FACTORS AFFECTING NORTH LOUISIANA WOMEN'S DECISIONS RELATED TO MENOPAUSE THERAPY OPTIONS

A DISSERTATION

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To the Dean of the Graduate School:

I am submitting herewith a dissertation written by Tommie Church entitled "Factors Affecting North Louisiana Women's Decisions Related to Menopause Therapy Options." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy with a major in Health Studies.

Kristin Wiginton, Ph.D., Major Professor

We have read this dissertation and recommend its acceptance:

Department Chair

Accepted:

Dean of the Graduate School

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ABSTRACT

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FACTORS AFFECTING NORTH LOUISIANA WOMEN'S DECISIONS RELATED TO MENOPAUSE THERAPY OPTIONS

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Menopause, the natural biological change that occurs during the aging process, is the permanent cessation of menses and fertility that generally occurs between 45 and 55 years of age. Although many women may seek some type of intervention during their menopausal transition, others may avoid doing so for various reasons. Some of the factors that reportedly affect women's decisions about whether or not to seek menopausal treatment include knowledge and attitudes about changes that occur during menopause, severity of symptoms accompanying menopause, knowledge about treatment options, physician recommendations, and friends' or family members' experiences with various treatment options. The purposes of this study were to: (1) Determine the most common therapies reported by women transitioning through menopause; (2) Determine factors that influenced participants' therapy decisions; and (3) Determine if there are significant differences in decisions based on age, race, income level, employment status, health insurance, health status, severity of menopausal symptoms, and knowledge and attitudes related to menopause. Two

hundred seventy four female participants, aged 40-60, recruited from northern Louisiana, completed an anonymous survey offered in online format. Chi square and multiple logistic regressions were used to analyze the data. The most common treatments/therapies reported by participants in the study were estrogen, progesterone, and combined hormone therapy. Significant relationships were revealed between attitudes and treatment/therapy use, and knowledge and treatment/therapy use. Women holding the attitude that menopause is a natural part of the aging process were at significantly lesser odds of currently being on menopause treatment/therapy compared with those who perceive menopause to be a medical condition (*Odds Ratio* = .188, p = .036). Furthermore, women holding a positive attitude towards hormone therapy were at significantly greater odds of currently being on menopause treatment/therapy compared to women with negative attitudes towards hormone therapy (*Odds Ratio* = 6.752, p = .009). The most frequent menopausal symptoms reported by participants were hot flashes, night sweats, mood changes, vaginal dryness, and loss of interest in sex. A large proportion of the women in this study reported physicians as their primary source of menopause information, but postmenopausal women were more likely to obtain information from physicians than premenopausal and perimenopausal women. This presents an opportunity to educate women prior to cessation of menses about the possible symptoms that occur during the menopausal transition, treatment/therapy options, important health implications related to menopause in

general, and benefits and risks related to decisions on the use of treatment/therapy.

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CHAPTER I

INTRODUCTION

Menopause, the natural biological change that occurs during the aging process, is the permanent cessation of menses and fertility, and is typically classified as such upon cessation of menstruation for one or more years. Natural menopause generally occurs sometime between 45 and 55, with an average age of 51 (The National Women's Health Information Center, 2009). Natural menopause is the result of the gradual decrease in the level of the female sex hormones, estrogen and progesterone, that are produced by the ovaries. During this gradual decrease in hormones, referred to as perimenopause, some women may experience symptoms that include hot flashes, night sweats, insomnia, and vaginal drying (Richardson, 2005). Induced menopause as a result of surgical interventions, medical interventions, or medical conditions, also leads to the same symptoms as natural menopause, but the transition is more abrupt than with natural menopause (Mayo Clinic, 2009). Although many women may seek some type of intervention during their menopausal transition, others may avoid doing so for various reasons. Currently, there are numerous options available to women for the treatment of the symptoms during menopausal transition, and for health promotion during postmenopause. Hormone therapy, herbal supplements, alternative remedies, prescription drugs, oral contraceptives, and lifestyle behavior modification are some of the available options (The National Women's Health Information Center, 2009).

Historically, hormone therapy (HT) has been one of the most popular physician recommended therapy options. However, the Women's Health Initiative Study recently raised concerns about the possible health risks related to HT (Schoenberg, Davis, & Wee, 2005). This study included two clinical trials, with one group on estrogen only therapy, and one group on estrogen plus progestin. Results indicated that women on estrogen only had increased risks of stroke, blood clots, and uncertain risk for breast cancer compared to women on the placebo. Other results rendered from the estrogen only trial included no difference in risk for heart attack and colorectal cancer in the treatment and placebo groups, and reduced risk of fractures in the treatment group compared to the placebo group. Women who were on estrogen plus progestin were found to have increased risks of heart attack, stroke, blood clots, breast cancer, and increased risk of dementia compared to those in the placebo group. Other results from the estrogen plus progestin trials included reduced risk of colorectal cancer, fewer fractures, but no protection against mild cognitive impairment in the treatment group compared to the placebo group. Women from these two clinical trials participated in a follow-up study that culminated in 2010. Several of the health risks and benefits cited during the clinical trials of the estrogen only study, were not maintained post intervention (National Institutes of Health, 2011). While some experts support the findings of the Women's Health Initiative Study, others question its external validity due to the confounding variable of age. As the average age of the participants was 63 years, the advanced age would carry the cited health risks regardless of treatment (Richardson, 2005).

With the frequent shifts in treatment recommendations for women transitioning from perimenopause to postmenopause, it is a challenge for women to determine which, if any treatments should be utilized to maintain and promote optimal health (Huston, Jackowski, & Kirking, 2009).

Some of the factors that reportedly affect women's decisions about whether or not to seek menopausal treatment include knowledge and attitudes about changes that occur during menopause, severity of symptoms accompanying menopause, knowledge about treatment options, physician recommendations, and friends' or family members' experiences with various treatment options (Lewin, Sinclair, & Bond, 2003).

The theoretical basis for this study is the Theory of Planned Behavior, which is based on the association between an individual's attitudes and beliefs, and an individual's behavioral intention and behavior execution. The TPB proposes that three key factors play a role in a person's decision to execute a particular behavior are behavioral beliefs, normative beliefs, and control beliefs (Ajzen, 2010).

This study investigated knowledge, attitudes, and beliefs of participants and the factors that emerged as having the most significant impact on the decision making process related to menopause and menopause therapy options.

Purpose of the Study

The purposes of this study were to: (1) Determine the most common therapies reported by women transitioning through menopause; (2) Determine factors that influenced participants' therapy decisions; and (3) Determine if there are significant

differences in decisions based on age, race, income level, employment status, health insurance, health status, severity of menopausal symptoms, and knowledge and attitudes related to menopause.

Null Hypotheses

The following null hypotheses were tested at the .05 level of significance:

H_{01}. There will be no statistically significant difference in therapy decisions of women who consider menopause to be a natural part of the aging process and the women who consider menopause to be a medical condition.

H_{02}. The following descriptive covariates (age, race, income level, employment status, health insurance, health status, and menopausal symptoms) will be neither predictive nor protective of therapy decisions.

Delimitations

The study had the following delimitations:

1. Women ages 40-60 were solicited from targeted institutions/organizations to participate in this study.

2. Women who are going through induced menopause as a result of a hysterectomy, as well as those who are premenopausal, perimenopausal or transitioning into natural menopause were included in this study.

Limitations

The current study presents the following limitations:

1. Participants for this study were selected based on purposeful convenience sampling from various institutions/organizations across the "Delta VIII Region" in North Louisiana. Therefore, the external validity is limited and the study results cannot be generalized.

2. As this was a descriptive study, and the participants for this study were the result of purposeful convenience sampling, causal explanations will not be made.

3. The data for this study were analyzed from a self-report instrument; therefore, information bias may have occurred.

4. The questionnaires were offered in an online format; thus, only women with access to the internet were able to participate in the study.

Assumptions

The study had the following assumptions:

1. The participants provided accurate accounts of their treatment decisions, and their knowledge and attitudes toward menopause and treatment options.

2. Participants read and comprehended English well enough to understand study instructions, questionnaires, and follow directions appropriately.

Definition of Terms

Perimenopause – experiencing menopausal symptoms that accompany decreasing female sex hormone production, but not meeting the criteria of cessation of menses for one year or more (Richardson, 2005).

Menopause – transition period in which the ovaries stop producing eggs, and production of the hormones estrogen and progesterone lessen. During this time menstrual periods become less frequent and finally completely stop (National Center for Biotechnology Information, 2010).

Postmenopause – the time after a woman reaches menopause; the years after a woman has been menstrual period free for a year (North American Menopause Society, 2011).

Complementary and Alternative Therapies – non-traditional therapies used in combination or in place of traditional treatments for a condition; for menopausal symptoms, herbal or dietary supplements, acupuncture, meditation and other stress management techniques (National Center for Complementary and Alternative Medicine, 2011).

Hormone Therapy (HT) – either estrogen only or estrogen plus progesterone therapy (North American Menopause Society, 2010).

Bioidentical Hormone Therapy- term used to describe medications that contain estrogen, progesterone, and other hormones which are derived from plant chemicals which chemically duplicate those produced by the ovaries (Mayo Clinic, 2010).

Importance of the Study

This study will provide increased insight into the knowledge and attitudes of the women in the targeted geographic location related to menopause, its treatment options, and the benefits and risks of those options, and provide information about the determinants of their decisions concerning menopause and its treatment options. Additionally, the results may provide an indication as to the need for educational intervention via community based programs and counseling regarding menopause and its possible impact on the general health status of the patient.

CHAPTER II

REVIEW OF THE LITERATURE

Menopause, a biological transition, marked by cessation of the menses and loss of fertility in women, typically occurs sometime between the ages of 45 and 55, with an average age of 51(The National Women's Health Information Center, 2009). The symptoms of menopause vary from woman to woman as do attitudes and knowledge about menopause, hormone therapy, and other available treatment options.

There are numerous treatment options available for women transitioning from perimenopause to postmenopause, but the safety and effectiveness of these options are debatable. Historically, physicians prescribed women hormone therapy (HT), but the termination of the clinical trials in the Women's Health Initiative, due to negative health implications, increased discussions of other intervention options.

This literature review examines women's attitudes and knowledge related to menopause, psycho-social influences, and symptoms occurring during the menopausal transition, the available options for treating these symptoms, and the effectiveness and safety of the available options. All of these factors fit well into the theoretical basis for this study, the Theory of Planned Behavior.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is based on the association between an individual's attitudes and beliefs, and an individual's behavioral intention and behavior execution (Ajzen, 2010). The TPB proposes that the following three key factors play a role in a person's decision to execute a particular behavior: behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs include the individual's beliefs about the consequences of participating in a particular behavior, and are affected by the individual's positive or negative attitude toward the behavior. Normative beliefs relate to the individual's perception of how others feel about a particular behavior and the societal pressure to participate in the behavior. The key focus is on people that the individual depends on for information and support (e.g., family, friends, healthcare providers, etc.). Control beliefs relate to the individual's perception about the ability to execute a behavior, given the individual's knowledge, skills, and resources (Ajzen, 2010). Theory based studies related to menopause are limited and studies that utilize TPB as a theoretical framework for examining behaviors related to menopause and menopause therapy options are scarce. In this review of literature, only two studies related to TPB and therapy seeking behaviors were found. The other studies evaluated HT adherence rather than the initial decision of whether or not to utilize a therapy option.

Spatz, Thomb, Byrne, and Page (2003) utilized a survey that tested the constructs of the TPB related to menopause therapy seeking behavior and concluded that Hormone Therapy use was strongly associated with perceived behavioral control and subjective

norm (e.g., physician's advice). In this study, a survey was mailed to 996 women employed by a multi-campus community college in Ohio, and the survey was completed by 641 of the women with an age range of 18-75 with mean of 48 and median of 49. Results from discriminant analysis in this study revealed that perceived control belief, one of the constructs of TPB, was the best discriminator of the HT classification groups in the study. Women who reported current HT use or the intention to use HT in the future(structure coefficient =.569), had stronger beliefs in their ability to adhere to a HT treatment regimen than those who had previously used HT and never used HT, and reported no intention of future use of HT(structure coefficient =.432).

Huston, Bagozzi, and Kirking (2008), in a study with a purpose of determining if TPB has an influence on intention to use HT, concluded that attitude, subjective norm, and self-efficacy positively and significantly predicted intention to use HT. Yet as perceived behavioral control increased, the intention to use HT tended to decrease. Participants for this study were recruited from a not for profit managed care organization in the Midwestern region of the United States. Respondents (N= 765) had a mean age of 52.5 years and were predominantly Caucasian (89.7%). Participants were divided into four subgroups, "early stage never users", "late stage never users", "late stage previous users", and "late stage current users". In early stages of menopause, more of the variance (60%) in intention to use HT was explained by TPB than in later stages. Additionally, 52% of the variance in intention was explained by TPB in "late never users", 31% among "current users", and 20% among "late previous users". This study suggests that variance

in intention can be more readily explained in early stages of decision making, while habit and other factors have more influence over time (Hutson, Bagozzi, & Kirking, 2008).

Another health theory that has been utilized as a framework for studies related to menopause and menopause therapy decisions is the Health Belief Model. McGinley (2004) reported that there was a significant positive correlation between not using Hormone Therapy and perceived barriers (r=.52). Significant negative correlations were revealed with not using HT and perceived benefits (r=-.24) (-.238), confidence (-.39), and health motivation (-.16). Data for this study were collected prior to the termination of the HT phase of the WHI Study.

According to Wilhelm (2006), self-efficacy, support, and knowledge combined had the greatest influence on intent to adopt HT than any of the predictors independently, but self-efficacy was the strongest predictor when examined independently.

Knowledge, Attitudes, and Beliefs

While some women consider menopause a natural part of the aging process that requires no therapy, others believe this midlife transition should be treated as a medical condition. Menopause is viewed by some women as positive and some as negative, with women differing in their perceptions about the cessation of menses and loss of fertility, as well as its effect on their health and attractiveness. In 2005, the second wave of the Midlife in the United States Study was conducted using a national survey that investigated social factors that influence women's attitudes related to menopause, including attitudes toward fertility and cessation of menstruation, and attitudes related to

health and attractiveness. Women who had more positive views related to loss of fertility and cessation of menstruation were women who occupied multiple social roles (e.g., employee, spouse, mother, etc.). Also, women who were older and less educated, but financially secure tended to be more positive about loss of fertility. However, those with more positive attitudes related to health and attractiveness following menopause, also tended to report fewer menopausal symptoms (Strauss, 2011).

Recent studies related to women's knowledge and attitudes related to menopause are limited, with most of the studies focusing on attitudes about menopause symptoms and the treatment options for these symptoms. Very few of the studies investigate the psychosocial aspects of menopause. Attitudes toward menopause may include everything from happiness, relief, and feeling in control of health, to being anxious, depressed and frustrated with hard to control symptoms (Singh et al., 2007).

Women seek information about menopause, its effect on health, and treatment options from a variety of sources including physicians, magazines, friends/family, internet, medical books, and word of mouth. According to findings from a national probability sample, women rely on their physicians (63%) more than other sources for information about menopause, treatment for symptoms, and health implications (Singh et al., 2007). Similarly, when asked with whom the women in the probability study had discussed menopause, the top three responses were physicians, friends, and family. Women in this study reported that their top three concerns when deciding upon menopause treatment options were safety (54%), symptom relief (39%), and few or no

side effects (29%). Women's main concerns related to menopause health effects were symptoms, heart disease risk, increased osteoporosis risk, loss of sexual arousal/pain during intercourse, making decisions about treatment options, breast cancer risk, and mental problems (Singh et al, 2007).

In the past, the studies related to menopause and women's attitudes regarding this midlife transition have focused on the Caucasian population in the United States. Recently, there have been a few studies that have focused solely on African American women's menopause experience as well as studies including a cross section of the experiences of various races/ethnicities.

According to a recent study focusing on a convenience sample (n=226) of African American women aged 35-55, less than 10% of the participants considered menopause a medical condition, 38% considered it a natural midlife transition to be treated with hormone therapy, and 44% considered it a natural midlife transition to be dealt with by natural means (Huffman, Myers, Tingle, & Bond, 2005). The biggest concern (53%) was with what to expect during the menopausal transition in regards to symptoms, physical changes, and emotional implications. Seventy percent of this sample viewed menopause as a potentially unpleasant experience, and 66% believed that women generally dread menopause. Forty-six percent of the women in the study reported a belief that menopause is the 'beginning of the end', and 49% worried about losing their minds during menopause. On the more positive side of the issue, 66% of the participants

believed that after menopause, women are freer to do things for themselves, partly due to the loss of menses and fertility (Huffman- et al., 2005).

Symptoms

In general, women who consider therapy options do so to relieve the various menopausal symptoms that reduce their quality of life. About 85% of women in transition from perimenopause to postmenopause report one or more menopausal symptoms. The most prevalent symptoms experienced by women transitioning from perimenopause to postmenopause are vasomotor symptoms (hot flashes and night sweats), vulvo-vaginal atrophy (vaginal dryness, dyspareunia, urinary tract symptoms), hormonal headaches, psychological issues (mood changes, depression, cognitive issues), osteoporosis, and generalized symptoms such as fatigue, insomnia, joint problems and skin changes. Of these symptoms, vasomotor symptoms are the most common, and most disruptive to quality of life (Carroll, 2010; North American Menopause Society, 2010).

Even though past studies mainly focused on Caucasian women and their menopause experiences, a growing number of recent studies have focused on other races and ethnicities across the United States. A study by a Yale School of Nursing researcher revealed that African American women transitioning from perimenopause to postmenopause experience some of the same menopausal symptoms as white women, but also reported more of the less common symptoms including dizziness and bloating (Alexander, 2005).

Another study focusing solely on African American women's menopause attitudes and symptoms found that the women whose menopause status was perimenopause or postmenopause reported their most frequently reported symptoms to be hot flashes and night sweats (Huffman et al., 2005). This parallels the results in studies with Caucasian women as the focus. According to the 2000 U.S. Census Bureau statistics, 75% of the women in the United States reported experiencing hot flashes, and worldwide, 50-85% of the women experience hot flashes, with the Asian countries having the least prevalence (Utian, 2005).

In the Study of Women Across the Nation (SWAN), researchers found that the prevalence of hot flashes in the United States was highest among African Americans (46%), followed by Hispanics (34%), Whites (31%), Chinese (21%), and Japanese (18%) (Utian, 2005). Vasomotor symptoms (e.g., hot flashes, day sweats, night sweats) can endure five to seven years among women transitioning from perimenopause to postmenopause. The peak for vasomotor symptoms seems to be within six to twelve months of their last menstrual period (Berg, Larson, & Pasvogel, 2008). A population-based study of healthcare seeking behaviors related to menopause symptoms and treatments in women, ages 40-65 in the United States, found that 60% of the participants sought treatment for menopause symptoms, and vasomotor symptoms were the most common symptoms reported across all races and ethnicities, and the symptoms most discussed with healthcare providers (Williams et al., 2007).

