan, M. A., & Moskowitz, M. A. (1997). Menopausal hormone therapy: Physician awareness of patient attitudes. *American Journal of Medicine, 103*(1), 3-10.

Griffin, R. J., Neuwirth,, K., Giese, J., & Dunwoody, S. (2002). Linking the heuristic-systematic model and depth of processing. *Communication Research, 29*(6) 705-732.

Griffiths, F. (1999). Women's control and choice regarding HRT. *Social Science & Medicine, 49*, 469-481.

Hampson, S. E., & Hibbard, J. H. (1996). Cross-talk about menopause: Enhancing interactions about menopause and hormone replacement therapy. *Patient Education and Counseling, 27*, 177-184.

Henderson, C. W. (2000). Unbalanced picture painted of estrogen therapy role in preventing heart disease. *Women's Health Weekly, 10/05/2000-10/12/2000*, 25.

Hersh, A. L., Stefanick, M. L., & Stafford, R. S. (2004). National use of postmenopausal hormone therapy: Annual trends and response to recent evidence. *Journal of American Medical Association, 291*(1), 47-53.

Hogervorst, E., Williams, J., Budge, M., Riedel, W., & Jolles, J. (2000). The nature of the effect of female gonadal hormone replacement therapy on cognitive function in postmenopausal women: A meta-analysis. *Neuroscience, 101*, 485-512.

Hovland, C. I., & Weis, W. (1951). The influences of source credibility on communication effectiveness. *Public Opinion Quarterly, 15*, 635-650.

Hughes, R. (2003). Competency development needs of the Australian public health nutrition workforce. *Public Health Nutrition, 6*(8), 839-847.

Hulley , S. B., & Grady D. (2004). The WHI estrogen-alone trial--do things look any better? *Journal of American Medical Association, 291*(14), 1769-1771.

Hunter, M., & O'Dea, I. (1999). An evaluation of a health education intervention for mid-aged women: Five-year follow-up of effects upon knowledge, impact of menopause and health. *Patient Education and Counseling, 38*, 249-255.

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior, 38*(1), 21-37.

Jensen, L. B., & Hilden, J. (1996). Sociological and behavioral characteristics of perimenopausal women with an express attitude to hormone substitution therapy. *Maturitas, 23*, 73-83.

Jepson, C., & Chaiken, S. (1986). *The effect of anxiety on the systematic processing of persuasive communications*. Paper presented at the annual meeting of the American Psychological Association, Washington, DC.

Johnson, T. (1998). Shattuck lecture: Medicine and the media. *New England Journal of Medicine, 339*, 87-92.

Jones, J. B. (1997). Representations of menopause and their health care implications: A qualitative study. *American Journal of Preventive Medicine, 13*(1), 58-65.

Kalbfleisch, P. J., Bonnell, K. H., & Harris, T. M. (1996). *Media portrayals of women's menstrual health issues.* Thousand Oaks: Sage Publications.

Kaufert, P., Boggs, P. P., Ettinger, B., Woods, N. F., & Utian, W. H. (1998). Women and menopause: Beliefs, attitudes, and behaviors. The North American Menopause Society 1997 Menopause Survey. *Menopause: The Journal of the North American Menopause Society, 5*(4), 197-202.

Keating, N., Cleary, P., Aossi, A., Zaslavsky, A., & Ayanlan, J. (1999). Use of hormone replacement therapy by postmenopausal women in the United States. *Annals of Internal Medicine, 130*, 545-553.

Krantz, J. H., Ballard, J., & Scher, J. (1997). Comparing the results of laboratory and World-Wide Web samples on the determinants of female attractiveness. *Behavior Research Methods, Instruments, and Computers, 29*, 264-269.

Kraut, R., Olson, J., Banaji, M., Bruckman, A., Cohen, J., & Couper, M. (2004). Report of Board Scientific Affairs' Advisory Group on the Conduct of Research on the Internet. *American Psychologist 59*(2), 105-117.

Kreling, D., Mott, D., Wiederhold, J., Lundy, J., & Levitt, L. (2001). *Prescription drug trends: a chartbook update.* (Vol. November). Menlo Park, CA: Kaiser Family Foundation.