Although hot flashes are the most common symptoms in women who seek therapy, 10% of menopausal women visit physicians for intervention related to sleep disruption, irregular bleeding, and mood swings (Richardson, 2005). In a recent study related to perception and severity of symptoms, sleep difficulties, irritability, and forgetfulness were perceived by the greatest number of women, and the symptoms with the highest severity ratings were sleep difficulties, night sweats, irritability, and forgetfulness. The variety of reported symptoms of women in the study included sleep difficulties, forgetfulness, irritability, night sweats, hot flashes, mood swings, depressed mood, day sweats, vaginal dryness and irregular bleeding (Berg et al., 2008). Other symptoms reported by women during menopausal transition include heart palpitations, decreased sex drive, thinning hair, dry skin, dry eyes, increased facial hair, weight gain, and digestive problems (North American Menopause Society, 2010).

Menopause Therapy Options

Women use a variety of interventions to alleviate menopause symptoms including over-the-counter preparations, complementary and alternative therapies, lifestyle changes, prescriptions drugs, and various forms of hormone therapy (Woods & Mitchell, 2005).

Hormone Therapy

Specific considerations in the decision to use hormone therapy (HT) are the long term health benefits, including maintenance of bone density, as well as health risks, including the increased risk for breast cancer. In the past, reduction in heart disease risk

was another reason for selecting the most popular intervention, hormone therapy (Buick, 2005). However, results from the Women's Health Initiative clinical trials have lead to questions about the protective properties of traditional hormone therapy, both estrogen only and estrogen plus progestin (National Institutes of Health, 2009).

For years, physicians prescribed estrogen and estrogen plus progestin to decrease menopausal symptoms, heart disease risks, and bone density loss. An increase in risk for breast cancer was one of the only cited health risks accompanying hormone therapy until the Women's Health Initiative Study. The WHI started in 1992 and consisted of both observational studies and clinical trials of both estrogen only and estrogen plus progestin hormone therapy. Health issues to be investigated with the study included heart disease, bone loss, breast and colon cancer (Roush, 2011). However, the main purpose of the study was to determine if estrogen should be given alone or with progestin to women ages 50-79 to prevent heart disease. In 2002, the conjugated equine estrogen plus medroxy-progesterone acetate (progestin) trial was halted. Reasons cited for halting the study were the increased risk for heart disease, stroke, and pulmonary emboli among those on hormone therapy compared to those in the placebo only control group, and increased breast cancer risks crossing the global index boundary indicating "overall harm" (Richardson, 2005; Roush, 2011). In 2004, participants in the Women's Health Initiative estrogen-only clinical trial were asked by the National Institutes of Health to stop taking their pills due to the increased risk of stroke and venous thrombo-embolism compared to the control group (Roush, 2011). However, according to Roush (2011), the

risk to each individual woman using HT is relatively minimal, translating to seven more cardiac events per 10,000 women taking estrogen plus progestin for a year, and eight more cases of breast cancer, stroke, or pulmonary embolism per 10,000 women taking estrogen plus progestin for a year. For women using estrogen only, the risk translates to an additional 12 cases of stroke per 10,000 per year.

Prior to the WHI Study, observational studies had demonstrated a decrease in cardiovascular events with conjugated estrogen plus progestin therapy. According to Tannen, Weiner, Xie, and Bernhardt (2008), observational studies prior to WHI provided limited evidence due to possible "healthy women bias" and the lack of control of confounding factors. Others consider that the increase in health risk events in the WHI study could be attributed to the fact that the average age of the participants was 63 years. The advanced age may have confounded participants' risk for the cited health problems when compared to younger women who take hormone therapy (Richardson, 2005). Ultimately, this claim could only be justified if the treatment and placebo groups were both found to have increased health risks, which was not the case. Shoupe (2011), refers to initial warnings about risks associated with HT following the halt of WHI as exaggerated, and that after reviewing 40 years of research on estrogen, believes that with an adjustment in dosage and consideration of transdermal methods of administration, HT can still be useful in decreasing mortality, cardiovascular disease, osteoporosis fracture, urogenital atrophy, and dementia.

The timing of the administration of hormone therapy related to age and time lapse after beginning of menopause transition seems to be one of the newest debates related to the safety of HT as a method to alleviate menopausal symptoms. Results from data analysis of the California Teachers Cohort Study to investigate the impact of age of HT initiation on cardiovascular, and overall mortality, provide support for the theory that HT may have beneficial cardiovascular effects on younger women, but not on older women using HT. The reduction in risk of coronary heart mortality was determined by hazard risk ratio (HRR). The HRR (.38) for younger users (ages 36-59) was the lowest with a gradual increase in women as they aged, with a HRR nearing .90 in women at age 70. The overall mortality and cardiovascular mortality was similar in both the estrogen and estrogen-progestin users in this study (Contraceptive Technology Update, 2011). Secondary analysis of WHI clinical trial data took a closer look at the time lapse between menopause transition and HT use, and found that women who began HT within 10 years of menopause had decreased risk of coronary heart disease, and those who started HT beyond 10 years postmenopause had increased risk of CHD. This supported the theory that timing of administration of HT affects level of risk. Also, route of administration and dosage were two other considerations for reducing health risks of HT, with transdermal administration and lower doses being possible alternatives (Roush, 2011).

The North American Menopause Society (2010) advises that estrogen and estrogen plus progestin therapy are still the most effective methods for treating moderate to severe menopausal symptoms, including vasomotor symptoms and sleep disturbances,

but advises the lowest effective dose should be used to decrease the risk of negative health effects.

Historically, the most common method of administration of estrogen for the treatment of menopausal symptoms has been orally. However, transdermal methods of administration (e.g., patch, gel, spray, cream, or lotion) have become increasingly popular over the past several years. Clinical trials of transdermal hormone therapy methods found them effective in reducing the frequency and severity of vasomotor symptoms compared to a placebo (Carroll, 2010). Additionally, the benefit risk ratio may be better for these methods since HT can be administered at lower dosages than with oral therapies while providing similar efficacy in reducing menopause symptoms, possibly without as many health risks. A meta-analysis of eight observational and nine randomized clinical trials comparing venous thromboembolism (VTE) risks in oral hormone therapy versus transdermal hormonal therapy concluded that transdermal hormone therapy users may have less risk for VTE due to absence of hepatic protein synthesis associated with VTE (Carroll, 2010). Additionally, meta-analyses suggest that transdermal hormone therapy may have less of an effect on triglycerides, lipid profiles, and gallbladder disease than oral hormone therapy. The American Association of Clinical Endocrinologists recommends transdermal hormone therapy instead of oral hormone therapy for women with hypertension and hypertriglyceridemia. However, all estrogen therapies, including transdermal hormone therapy, carry the FDA warning about risks of breast and

endometrial cancer, and cardiovascular disease, and other estrogen use health risks (Carroll, 2010).

After the partial halt of the WHI Study in 2002, women reported feeling more fear and confusion about menopausal treatment options than ever before. In 2004, an online survey with a national sample of 781 U.S. women revealed that 37% of the women reported having used hormone therapy, with 59% stopping use after the termination of the HT phase of the WHI study due to the reported health risks of HT. The two other most commonly used therapies by women in this study were herbal products (31%) and soy supplements (13%). However, women in this study felt they were not well informed as to the safety and dosage of these two types of menopause therapy (Ma, Drieling, & Stafford, 2006).

Complementary and Alternative Therapy Options

After the halt of the estrogen plus progestin arm of the WHI, prescriptions for HT decreased by 63% (Files, Ko, & Pruthi, 2011). Prior to the halt, estrogen plus progestin prescriptions increased from 58 million in 1995 to 90 million in 1999. Women began searching for alternatives to HT for alleviating menopausal symptoms after the termination of the HT phase of WHI. Some of the alternative therapy options reported to alleviate symptoms associated with menopausal transition include herbs such as black cohosh, wild yam, dong quai, and valerian root. Other choices include phytoestrogens like soy pill and powder supplements, and bioidentical hormones.

Bioidentical hormones are derivatives of plant extracts that have been chemically modified to match the structure of human endogenous hormones and are synthesized from the phytoestrogens of Mexican yams, soybeans and other plant sources (Mayo Clinic, 2010). One misconception surrounding bioidentical hormones is that they must be custom compounded at the pharmacy for each individual's hormone needs. Compounded therapies must be obtained through a prescription, but contain no package insert related to their efficacy and risks, and are not approved by the FDA. Conversely, the non-compounded bioidentical hormones are manufactured by pharmaceutical companies, are FDA approved, and do contain package inserts regarding benefits and risks (Carroll, 2010).

Proponents of compounded bioidentical hormone therapy (CBHT) make the following claims of benefit: 1) CBHT is a safer alternative to FDA approved HT; 2) CBHT provides for improved methods of delivery and better tolerability; 3) CBHT contains safer ingredients than FDA approved HT; 4) Salivary testing is used to provide more personalized therapy; 5) CBHT has lower breast cancer risk than FDA approved HT; and 6) CBHT has a more beneficial effect on bone density than FDA approved HT (Files, Ko, & Pruthi, 2011). No randomized controlled trials have substantiated the claim that CBHT is safer than FDA approved HT although some observational study data suggest that CBHT plus progesterone may have a reduced risk of breast cancer when compared to the Conjugated estrogen plus progesterone used in the WHI. As far as better delivery and tolerability, FDA approved HT and CBHT both have varying dosages and

methods of delivery. Also, CBHT does not undergo the rigorous clinical testing that the FDA requires and CBHT is not consistent in its active and inactive ingredients (Files, Ko, & Pruthi, 2011). The United States Food and Drug Administration (FDA) warn consumers about claims made by manufacturers related to safety and effectiveness of compounded bioidentical hormones.

The FDA reports that since there have been no clinical trials to evidence the safety of compounded bioidentical drugs, detrimental health implications including increased risk of heart disease, breast cancer, and dementia are possible with these supplements just as with traditional hormone therapy (FDA, 2009). According to the North American Menopause Society (2008), practitioners should educate patients of benefits and risks of all types of HT being prescribed whether conventional HT, FDA approved BHT, or CBHT. There is no scientific support for the claim that CBHT is safer than other types of HT. If patients cannot tolerate FDA approved HT products, or requests CBHT, they should be informed of the lack of scientific evidence to support superiority or increased safety of CBHT over other HT products of similar dosage and method of delivery (NAMS, 2008).

Complementary and alternative therapy options include a variety of therapies used in combination or in place of traditional hormone therapy for alleviating menopause symptoms, including herbal and dietary supplements, acupuncture, meditation and other stress management techniques (National Center for Complementary and Alternative Medicine, 2011).

Some of the non-hormonal therapies used by women for the reduction of menopausal symptoms include over-the-counter medications like Estroven, and a variety of herbal supplements including black cohosh, red clover, soy, dong quai, ginseng, evening primrose, and kava. Estroven contains black cohosh, soy isoflavones, calcium, folic acid and B vitamins. Even though most of these are used to moderate hot flashes, only black cohosh, red clover, and soy have been found to be effective in some of the randomized clinical trials (National Center for Complementary and Alternative Medicine, 2011). The results across studies, however, have been mixed.

Black cohosh studies have included variances in dosages and combinations with other botanicals in the trials. This makes it difficult to compare results across the various studies. A systematic review of sixteen randomized clinical trials from PubMed database found conflicting results, and rendered no definitive confirmation that black cohosh alone is an effective therapy for the reduction of menopausal symptoms. Studies included in this analysis compared black cohosh to a placebo (Frei-Kleiner, Schaffner , Rahlfs, Bodmer, & Birkhäuser, 2005; Jacobsen et al., 2001; Lieberman, 1998; Newton et al., 2009; Osmers et al., 2005; Pockaj et al., 2006; Rotem & Kaplan, 2007; Sammartino et al., 2006; Wuttke, Seidlova-Wuttke, & Gorkow, 2003), black cohosh combined with other botanicals compared to a placebo (Uebelhack et al., 2006; Chung et al., 2007), black cohosh compared to hormone therapy(Nappi, Malavasi, Brundu, & Facchinetti, 2005; Bai et al., 2007; Lehmann-Willenbrock & Riedel, 1988), and black cohosh compared to fluoxetine (Oktem et al., 2007). Due to the inconsistencies in dosages,

combinations, covariates, and outcome measures related to symptom reduction, it was difficult to make comparisons among these studies. Studies with standardized dosages of black cohosh compared to hormone therapy with or without a placebo could reveal clearer results (Palacio, Masri, & Mooradian, 2009).

One of the most current studies, Herbal Alternatives for Menopause (HALT) found no significant difference between black cohosh and the placebo in relieving hot flashes (Brown, 2007).

Soy studies have also rendered mixed results, and the benefit risk ratio is questionable for its long term use due to its possible estrogenic effect on uterine tissue (National Center for Complementary and Alternative Medicine, 2011). According to a report by the North American Menopause Society (2010) after reviewing hundreds of studies related to soy as a therapy for reduction of menopausal symptoms, soy isoflavones are associated with modest reductions in menopausal symptoms, with less of an effect with consumption of soy foods than with soy supplements. However, soy food consumption represents less risk for breast and uterine cancer than with soy supplementation. A meta-analysis of clinical trials comparing the efficacy of soy to a placebo for reduction of vasomotor symptoms in menopausal women favored soy, but the type of soy product and dosage was not consistent across the studies (NAMS, 2010a).

Red clover is another herbal therapy sometimes used to alleviate menopausal symptoms. Reviews of studies investigating the effectiveness of red clover in relieving menopause symptoms also yielded mixed results. The main outcomes examined by

clinical trials of red clover are the reductions in number and severity of hot flashes. A meta-analysis of five red clover clinical trials found that red clover groups had 1.45 less hot flashes than the placebo groups. These trials included a dosage of 40 mg twice a day. However, in another review of seven clinical trials, four found no difference in the reduction in number of hot flashes in the red clover groups and the placebo groups (Kiefer, 2009).

Another reported benefit of red clover during the menopausal transition is improvement in sexual health, including a reduction in vaginal dryness and increased libido (Kiefer, 2009). However, one of the possible risks of red clover use is the possible estrogenic effects on breast and uterine tissues (National Center for Complementary and Alternative Medicine, 2011).

Ginseng is an ancient Asian remedy that is proposed to improve vigor and vitality. According to Geller and Studee (2007), one randomized control trial of ginseng use in postmenopausal women revealed improvement in mood and reduction of anxiety. In the Study of Women's Health Across the Nation (SWAN) study, African American and Chinese women were more likely than other races to use Ginseng (Gold- et al, 2007). Ginseng, although not effective for reduction of hot flashes, may help with mood symptoms and sleep disturbances, and produces no negative health effects (National Center for Complementary and Alternative Medicine, 2011). Ginseng is also one of the components of ArginMax, which is a dietary supplement used to improve sexual function in women during menopausal transition. Other ingredients in ArginMax are L-arginine,

ginkgo, damiana, multivitamins, and minerals. A randomized clinical trial of ArginMax revealed improvements in sexual desire and frequency of intercourse in premenopausal women, increase in frequency of intercourse and a reduction in vaginal dryness in perimenopausal women, and an increase in sexual desire in postmenopausal women (Ito, Polan, Whipple, & Trant, 2006).

Kava may help relieve anxiety during menopausal transition, but has been associated with liver disease in some cases (National Center for Complementary and Alternative Medicine, 2011). According to Hudson (2007), three randomized clinical trials have been conducted to investigate the use of Kava for menopause symptoms. In all three trials, Kava was found to significantly reduce anxiety in the Kava group compared to the placebo group.

St. John's Wort is one of the most extensively researched natural antidepressants, but most of the clinical trials have not been conducted on menopausal women. However, in one twelve week clinical trial of the effectiveness of St. John's Wort for menopausal women, a significant improvement in psychological and sexual well being was evidenced. Additionally, a randomized clinical trial of a combination of black cohosh and St. John's Wort revealed a significant improvement in psychological well being (Hudson, 2007).

Dong quai has not been found to be effective in treating menopause symptoms and is found to interact with blood thinning medications and may cause bleeding

complications in women who take these types of medications (National Center for Complimentary and Alternative Medicine, 2011).

Cruciferous vegetables also have a phyto-nutrient, Diindolylmethane (DIM) that may be beneficial in reducing vasomotor symptoms, but about two pounds of raw or lightly cooked vegetables would have to be eaten to provide the level (120mg) of DIM to render benefits. However, a dietary supplement of this phyto-nutrient can be obtained (Fors, 2010).

Acupuncture is a complimentary therapy that involves the insertion of needles into the skin at various points referred to as acupoints for therapeutic or preventive purposes (Sassarini & Lumsden, 2010). This therapeutic method has been chosen by some women to relieve vasomotor symptoms during the menopausal transition, and clinical trials have been conducted to examine the effectiveness of acupuncture in reducing number and severity of hot flashes. Systematic reviews of clinical trials comparing traditional acupuncture to shallow, non-penetrating needling, and various other therapeutic methods reveal mixed results. Sassarini and Lumsden (2010) reported that only one of the six clinical trials reviewed comparing traditional acupuncture to shallow and blunt needling found acupuncture to be more effective in reducing hot flashes. Borud and White (2009) reviewed clinical trials comparing traditional acupuncture to shallow insertion non-specific point needling and found no significant difference in the effectiveness of reducing hot flashes, but clinical trials that compared traditional acupuncture to non-penetrating blunt needling found traditional acupuncture to

be significantly more effective. However, the general consensus of systematic reviews was that needling in general, whether traditional acupuncture, shallow needling, or non-penetrating blunt needling has been found to be effective in reducing hot flashes during menopausal transition (Borud & White, 2009; Sassarini & Lumsden, 2010).

Anti-depressants and other prescription drugs. A national cross-sectional survey revealed that women who used alternative therapies after terminating hormone therapy found antidepressants to be the most effective of the available non-hormonal methods (Kupferer, Dormire, & Becker, 2009). Several recent studies have supported the effectiveness of antidepressants for hot flashes. One of the antidepressants reported in recent randomized clinical trials to be somewhat effective in reducing the severity and number of hot flashes daily is the selective serotonin reuptake inhibitor (SSRI) escitalopram (Lexapro)(Harvard Mental Health Letter, 2011). Additionally, no serious side effects have been reported with the use of this antidepressant for treatment of hot flashes. Only fatigue, insomnia, dry mouth, and minor stomach problem have been reported (Harvard Mental Health Letter, 2011).

In a double blind randomized placebo controlled trial, Desvenlafaxline (DVS) was found to significantly reduce hot flashes and night sweats in women assigned 100, 150, and 200 mg when compared to the placebo group. DVS is a serotonin and norepinephrine reuptake inhibitor that is commonly used to treat depression (Wyrwich, Spratt, Gass, Yu, & Bobula, 2008).

Another antidepressant that has been studied in randomized clinical trials and been found to be effective in reducing the severity of hot flashes is citalopram (Celexa), with up to a 50% reduction in severity and frequency of hot flashes, and no reported negative side effects. Other antidepressants that have similar beneficial effects in reducing severity and frequency of hot flashes include paroxetine (Paxil), fluoxetine (Prozac), and venlafaxine (Effexor). However, long term effectiveness and side effects are unknown, since randomized clinical trials are typically short in duration (Harvard Women's Health Watch, 2010).

Besides antidepressants, several other prescription drugs have been found to be effective in reducing menopausal symptoms. One is the seizure medication, gabapentine, and one is the blood pressure medication, clonindine (Mayo Clinic Letter, 2009). A systematic review and meta-analysis of clinical trials from Medline, the Cochrane Registry, and several other large databases, concluded that clonindine, gabapentine, and the anti-depressant, paroxetine (Paxil), are effective in reducing hot flashes in menopausal women (Nelson et al, 2006).

Additionally, a separate systematic review and meta-analysis of randomized clinical trials of clonidine, antidepressants, gabapentin, black cohosh, red clover, phytoestrogens, ginseng, evening primrose, and dong quai concluded that clonidine, paroxetine, gabapentin, and black cohosh may be beneficial in reducing hot flashes (Cheema, Coomarasamy & El-Toukhy, 2007).

Physical activity. Benefits of physical activity during the transition from perimenopause through postmenopause include reduced risk of osteoporosis, reduced risk of cardiovascular disease, reduced mood difficulties (e.g., anxiety, depression, irritability), and maintenance of healthy body composition (Bolitho, 2011). A randomized control trial investigating the effect of physical activity on menopausal symptoms concluded that increased participation in physical activity is related to a reduction in the number of general menopausal symptoms being reported, but not in a reduction in specific menopausal symptoms' frequency (McAndrew, et al, 2009). According to Elavsky and McAuley (2007), who conducted a randomized clinical trial comparing a walking, yoga, and control group related to mood, quality of life, and menopausal symptoms, both walking and yoga improved mood and overall quality of life. However, walking was found to have more of a beneficial effect on quality of life than yoga, and also seemed to reduce menopausal symptoms.

Summary

There is a definite need for more evidence-based information about the various methods of therapy for menopause, as well as their effectiveness and related health effects (Theroux, 2005). With the mixed results from studies and mixed opinions as a result of systematic reviews and meta-analyses, there is still no definitive answer to the dilemma of which methods of therapy are the most effective and safest options for women seeking relief for menopausal symptoms.

Presence of menopausal symptoms seems to be the main determinant for seeking therapy during menopause transition, with vasomotor symptoms being the most prevalent symptoms. Options for menopause therapy are numerous, including herbal supplements, soy products, acupuncture, physical activity, antidepressants, and hormone therapy. Hormone therapy is still considered by experts to be the most effective option for relieving the most commonly reported symptom, hot flashes. However, risks revealed during the Women's Health Initiative clinical trials of both the estrogen only and estrogen plus progesterone arms have health professionals and organizations like the North American Menopause Society, National Institutes of Health, and United States Food and Drug Administration warning consumers of potential health risks of HT and advising women be given the lowest dose possible. Warnings are included for all forms of hormone therapy including conventional, bioidentical, and transdermal methods. Transdermal hormone therapy may have lower health risks than other forms of hormone therapy due to lower dosages and method of administration, but this theory has not been substantiated through clinical trials.

CHAPTER III

METHODOLOGY

Participants

The participants for this study were recruited via a purposeful convenience sample of women aged 40 to 60, recruited from the faculty and staff of the Louisiana Region VIII school systems, faculty and staff of the University of Louisiana at Monroe, and the Ouachita Women's Tennis Association. Louisiana is divided into nine regions for the purpose of health planning and educational resourcing. Region VIII in North Louisiana includes the parishes of Caldwell, Catahoula, East Carroll, Franklin, Jackson, Lincoln, Madison, Morehouse, Ouachita, Richland, Tensas, Union, and West Carroll. Women participating in the Ouachita Women's Tennis Association are predominantly from the Monroe and West Monroe, Louisiana areas. The recruitment process from the Region VIII school systems included obtaining permission from the superintendant (see Appendix B) of each of the parish school systems to recruit from the faculty and staff via email, and sending emails to the faculty and staff to request volunteers who meet the criteria for participation. For recruitment of members of the Ouachita Women's Tennis Association, permission was granted by the president of the association (see Appendix B) to recruit from the association's membership via email.

Human Participant Protection

Institutional Review Board expedited approval was obtained from the University of Louisiana at Monroe, and from Texas Woman's University (see Appendix A). Faculty and staff from, the University of Louisiana at Monroe, Region VIII school systems and tennis association members from the Northeast Louisiana Tennis Association were informed of anonymity and confidentiality of the study, and were given the option to decline and/or terminate participation in the study at any time during the process. At the end of the instructions, the instrument included the following statement: "The return/submission of your completed questionnaire constitutes your informed consent to act as a participant in this study".

Sampling Procedures

Data were gathered from a volunteer sample of women recruited from the faculty and staff of Region VIII school systems in North Louisiana, the faculty and staff of the University of Louisiana at Monroe, and the Ouachita Women's Tennis Association. Information about the study was forwarded to individual principals of the schools in each parish. Faculty and staff were contacted via email and women aged 40-60 were offered the option to participate in the study. Participants who agreed to participate were given a link to the online survey available on the PsychData website, along with the researcher contact information, should questions arise. The email announcement also contained the following statement: "There is a potential risk of loss of confidentiality in all email, downloading, and Internet transactions". Completing the 27-item survey took no more

than 30 minutes, and participation was voluntary and anonymous throughout the study. To achieve statistical power of .80 and medium size effect, a sample of at least 300 was sought to detect a significant model.

Instrumentation

The survey for this study included demographic items, and items related to the knowledge, attitudes, and decisions of the participants related to the transition through menopause (see Appendix D). The items on the survey included both researcher composed items, and items modified from various menopause surveys and questionnaires including the North American Menopause Society Health Questionnaire. The theoretical basis for the instrument is Ajzen's Theory of Planned Behavior, which theorizes that human behavior is guided by behavioral beliefs, normative beliefs, and control beliefs.

Behavioral beliefs relate to the individual's beliefs surrounding the outcome of the behavior. Normative beliefs relate to the expectations of others in regards to the behavior, and control beliefs relate to the individual's confidence in ability to perform the behavior (Gilbert, Sawyer, & McNeil, 2010).

Items on the survey that correspond to the Theory of Planned Behavior include 14, 15, and 16 (behavioral beliefs), 18, 19, 21, 24, and 27 (normative beliefs), and 17. 19, 21, 24, and 27 (control beliefs). Some overlap exists between the items related to normative beliefs and control beliefs due to the available responses relating to both constructs of the TPB.

To determine face validity, the survey was reviewed by four experts in the field of Health Sciences and edits were made to several of the item selections. Final descriptive questions included the following variables: age, race, ethnicity, marital status, educational level, household income, employment status, current health insurance, and current health status. Final menopause related questions included the following: 1) Current menstrual status, 2) Ever had menopausal symptoms, 3) Types of menopausal symptoms, 4) Attitude toward menopause (2 questions), 5) Attitude toward HT as treatment for menopause, 6) Knowledge of menopause and treatment options, 7) Primary source of menopause related information, 8) Current use of treatment / therapy for menopause, 9) Influences to seek treatment / therapy for menopause, 10) Types of treatment / therapy use for menopausal symptoms, 11) Length of treatment / therapy, 12) Reasons for not using treatment / therapy for menopausal symptoms, and 13) Reasons for stopping menopause treatment / therapy. The questionnaire was administered in an online format, and at the end of the instructions, the instrument included the following statement: "The submission of your completed questionnaire constitutes your informed consent to act as a participant in this study".

Data Analysis

Descriptive statistics were used to assess participant demographics, menopausal symptoms, knowledge related to menopause treatments, attitudes toward menopause, and menopausal treatment decisions. Independent chi-square tests and logistic regressions were used to analyze H_{01}. A series of logistic regressions were used to test H_{02}.

Importance of the Study

This study will provide increased insight into the knowledge and attitudes of the women in the targeted geographic location related to menopause, its treatment options, and the benefits and risks of those options, and provide information about the determinants of their decisions concerning menopause and its treatment options. Additionally, the results may provide an indication as to the need for educational intervention via community based programs and counseling regarding menopause and its possible impact on the general health status of the patient.

CHAPTER IV

RESULTS

Structure of Data Analyses

Data analyses are divided into three main sections. The first part of data analyses includes descriptive statistics (e.g., means, standard deviations, frequencies) to characterize the basic features of the data in the study. The second part of data analyses includes preliminary analyses to examine the relationship between the independent/demographic variables with crosstabulations with Chi Square analyses. Preliminary analyses begin by examining the relationship between current menstrual status and the other independent variable for the entire sample of participants. Then, preliminary analyses turn to examine the relationship between the remaining independent variables focusing on only postmenopausal women. The third part of data analyses includes primary analyses that focus on the three main purposes for the current research as well as examining the two null hypotheses. Throughout the findings, the cutoff value for significance was set at $p < .05$.

Participant Demographics

There were a total of 274 female participants in the convenience sample for this study. Demographic information for the sample is displayed in Table 1. The participants were 40-60 years of age with 18.2% in the 40-44 years range, 29.9% in the 45-50 years range, 21.5% in the 51-54 years range, and 30.3% in the 55-60 years range. For analysis,

participants were combined into two groups of 50 years and under compared to over 50 years. The majority (98.5%) of participants were Non-Hispanic, with 1.5% being Hispanic. The racial make-up of the participants included 88.3% White, 10.6% Black, 0.7% Asian and 0.4% of the participants selected the "other" category. For further analysis, participants were compared as Caucasian and other ethnicity.

The marital status of the participants included 5.5% single, 77.7% married, 13.9% divorced, 2.2% widowed, and 0.7% in a committed relationship. The participants were grouped into married/committed relationship and single/divorced/widowed for further analysis. Educational levels of participants included 6.9% with high school diploma or GED, 13.9% with some college, 28.5% college graduates (e.g., B.S., B.A., etc.), and 50.7% postgraduate (Masters or Doctorate). Data was divided into some college or less compared to college graduate/postgraduate for further analysis.

Socioeconomic and Insurance Information

Participants' current household income level included 2.6% participants with less than $25,000 per year, 20.8% with $25,000-50,000, 24.8% with $50,000-75,000, 25.2% with $75,000-100,000, and 26.6% with greater than $100,000. Participants were split into under $50,000 and over $50,000 for further analysis (See Table 2). Employment status of participants included 0.7% unemployed, 96.7% employed and 2.6% retired. Employment status was not used in subsequent analysis due to the majority of participants reporting employment.

Table 1

Frequencies and Percentage for Participant Demographics

	n	%
Age (Years)		
40-44	50	18.2
45-50	82	29.9
51-54	59	21.5
55-60	83	30.3
Ethnicity		
Hispanic	4	1.5
Non-Hispanic	270	98.5
Race		
White	242	88.3
Black	29	10.6
Asian	2	.7
Other	1	.4
Marital Status		
Single	15	5.5
Married	213	77.7
Divorced	38	13.9
Widowed	6	2.2
Committed Relationship	2	.7
Educational Level		
High School Diploma or GED	15	6.9
Some College	38	13.9
College Graduate	78	28.5
Postgraduate	139	50.7

Table 2

Frequencies and Percentage for Socioeconomic and Insurance Information

	n	%
Household Income		
Less than $25,000	7	2.6
$25,000 – 50,000	57	20.8
$50,000 - 75,000	68	24.8
$75,000-100,000	69	25.2
Greater than $100,000	73	26.6
Employment Status		
Employed	265	96.7
Unemployed	2	.7
Retired	7	2.6
Healthcare Payment Method		
PPO/Commercial Insurance	204	74.5
HMO	50	18.2
Medicaid	1	.4
Self-Pay (Out of Pocket)	7	2.6
Other	12	4.4

A majority (74.5%) of the participants utilized a PPO/commercial health insurance plan (e.g., Blue Cross, Blue Shield, etc.) as a current method of paying for medical expenses, with 18.2% utilizing a HMO, 0.4% using Medicaid, 2.6% paying out of pocket/uninsured, and 4.4% selecting other methods including VA benefits, State Group benefits, and Vantage health care. In further analysis, participants with

PPO/commercial health insurance were compared to those with another type of insurance. Socioeconomic and Insurance information is provided in Table 2.

Health and Menopause Related Information

Health and menopause related frequencies, including current health status, menstrual status, and causes of menopause are documented in Table 3. When asked about their current health status, participants responded as follows: 28.5% with excellent health status, 50.4% with good health status, 16.1% with average health status and 5.1% with fair health status. None of the respondents selected the poor health status choice. In further analysis, those with fair/average health were compared to those reporting good or excellent health.

When asked about current menstrual status, the responses included 20.8% pre-menopausal, 12% perimenopausal, and 67.2% postmenopausal. For those who selected postmenopausal, the causes of menopause included: 26.3% spontaneous (naturally occurring menopause), 38% surgical (hysterectomy), 0.4% chemotherapy or radiation therapy, and 3.6% selected other. Some of the causes specified under the other selection were combination chemotherapy and natural, hydrothermal ablation, and premature ovarian failure.

Table 3

Frequencies and Percentage for Health Status, Menstrual Status, and Cause of Menopause

	n	%
Health Status		
Excellent	78	28.5
Good	138	50.4
Average	44	16.1
Fair	14	5.1
Menstrual Status		
Premenopausal	57	20.8
Perimenopausal	33	12.0
Postmenopausal	84	67.2
Cause of Menopause		
Spontaneous (Natural)	72	26.3
Surgical (Hysterectomy)	104	38.0
Chemotherapy or Radiation	1	.4
Not Applicable (N/A)	87	31.8
Other	10	3.6

Menopausal Symptoms

When asked if participants had ever experienced menopausal symptoms, the responses included 82.5% for 'yes' and 17.5% for 'no'. For those who selected 'yes' on experiencing menopausal symptoms, they were asked to indicate all the symptoms they had experienced. The frequency of each was as follows: 66.8% had experienced hot flashes, 63.1% had experienced night sweats, 59.5% had experienced mood changes,

56.6% had experienced insomnia or sleep disturbances, 44.9% had experienced a loss of interest in sex, 42% had experienced vaginal dryness, 33.2% had problems with concentration and 3.6% selected the "other" choice related to symptoms. Some of the specified symptoms described as "other" were changes in memory, migraines, weight gain, and inability to lose weight. Menopausal symptom frequencies are documented in Table 4.

Table 4

Frequencies and Percentage for Menopausal Symptoms

	n	%
Symptom		
Hot Flashes	183	66.8
Night Sweats	173	63.1
Mood Changes	163	59.5
Inability to Concentrate	91	33.2
Sleep Disturbances/Insomnia	155	56.6
Vaginal Dryness	115	42.0
Loss of Interest in Sex	123	44.9
Other	10	3.6

Attitudes toward Menopause

When asked about attitude toward menopause, participants responded as follows: 16.1% selected "menopause is a natural part of the aging process that does not require treatment/therapy", 77.4% selected "menopause is a natural part of the aging process that may require treatment/therapy", and 6.6% selected "it is a medical condition that requires

treatment/therapy". When asked how participants felt "in general" about menopause, the responses included 52.9% positive, 4.0% negative, and 43.1% had mixed feelings regarding menopause (Table 5).

Table 5

Frequencies and Percentage for Attitudes toward Menopause

	n	%
Attitude about Menopause		
Natural Change/No Treatment	44	16.1
Natural/ Treatment	212	77.4
Medical Condition/Treatment	18	6.6
General Attitude toward Menopause		
Positive	145	52.9
Negative	11	4.0
Unsure (Mixed Feeling)	118	43.1

Attitude and Knowledge Related to Hormone Therapy

When asked about their current view on Hormone Therapy as a treatment option, participants' responses included 59.1% positive, 12.8% negative, and 28.1% unsure (Table 6). When asked about current knowledge related to menopause and treatment options, 15.3% of participants reported being very knowledgeable, 63.1% reported average knowledge, and 21.5% reported little knowledge. Those with little knowledge were compared to those with average/above average knowledge. The participants' responses about their sources of information about menopause were as follows: 5.5%

books, 13.1% internet, 6.6% magazines, 22.6% friends or family members, 1.8% television, 49.3% physician/health care provider, 1.1% other. Participants who reported that their physician or healthcare provider was their primary source of information were compared to those who reported another primary source of information for subsequent analysis.

Table 6

Frequencies and Percentage for Attitude and Knowledge Related to Hormone Therapy

	n	%
View on Hormone Therapy (HT)		
Positive	162	59.1
Negative	35	12.8
Unsure	77	28.1
Knowledge Related to HT		
Very Knowledgeable	42	15.3
Average Knowledge	173	63.1
Little Knowledge	59	21.5
Source of Knowledge		
Books	15	5.5
Internet	36	13.1
Magazines	18	6.6
Friends or Family	62	22.6
Television	5	1.8
Physician/Health Care Provider	135	49.3
Other	3	1.1

Treatment/Therapy Decisions

When asked if participants were currently using a treatment option for menopause, 33.6% responded 'yes', and 66.4% responded 'no'. For the participants who responded 'yes', the factors that reportedly influenced participants to seek treatment/therapy included: advice of physician/health care provider (16.1%), menopausal symptoms (14.6%), knowledge of benefits (2.2%), advice of family members or friends (0.4%), and 'other' (1.1%). When asked about duration of therapy option use, the responses were as follows: less than one year (6.9%), 1-5 years (13.9%), 6-10 years (8.4%), 11-15 years (3.3%), 16-20 years (1.1%), and greater than 20 years (0.4%; Table 7). Those who had been using therapy for up to 5 years were compared to those using therapy for more than 5 years in subsequent analysis.

For participants who responded 'no' to current use of treatment/therapy, the following were reported as factors that influenced their decisions not to seek menopause treatment/therapy: concerns about the risk vs. benefits of treatment (17.5%), lack of menopause symptoms (16.8%), advice of physician/health care provider (6.9%), advice of friends and family (1.8%), and 'other' (10.9%; Table 8). Some of the 'other' responses included "concern about use of synthetic hormones", "only mild symptoms", and "family history of breast cancer". This information is descriptive only and was not analyzed further.