Lacey, J. V., Mink, P. J., Lubin, J. H., Shgerman, M. E., Troisi, R., Hartge, P., Schatzkin, A., & Schairer, C. (2002). Menopausal hormone replacement therapy and risk of ovarian cancer. *Journal of American Medical Association, 288*(3), 334-341.

Lagro-Janssen, T., Rosser, W. W., & van Weel, C. (2003). Breast cancer and hormone-replacement therapy: Up to general practice to pick up the pieces. *The Lancet, 362*(9382), 414-415.

Lenhart, A., Horrigan, J., Rainie, L., Allen, K., Boyce, A., Madden, M., & O'Grady, E. (2003). *The ever-shifting Internet population: A new look at Internet access and the digital divide.* Retrieved November 1, 2003, from http://www.pewinternet.org/

Leventhal, H. (1970). Findings and theory in the study of fear communication. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 5). New York: Academic Press.

Liao, K. L., & Hunter, M. S. (1995). Knowledge and beliefs about menopause in a general population sample of mid-aged women. *Journal of Reproductive and Infant Psychology, 13*, 104-114.

Lippa, R. A. (1994). *Introduction to Social Psychology* (2nd ed.). Belmont, CA: Wadsworth.

Lunsford, T. R., & Lunsford, B. R. (1995). Research forum -- The research sample, Part 1: Sampling. *Journal of Prosthetics & Orthotics*, *7*(3), 105-112.

MacLennan, A., Lester, S., & Moore, V. (2001). Oral estrogen replacement therapy versus placebo for hot flashes: A systemic review. *Climacteric, 4*, 58-74.

MacPherson, K. I. (1991). *Hormone replacement therapy for menopause: A contrast between medical and women's health movement perspectives.* Salt Lake City, UT: Society for Menstrual Cycle Research.

Mader, S. S. (1998). *Human Biology* (5th ed.). United States: McGraw-Hill.

Maier N. R., & Thurber, J. A. (1968). Accuracy of judgments of deception when an interview is watched, heard, and read. *Personal Psychology*, *21*, 23-30.

Martinez-Gonzalez, M. A., Gual, P., Lahortiga, F., Alonso, Y., de Irala-Estevez, J., & Cervera, S. (2003). Parental factors, mass media influences, and the onset of eating disorders in a prospective population-based cohort. *Pediatrics, 111*(2), 315-320.

Matthews, K. A. (1992). Myths and realities of the menopause. *Psychosomatic Medicine, 54*, 1-9.

Matthews, K. A., Kuller, L. H., Wing, R. R. Meilahn, E. N. & Plantinga, P. (1996). Prior to use of estrogen replacement therapy, are users healthier than nonusers? *American Journal of Epidemiology, 143*, 971-978.

Matthews, K. A., Wing, R. R., Kuller, L. H., Meilahn, E. N., Kelsey, S. F., Costello, E. J., & Caggiula, A. W. (1990). Influences of natural menopause on psychological characteristics and symptoms of middle-aged healthy women. *Journal of Consulting and Clinical Psychology, 58*(3), 345-351.

McCabe, M. P., & Ricciardelliu, L. A. (2001). Parent, peer, and media influences on body image and strategies to both increase and decrease body size among adolescent boys and girls. *Adolescence, 36*(142), 225-241.

McGuire, W. J. (1964). Inducing resistance to persuasion: Some contemporary approaches. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 1). New York: Academic Press.

McIntire, S. A., & Miller, L. A. (2000). *Foundations of psychological testing*. United States: McGraw-Hill.

McQuail, Dennis (2000). *McQuail's Mass Communication Theory* (4th ed.). Thousand Oaks: Sage Publications

Mendelsohn, M., & Karas, R. (1999). The protective effects of estrogen on the cardiovascular system. *New England Journal of Medicine, 340*, 1801-1811.

Morse, C. A., Smith, A., Dennerstein, L., Green, A., Hopper, J., & Burger, H. (1994). The treatment-seeking woman at menopause. *Maturitas, 18*, 161-173.

Moynihan, B. A., Bero, L., Ross-Degnan, D., Henry, D., Kirby, L., Watkins, J., Mah, C. & Soumerai, S. B. (2000). Coverage by the news media of the benefits and risks of medications. *The New England Journal of Medicine, 342*(22), 1645-1650.

Mutchnick, R. J., & Berg, B. L. (1996). *Research methods for the social sciences: Practice and applications.* Needham Heights: Allyn & Bacon.

NAMS. (2002). *Use of hormone replacement therapy questioned for some women: A preliminary response from the North American Menopause Society.* Retrieved November 7, 2003, from http://www.menopause.org/news.html

Negroponte, N. (1995). *being digital.* New York: Hodder & Stoughton.

Neilsen//NetRatings. (2003). *The global standard for digital media measurement and analyses.* Retrieved November 1, 2003, from http://www.netratings.com/news.jsp

Nelkin, D. (1996). The tensions between medicine and the media. *Lancet, 347*, 1600-1603.

Noller, K. L. (2002). Estrogen replacement therapy and risk of ovarian cancer. *Journal of American Medical Association, 288*(3), 368-369.

Noller, K. L., & Fish, C. R. (1974). Diethylstibestrol usage: Its interesting past, important present and questionable future. *Medical Clinics of North America, 58*, 793-810.

Northrup, C. (2001). *The Wisdom of Menopause: Creating Physical and Emotional Health and Healing During the Change.* New York: Bantam Books.

Petty, R. E., & Cacioppo, J. T. (1981). Effects of forewarning of persuasive intent and involvement on cognitive responses and persuasion. *Personality and Social Psychology Bulletin, 5*, 173-176.

Phillips, D. P., Kanter, E. J., Bednarczyk, B., & Tastad, P. L. (1991). Importance of the lay press in the transmission of medical knowledge to the scientific community. *New England Journal of Medicine, 325*, 1180-1183.

Ransohoff, D. F. & Ransohoff R. M. (2001). Sensationalism in the media: When scientists and journalists may be complicit collaborators. *Effective Clinical Practice, 4*(4), 185-188.

Rhodes, N., & Wood, W. (1992). Self-esteem and intelligence affect influenceability: The mediating role of message reception. *Psychological Bulletin, 111*, 156-171.

Roberts, P. J. (1991). The menopause and hormone replacement therapy: Views of women in general practice receiving hormone replacement therapy. *British Journal of General Practice, 41*, 421-424.

Roper Search Worldwide Inc. (1997). American talk about science and medical news: The National Health Council Report, Harrison, NY.

Samsioe, G. (1995). The menopause revisited. *International Journal of Gynecology & Obstetrics, 51*, 1-13.

Schmidt, W. C. (1997). World-Wide Web survey research: Benefits, potential problems, and solutions. *Behavior Research Methods, Instruments, & Computers, 29*, 274-279.

Schneider, L. S., Farlow, M. R., & Pogoda, J. M. (1997). Potential role for estrogen replacement in the treatment of Alzheimer's dementia. *The American Journal of Medicine, 103*(3A), 47S-50S.

Shuchman, M. & Wilkes, M. S. (1997). Medical scientists and health news reporting: A case of miscommunication. *Annals of Internal Medicine, 126*(12), 976-982.

Sibbald, B. (2002). Fallout from JAMA's HRT study continuing to land in MDS' offices. *Canadian Medical Association Journal, 167*(4), 387.

Smith, D. C., Prentice, R., Thompson, D. J., & Herman, W. L. (1975). Association of exogenous estrogen and endometrial carcinoma among users of conjugated estrogens. *New England Journal of Medicine, 293*, 1164-1167.

Sommer, B., Avis, N., Meyer, P., Ory, M., Madden, T., Kagawa-Singer, M., Mouton, C., Rasor, N. O., & Adler, S. (1999). Attitudes toward menopause and aging across ethnic/racial groups. *Pychosomatic Medicine, 61*, 868-875.

Steinbrook, R. (2000). Medical journals and medical reporting. *New England Journal of Medicine, 342*, 1645-1650.