Table 7

Frequencies and Percentage for Factors Influencing Decision to Seek Treatment and Number of Years of Use

	n	%
Factors Influencing Decisions		
Menopausal Symptoms	40	14.6
Knowledge of Benefits	6	2.2
Advice of Family or Friends	1	.4
Advice of Physician	44	16.1
Other	3	1.1
Number of Years of Use		
Less than 1Year	19	6.9
1-5 Years	38	13.9
6-10 Years	23	8.4
11-15 Years	9	3.3
16-20 Years	3	1.1
Greater than 20 Years	1	.4

Table 8

Frequencies and Percentage for Factors Influencing Decision Not to Seek Treatment

	n	%
Factors Influencing Decision		
Lack of Menopause Symptoms	46	16.8
Risks vs. Benefits	48	17.5
Advice of Family and Friends	5	1.8
Advice of Physician	19	6.9
Other	30	10.9

When asked about changes in type of therapy used, 72 had changed the therapy used. Of the types of therapies previously used, 36 (13.1%) reported using estrogen hormone therapy, 12 (4.4%) reported using combined hormone therapy, 7 (2.6%) reported using bio-identical hormone therapy, 17 (6.2%) reported using alternative therapy methods, and 3 (1.1%) reported other options. 'Other' options included antidepressants and estrogen cream.

When asked about duration of past use of therapy option, 26 (9.5%) used less than 1 year, 39 (14.2%) used for 1-5 years, 13 (4.7%) used for 6-10 years, 2 (.7%) used for 11-15 years, 2 (.7%) used for 16-20 years, and 3 (1.1%) used for greater than 20 years. Reasons for discontinuance of use of therapy options included side effects (5.5%), concern about the risks (8.8%), no longer needed to alleviate symptoms (3.3%), physician/healthcare provider advice (15.8%), and 'other' (6.6%). Some of the 'other' responses included "did not absorb hormones", "did not notice a difference", "did not relieve symptoms", "diagnosed with breast cancer", and "hassle getting prescriptions refilled".

When asked if any of the respondents would like to comment on how menopause affects quality of life, 200 (73%) responded. Common themes included the following:

- "trouble sleeping"
- "loss of interest in sex"
- "pain during sex due to vaginal dryness and lining thinning"
- "concern with weight gain"
- "menopause symptoms are disruptive"

Preliminary Analyses: Crosstabulations

Current Menstrual Status

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between current menstrual status and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, currently on menopause treatment, and length of current hormone treatment. As shown in Table 9, as expected, there was a significant relationship between current menstrual status and age, $\chi^2 = 67.01$, $p < .001$, Cramer's $V = .50$. A larger proportion of postmenopausal women were 50 plus years of age (67.9%) compared to perimenopausal (39.4%) and premenopausal women (7.0%). There was a significant relationship between current menstrual status and menopause symptoms, $\chi^2 = 41.06$, $p < .001$, Cramer's $V = .39$. A larger proportion of premenopausal women reported no menopausal symptoms (45.6%) compared to perimenopausal (18.2%) and postmenopausal women (8.7%). There was a significant relationship between current menstrual status and hot flashes, $\chi^2 = 53.33$, $p < .001$, Cramer's $V = .44$. A larger proportion of premenopausal women reported no hot flashes (71.9%) compared to perimenopausal (39.4%) and postmenopausal women (20.1%).

Table 9

Frequencies and Percentages of Categorical Variables by Current Menstrual Status

	Menopausal							
	Pre		Peri		Post			
	n	%	n	%	N	%	χ^2	*p*
Age							67.01	<.001
Under 50 Years	53	93.0	20	60.6	59	32.1		
50 Plus Years	4	7.0	13	39.4	125	67.9		
Menopause Symptoms							41.06	<.001
No	26	45.6	6	18.2	16	8.7		
Yes	31	54.4	27	81.8	168	91.3		
Hot Flashes							53.33	<.001
No	41	71.9	13	39.4	37	20.1		
Yes	16	28.1	20	60.6	147	79.9		
Night Sweats							27.13	<.001
No	36	63.2	16	48.5	49	26.6		
Yes	21	36.8	17	51.5	135	73.4		
Mood Changes							9.22	.010
No	33	57.9	13	39.4	65	35.3		
Yes	24	42.1	20	60.6	119	64.7		
Inability to Concentrate							11.96	.003
No	49	86.0	20	60.6	114	62.0		
Yes	8	14.0	13	39.4	70	38.0		
Sleep Disturbances/ Insomnia							21.10	<.001
No	40	70.2	11	33.3	68	37.0		
Yes	17	29.8	22	66.7	116	63.0		

Table 9, continued

	Menopausal							
	Pre		Peri		Post			
	n	%	n	%	N	%	χ^2	*p*
Vaginal Dryness							52.75	<.001
No	52	91.2	28	84.8	79	42.9		
Yes	5	8.8	5	15.2	105	57.1		
Loss of Interest in Sex							21.40	<.001
No	46	80.7	20	60.6	85	46.2		
Yes	11	19.3	13	39.4	99	53.8		
Menopause Knowledge							34.01	<.001
Average/Above Average	30	52.6	23	69.7	162	88.0		
Little	27	47.4	10	30.3	22	12.0		
Source of Menopause Knowledge							14.31	.001
Another Source	41	71.9	18	54.5	80	43.5		
Through Physician	16	28.1	15	45.5	104	56.5		
Menopause Treatment/Therapy							33.97	<.001
Currently Using	56	98.2	22	66.7	104	56.5		
Not Currently Using	1	1.8	11	33.3	80	43.5		
Length of Current Hormone Treatment							20.27	<.001
Less than 5 Years	57	100.0	33	100.0	148	80.4		
5 Plus Years	0	0.0	0	0.0	36	19.6		

As also shown in Table 9, there was a significant relationship between current menstrual status and night sweats, $\chi^2 = 27.13$, $p < .001$, Cramer's $V = .32$. A larger proportion of premenopausal women reported no night sweats (63.2%) compared to perimenopausal (48.5%) and postmenopausal women (26.6%). There was a significant relationship between current menstrual status and mood changes, $\chi^2 = 9.22$, $p = .010$, Cramer's $V = .18$. A larger proportion of premenopausal women reported no mood changes (57.9%) compared to perimenopausal (39.4%) and postmenopausal women (35.3%). There was a significant relationship between current menstrual status and inability to concentrate, $\chi^2 = 11.96$, $p < .003$, Cramer's $V = .21$. A larger proportion of postmenopausal (38.0%) and perimenopausal women (39.4%) reported an inability to concentrate compared to premenopausal women (14.0%). There was a significant relationship between current menstrual status and sleep disturbances or insomnia, $\chi^2 = 21.10$, $p < .001$, Cramer's $V = .28$. A larger proportion of perimenopausal (66.7%) and postmenopausal women (63.0%) reported sleep disturbances or insomnia compared to premenopausal women (29.8%). There was a significant relationship between current menstrual status and vaginal dryness, $\chi^2 = 52.75$, $p < .001$, Cramer's $V = .44$. A larger proportion of postmenopausal women reported vaginal dryness (57.1%) compared to perimenopausal (15.2%) and premenopausal women (8.8%). There was a significant relationship between current menstrual status and loss of interest in sex, $\chi^2 = 21.40$, $p < .001$, Cramer's $V = .28$. A smaller proportion of premenopausal women reported loss of interest in sex (19.3%) compared to perimenopausal (39.4%) and postmenopausal women

(53.8%). There was a significant relationship between current menstrual status and menopause knowledge, $\chi^2 = 34.01, p < .001$, Cramer's $V = .35$. A smaller proportion of postmenopausal women reported only little menopause knowledge (12.0%) compared to perimenopausal (30.3%) and premenopausal women (47.4%). There was a significant relationship between current menstrual status and source of menopause knowledge, $\chi^2 = 14.31, p < .001$, Cramer's $V = .23$. A greater proportion of postmenopausal women reported knowledge of menopause through a physician (56.5%) compared to perimenopausal women (45.5%) and pre-menopausal women (28.1%). There was a significant relationship between current menstrual status and currently on menopause treatment, $\chi^2 = 33.97, p < .001$, Cramer's $V = .35$. A smaller proportion of premenopausal women reported being currently on menopause treatment (1.8%) compared to postmenopausal (43.5%) and perimenopausal women (33.3%). There was a significant relationship between current menstrual status and length of current hormone treatment, $\chi^2 = 20.27, p < .001$, Cramer's $V = .27$. A larger proportion of postmenopausal women reported five plus years of treatment (19.6%) compared to premenopausal (0.0%) and perimenopausal women (0.0%). There was no significant relationship between current menstrual status and the variables ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, or surgical menstrual cause, all *ps ns*.

Age

It is important to note that the remainder of preliminary analyses were conducted on post-menopausal women only and did not include premenopausal or perimenopausal participants.

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between age and the other independent variables: ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 10, there was a significant relationship between age and spontaneous menstrual cause, $\chi^2 = 15.87, p < .001$, Cramer's $V = .29$. A greater proportion of women 50 plus years of age reported spontaneous menstrual causes (48.0%) compared to women who were under 50 years (17.2%). There was a significant relationship between age and surgical menstrual cause, $\chi^2 = 12.54, p < .001$, Cramer's $V = .26$. A smaller proportion of women 50 plus years of age reported surgical menstrual causes (48.0%) compared to women who were under 50 years (75.9%). There was a significant relationship between age and inability to concentrate, $\chi^2 = 6.04, p < .014$, Cramer's $V = .18$. A smaller proportion of women 50 plus years of age reported an inability to concentrate (32.0%) compared to women who were under 50 years (50.8%). There was no significant relationship between age and the variables ethnicity, marital

status, education, income, health insurance, health status, menopause symptoms, hot flashes, night sweats, mood changes, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 10

Frequencies and Percentages of Categorical Variables by Age

	Age					
	Under 50 Years		50 Plus Years			
	n	%	n	%	χ^2	*p*
Spontaneous Menstrual Cause					15.87	<.001
No	48	82.8	65	52.0		
Yes	10	17.2	60	48.0		
Surgical Menstrual Cause					12.54	<.001
No	14	24.1	65	52.0		
Yes	44	75.9	60	48.0		
Inability to Concentrate					6.04	.014
No	29	49.2	85	68.0		
Yes	30	50.8	40	32.0		

Ethnicity

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between ethnicity and the other independent variables: age, marital status, education, income, health insurance, health status, spontaneous menstrual

cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 11, there was a significant relationship between ethnicity and marital status, $\chi^2 = 5.03$, $p = .025$, Cramer's $V = .17$. A greater proportion of African American women were single, divorced or widowed (42.9%) compared to women who were Caucasian (20.9%). There was a significant relationship between ethnicity and income, $\chi^2 = 12.40$, $p < .001$, Cramer's $V = .26$. Also, a greater proportion of African American women reported incomes under 50K (52.4%) compared to women who were Caucasian (18.4%). There was no significant relationship between ethnicity and the variables age, education, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 11

Frequencies and Percentages of Categorical Variables by Ethnicity

	Ethnicity					
	Caucasian		African American			
	n	%	n	%	χ^2	*p*
Marital Status					5.03	.025
Married/Committed Relationship	129	79.1	12	57.1		
Single/Divorced/Widowed	34	20.9	9	42.9		
Income					12.40	<.001
Over 50K	133	81.6	10	47.6		
Under 50K	30	18.4	11	52.4		
Health Insurance					2.39	.122
No PPO	37	22.7	8	38.1		
PPO	126	77.3	13	61.9		

Marital Status

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between marital status and the other independent variables: age, ethnicity, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of

current hormone treatment. As shown in Table 12, there was a significant relationship between marital status and ethnicity, $\chi^2 = 5.03$, $p = .025$, Cramer's $V = .17$. A greater proportion of women who were single, divorced, or widowed were African American (20.9%) compared to women who were married or in a committed relationship (8.5%). There was a significant relationship between marital status and income, $\chi^2 = 41.66$, $p < .001$, Cramer's $V = .48$. A greater proportion of women who were single, divorced, or widowed reported an income under 50K (58.1%) compared to women who were married or in a committed relationship (11.3%). The relationship between marital status and health status was significant, $\chi^2 = 4.63$, $p = .031$, Cramer's $V = .16$. A greater proportion of women who were single, divorced, or widowed were of average or fair health (34.9%) compared to women who were married or in a committed relationship (19.1%). There was also a significant relationship between marital status and night sweats, $\chi^2 = 4.78$, $p = .029$, Cramer's $V = .16$. A smaller proportion of women who were single, divorced, or widowed reported night sweats (60.5%) compared to women who were married or in a committed relationship (77.3%).

Table 12

Frequencies and Percentages of Categorical Variables by Marital Status

	Marital Status					
	Married/Committed Relationship		Single/Divorced/ Widowed			
	n	%	n	%	χ^2	*p*
Ethnicity					5.03	.025
Caucasian	129	91.5	34	79.1		
African American	12	8.5	9	20.9		
Income					41.66	<.001
Over 50K	125	88.7	18	41.9		
Under 50K	16	11.3	25	58.1		
Health Status					4.63	.031
Excellent/Good	114	80.9	28	65.1		
Average/Fair	27	19.1	15	34.9		
Night Sweats					4.78	.029
No	32	22.7	17	39.5		
Yes	109	77.3	26	60.5		
Loss of Interest in Sex					4.60	.032
No	59	41.8	26	60.5		
Yes	82	58.2	17	39.5		

Additionally, there was a significant relationship between marital status and loss of interest in sex, $\chi^2 = 4.60$, $p = .032$, Cramer's $V = .16$. A smaller proportion of women who were single, divorced, or widowed reported loss of interest in sex (39.5%) compared to women who were married or in a committed relationship (58.2%). There was no significant relationship between marital status and the variables age, education, health

insurance, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Education

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between education and the other independent variables: age, ethnicity, marital status, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 13, there was a significant relationship between education level and income, $\chi^2 = 24.04$, $p < .001$, Cramer's $V = .36$. A greater proportion of women who were high school graduate/some college reported incomes under 50K (52.8%) compared to those who were college graduates/postgrads (14.9%). Also, there was a significant relationship between education level and health status, $\chi^2 = 11.87$, $p < .001$, Cramer's $V = .25$. A greater proportion of women who were high school graduate/some college reported being in average or fair health (44.4%) compared to women who were college graduates/postgrads (17.6%). There was no significant relationship between education level and the variables age, ethnicity, marital status, health insurance, spontaneous menstrual cause, surgical menstrual cause, menopause

symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 13

Frequencies and Percentages of Categorical Variables by Education

	Education Level					
	HS Grad/ Some College		College Grad/Post Grad			
	n	%	n	%	χ^2	*p*
Income					24.04	<.001
Over 50K	126	85.1	17	47.2		
Under 50K	22	14.9	19	52.8		
Health Status					11.87	.001
Excellent/Good	122	82.4	20	55.6		
Average/Fair	26	17.6	16	44.4		

Income

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between income and the other independent variables: age, ethnicity, marital status, education, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of

interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 14, there was a significant relationship between income and ethnicity, $\chi^2 = 12.40$, $p < .001$, Cramer's $V = .26$. A greater proportion of women with an income under 50K reported being African American (26.8%) compared to women with income over 50K (7.0%). There was a significant relationship between income and marital status, $\chi^2 = 41.66$, $p < .001$, Cramer's $V = .48$. A greater proportion of women with an income under 50K reported that they were single, divorced or widowed (61.0%) compared to women with income over 50K (12.6%). There was a significant relationship between income and education, $\chi^2 = 24.04$, $p < .001$, Cramer's $V = .36$. A greater proportion of women with an income under 50K were high school graduates/some college (46.3%) compared to women with income over 50K (11.9%). There was a significant relationship between income and health insurance, $\chi^2 = 4.20$, $p = .040$, Cramer's $V = .15$. A smaller proportion of women with an income under 50K reported having PPO insurance (63.4%) compared to women with income over 50K (79.0%). There was a significant relationship between income and health status, $\chi^2 = 10.40$, $p = .001$, Cramer's $V = .24$. A greater proportion of women with an income under 50K reported being of average or fair health (41.5%) compared to women with income over 50K (17.5%). Also, there was a significant relationship between income and length of current hormone treatment, $\chi^2 = 4.94$, $p = .026$, Cramer's $V = .16$. A greater proportion of women with an income under 50K reported five plus years of treatment (31.7%)

compared to women with income over 50K (16.1%). There was no significant relationship between income and the variables age, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances, vaginal dryness, loss of interest in sex, menopause knowledge, or source of menopause knowledge, all *ps ns*.

Table 14

Frequencies and Percentages of Categorical Variables by Income

	Income					
	Over 50K		Under 50K			
	n	%	n	%	χ^2	*p*
Ethnicity					12.40	<.001
Caucasian	133	93.0	30	73.2		
African American	10	7.0	11	26.8		
Marital Status					41.66	<.001
Married/Committed Relationship	125	87.4	16	39.0		
Single/Divorced/Widowed	18	12.6	25	61.0		
Education Level					24.04	<.001
HS Grad/Some College	126	88.1	22	53.7		
College Grad/Post Grad	17	11.9	19	46.3		
Health Insurance					4.20	.040
No PPO	30	21.0	15	36.6		
PPO	113	79.0	26	63.4		

Table 14, continued

	Income					
	Over 50K		Under 50K			
	n	%	n	%	χ^2	*p*
Health Status					10.40	.001
Excellent/Good	118	82.5	24	58.5		
Average/Fair	25	17.5	17	41.5		
Length of Current Hormone Treatment					4.94	.026
Less than 5 Years	120	83.9	28	68.3		
5 Plus Years	23	16.1	13	31.7		

Health Insurance

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between health insurance and the other independent variables: age, ethnicity, marital status, education, income, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment.