Sutton, M. J., Brown, J. D., Wilson, K. M. & Klein, J. D. (2002). Shaking the tree of knowledge for forbidden fruit: Where adolescents learn about sexuality and contraception. In J. D. Brown, J. R. Steele & K. Walsh-Childers (Eds.), Sexual teens, sexual media (pp. 25-55). Mahwah, NJ: Erlbaum.

Sweet, M. (2003). Lessons from the HRT story. *British Medical Journal, 326*(7379), 58.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Needham Heights: Allyn and Bacon.

Tang, M-X., Jacobs, D., Stern, Y., Marder, K., Schofield, P., Gurland, B., Andarews, H., & Majeux, R. (1996). Effect of estrogen during the menopause on risk and age of onset of Alzheimer's disease. *Lancet, 348*, 429-432.

The Women's Health Initiative Steering Committee (2004). Effects of conjugated equine estrogen in postmenopausal women with hysterectomy: The Women's Health Initiative randomized controlled trial. *Journal of American Medical Association, 291*(14), 1701-1712.

Wagner, P. J., Kuhn, S., Petry, L. J., & Talbert, F. S. (1995). Age differences in attitudes toward menopause and estrogen replacement therapy. *Women & Health, 23*(4), 1-16.

Walters, J., & Biernack, P. (1989). Targeted sampling: Options for the study of hidden populations. *Social Problems*, *36*, 416-430.

Watkins, D. (2003). Hormone hysteria? *Scientific American, 289*(4), 30-32.

Weis, N. S., Ure, C. L., Ballard, J. H., William, A. R., & Daling, J. R. (1980). Decreased risk of fractures of the hip and lower forearm with postmenopausal use of estrogen. *New England Journal of Medicine, 303*, 1195-1198.

Wilson, W., & Miller, H. (1968). Repetition, order of presentation, and timing of arguments as determinants of opinion change. *Journal of Personality and Social Psychology, 9*, 184-188.

Writing Group for the Women's Health Initiative Investigators (2002). Risks and benefits of estrogen plus progestin in health postmenopausal women: Principal results from the Women's Health Initiative randomized controlled trial. Journal of American Medical Association, *288*, 321-333.

Appendix

Internet Survey

Menopause & Hormone Therapy Survey Exit this survey >>

Introduction

This survey is about women's knowledge, beliefs, and attitudes with respect to new scientific findings regarding hormone therapy (HT). If you are a woman 40 or older, and you are not pregnant, you are eligible to participate in the survey. Most women complete the items in 10 to 15 minutes.

Ms. Bonnie Hepburn, a graduate student in psychology at California State University San Marcos (CSUSM), in San Marcos, California, is conducting this survey as part of her Master's thesis under the direction of Dr. Marie Thomas, Professor of Psychology. This research project was reviewed and approved by the CSUSM Institutional Review Board. If you have questions, you may contact Ms. Hepburn at hepbu001@csusm.edu or Dr. Thomas at mthomas@csusm.edu.

All of your survey answers are confidential and no identifying information, such as name or E-mail address, will be requested, collected, or associated with your responses. If, for any reason, you decide not to answer a question, just leave it blank and move on to the next question. You may leave the survey at any time by clicking the "Exit this survey" button. Your continuation of this survey signals your consent to participate.

Please click "Next" to get started. Thank you for your participation in this study. This research will contribute to a better understanding of issues pertinent to women's midlife health and well-being.

NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Menopausal Status & Hormone Therapy (HT) Experience

Which of the following best describes your menopausal status?

- Premenopausal: I have had a regular monthly menstrual period for the last 3 months.
- Perimenopausal: I am experiencing menstrual irregularities such as skipped periods during the last 12 months.
- Postmenopausal: I have had no menstrual periods in the last 12 months.
- Surgical Menopause: I have not had a menstrual period because I had a hysterectomy (uterus removed) or ovariectomy (one or both ovaries removed).

Which of the following best describes your experience with hormone therapy (HT)?

- I have never taken HT.
- I am currently taking HT and have not stopped taking it since the treatment was prescribed for me.
- I was taking HT but stopped.
- At one point I stopped taking HT for a period of time but started again. I am currently taking HT.

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Never Taken Hormone Therapy (HT)

In July 2002, the federal government halted the long-term Women's Health Initiative (WHI) study on more than 16,000 women taking a combination estrogen-progestin hormone therapy (HT). In March 2004, a second phase of the WHI study on nearly 11,000 women taking estrogen alone also was halted.

The next items ask whether you are aware of the WHI study and, if so, from what source or sources you learned of the findings.

I heard or read media reports on the WHI study.

- Yes
- No
- Not sure

< NEXT>>

Menopause & Hormone Therapy Survey

Exit this survey >>

Information Sources

From what source or sources did you receive most of your information about the WHI study's findings on HT? Please select ALL that apply.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

Of the sources you selected in the previous question, which was your PRIMARY source of information about the WHI study's findings on HT?

- ( ) Radio
- ( ) Magazine articles
- ( ) Television
- ( ) Health care provider
- ( ) Internet
- ( ) Scientific journal articles
- ( ) Books
- ( ) Other women (for example, friends, family, co-workers)
- ( ) Newspaper articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Yes, I Know About the WHI Study

The following items ask about whether and how the WHI study information impacted you and your decisions about hormone therapy (HT).

The media's reports on the WHI study were confusing.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study caused me concern.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study have affected, or will affect, my decision about HT use.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

I am skeptical of the media's reports on the WHI study's HT findings.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Currently Taking Hormone Therapy (HT), Never Stopped

In July 2002, the federal government halted the long-term Women's Health Initiative (WHI) study on more than 16,000 women taking a combination estrogen-progestin hormone therapy (HT). In March 2004, a second phase of the WHI study on nearly 11,000 women taking estrogen alone also was halted.

The next items ask whether you are aware of the WHI study and, if so, from what source or sources you learned about the findings.

I heard or read media reports on the WHI study.

- Yes
- No
- Not sure

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information Sources

From what source or sources did you receive most of your information about the WHI study's findings on HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

Of the sources you selected in the previous question, which was your PRIMARY source of information about the WHI study's findings on HT?

- ( ) Newspaper articles
- ( ) Other women (for example, friends, family, co-workers)
- ( ) Books
- ( ) Scientific journal articles
- ( ) Internet
- ( ) Health care provider
- ( ) Television
- ( ) Magazine articles
- ( ) Radio

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Yes, I Know About the WHI Study

The following items ask about whether and how the WHI study information impacted you and your decisions about hormone therapy (HT).

The media's reports on the WHI study were confusing.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study caused me concern.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

I am skeptical of the media's reports on the WHI study's HT findings.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Despite the media reports, I will continue to take HT.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports influenced me to switch from Premarin or Prempro to another type of HT.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Hormone Therapy (HT) Use

How long have you been using HT?

- Less than 1 year
- 1 to 2 years
- 2 to 3 years
- 3 to 4 years
- 4 to 5 years
- More than 5 years

Which of the following best describes the hormone therapy that you have been prescribed and use?

- Premarin (estrogen only)
- Prempro (estrogen and progesterone combined into one treatment)
- Estrogen (e.g., Estrace) with progesterone (e.g., Provera, Prometrium) in two separate treatment deliveries -- for example, you take an estrogen pill and a progesterone pill
- Other (please specify) _____

What influenced your decision to start using HT? Please select ALL that apply from the list below.

- ☐ Relief from menopausal symptoms, such as hot flashes, vaginal dryness, sleep difficulties, forgetfulness, irritability, or depressed mood
- ☐ Your health care provider recommended HT
- ☐ Protection from osteoporosis or bone loss
- ☐ To revitalize your desire for sex
- ☐ Your friends or family recommended HT
- ☐ To maintain a youthful appearance (for example, skin and hair)
- ☐ Heart disease protection
- ☐ Protection from colon cancer
- ☐ Other (please specify) _____

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Took Hormone Therapy (HT), But Stopped

In July 2002, the federal government halted the long-term Women's Health Initiative (WHI) study on more than 16,000 women taking a combination estrogen-progestin hormone therapy (HT). In March 2004, a second phase of the WHI study on nearly 11,000 women taking estrogen alone also was halted.

The next items ask whether you are aware of the WHI study and, if so, from what source or sources you learned about the study's findings.

I heard or read media reports on the WHI study.