As shown in Table 15, there was a significant relationship between health insurance and income, $\chi^2 = 4.20$, $p = .040$, Cramer's $V = .15$. A smaller proportion of women with PPO insurance reported incomes under 50K (18.7%) compared to women

without PPO insurance (33.3%). Also, there was a significant relationship between health insurance and vaginal dryness, $\chi^2 = 7.08$, $p = .008$, Cramer's $V = .20$. A greater proportion of women with PPO insurance reported vaginal dryness (62.6%) compared to women without PPO insurance (40.0%). There was no significant relationship between health insurance and the variables age, ethnicity, marital status, education, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, loss of interest in sex, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 15

Frequencies and Percentages of Categorical Variables by Health Insurance

	Health Insurance					
	No PPO		PPO			
	n	%	n	%	χ^2	*p*
Income					4.20	.040
Over 50K	30	66.7	113	81.3		
Under 50K	15	33.3	26	18.7		
Vaginal Dryness					7.08	.008
No	27	60.0	52	37.4		
Yes	18	40.0	87	62.6		

Health Status

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between health status and the other independent variables: age, ethnicity, marital status, education, income, health insurance, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 16, there was a significant relationship between health status and marital status, $\chi^2 = 4.63$, $p = .031$, Cramer's $V = .16$. A greater proportion of women with average or fair health reported that they were single, divorced, or widowed (35.7%) compared to women who were of excellent or good health (19.7%). There was a significant relationship between health status and education, $\chi^2 = 11.87$, $p < .001$, Cramer's $V = .25$. A greater proportion of women with average or fair health reported they were high school graduate/some college (38.1%) compared to women who were of excellent or good health (14.1%). There was a significant relationship between health status and income, $\chi^2 = 10.40$, $p = .001$, Cramer's $V = .24$. A greater proportion of women with average or fair health reported incomes under 50K (40.5%) compared to women who were of excellent or good health (16.9%). Also, there was a significant relationship between health status and mood changes, $\chi^2 = 8.29$, $p = .004$, Cramer's $V = .21$. A greater proportion of those of average or fair health reported mood changes (83.3%) compared to women who were of excellent or good health (59.2%). There was

no significant relationship between health status and the variables age, ethnicity, PPI insurance, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 16

Frequencies and Percentages of Categorical Variables by Health Status

	Health Status					
	Excellent/Good		Average/Fair			
	n	%	n	%	χ^2	*p*
Marital Status					4.63	.031
Married/Committed Relationship	114	80.3	27	64.3		
Single/Divorced/Widowed	28	19.7	15	35.7		
Education Level					11.87	.001
HS Grad/Some College	122	85.9	26	61.9		
College Grad/Post Grad	20	14.1	16	38.1		
Income					10.40	.001
Over 50K	118	83.1	25	59.5		
Under 50K	24	16.9	17	40.5		
Mood Changes					8.29	.004
No	58	40.8	7	16.7		
Yes	84	59.2	35	83.3		

Spontaneous Menstrual Cause

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between spontaneous menstrual cause and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 17, there was a significant relationship between spontaneous menopause cause and age, $\chi^2 = 15.87$, $p < .001$, Cramer's $V = .29$. A greater proportion of women with spontaneous menopause causes were 50 plus years of age (85.7%) compared to those who did not report spontaneous menopause cause (57.5%). There was a significant relationship between spontaneous menstrual cause and surgical menstrual cause, $\chi^2 = 149.24$, $p < .001$, Cramer's $V = .90$. A greater proportion of women with spontaneous menstrual causes did not have a surgical menstrual cause (100.0%) compared to women who did not have spontaneous menstrual causes (8.0%). Also, there was a significant relationship between spontaneous menopause cause and length of current hormone treatment, $\chi^2 = 4.34$, $p = .037$, Cramer's $V = .15$. A smaller proportion of women with spontaneous menopause cause reported five plus years of treatment (11.4%) compared to women without spontaneous menopause cause (23.9%). There was no significant relationship between spontaneous menopause cause and the variables ethnicity, marital status, education, income, health insurance, health status, menopause

symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, or source of menopause knowledge, all *ps ns*.

Table 17

Frequencies and Percentages of Categorical Variables by Spontaneous Menstrual Cause

	Spontaneous Menstrual Cause					
	No		Yes			
	n	%	n	%	χ^2	*p*
Age					15.87	<.001
Under 50 Years	48	42.5	10	14.3		
50 Plus Years	65	57.5	60	85.7		
Surgical Menstrual Cause					149.24	<.001
No	9	8.0	70	100.0		
Yes	104	92.0	0	0.0		
Length of Current Hormone Treatment					4.34	.037
Less than 5 Years	86	76.1	62	88.6		
5 Plus Years	27	23.9	8	11.4		

Surgical Menstrual Cause

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between surgical menstrual cause and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual menopause cause, menopause symptoms, hot flashes, night

sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 18, there was a significant relationship between surgical menopause cause and age, $\chi^2 = 12.54$, $p < .001$, Cramer's $V = .26$. A smaller proportion of women with surgical menopause causes were 50 plus years of age (57.7%) compared to women without surgical menopause causes (82.3%). There was a significant relationship between surgical menstrual cause and spontaneous menstrual cause, $\chi^2 = 149.24$, $p < .001$, Cramer's $V = .90$. A greater proportion of women with surgical menstrual causes did not have spontaneous menstrual causes (100.0%) compared to women without surgical menstrual causes (11.4%). Also, there was a significant relationship between surgical menstrual cause and length of current hormone treatment, $\chi^2 = 7.28$, $p = .007$, Cramer's $V = .20$. A greater proportion of women with surgical menstrual causes reported five plus years of treatment compared (26.0%) to women without surgical menstrual causes (10.1%). There was no significant relationship between surgical menstrual cause and the variables ethnicity, marital status, education, income, health insurance, health status, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, or source of menopause knowledge, all *ps ns*.

Table 18

Frequencies and Percentages of Categorical Variables by Surgical Menstrual Cause

	Surgical Menstrual Cause					
	No		Yes			
	n	%	n	%	χ^2	*p*
Age					12.54	<.001
Under 50 Years	14	17.7	44	42.3		
50 Plus Years	65	82.3	60	57.7		
Spontaneous Menstrual Cause					149.24	<.001
No	9	11.4	104	100.0		
Yes	70	88.6	0	0.0		
Length of Current Hormone Treatment					7.28	.007
Less than 5 Years	71	89.9	77	74.0		
5 Plus Years	8	10.1	27	26.0		

Menopause Symptoms

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between menopause symptoms and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 19, there was a significant relationship between menopause symptoms and hot flashes, $\chi^2 = 69.62$, $p < .001$, Cramer's $V = .61$. A

greater proportion of women with menopause symptoms reported hot flashes (87.5%) compared to women without menopause symptoms (0.0%). There was a significant relationship between menopause symptoms and night sweats, $\chi^2 = 48.28$, $p < .001$, Cramer's $V = .51$. A greater proportion of women with menopause symptoms reported night sweats (80.4%) compared to women without menopause symptoms (0.0%). There was a significant relationship between menopause symptoms and mood changes, $\chi^2 = 26.18$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with menopause symptoms reported mood changes (70.2%) compared to women without menopause symptoms (6.3%). There was a significant relationship between menopause symptoms and inability to concentrate, $\chi^2 = 7.52$, $p = .006$, Cramer's $V = .20$. A greater proportion of women with menopause symptoms reported inability to concentrate (41.1%) compared to women without menopause symptoms (6.3%). There was a significant relationship between menopause symptoms and sleep disturbances or insomnia, $\chi^2 = 29.89$, $p < .001$, Cramer's $V = .40$. A greater proportion of women with menopause symptoms reported sleep disturbances or insomnia (69.0%) compared to women without menopause symptoms (0.0%). There was a significant relationship between menopause symptoms and vaginal dryness, $\chi^2 = 18.47$, $p < .001$, Cramer's $V = .32$. A greater proportion of women with menopause symptoms reported vaginal dryness (61.9%) compared to women without menopause symptoms (6.3%). There was a significant relationship between menopause symptoms and loss of interest in sex, $\chi^2 = 15.94$, $p < .001$, Cramer's $V = .29$. A greater proportion of women with menopause symptoms reported loss of

interest in sex (58.3%) compared to women without menopause symptoms (6.3%). Also, there was a significant relationship between menopause symptoms and source of menopause knowledge, $\chi^2 = 13.82$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with menopause symptoms reported knowledge of menopause through their physicians (60.7%) compared to women without menopause symptoms (12.5%). There was no significant relationship between menopause symptoms and the variables age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menopause cause, surgical menopause cause, menopause knowledge, or five plus years of menopause treatment, all *ps ns*.

Table 19

Frequencies and Percentages of Categorical Variables by Menopause Symptoms

	Menopause Symptoms					
	No		Yes			
	n	%	n	%	χ^2	*p*
Hot Flashes					69.62	<.001
No	16	100.0	21	12.5		
Yes	0	0.0	147	87.5		
Night Sweats					48.28	<.001
No	16	100.0	33	19.6		
Yes	0	0.0	135	80.4		
Mood Changes					26.18	<.001
No	15	93.8	50	29.8		
Yes	1	6.3	118	70.2		
Inability to Concentrate					7.52	.006
No	15	93.8	99	58.9		
Yes	1	6.3	69	41.1		

Table 19, continued

	Menopause Symptoms					
	No		Yes			
	n	%	n	%	χ^2	*p*
Sleep Disturbances/Insomnia					29.89	<.001
No	16	100.0	52	31.0		
Yes	0	0.0	116	69.0		
Vaginal Dryness					18.47	<.001
No	15	93.8	64	38.1		
Yes	1	6.3	104	61.9		
Loss of Interest in Sex					15.94	<.001
No	15	93.8	70	41.7		
Yes	1	6.3	98	58.3		
Source of Menopause Knowledge					13.82	<.001
Another Source	14	87.5	66	39.3		
Through Physician	2	12.5	102	60.7		

Hot Flashes

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between hot flashes and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 20, there was a significant relationship between hot flashes and menopause symptoms, $\chi^2 = 69.62$, $p < .001$, Cramer's $V = .62$. A

greater proportion of women with hot flashes reported menopause symptoms (100.0%) compared to women without hot flashes (56.8%). There was a significant relationship between hot flashes and night sweats, $\chi^2 = 39.72$, $p < .001$, Cramer's $V = .47$. A greater proportion of women with hot flashes reported night sweats (83.7%) compared to women without hot flashes (32.4%). There was a significant relationship between hot flashes and mood changes, $\chi^2 = 24.75$, $p < .001$, Cramer's $V = .37$. A greater proportion of women with hot flashes reported mood changes (73.5%) compared to women without hot flashes (29.7%). There was a significant relationship between hot flashes and inability to concentrate, $\chi^2 = 11.82$, $p < .001$, Cramer's $V = .25$. A greater proportion of women with hot flashes reported inability to concentrate (44.2%) compared to women without hot flashes (13.5%). There was a significant relationship between hot flashes and sleep disturbance or insomnia, $\chi^2 = 25.79$, $p < .001$, Cramer's $V = .37$. A greater proportion of women with hot flashes reported sleep disturbances or insomnia (72.1%) compared to women without hot flashes (27.0%). There was a significant relationship between hot flashes and vaginal dryness, $\chi^2 = 11.47$, $p < .001$, Cramer's $V = .25$. A greater proportion of women with hot flashes reported vaginal dryness (63.3%) compared to women without hot flashes (32.4%). There was a significant relationship between hot flashes and loss of interest in sex, $\chi^2 = 22.68$, $p < .001$, Cramer's $V = .35$. A greater proportion of women with hot flashes reported loss of interest in sex (62.6%) compared to women without hot flashes (18.9%).

Table 20

Frequencies and Percentages of Categorical Variables by Hot Flashes

	Hot Flashes					
	No		Yes			
	n	%	n	%	χ^2	*p*
Menopause Symptoms					69.62	<.001
No	16	43.2	0	0.0		
Yes	21	56.8	147	100.0		
Night Sweats					39.72	<.001
No	25	67.6	24	16.3		
Yes	12	32.4	123	83.7		
Mood Changes					24.75	<.001
No	26	70.3	39	26.5		
Yes	11	29.7	108	73.5		
Inability to Concentrate					11.82	.001
No	32	86.5	82	55.8		
Yes	5	13.5	65	44.2		
Sleep Disturbances/Insomnia					25.79	<.001
No	27	73.0	41	27.9		
Yes	10	27.0	106	72.1		
Vaginal Dryness					11.47	.001
No	25	67.6	54	36.7		
Yes	12	32.4	93	63.3		
Loss of Interest in Sex					22.68	<.001
No	30	81.1	55	37.4		
Yes	7	18.9	92	62.6		
Source of Menopause Knowledge					4.81	.028
Another Source	22	59.5	58	39.5		
Through Physician	15	40.5	89	60.5		

As also shown in Table 20, there was a significant relationship between hot flashes and source of menopause knowledge, $\chi^2 = 4.81$, $p = .028$, Cramer's $V = .16$. A greater proportion of women with hot flashes reported knowledge of menopause through physician (60.5%) compared to women without hot flashes (40.5%). There was no significant relationship between hot flashes and the variables 50 plus years of age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause knowledge, or length of current hormone treatment, all *ps ns*.

Night Sweats

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between night sweats and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 21, there was a significant relationship between night sweats and marital status, $\chi^2 = 4.78$, $p = .029$, Cramer's $V = .16$. A smaller proportion of women with night sweats were single, divorced, or widowed (19.3%) compared to women without night sweats (34.7%). There was a significant relationship between night sweats and menopause symptoms, $\chi^2 = 48.28$, $p < .001$, Cramer's $V = .51$. A greater proportion of women with night sweats reported menopause symptoms

(100.0%) compared to women without night sweats (67.3%). There was a significant relationship between night sweats and hot flashes, $\chi^2 = 39.72$, $p < .001$, Cramer's $V = .47$. A greater proportion of women with night sweats reported hot flashes (91.1%) compared to women without night sweats (49.0%). There was a significant relationship between night sweats and mood changes, $\chi^2 = 26.27$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with night sweats reported mood changes (75.6%) compared to women without night sweats (34.7%). There was a significant relationship between night sweats and inability to concentrate, $\chi^2 = 15.99$, $p < .001$, Cramer's $V = .30$. A greater proportion of women with night sweats reported inability to concentrate (46.7%) compared to women without night sweats (14.3%). There was a significant relationship between night sweats and sleep disturbance or insomnia, $\chi^2 = 26.47$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with night sweats reported sleep disturbances or insomnia (74.1%) compared to women without night sweats (32.7%). There was a significant relationship between night sweats and vaginal dryness, $\chi^2 = 13.64$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with night sweats reported vaginal dryness (65.2%) compared to women without night sweats (34.7%). There was a significant relationship between night sweats and loss of interest in sex, $\chi^2 = 19.99$, $p < .001$, Cramer's $V = .33$. A greater proportion of women with night sweats reported loss of interest in sex (63.7%) compared to women without night sweats (26.5%). Also, there was a significant relationship between night sweats and source of menopause knowledge, $\chi^2 = 8.56$, $p = .003$, Cramer's $V = .22$. A greater proportion of women with night sweats

reported knowledge of menopause through physician (63.0%) compared to women without night sweats (38.8%). There was no significant relationship between night sweats and the variables age, ethnicity, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 21

Frequencies and Percentages of Categorical Variables by Night Sweats

	Night Sweats					
	No		Yes			
	n	%	n	%	χ^2	*p*
Marital Status					4.78	.029
Married/Committed Relationship	32	65.3	109	80.7		
Single/Divorced/Widowed	17	34.7	26	19.3		
Menopause Symptoms					48.28	<.001
No	16	32.7	0	0.0		
Yes	33	67.3	135	100.0		
Hot Flashes					39.72	<.001
No	25	51.0	12	8.9		
Yes	24	49.0	123	91.1		
Mood Changes					26.27	<.001
No	32	65.3	33	24.4		
Yes	17	34.7	102	75.6		
Inability to Concentrate					15.99	<.001
No	42	85.7	72	53.3		
Yes	7	14.3	63	46.7		
Sleep Disturbances/Insomnia					26.47	<.001
No	33	67.3	35	25.9		
Yes	16	32.7	100	74.1		

Table 21, continued

	Night Sweats					
	No		Yes			
	n	%	n	%	χ^2	*p*
Vaginal Dryness					13.64	<.001
No	32	65.3	47	34.8		
Yes	17	34.7	88	65.2		
Loss of Interest in Sex					19.99	<.001
No	36	73.5	49	36.3		
Yes	13	26.5	86	63.7		
Source of Menopause Knowledge					8.56	.003
Another Source	30	61.2	50	37.0		
Through Physician	19	38.8	85	63.0		

Mood Changes

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between mood changes and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 22, there was a significant relationship between mood changes and health status, $\chi^2 = 8.29$, $p = .004$, Cramer's $V = .21$. A greater proportion of women with mood changes reported average or fair health

(29.4%) compared to women with no mood changes (10.8%). There was a significant relationship between mood changes and menopause symptoms, $\chi^2 = 26.18$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with mood changes reported menopause symptoms (99.2%) compared to women without mood changes (76.9%). There was a significant relationship between mood changes and hot flashes, $\chi^2 = 24.75$, $p < .001$, Cramer's $V = .37$. A greater proportion of women with mood changes reported hot flashes (90.85) compared to women without mood changes (60.0%). There was a significant relationship between mood changes and night sweats, $\chi^2 = 26.27$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with mood changes reported night sweats (85.7%) compared to women without mood changes (50.8%). There was a significant relationship between mood changes and inability to concentrate, $\chi^2 = 43.36$, $p < .001$, Cramer's $V = .49$. A greater proportion of women with mood changes reported inability to concentrate (55.5%) compared to women without mood changes (6.2%). There was a significant relationship between mood changes and sleep disturbance or insomnia, $\chi^2 = 19.95$, $p < .001$, Cramer's $V = .33$. A greater proportion of women with mood changes reported sleep disturbances or insomnia (74.8%) compared to women without mood changes (41.5%). There was a significant relationship between mood changes and loss of interest in sex, $\chi^2 = 13.72$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with mood changes reported loss of interest in sex (63.9%) compared to women without mood changes (35.4%). Also, there was a significant relationship between mood changes and source of menopause knowledge, $\chi^2 = 5.80$, $p =$

.016, Cramer's $V = .18$. A greater proportion of women with mood changes reported knowledge of menopause through physician (63.0%) compared to women without mood changes (44.6%). There was no significant relationship between mood changes and the variables age, ethnicity, marital status, education, income, health insurance, vaginal dryness, spontaneous menopause cause, surgical menopause cause, menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 22

Frequencies and Percentages of Categorical Variables by Mood Changes

	Mood Changes					
	No		Yes			
	n	%	n	%	χ^2	*p*
Health Status					8.29	.004
Excellent/Good	58	89.2	84	70.6		
Average/Fair	7	10.8	35	29.4		
Menopause Symptoms					26.18	<.001
No	15	23.1	1	0.8		
Yes	50	76.9	118	99.2		
Hot Flashes					24.75	<.001
No	26	40.0	11	9.2		
Yes	39	60.0	108	90.8		
Night Sweats					26.27	<.001
No	32	49.2	17	14.3		
Yes	33	50.8	102	85.7		

Table 22, continued

	Mood Changes					
	No		Yes			
	n	%	n	%	χ^2	*p*
Inability to Concentrate					43.36	<.001
No	61	93.8	53	44.5		
Yes	4	6.2	66	55.5		
Sleep Disturbances/Insomnia					19.95	<.001
No	38	58.5	30	25.2		
Yes	27	41.5	89	74.8		
Source of Menopause Knowledge					5.80	.016
Another Source	36	55.4	44	37.0		
Through Physician	29	44.6	75	63.0		

Inability to Concentrate

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between inability to concentrate and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menopause cause, surgical menopause cause, menopause symptoms, hot flashes, night sweats, mood changes, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 23, there was a significant relationship between inability to concentrate and age, $\chi^2 = 6.04$, $p = .014$, Cramer's $V =$

.18. A smaller proportion of those with inability to concentrate were fifty years of age or older (57.1%) compared to those who did not report an inability to concentrate (74.6%). There was a significant relationship between inability to concentrate and menopause symptoms, $\chi^2 = 7.52$, $p = .006$, Cramer's $V = .20$. A greater proportion of women with inability to concentrate reported menopause symptoms (98.6%) compared to women without inability to concentrate (86.8%). There was a significant relationship between inability to concentrate and hot flashes, $\chi^2 = 11.82$, $p < .001$, Cramer's $V = .25$. A greater proportion of women with inability to concentrate reported hot flashes (92.9%) compared to women without inability to concentrate (71.9%). There was a significant relationship between inability to concentrate and night sweats, $\chi^2 = 15.99$, $p < .001$, Cramer's $V = .30$. A greater proportion of women with inability to concentrate reported night sweats (90.0%) compared to women without inability to concentrate (63.2%). There was a significant relationship between inability to concentrate and mood changes, $\chi^2 = 43.36$, $p < .001$, Cramer's $V = .49$. A greater proportion of women with inability to concentrate reported mood changes (94.3%) compared to women without inability to concentrate (46.5%). There was a significant relationship between inability to concentrate and sleep disturbance or insomnia, $\chi^2 = 21.88$, $p < .001$, Cramer's $V = .35$. A greater proportion of women with inability to concentrate reported sleep disturbances or insomnia (84.3%) compared to women without inability to concentrate (50.0%).

Table 23

Frequencies and Percentages of Categorical Variables by Concentration

	Inability to Concentrate					
	No		Yes			
	n	%	n	%	χ^2	*p*
Age					6.04	.014
Under 50 Years	29	25.4	30	42.9		
50 Plus Years	85	74.6	40	57.1		
Menopause Symptoms					7.52	.006
No	15	13.2	1	1.4		
Yes	99	86.8	69	98.6		
Hot Flashes					11.82	.001
No	32	28.1	5	7.1		
Yes	82	71.9	65	92.9		
Night Sweats					15.99	<.001
No	42	36.8	7	10.0		
Yes	72	63.2	63	90.0		
Mood Changes					43.36	<.001
No	61	53.5	4	5.7		
Yes	53	46.5	66	94.3		
Sleep Disturbances/Insomnia					21.88	<.001
No	57	50.0	11	15.7		
Yes	57	50.0	59	84.3		
Vaginal Dryness					7.72	.005
No	58	50.9	21	30.0		
Yes	56	49.1	49	70.0		
Loss of Interest in Sex					9.91	.002
No	63	55.3	22	31.4		
Yes	51	44.7	48	68.6		

As also shown in Table 23, there was a significant relationship between inability to concentrate and vaginal dryness, $\chi^2 = 7.72$, $p = .005$, Cramer's $V = .21$. A greater proportion of women with inability to concentrate reported vaginal dryness (70.0%) compared to women without inability to concentrate (49.1%). Also, there was a significant relationship between inability to concentrate and loss of interest in sex, $\chi^2 = 9.91$, $p = .002$, Cramer's $V = .23$. A greater proportion of women with inability to concentrate reported loss of interest in sex (68.6%) compared to women without inability to concentrate (44.7%). There was no significant relationship between inability to concentrate and the variables ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Sleep Disturbance or Insomnia

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between sleep disturbance or insomnia and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 24, there was a significant relationship between sleep disturbance or insomnia and menopause symptoms, $\chi^2 =$

29.89, $p < .001$, Cramer's $V = .40$. A greater proportion of women with sleep disturbance or insomnia reported menopause symptoms (100.0%) compared to women without sleep disturbance or insomnia (76.5%). There was a significant relationship between sleep disturbance or insomnia and hot flashes, $\chi^2 = 25.79$, $p < .001$, Cramer's $V = .37$. A greater proportion of women with sleep disturbance or insomnia reported hot flashes (91.4%) compared to women without sleep disturbance or insomnia (60.3%). There was a significant relationship between sleep disturbance or insomnia and night sweats, $\chi^2 = 26.47$, $p < .001$, Cramer's $V = .38$. A greater proportion of women with sleep disturbance or insomnia reported night sweats (86.2%) compared to women without sleep disturbance or insomnia (51.5%). There was a significant relationship between sleep disturbance or insomnia and mood changes, $\chi^2 = 19.95$, $p < .001$, Cramer's $V = .33$. A greater proportion of women with sleep disturbance or insomnia reported mood changes (76.7%) compared to women without sleep disturbance or insomnia (44.1%). There was a significant relationship between sleep disturbance or insomnia and inability to concentrate, $\chi^2 = 21.88$, $p < .001$, Cramer's $V = .35$. A greater proportion of women with sleep disturbance or insomnia reported inability to concentrate (50.9%) compared to women without sleep disturbance or insomnia (16.2%). There was a significant relationship between sleep disturbance or insomnia and vaginal dryness, $\chi^2 = 9.15$, $p = .002$, Cramer's $V = .22$. A greater proportion of women with sleep disturbance or insomnia reported vaginal dryness (65.5%) compared to women without sleep disturbance or insomnia (42.6%). There was a significant relationship between sleep disturbance or insomnia and loss of interest in sex,

$\chi^2 = 12.60, p < .001$, Cramer's $V = .26$. A greater proportion of women with sleep disturbance or insomnia reported loss of interest in sex (63.8%) compared to women without sleep disturbance or insomnia (36.8%). Also, there was a significant relationship between sleep disturbance or insomnia and knowledge of menopause through physician, $\chi^2 = 8.45, p = .004$, Cramer's $V = .21$. A greater proportion of women with sleep disturbance or insomnia reported knowledge of menopause through their physician (64.7%) compared to women without sleep disturbances or insomnia (42.6%). There was no significant relationship between sleep disturbance or insomnia and the variables age, ethnicity, marital status, education, income, health status, spontaneous menstrual cause, surgical menstrual cause, menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 24

Frequencies and Percentages of Categorical Variables by Insomnia

	Sleep Disturbances/Insomnia					
	No		Yes			
	n	%	n	%	χ^2	*p*
Menopause Symptoms					29.89	<.001
No	16	23.5	0	0.0		
Yes	52	76.5	116	100.0		
Hot Flashes					25.79	<.001
No	27	39.7	10	8.6		
Yes	41	60.3	106	91.4		
Night Sweats					26.47	<.001
No	33	48.5	16	13.8		
Yes	35	51.5	100	86.2		

Table 24, continued

	Sleep Disturbances/Insomnia					
	No		Yes			
	n	%	n	%	χ^2	*p*
Mood Changes					19.95	<.001
No	38	55.9	27	23.3		
Yes	30	44.1	89	76.7		
Inability to Concentrate					21.88	<.001
No	57	83.8	57	49.1		
Yes	11	16.2	59	50.9		
Vaginal Dryness					9.15	.002
No	39	57.4	40	34.5		
Yes	29	42.6	76	65.5		
Loss of Interest in Sex					12.60	<.001
No	43	63.2	42	36.2		
Yes	25	36.8	74	63.8		
Source of Menopause Knowledge					8.45	.004
Another Source	39	57.4	41	35.3		
Through Physician	29	42.6	75	64.7		

Vaginal Dryness

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between vaginal dryness and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbance or

insomnia, loss of interest in sex, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 25, there was a significant relationship between vaginal dryness and health insurance, $\chi^2 = 7.08$, $p = .008$, Cramer's $V = .20$. A greater proportion of women with vaginal dryness had PPO insurance (82.9%) compared to women without vaginal dryness (65.8%). There was a significant relationship between vaginal dryness and menopause symptoms, $\chi^2 = 18.47$, $p < .001$, Cramer's $V = .32$. A greater proportion of women with vaginal dryness reported menopause symptoms (99.0%) compared to women without vaginal dryness (81.0%). There was a significant relationship between vaginal dryness and hot flashes, $\chi^2 = 11.47$, $p < .001$, Cramer's $V = .25$. A greater proportion of women with vaginal dryness reported hot flashes (88.6%) compared to women without vaginal dryness (68.4%). There was a significant relationship between vaginal dryness and night sweats, $\chi^2 = 13.64$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with vaginal dryness reported night sweats (83.8%) compared to women without vaginal dryness (59.5%). There was a significant relationship between vaginal dryness and inability to concentrate, $\chi^2 = 7.72$, $p = .005$, Cramer's $V = .21$. A greater proportion of women with vaginal dryness reported inability to concentrate (46.7%) compared to women without vaginal dryness (26.6%). There was a significant relationship between vaginal dryness and sleep disturbances or insomnia, $\chi^2 = 9.15$, $p = .002$, Cramer's $V = .22$. A greater proportion of women with vaginal dryness reported sleep disturbance or insomnia (72.4%) compared to women without vaginal dryness (50.6%).

Table 25

Frequencies and Percentages of Categorical Variables by Vaginal Dryness

	Vaginal Dryness					
	No		Yes			
	n	%	n	%	χ^2	*p*
Health Insurance					7.08	.008
No PPO	27	34.2	18	17.1		
PPO	52	65.8	87	82.9		
Menopause Symptoms					18.47	<.001
No	15	19.0	1	1.0		
Yes	64	81.0	104	99.0		
Hot Flashes					11.47	.001
No	25	31.6	12	11.4		
Yes	54	68.4	93	88.6		
Night Sweats					13.64	<.001
No	32	40.5	17	16.2		
Yes	47	59.5	88	83.8		
Inability to Concentrate					7.72	.005
No	58	73.4	56	53.3		
Yes	21	26.6	49	46.7		
Sleep Disturbances/Insomnia					9.15	.002
No	39	49.4	29	27.6		
Yes	40	50.6	76	72.4		
Loss of Interest in Sex					53.59	<.001
No	61	77.2	24	22.9		
Yes	18	22.8	81	77.1		

As also shown in Table 25, there was a significant relationship between vaginal dryness and loss of interest in sex, $\chi^2 = 53.59$, $p < .001$, Cramer's $V = .54$. A greater

proportion of women with vaginal dryness reported loss of interest in sex (77.1%) compared to women without vaginal dryness (22.8%). There was no significant relationship between vaginal dryness and the variables age, ethnicity, marital status, education, income, health status, spontaneous menstrual cause, surgical menstrual cause, mood changes, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Loss of Interest in Sex

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between loss of interest in sex and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbance or insomnia, vaginal dryness, menopause knowledge, source of menopause knowledge, and length of current hormone treatment. As shown in Table 26, there was a significant relationship between loss of interest in sex and marital status, $\chi^2 = 4.60$, $p = .032$, Cramer's $V = .16$. A smaller proportion of women who reported loss of interest in sex were single, divorced, or widowed (17.2%) compared to women without loss of interest in sex (30.6%). There was a significant relationship between loss of interest in sex and menopause symptoms, $\chi^2 = 15.94$, $p < .001$, Cramer's $V = .29$. A greater proportion of women with loss of interest in sex reported menopause symptoms (99.0%) compared to women without loss of interest in sex (82.4%). There was a significant relationship

between loss of interest in sex and hot flashes, $\chi^2 = 22.68$, $p < .001$, Cramer's $V = .35$. A greater proportion of women with loss of interest in sex reported hot flashes (92.9%) compared to women without loss of interest in sex (64.7%). There was a significant relationship between loss of interest in sex and night sweats, $\chi^2 = 19.99$, $p < .001$, Cramer's $V = .33$. A greater proportion of women with loss of interest in sex reported night sweats (86.9%) compared to women without loss of interest in sex (57.6%). There was a significant relationship between loss of interest in sex and mood changes, $\chi^2 = 13.72$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with loss of interest in sex reported mood changes (76.8%) compared to women without loss of interest in sex (50.6%). There was a significant relationship between loss of interest in sex and inability to concentrate, $\chi^2 = 9.91$, $p = .002$, Cramer's $V = .23$. A greater proportion of women with loss of interest in sex reported inability to concentrate (48.5%) compared to women without loss of interest in sex (25.9%). There was a significant relationship between loss of interest in sex and sleep disturbances or insomnia, $\chi^2 = 12.60$, $p < .001$, Cramer's $V = .26$. A greater proportion of women with loss of interest in sex reported sleep disturbance or insomnia (74.7%) compared to women without loss of interest in sex (49.4%). Also, there was a significant relationship between loss of interest in sex and vaginal dryness, $\chi^2 = 53.59$, $p < .001$, Cramer's $V = .54$. A greater proportion of women with loss of interest in sex reported vaginal dryness (81.8%) compared to women without loss of interest in sex (28.2%). There was no significant relationship between loss of interest in sex and the variables age, ethnicity, education, income, health insurance, health status, spontaneous

menstrual cause, surgical menstrual cause, menopause knowledge, source of menopause knowledge, or length of current hormone treatment, all *ps ns*.

Table 26

Frequencies and Percentages of Categorical Variables by Interest in Sex

	Loss of Interest in Sex					
	No		Yes			
	n	%	n	%	χ^2	*p*
Marital Status					4.60	.032
Married/Committed Relationship	59	69.4	82	82.8		
Single/Divorced/Widowed	26	30.6	17	17.2		
Education Level					2.98	.084
HS Grad/Some College	73	85.9	75	75.8		
College Grad/Post Grad	12	14.1	24	24.2		
Menopause Symptoms					15.94	<.001
No	15	17.6	1	1.0		
Yes	70	82.4	98	99.0		
Hot Flashes					22.68	<.001
No	30	35.3	7	7.1		
Yes	55	64.7	92	92.9		
Night Sweats					19.99	<.001
No	36	42.4	13	13.1		
Yes	49	57.6	86	86.9		
Mood Changes					13.72	<.001
No	42	49.4	23	23.2		
Yes	43	50.6	76	76.8		

Table 26, continued

	Loss of Interest in Sex					
	No		Yes			
	n	%	n	%	χ^2	*p*
Inability to Concentrate					9.91	.002
No	63	74.1	51	51.5		
Yes	22	25.9	48	48.5		
Sleep Disturbances/Insomnia					12.60	<.001
No	43	50.6	25	25.3		
Yes	42	49.4	74	74.7		
Vaginal Dryness					53.59	<.001
No	61	71.8	18	18.2		
Yes	24	28.2	81	81.8		

Menopause Knowledge

A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between menopause knowledge and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbance or insomnia, vaginal dryness, loss of interest in sex, source of menopause knowledge, and length of current hormone treatment. As shown in Table 27, there was a significant relationship between menopause knowledge and source of menopause knowledge, $\chi^2 = 4.13$, $p = .042$, Cramer's $V = .15$. A smaller proportion of women with only little menopause knowledge reported knowledge of menopause through physician (36.4%)

compared to women who had average or above average menopause knowledge (59.3%). Also, there was a significant relationship between menopause knowledge and length of current hormone treatment, $\chi^2 = 6.08$, $p = .014$, Cramer's $V = .18$. A smaller proportion of women with only little menopause knowledge reported five plus years of treatment (0.0%) compared to women who had average or above average menopause knowledge (22.2%). There was no significant relationship between menopause knowledge and the variable age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, or loss of interest in sex, all *ps ns*.

Table 27

Frequencies and Percentages of Categorical Variables by Menopause Knowledge

	Menopause Knowledge					
	Average/ Above Average		Little			
	n	%	n	%	χ^2	*p*
Source of Menopause Knowledge					4.13	.042
Another Source	66	40.7	14	63.6		
Through Physician	96	59.3	8	36.4		
Length of Current Hormone Treatment					6.08	.014
Less than 5 Years	126	77.8	22	100.0		
5 Plus Years	36	22.2	0	0.0		

Source of Menopause Knowledge

A series of cross-tabulations with Pearson chi square analyses were conducted to examine the relationship between source of menopause knowledge and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbance or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, and length of current hormone treatment. As shown in Table 28, there was a significant relationship between source of menopause knowledge and menopause symptoms, $\chi^2 = 13.82$, $p < .001$, Cramer's $V = .27$. A greater proportion of women with knowledge of menopause through physician reported menopause symptoms (98.1%) compared to women with knowledge of menopause through another source (82.5%). There was a significant relationship between source of menopause knowledge and hot flashes, $\chi^2 = 4.81$, $p = .028$, Cramer's $V = .16$. A greater proportion of women with knowledge of menopause through physician reported hot flashes (85.6%) compared to women with knowledge of menopause through another source (72.5%). There was a significant relationship between source of menopause knowledge and night sweats, $\chi^2 = 8.56$, $p = .003$, Cramer's $V = .22$. A greater proportion of women with knowledge of menopause through physician reported night sweats (81.7%) compared to women with knowledge of menopause through another source (62.5%). There was a significant relationship

between source of menopause knowledge and mood changes, $\chi^2 = 5.80$, $p = .016$, Cramer's $V = .18$. A greater proportion of women with knowledge of menopause through physician reported mood changes (72.1%) compared to women with knowledge of menopause through another source (55.0%).

Table 28

Frequencies and Percentages of Categorical Variables by Source of Menopause Knowledge

	Source of Menopause Knowledge					
	Another Source		Through Physician			
	n	%	n	%	χ^2	*p*
Menopause Symptoms					13.82	<.001
No	14	17.5	2	1.9		
Yes	66	82.5	102	98.1		
Hot Flashes					4.81	.028
No	22	27.5	15	14.4		
Yes	58	72.5	89	85.6		
Night Sweats					8.56	.003
No	30	37.5	19	18.3		
Yes	50	62.5	85	81.7		
Mood Changes					5.80	.016
No	36	45.0	29	27.9		
Yes	44	55.0	75	72.1		
Sleep Disturbances/Insomnia					8.45	.004
No	39	48.8	29	27.9		
Yes	41	51.2	75	72.1		
Menopause Knowledge					4.13	.042
Average/Above Average	66	82.5	96	92.3		
Little	14	17.5	8	7.7		

Also shown in Table 28, there was a significant relationship between source of menopause knowledge and sleep disturbances or insomnia, $\chi^2 = 8.45$, $p = .004$, Cramer's $V = .21$. A greater proportion of women with knowledge of menopause through physician reported sleep disturbances or insomnia (72.1%) compared to women with knowledge of menopause through another source (51.2%). Also, there was a significant relationship between source of menopause knowledge and menopause knowledge, $\chi^2 = 4.13$, $p = .042$, Cramer's $V = .15$. A smaller proportion of women with knowledge of menopause through physician reported only little menopause knowledge (7.7%) compared to women with knowledge of menopause through another source (17.5%). There was no significant relationship between source of menopause knowledge and the variable age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, inability to concentrate, vaginal dryness, loss of interest in sex, or length of current hormone treatment, all *ps ns*.