- Yes
- No
- Not sure

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information Sources

From what source or sources did you receive most of your information about the WHI study's findings on HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

Of the sources you selected in the previous question, which was your PRIMARY source of information about the WHI study's findings on HT?

- ( ) Radio
- ( ) Magazine articles
- ( ) Television
- ( ) Health care provider
- ( ) Internet
- ( ) Scientific journal articles
- ( ) Books
- ( ) Other women (for example, friends, family, co-workers)
- ( ) Newspaper articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Yes, I Know About the WHI Study

The following items ask about whether and how the WHI study information impacted you and your decisions about hormone therapy (HT).

The media's reports on the WHI study were confusing.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study caused me concern.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study influenced my decision to stop taking HT.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

I am skeptical of the media reports on the WHI study's HT findings.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information & Advice Sources

From what source or sources did you seek additional information or advice before you stopped using HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Stopped Hormone Therapy (HT) Use

How long has it been since you stopped using HT?

- Less than six months
- Six months to 1 year
- 1 to 1 1/2 years
- 1 1/2 to 2 years
- More than 2 years

How long did you use HT?

- Less than 1 year
- 1 to 2 years
- 2 to 3 years
- 3 to 4 years
- 4 to 5 years
- More than 5 years

Which of the following best describes the hormone therapy that you were prescribed and used?

- Premarin (estrogen only)
- Prempro (estrogen and progesterone combined into one treatment)
- Estrogen (e.g., Estrace) with progesterone (e.g., Provera, Prometrium) in two separate treatment deliveries -- for example, you take an estrogen pill and a progesterone pill
- Other (please specify) _____

What influenced your decision to start using HT? Please select ALL that apply from the list below.

- [ ] Relief from menopausal symptoms, such as hot flashes, vaginal dryness, sleep difficulties, forgetfulness, irritability, or depressed mood
- [ ] Your health care provider recommended HT
- [ ] Protection from osteoporosis or bone loss
- [ ] To revitalize your desire for sex
- [ ] Your friends or family recommended HT
- [ ] To maintain a youthful appearance (for example, skin and hair)
- [ ] Heart disease protection
- [ ] Protection from colon cancer
- [ ] Other (please specify)

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Stopped, Started, Currently Taking HT

In July 2002, the federal government halted the long-term Women's Health Initiative (WHI) study on more than 16,000 women taking a combination estrogen-progestin hormone therapy (HT). In March 2004, a second phase of the WHI study on some 11,000 women taking estrogen alone also was halted.

The next items ask whether you are aware of the WHI study and, if so, from what source or sources you learned about the study's findings.

I heard or read media reports on the WHI study.

- Yes
- No
- Not sure

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information Sources

From what source or sources did you receive most of your information about the WHI study's findings on HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

Of the sources you selected in the previous question, which was your PRIMARY source of information about the WHI study's findings on HT?

- ( ) Radio
- ( ) Magazine articles
- ( ) Television
- ( ) Health care provider
- ( ) Internet
- ( ) Scientific journal articles
- ( ) Books
- ( ) Other women (for example, friends, family, co-workers)
- ( ) Newspaper articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Yes, I know About the WHI Study

The following items ask about whether and how the WHI study information impacted you and your decisions about hormone therapy (HT).

The media's reports on the WHI study were confusing.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study caused me concern.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

I am skeptical of the media reports on the WHI study's HT findings.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

The media's reports on the WHI study influenced my decision to stop taking HT.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Decision To Stop Taking HT

Did you seek additional information, or advice, before you made the decision to stop using HT?

- Yes
- No

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information & Advice Sources

From what source or sources did you seek additional information or advice before you stopped taking HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Stopped Hormone Therapy (HT) Use

Which of the following best describes the hormone therapy (HT) that you were using before you stopped taking treatment?

- Premarin (estrogen only)
- Prempro (estrogen and progesterone combined into one treatment)
- Estrogen (e.g., Estrace) with progesterone (e.g, Provera, Prometrium) in two separate treatment deliveries -- for example, you take an estrogen pill and a progesterone pill
- Other (please specify) _____

How long did you stop using HT?