Length of Current Hormone Treatment

A series of cross-tabulations with Pearson chi square analyses were conducted to examine the relationship between length of current hormone treatment and the other independent variables: age, ethnicity, marital status, education, income, health insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbance or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, and source of menopause knowledge. As shown in Table 29, there was a significant

relationship between length of current hormone treatment and income, $\chi^2 = 4.94$, $p = .026$, Cramer's $V = .16$. A greater proportion of women with five plus years of treatment had an income under 50K (36.1%) compared to women with less than 5 years of treatment (18.9%). There was a significant relationship between length of current hormone treatment and spontaneous menopause cause, $\chi^2 = 4.34$, $p = .037$, Cramer's $V = .15$. A smaller proportion of women with five plus years of treatment reported spontaneous menstrual causes (22.9%) compared to women with less than 5 years of treatment (41.9%). There was a significant relationship between length of current hormone treatment and surgical menstrual cause, $\chi^2 = 7.28$, $p = .007$, Cramer's $V = .20$. A greater proportion of women with five plus years of treatment reported surgical menopause cause (77.1%) compared to women with less than 5 years of treatment (52.0%).

As also shown in Table 29, there was a significant relationship between length of current hormone treatment and menopause knowledge, $\chi^2 = 6.08$, $p = .014$, Cramer's $V = .18$. A smaller proportion of women with five plus years of treatment reported only little menopause knowledge (0.0%) compared to women with less than 5 years of treatment (14.9%). There was no significant relationship between length of current hormone treatment and the variable age, ethnicity, marital status, education, health insurance, health status, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, or source of menopause knowledge, all *ps ns*.

Table 29

Frequencies and Percentages of Categorical Variables by Extended Treatment

	Length of Current Hormone Treatment					
	Less than 5 Years		5 Plus Years			
	n	%	n	%	χ^2	*p*
Income					4.94	.026
Over 50K	120	81.1	23	63.9		
Under 50K	28	18.9	13	36.1		
Spontaneous Menstrual Cause					4.34	.037
No	86	58.1	27	77.1		
Yes	62	41.9	8	22.9		
Surgical Menstrual Cause					7.28	.007
No	71	48.0	8	22.9		
Yes	77	52.0	27	77.1		
Menopause Knowledge					6.08	.014
Average/Above Average	126	85.1	36	100.0		
Little	22	14.9	0	0.0		

Primary Analyses

Purpose One

The first purpose of the current research was to determine the most common therapies reported by women transitioning through menopause. This was done by examining the premenopausal, perimenopausal, and postmenopausal women using various menopause treatments/therapies. That is, these analyses examined the entire sample of participants. As shown in Table 30, across menstrual statuses, most women

reported that menopause treatment/therapy was not applicable (98.2% for premenopausal, 66.7% for perimenopausal, 56.0% for postmenopausal). This was particularly true of premenopausal women who may not yet be able to take advantage of any type of menopause treatments. For perimenopausal women, a few women did report use of treatments such as progesterone (9.1%), combined hormone therapy (6.1%), and alternative therapy (6.1%). For postmenopausal women, the leading treatment was estrogen hormone therapy (27.2%), followed by combined hormone therapy (5.4%). The use of other treatments was quite rare, but included bioidentical hormones (3.8%) and alternative therapies (3.3%). Taken together, for women who chose to use treatments, estrogen hormone therapy, progesterone, and combined hormone therapies were among the most common.

Purpose Two

The second purpose of the current research was to determine the factors that influenced participants' therapy decisions. This was examined in two parts. The first part consisted of crosstab analyses with Pearson's Chi-Square and Cramer's V to examine the use of menopause treatment/therapy depending on current menstrual status. As shown in Table 31, there was a significant relationship between currently using menopause treatment/therapy and current menstrual status, $\chi^2 = 33.97$, $p < .001$, Cramer's $V = .35$. A greater proportion of women who were currently using menopause treatment/therapy were postmenopausal (87.0%) compared to women who were not currently using

menopause treatment/therapy (57.1%). A smaller proportion of women who were currently using menopause treatment/therapy were premenopausal (1.1%) compared to women who were not currently using menopause treatment/therapy (30.8%). A similar number of women who were (12.0%) or were not (12.1%) currently using menopause treatment/therapy were perimenopausal.

Table 30

Frequencies and Percentages of Treatment Type by Current Menstrual Status

	Menopausal					
	Pre		Peri		Post	
	n	%	N	%	n	%
Menopause Treatment/Therapy Type						
Estrogen Hormone Therapy	1	1.8	1	3.0	50	27.2
Progesterone	0	0.0	3	9.1	0	0.0
Combined Hormone Therapy	0	0.0	2	6.1	10	5.4
Bioidentical Hormone Therapy	0	0.0	0	0.0	7	3.8
Alternative Therapy	0	0.0	2	6.1	6	3.3
Activella	0	0.0	0	0.0	1	0.5
Bi est 50 E 2/50 E3 Prog 2mg/60mg/ml	0	0.0	0	0.0	1	0.5
Bioidentical Harmones	0	0.0	1	3.0	0	0.0
Cream for Dryness Vaginal	0	0.0	0	0.0	1	0.5
Evanmist	0	0.0	0	0.0	1	0.5
Lexapro	0	0.0	1	3.0	0	0.0
Vagifem	0	0.0	0	0.0	1	0.5
Vivelle -.05 Patch	0	0.0	0	0.0	1	0.5
Vivelle -Dot	0	0.0	0	0.0	1	0.5
Vivelle -Estrogen Patch and Prometrium	0	0.0	1	3.0	0	0.0
Prempro	0	0.0	0	0.0	1	0.5
Not Applicable	56	98.2	22	66.7	103	56.0

Table 31

Frequencies and Percentages of Current Menstrual Status by Treatment

	Menopause Treatment/Therapy					
	Currently Using		Not Currently Using			
	n	%	n	%	χ^2	*p*
Current Menstrual Status					33.97	<.001
Premenopausal	1	1.1	56	30.8		
Perimenopausal	11	12.0	22	12.1		
Postmenopausal	80	87.0	104	57.1		

The second part of the examination of the factors that influenced participants' therapy decisions focused on postmenopausal women only. In this second part, more specifically, the null hypothesis was that there will be no statistically significant difference in therapy decisions of women who consider menopause to be a natural part of the aging process and the women who consider menopause to be a medical condition. A series of crosstabulations with Pearson chi square analyses were conducted to examine the relationship between current use of menopause treatment and the variables age, ethnicity, marital status, education, income, insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, attitude towards menopause, general views of menopause, and view of hormone therapy. As shown in Table 32, there was a significant relationship between spontaneous

menopause and current menopause treatment/therapy use, $\chi^2 = 8.01$, $p = .005$, Cramer's $V = .21$. A larger proportion of women who reported spontaneous menopause were not currently using menopause treatment/therapy (70.0%) compared to women who did not report a spontaneous menopause cause (48.7%). There was a significant relationship between surgical menopause cause and current menopause treatment/therapy use, $\chi^2 = 9.27$, $p = .002$, Cramer's $V = .23$. A larger proportion of women who reported surgical menopause causes were currently using menopause treatment/therapy (52.9%) compared to women who did not report a surgical menopause cause (30.4%). There was a significant relationship between menopause knowledge and current menopause treatment/therapy use, $\chi^2 = 6.51$, $p = .011$, Cramer's $V = .19$. A smaller proportion of women reporting only little menopause knowledge were currently using menopause treatment/therapy (18.2%) compared to women who did not report only little menopause knowledge (46.9%). There was a significant relationship between knowledge of menopause through physician and current menopause treatment/therapy use, $\chi^2 = 6.94$, $p = .008$, Cramer's $V = .19$. A larger proportion of women reporting knowledge of menopause through their physician was currently using menopause treatment/therapy (51.9%) compared to women who did not report knowledge of menopause through their physician (32.5%). However, there was no significant relationship between a number of variables (i.e., age, ethnicity, marital status, education, income, health insurance, health status, menopause symptoms, hot flashes, night sweats, mood changes, inability to

concentrate, sleep disturbances and insomnia, vaginal dryness, loss of interest in sex) and current use of menopause treatment/therapy, all *ps ns*.

Table 32

Frequencies and Percentages of Categorical Variables by Treatment

	Spontaneous Menstrual Cause					
	No		Yes			
	n	%	n	%	χ^2	*p*
Menopause Treatment/Therapy					8.01	.005
Using	58	51.3	21	30.0		
Not Using	55	48.7	49	70.0		
	Surgical Menstrual Cause					
	No		Yes			
Menopause Treatment/Therapy					9.27	.002
Using	24	30.4	55	52.9		
Not Using	55	69.6	49	47.1		
	Menopause Knowledge					
	Average/Above Average		Little			
Menopause Treatment/Therapy					6.51	.011
Using	76	46.9	4	18.2		
Not Using	86	53.1	18	81.8		
	Source of Menopause Knowledge					
	Another Source		Through Physician			
Menopause Treatment/Therapy					6.94	.008
Using	26	32.5	54	51.9		
Not Using	54	67.5	50	48.1		

The relationship between hormone therapy use and attitudes towards menopause and hormone therapy are shown in Table 33. There was a significant relationship between attitude toward menopause and current menopause treatment/therapy use, $\chi^2 = 28.20$, $p < .001$, Cramer's $V = .39$. A larger proportion of women holding the attitude that menopause "...is a medical condition that requires treatment" were currently using menopause treatment/therapy (81.3%) compared to women holding the attitude that menopause is "...a natural part of the aging process that may require treatment" (47.1%) or "...a natural part of the aging process that does not require treatment" (3.6%).

Also shown in Table 33, there was a significant relationship between general views of menopause and current menopause treatment/therapy use, $\chi^2 = 10.06$, $p = .007$, Cramer's $V = .23$. A larger proportion of women with mixed feelings regarding menopause were currently using menopause treatment/therapy (57.1%) compared to women with generally positive (33.7%) or negative views towards menopause (33.3%). Also, there was a significant relationship between views on hormone therapy as menopause treatment and current menopause treatment/therapy use, $\chi^2 = 34.31$, $p < .001$, Cramer's $V = .43$. A larger proportion of women with positive views on hormone therapy were currently using menopause treatment/therapy (58.5%) compared to women with unsure (14.7%) or negative views on hormone therapy (11.1%).

Table 33

Frequencies and Percentages of Attitudes towards Menopause and Hormone Therapy by Treatment

	Attitude Toward Menopause							
	Natural with No Hormones		Natural with Hormones		Medical Treatment Needed			
	n	%	n	%	n	%	χ^2	*p*
Menopause Treatment/Therapy							28.20	<.001
Using	1	3.6	66	47.1	13	81.3		
Not Using	27	96.4	74	52.9	3	18.8		
	General Views of Menopause							
	Positive		Negative		Mixed			
Menopause Treatment/Therapy							10.06	.007
Using	34	33.7	2	33.3	44	57.1		
Not Using	67	66.3	4	66.7	33	42.9		
	View on Hormone Therapy as Menopause Treatment							
	Positive		Negative		Unsure			
Menopause Treatment/Therapy							34.31	<.001
Using	72	58.5	3	11.1	5	14.7		
Not Using	51	41.5	24	88.9	29	85.3		

Next, multiple logistic regression was conducted to predict currently on menopause treatment/therapy from age, spontaneous menopause knowledge, attitude toward menopause, general views of menopause, and views on hormone therapy. This

analysis focused on post-menopausal women only, as when the model was run on perimenopausal and premenopausal women the model was not significant. The overall model was significant, $\chi^2(11) = 77.15, p < .001$, *Nagelkerke* $R^2 = .46$. As shown in Table 34, women holding the attitude towards menopause that it is a natural part of the aging process and does not require treatment were at significantly lesser odds of currently being on menopause treatment/therapy compared to women holding the attitude that it is a medical condition that requires treatment (*Odds Ratio* = .021, $p = .004$). Furthermore, women holding the attitude towards menopause that it is a natural part of the aging process that may require treatment were at significantly lesser odds of currently being on menopause treatment/therapy compared to those who hold the attitude that menopause is a medical condition that requires treatment (*Odds Ratio* = .188, $p = .036$). Also, women holding a positive attitude towards hormone therapy were at significantly greater odds of currently being on menopause treatment/therapy compared to women holding negative attitudes towards hormone therapy (*Odds Ratio* = 6.752, $p = .009$). There were no additional significant predictors of currently being on menopause treatment/therapy, all *ps ns*. Thus, for postmenopausal women, the null hypothesis can be rejected: Women holding attitudes that menopause is a natural part of the aging process and does not require treatment and women holding the attitude that menopause is a natural part of the aging process that may require treatment were less likely to currently be engaged in menopause treatment/therapy compared to women holding the attitude that menopause is a medical condition that requires treatment.

Table 34

Summary of Multiple Logistic Regression Predicting Treatment from Age, Spontaneous Menstrual Cause, Surgical Menstrual Cause, Menopause Knowledge, Source of Menopause Knowledge through Physician, Hormone Therapy Necessary, View of Menopause, View of Hormones

	B	*SE*	*Wald*	*Odds Ratio*	*p*
50 Plus Years Compared to Under 50 Years	-.694	.44	2.486	.50	.115
Spontaneous Cause Compared to None	.143	.93	.023	1.15	.878
Surgical Cause Compared to None	.487	.90	.290	1.63	.590
Little Knowledge Compared to Average/Above Average Knowledge	-.788	.78	1.025	.46	.311
Menopause Knowledge Through Another Source Compared to Knowledge Through Physician	.538	.40	1.832	1.71	.176
Attitude that Menopause is Natural that does not Require Hormone Therapy Compared to Attitude that Menopause is Medical Condition	-3.846	1.32	8.449	.02	.004
Attitude that Menopause is Natural that may Require Hormone Therapy Compared to Attitude that Menopause is Medical Condition	-1.670	.80	4.411	.19	.036
General Positive Views of Menopause Compared to Negative	.593	.98	.367	1.81	.545
General Mixed Views of Menopause Compared to Negative	1.685	1.00	2.864	5.39	.091

Table 34, continued

	B	*SE*	*Wald*	*Odds Ratio*	*p*
Positive View on Hormone Therapy as Menopause Treatment Compared to Negative	1.910	.73	6.762	6.75	.009
Unsure of View on Hormone Therapy as Menopause Treatment Compared to Negative	-.684	.96	.512	.50	.474

Note. Model summary: X^2 (11) = 77.15, $p < .001$, *pseudo* $R^2 = .462$.

Purpose Three

The third purpose of the current research was to determine if there are significant differences in decisions based on age, race, income level, employment status, health insurance, health status, severity of menopausal symptoms, and knowledge of attitudes related to menopause. The null hypothesis was that the descriptive covariates (i.e., age, race, income level, employment status, health insurance, health status, and menopausal symptoms) would be neither predictive nor protective of therapy decisions. To examine this purpose and hypothesis, multiple logistic regression was conducted to predict currently on menopause treatment/therapy from age, ethnicity, income, health status, health insurance, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances and insomnia, vaginal dryness, and loss of interest in sex. As shown in Table 35, focusing first on postmenopausal women only, the overall model was not

significant $\chi^2(12) = 12.31$, $p = .421$, *Nagelkerke* $R^2 = .087$. Furthermore, examination of the variables revealed no significant predictors of currently on menopause treatment/therapy, all *ps ns*. Thus, for postmenopausal women, the null hypothesis cannot be rejected.

Table 35

Summary of Multiple Logistic Regression Predicting Treatment from Age, Ethnicity, Income, Health Status, Insurance, Hot Flashes, Night Sweats, Mood Changes, Concentration, Insomnia, Vaginal Dryness, and Interest in Sex

	B	*SE*	*Wald*	*Odds Ratio*	*p*
Age of 50 Plus Years Compared to Under 50 Years	-.594	.34	2.978	.55	.084
Ethnicity of African American Compared to Caucasian	-.905	.56	2.658	.41	.103
Income Under 50K Compared to Over 50K	.597	.41	2.085	1.82	.149
PPO Insurance Compared to None	.162	.38	.183	1.18	.669
Health Status of Average/Fair Compared to Excellent/Good	-.662	.40	2.756	.52	.097
Hot Flashes Compared to None	.033	.47	.005	1.03	.944
Night Sweats Compared to None	.084	.44	.037	1.09	.847
Mood Changes Compared to None	.300	.41	.529	1.35	.467

Table 35, continued

	B	*SE*	*Wald*	*Odds Ratio*	*p*
Inability Concentrate Compared to None	-.098	.39	.064	.91	.800
Insomnia Compared to None	.402	.38	1.131	1.49	.288
Vaginal Dryness Compared to None	-.104	.39	.071	.90	.789
Loss of Interest in Sex Compared to None	.034	.39	.008	1.04	.930

Note. Model summary: X^2 (12) = 12.31, p = .421, *pseudo* R^2 = .087.

Summary

In summary, the current research examined knowledge, attitudes and beliefs influencing decision making processes related to menopause and menopause therapy options. There were three main purposes. First, this research examined the most common therapies reported by women transitioning through menopause. For women who chose to use menopause treatment/therapy, estrogen hormone therapy and combined hormone therapy were most common for postmenopausal women, and progesterone, combined hormone therapy, and alternative therapies were most common for perimenopausal women. Overall, though, it should be noted that the use of menopause therapies was fairly low, especially for premenopausal women.

Second, this research examined the factors that influence participants' therapy decisions. As anticipated, a greater proportion of women currently using menopause treatments were postmenopausal compared to premenopausal. Further examination of these factors also revealed that the first null hypothesis (i.e., that there will be no statistically significant difference in therapy decisions of women who consider menopause to be a natural part of the aging process and the women who consider menopause to be a medical condition) could be rejected: women holding attitudes towards menopause that it is a natural part of the aging process that does not require/may require treatment were less likely to be currently engaged in treatment compared to women holding the attitude that menopause is a medical condition that requires treatment.

Third, this research examined if there are significant differences in therapy decisions based on age, race, income, employment, health insurance, health status, menopausal symptoms, and knowledge and attitudes towards menopause. The null hypothesis was that the descriptive covariates would be neither predictive nor protective of therapy decisions. The current findings indicated that this hypothesis could not be rejected. Age, ethnicity, income, health status, health insurance, and menopause symptoms (i.e., hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances and insomnia, vaginal dryness, and loss of interest in sex) did not predict whether postmenopausal, perimenopausal, or premenopausal women were currently on menopause treatment/therapy.

CHAPTER V

DISCUSSION

This chapter provides a synopsis of the purposes and methods of this study, as well as a discussion of the results, limitations, and implications of its findings to health education and promotion for women as they age and transition from premenopausal to perimenopausal and postmenopausal status. Conclusions are drawn from the study findings, and recommendations for future study direction are provided.

Summary

The primary purposes of this study were to: (1) Determine the most common therapies reported by women transitioning through menopause; (2) Determine factors that influenced participants' therapy decisions; and (3) Determine if there are significant differences in decisions based on age, race, income level, employment status, health insurance, health status, severity of menopausal symptoms, and knowledge and attitudes related to menopause.