- Less than six months
- Six months to 1 year
- 1 to 1 1/2 years
- 1 1/2 to 2 years
- More than 2 years

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Started Hormone Therapy (HT) Use Again

Which of the following best describes the hormone therapy (HT) that you have been prescribed and are currently using?

- Premarin (estrogen only)
- Prempro (estrogen and progesterone combined into one treatment)
- Estrogen (for example, Estrace) with progesterone (for example, Provera or Prometrium) in two separate treatment deliveries -- for example, you take an estrogen pill and a progesterone pill
- Other (please specify) _____

How long have you used HT? All together,

- Less than 1 year
- 1 to 2 years
- 2 to 3 years
- 3 to 4 years
- 4 to 5 years
- More than 5 years

What specifically influenced your decision to start using HT again? Please select ALL that apply from the list below.

- [ ] Relief from menopausal symptoms, such as hot flashes, vaginal dryness, sleep difficulties, forgetfulness, irritability, or depressed mood
- [ ] Your health care provider recommended HT
- [ ] Protection from osteoporosis or thinning bones
- [ ] To revitalize your desire for sex
- [ ] Your friends, family, or co-workers recommended HT
- [ ] To maintain a youthful appearance (for example, skin and hair)
- [ ] Heart disease protection
- [ ] Protection from colon cancer
- [ ] Other (please specify) _____

Did you seek additional information or advice before you made the decision to start using HT again?

- ( ) Yes
- ( ) No

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Information & Advice Sources

From what sources did you seek additional information or advice before you started using HT again? Please select ALL that apply from the list below.

- [ ] Other women (for example, family, friends, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazine articles
- [ ] Books
- [ ] Scientific journal articles

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Health

Please provide us with some information about health-related issues and lifestyle choices.

Please rate your current health status.

- Excellent
- Above average
- Average
- Below average
- Poor

Which of the following health conditions do you have, have you had, or do you consider yourself at higher risk of developing?

- Breast cancer
- Ovarian cancer
- Colon cancer
- Heart disease, stroke, and/or blood clots
- Osteoporosis/thinning bones
- Hypothyroidism
- High blood pressure
- Diabetics
- Alzheimer's disease

Did, or does, your mother take HT?

- Yes
- No

Do your friends and/or female co-workers take HT?

- No
- Don't know
- Yes -- please estimate how many _____

Have you ever taken oral contraceptives?

- Yes
- No

Which of the following, if any, do you get yearly? Please select ALL that apply from the list below.

- Pap smear
- Mammogram
- Cholesterol check

Do you exercise on a regular basis (3 or more times a week)?

- Yes
- No

Do you take vitamins and/or herbal supplements regularly?

- Yes
- No

Which of the following best describes your current weight relative to your ideal weight?

- 20+ pounds over ideal weight
- Less than 20 pounds over, but more than 10 pounds over ideal weight
- Less than 10 pounds over, but more than 5 pounds over ideal weight
- Less than 5 pounds over ideal weight
- Ideal
- More than 5 pounds under, but less than 10 pounds under ideal weight
- More than 10 pounds under ideal weight

Do you smoke cigarettes?

- Yes
- No

Which of the following best describes your current alcohol use?

- None
- Less than once a week
- Once or twice a week
- 3-4 times a week
- 5-6 times a week
- Nearly every day
- Every day

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Menopause & Hormone Therapy (HT) Knowledge

Please respond to the following statements about menopause and HT to the best of your knowledge.

	True	False	Not sure
The WHI study found that HT **decreased** the risk for colon cancer.	○	○	○
The WHI study found that using HT **increased** the risk of stroke.	○	○	○
The WHI study found that HT **increased** the risk for breast cancer.	○	○	○
The WHI study found that using HT **increased** the risk for heart disease.	○	○	○
Decreased estrogen levels have been associated with **increased** cholesterol levels.	○	○	○

The WHI study found that HT **decreased** the risk for osteoporosis-related fractures.

Decreased estrogen levels have been associated with an **increased** risk for bone loss and/or osteoporosis.

The WHI study found that HT **decreased** the risk for hip fractures.

The onset of menopause results from a **decline** in estrogen and **no further production** of progesterone.

Menopausal symptoms can begin in the middle to late thirties and early forties.

< **NEXT>>**

Menopause & Hormone Therapy Survey Exit this survey >>

Women's Health Information Sources

From what source or sources do you learn about women's health issues such as menopause and HT? Please select ALL that apply from the list below.

- [ ] Other women (for example, friends, family, co-workers)
- [ ] Newspaper articles
- [ ] Health care provider
- [ ] Television
- [ ] Radio
- [ ] Internet
- [ ] Magazines
- [ ] Books
- [ ] Scientific journal articles

Of the sources you selected in the previous question, which is your PRIMARY source of information about women's health issues such as menopause and HT?

- ( ) Scientific journal articles
- ( ) Newspaper articles
- ( ) Other women (for example, friends, family, co-workers)
- ( ) Health care provider
- ( ) Magazines
- ( ) Internet
- ( ) Books
- ( ) Television
- ( ) Radio

On a scale of 0 to 10, where 0 is NO USEFUL INFORMATION and 10 is the MOST USEFUL INFORMATION, please rate the following sources that you use for health information on such issues as menopause and HT. If you do not use a source, please do not rate it (leave it blank).

	0 NONE	1	2	3	4	5	6	7	8	9	10 MOST
Health care provider											
Radio											
Television											
Magazines											
Internet											
Newspapers											
Books											
Scientific journal articles											
Other women											

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Attention To Sources

On a scale of 0 to 10, where 0 is NO ATTENTION and 10 is ALL YOUR ATTENTION, rate how much attention you give to each of the following:

Magazine articles about women's health issues.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Magazine articles about the risk from treatments like HT.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Radio news about women's health issues.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Radio news about the risk of using treatments like HT.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Internet information about women's health issues.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Internet information about the risk of using treatment like HT.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Newspaper stories about women's health issues.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

Newspaper stories about the risk of using treatment like HT.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

TV news about women's health issues.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

TV news about the risk of using treatments like HT.

0 NONE	1	2	3	4	5	6	7	8	9	10 ALL
○	○	○	○	○	○	○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Your Opinion

Please indicate how much you agree or disagree with the following statements.

The media often exaggerates and sensationalizes news stories.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

News stories with statistics are more believable than those without statistics.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

When the same information appears in many places, I'm more likely to believe it.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

About You

Please provide us with some background information about yourself.

What is your age?

_____

Where do you live?

City _____

State _____

Country _____

What ethnicity do you consider yourself?

- Alaska Native
- American Indian
- Asian
- Black or African American
- Hispanic or Latino
- Multiethnic
- Native Hawaiian or Other Pacific Islander
- White
- Other (please specify) _____

Which category best describes your level of education?

- Less than high school
- High school graduate
- Post high school (for example, trade school, some college)
- Nursing (LPN, LVN, RN)
- College graduate (BA, BS)
- Postgraduate (for example, MA, MS, MSN, MBA NP, PA, Ph.D., JD, MD)

Which category best describes your marital status?

- Single, never married
- Currently married or living as married
- Separated
- Widowed
- Divorced
- Other (please specify) _____

Do you have biological children?

- No
- Yes -- please specify how many _____

Are you currently employed?

- Yes
- No

Which category best describes your household income?

- Less than $25,000
- $25,000 to $50,000
- $50,000 to $75,000
- $75,000 to $100,000
- More than $100,000

Do you currently own or are you in the process of buying your own home?

- Yes
- No

Do you currently have privately provided health care coverage?

- Yes
- No

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Last Question

How did you learn about this survey?

- E-mail
- Web site
- Other (please specify) _____

< NEXT>>

Menopause & Hormone Therapy Survey Exit this survey >>

Thank You

Thank you for participating in this study. Your contribution to this research is greatly appreciated. If you are interested in the results, please send your E-mail address to Bonnie Hepburn at hepbu001@csusm.edu.

One of the methods we are using to obtain survey respondents is called "snowballing." We are relying on women like you to pass the survey on to other women. Please share this survey with as many women as you can by forwarding the E-mail that was sent to you. Thank you in advance for helping us reach more women with our survey.

< Done >>