The following null hypotheses were tested at the .05 level of significance:

H01. There will be no statistically significant difference in therapy decisions of women who consider menopause to be a natural part of the aging process and the women who consider menopause to be a medical condition.

H02. The following descriptive covariates (age, race, income level, employment status, health insurance, health status, and menopausal symptoms) will be neither predictive nor protective of therapy decisions.

This descriptive study was conducted on a purposeful convenience sample (n=274). The study utilized a sample of women aged 40-60, recruited from the faculty and staff of Region VIII school systems in North Louisiana, the faculty and staff of the University of Louisiana at Monroe, and the Ouachita Women's Tennis Association. The participants voluntarily completed an anonymous online survey which included demographic items, and items focused on the knowledge, attitudes, and decisions of the participants related to the transition through menopause.

Descriptive statistics were used to assess participant demographics, menopausal symptoms, knowledge related to menopause treatments, attitudes toward menopause, and menopausal treatment decisions. Crosstabulations with Pearson's Chi Square and Phi Cramer V were used to examine significant relationships among selected independent variables of the study, and menopause treatment status dependent on various independent variables. Additionally, multiple logistic regression analyses were conducted on selective variables to assess their predictive value on treatment/therapy decisions.

Discussion

The first purpose was to determine the most common treatments/therapies used by the women transitioning through menopause. This was done by examining the various menopause treatments/therapies used by premenopausal, perimenopausal, and

postmenopausal women. Across the three menstrual statuses, many women reported that treatments/therapies were not applicable. However, for perimenopausal women, progesterone, combined hormone therapy, and alternative therapies were the most commonly used treatments/therapies. For postmenopausal women, the most commonly used therapy was estrogen therapy followed by combined hormone therapy. When considering all three groups, estrogen hormone therapy, progesterone, and combined hormone therapies were among the most commonly used therapies.

Review of the literature related to the most popular treatments/therapies used by women rendered much variance across studies. According to Files, Ko, and Pruthi (2011), there was a significant decrease in the number of prescriptions written for HT following the halt of the estrogen plus progestin arm of the Women's Health Initiative Study. A cross-sectional survey of 781 US women, in 2004, revealed that many women were terminating their hormone therapy use and adopting alternative methods, including herbal and soy supplements for the alleviation of menopause symptoms (Ma, Drieling, & Stafford, 2006). Some of the most commonly used non-hormonal therapies include over-the-counter medications like Estroven, and a variety of herbal supplements including black cohosh, red clover, soy, dong quai, ginseng, evening primrose, and kava (National Center for Complementary and Alternative Medicine, 2011). However, according to Kupferer, Dormire, and Becker (2009), antidepressants were reported by women in a national survey to be the most effective non-hormonal treatment/therapy for alleviating menopausal symptoms. One of the newest in hormonal treatments/therapies used by

women for alleviating menopause symptoms is transdermal hormone therapy. This type of HT is reportedly effective in relieving menopause symptoms, and provides a lower dosage alternative in hormone therapy with possibly better benefit risk ratio than traditional oral HT (Carroll, 2010).

The second purpose of the study was to determine what factors influenced participants' menopause therapy decisions. This was examined in two parts. The first part of this analysis utilized Pearson's Chi square and Cramer's V to examine the use of current menopause therapy/treatment dependent on current menstrual status. As expected, a significant relationship between current menopause treatment/therapy and current menstrual status was revealed. A greater proportion of women using menopause treatments/therapies were postmenopausal, and a very small proportion was premenopausal. Perimenopausal women had equal representation in the currently using and not currently using treatments/therapies groups.

The second part of the examination of factors that influenced the participants' treatment/therapy decisions focused on postmenopausal women only. A series of cross-tabulations with Pearson's chi square and Cramer's V were utilized to examine the relationship between current menopause treatment/therapy use and the other variables including age, ethnicity, marital status, education, income, insurance, health status, spontaneous menstrual cause, surgical menstrual cause, menopause symptoms, hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of

menopause knowledge, attitude towards menopause, general views of menopause, and view of hormone therapy.

Significant relationships were revealed between menopause cause and treatment/therapy use, knowledge and treatment/therapy use, and source of knowledge and treatment/therapy use. Regarding the relationship between menopause cause and current treatments/therapies, women who reported surgical menopause cause were more likely than those who reported spontaneous menopause cause to be using a menopause treatment/therapy.

Also, women who were knowledgeable about menopause were more likely to be currently using treatment/therapy, with source of knowledge also playing a role in therapy decisions. Women reporting physicians as their main source of information were more likely to report current use of menopause treatment/therapy than women who obtained information from other sources (e.g., friends, family, internet, etc.).

Attitude also played a significant role in whether or not women were currently using a treatment/therapy. Women who considered menopause to be a medical condition requiring treatment were more likely to be using a menopause treatment/therapy than those who considered it a natural part of the aging process. Also, when compared to women with positive or negative attitudes toward menopause, women who reported mixed feelings about menopause were more likely to be using some type of menopause treatment/therapy. Additionally, the women with positive views toward hormone therapy

were more likely to be currently using menopause treatment/therapy compared to women who were unsure or had negative views about hormone therapy.

A multiple logistic regression analysis was also run for postmenopausal women to predict current menopause treatment use from age, spontaneous menopause knowledge, attitudes toward menopause, general views of menopause, and views on hormone therapy. The results from this analysis allowed for rejection of the null hypothesis, H_{01}. Women who held the attitude that menopause is a natural part of the aging process that does not require treatment/therapy, and those that held the attitude that menopause is a natural part of the aging process that may require treatment/therapy, were at significantly lesser odds of currently being on a menopause treatment than women who had the view that menopause is a medical condition that requires treatment/therapy. Similar results were found in a study related to factors affecting decisions about adopting HT in perimenopausal women. According to Huston, Bagozzi, and Kirking (2010), women who considered "menopause is natural" were less likely than those who wanted to "delay menopause" to use HT. Additionally, in a study focusing on African American women's menopause symptoms and attitudes, it was revealed that 38% considered menopause "a natural midlife transition" that requires hormone therapy, while 44% considered it "a natural midlife transition" that should be dealt with by natural means (Huffman, Myers, Tingle, & Bond, 2005). However, most studies that focused on women's attitudes during menopausal transition examined associations between positive and negative

attitudes toward menopause and treatment/therapy rather than association between perceptions of menopause being 'natural transition' versus 'medical condition'.

The third purpose of the current research was to determine if there were significant differences in decisions based on age, race, income level, employment status, health insurance, health status, severity of menopausal symptoms, and knowledge and attitudes related to menopause. However, the null hypothesis, H_{O2}, for premenopausal, perimenopausal, and postmenopausal women could not be rejected. The following descriptive covariates (age, race, income level, employment status, health insurance, health status, and menopausal symptoms) were neither predictive nor protective of therapy decisions.

Preliminary Analyses

Related to the descriptive analyses in this study, it should be noted that the sample for this study was predominantly white (88.3%), non-hispanic (98.5%), married (77.7%), employed (96.7%), and were college graduates or postgraduates (79.2%). The importance of these factors as they relate to generalization of the results will be discussed later in this chapter under the limitations and future research headings.

Since it was anticipated that relationships would exist between the various independent variables in this study, a series of crosstabulation analyses were conducted using the following independent variables: age, ethnicity, marital status, education, income, health insurance, health status, current menstrual status, spontaneous menopause cause, surgical menopause cause, menopause symptoms, hot flashes, night sweats, mood

changes, inability to concentrate, sleep disturbances or insomnia, vaginal dryness, loss of interest in sex, menopause knowledge, source of menopause knowledge, currently on menopause treatment, and length of current hormone treatment. The following sections summarize the findings of the crosstabulations of these independent variables and discuss the importance of these findings.

Current Menstrual Status

Cross-tabulations of current menstrual status and selected other independent variables revealed significant relationships between current menstrual status and the following variables: age, menopause symptoms (in general), hot flashes, night sweats, mood changes, inability to concentrate, sleep disturbances, vaginal dryness, loss of interest in sex, menopause knowledge, currently using menopause treatment/therapy, and number of years using treatment/therapy.

As anticipated, premenopausal women were less likely than perimenopausal and postmenopausal women to report menopause symptoms. Additionally, premenopausal women were less likely to report inability to concentrate and sleep disturbances/insomnia, when compared to perimenopausal and postmenopausal women. Similar findings were revealed in the review of literature, with menopause symptoms being reported during the transition from perimenopause to postmenopause, and peak occurrence during the six to twelve months following the last menstrual period (Berg, Larson, & Pasvogel, 2008)

Surprisingly, over half of the women who classified themselves as premenopausal, reported general menopause symptoms. The most commonly reported

symptoms in premenopausal women were mood changes and night sweats. The most commonly reported menopause symptom in the perimenopausal women in this study was sleep disturbance/insomnia, followed by mood changes and hot flashes. Postmenopausal women were more likely to report vaginal dryness than premenopausal and perimenopausal women. However, the most common symptoms reported by postmenopausal women were hot flashes and night sweats, followed by mood changes and sleep disturbances/insomnia.

As expected, postmenopausal women were less likely to report "little knowledge" about menopause, and were more likely to obtain information from physicians when compared to premenopausal and perimenopausal women. An explanation for these findings could be the greater need for accurate information about health implications and possible treatment options once symptoms occur. Women seek information about menopause, its effect on health, and possible treatment options, and rely on their physicians, more than any other source for information about menopause (Singh et al, 2007).

Postmenopausal women were also more likely to report more than five years of treatment when compared with premenopausal and perimenopausal women. The presence of menopause symptoms is reportedly the main reason that women seek treatment/therapy (Williams et al, 2007). Also, depending on menopausal cause there could have been more of a need for treatment, especially for those women who had premature menopause that was surgically induced. Not only could these women be faced

with the most common symptoms, hot flashes and night sweats, but could also be faced with problems typically plaguing older women including urogenital atrophy, reduced libido, and premature bone density loss if they decide to decline treatment/therapy.

The remainder of the preliminary analyses was conducted on postmenopausal women only, with Pearson's chi square utilized to examine relationships between the various selected independent variables. Significant relationships and interesting findings that are notable in this study will be included in the following discussion.

Preliminary Analyses: Postmenopausal Women Only

Age. Cross-tabulation of age and other independent variables revealed significant relationships between age and spontaneous menopause, surgically caused menopause, and an inability to concentrate. Unsurprisingly, women aged 50 and over were more likely to report spontaneous menopause than women under age 50. This is consistent with general findings that spontaneous (natural) menopause usually occurs at the average age of 51(The National Women's Health Information Center, 2009). Women under the age of 50 were more likely to report surgically induced menopause, thus introducing potential health issues at a younger age. An important health implication for these women would be the need for treatment/therapy to address bone density maintenance, risk for colon/rectal cancer, and the abrupt onset of a spectrum of menopause symptoms.

According to results of the California Teachers Cohort Study, hormone therapy may provide some cardiovascular health benefits for younger women, thus supporting possible promotion of therapy use in younger women when the benefits may possibly

outweigh the risks. However, at any age, the one risk present with hormone therapy versus other therapy/treatment options is breast cancer (Contraceptive Technology Update, 2011).

An intriguing age related finding revealed by this study was that women less than 50 years of age were more likely than those 50 and over to report an inability to concentrate. There are numerous causes of inability to concentrate, with one of the most common being a lack of adequate sleep. Results from the National Health and Nutrition Survey, United States, 2005-2008, revealed that 13.5% of adults reported three or more sleep related difficulties. The most commonly reported sleep related difficulty was difficulty concentrating (Wheaton, Liu, Perry, & Croft, 2011). Two other possible causes of inability to concentrate in younger women include mild depression or premenstrual syndrome. Women have a one in five chance of suffering from depression in their lifetime, and sleep disturbances and decreased concentration are symptoms that serve as red flags for depression (Dickstein & Leibenluft, 2002). Two of the psychological and behavioral symptoms associated with Premenstrual Syndrome and Premenstrual Dysphoric Disorder include decreased concentration and sleep problems. Premenstrual Syndrome affects 20-32% of premenopausal women, while Premenstrual Dysphoric Disorder affects 3-8% of premenopausal women (Biggs & Demuth, 2011). The inability to concentrate could also be a menopause symptom resulting from surgically induced menopause at an earlier age. Although not the most common menopausal symptoms

reported, inability to concentrate and forgetfulness are symptoms sometimes reported by women during menopausal transition (Berg et al., 2008).

Marital status, health status, and income. Women who were single, divorced, or widowed were more likely to report average or fair health status compared to those who were married or in a committed relationship. Consequently, single, divorced, or widowed women were also more likely to have incomes under $50,000, and less likely to report private insurance. Consistent with this finding, results from the 2007 California Health Interview Survey revealed that single, divorced, or widowed women, aged 50-64, had twice the uninsured rates when compared to married women in the same age group (Currie, 2010). In addition, since women who reported incomes under $50,000 were more likely to report average or fair health status, it seems that inadequate access to insurance and healthcare due to socioeconomic status could explain these findings.

One of the most interesting findings revealed that women with an income under $50,000 were more likely to report at least five years of hormonal treatment when compared to women with incomes over $50,000. There are several issues that need to be evaluated further on this finding, such as whether the woman is being cared for by a general practitioner or gynecologist and the location of services provided (rural vs urban). Are the women being offered the best possible treatment after a thorough assessment of benefits versus potential risk factors of long term hormonal therapy? Interestingly, in 2000, results from a study revealed lower rates of HT use among low income women when compared with women in higher income brackets (Appling et al., 2000). In the

years since that study, the WHI trial was halted due to concerns with negative health events among some women on HT. Given the results of this current study, a follow up investigation would be beneficial in better understanding why higher income women were less likely to use hormonal therapy long term and whether their knowledge of the WHI study was a factor in this decision.

Health insurance. This study revealed two surprising results related to health insurance. Women who reported PPO insurance were more likely to report vaginal dryness than women without PPO insurance, and lower income women were more likely to be on long term HT and less likely to have PPO insurance.

One explanation of these findings, meriting further evaluation, is whether women who have private insurance coverage are more likely than those without private insurance coverage to visit a specialist (e.g., gynecologist) rather than a general practitioner. Women who choose to visit gynecologists are more likely to be questioned about their sexual practices and specific symptoms. Vaginal dryness and urogential atrophy are two menopausal symptoms that can cause sexual intercourse to become uncomfortable and even painful in some cases. HT usage has been proven to reduce vaginal dryness in menopausal women. Some of the current modes of delivery of low dosage HT to treat vaginal symptoms include vaginal creams, patches, and suppositories. Although, HT is not a panacea for all vaginal symptoms, improvement in vaginal symptoms usually occurs in 2 to 3 weeks (Bond & Horton, 2010).

Health status. Women who reported average or fair health status were more likely to report mood changes when compared with those who reported good or excellent health status. Consistent with this result, a cross-sectional study examining the association between various menopause symptoms and quality of life, revealed an association between mood changes and low quality of life (Bankowksi et al, 2006). Additionally, results from the Midlife in the United States survey, 2005, revealed an association between perception of health and presence of menopausal symptoms. Women who had more positive views on health during menopausal transition reported fewer symptoms (Strauss, 2011).

Cause of menopause. Women with surgically induced menopause were more likely to report five plus years of hormonal treatment/therapy when compared with those reporting spontaneous menopause. Experts recommend estrogen therapy for the management of postoperative symptoms and the abrupt onset of menopause symptoms for women who undergo hysterectomies, especially for those who have bilateral oophorectomies. Postoperative symptoms that may be improved with use of estrogen therapy include pain and depression. In addition, the use of estrogen therapy reportedly speeds up the healing process post-operatively. Predominant menopause symptoms that occur as a result of surgically induced menopause are vasomotor symptoms, insomnia, and urogenital atrophy. Cardiovascular disease risks also increase as a result of estrogen deficiency following hysterectomy with bilateral oophorectomy (Simon, Moore, Murphy, Hess, & Ravnikar, 2007). Reportedly, the use of estrogen therapy can also lower

cardiovascular disease risk in younger women with surgically induced menopause. An ancillary substudy of the WHI trial of conjugated equine estrogen on women aged 50-59, revealed lower calcified plaque, a marker for coronary artery disease, in the treatment group compared to placebo group. Results from this randomized trial suggest that the use of estrogen therapy for younger women with surgically induced menopause could lower their risks of atherosclerosis (Manson et al., 2007). However, estrogen therapy that is individualized and at lowest effective dose is recommended for reducing risks and optimizing benefits (Simon, Moore, Murphy, Hess, & Ravnikar, 2007). Other benefits of hormone therapy for those who transition to menopause at an earlier age could include bone density maintenance and lower risk of colon rectal cancer (Shoupe, 2011).

Menopause symptoms. Each of the specific menopause symptoms were associated with the other menopause symptoms, except for vaginal dryness and mood changes. Consistent with the review of literature (Carroll, 2010; North American Menopause Society, 2010), the most commonly reported symptoms in this study were hot flashes and night sweats. Mood changes, vaginal dryness, and loss of interest in sex were also in the top five symptoms reported by women in this study. According to Richardson (2005), although vasomotor symptoms (e.g., hot flashes and night sweats) are the most common symptoms reported by women who seek treatment/therapy options, mood changes and vaginal dryness are also symptoms reported by women seeking treatment/therapy.

A significant relationship between loss of interest in sex and marital status was also revealed. Women who were single, divorced, or widowed were less likely to report a loss of interest in sex as a symptom. Women who were not married or in a committed relationship may be less likely to report a loss of interest in sex due to fewer opportunities for situations that require decisions related to sexual activity. In addition, these women may fear that expressing a loss of interest in sex may be interpreted as a lack of interest in intimate relationships. Additionally, results from an online questionnaire examining the effect of menopause on sexual function revealed that 78% of the participants reported change in libido caused by menopause, with the majority reporting vaginal dryness as a factor in their loss of libido. However, only a small proportion had discussed this with their physician. Age also appeared to play a role in whether women sought treatment for vaginal dryness, with no perimenopausal women younger than 40 years reporting treatment, even though 78% of these women reported vaginal dryness as source of loss of libido (Cumming, Currie, Moncur, & Lee, 2009). Loss of libido may be a symptom not as readily discussed as other menopause symptoms. However, no studies were found that linked marital status to loss of interest in sex.

Another interesting finding related to menopause symptoms and marital status was that single, divorced, or widowed women were less likely to report night sweats when compared with married women or those in committed relationships. Although vasomotor symptoms, including night sweats, are some of the most frequently reported menopause symptoms, the occurrence of these symptoms varies across populations of women. In a

study involving randomly selected HMO medical records of women aged 45-55, only 36% of the women reported night sweats (Sievert, Obermeyer, & Price, 2005). Additionally, a systematic review of sixty-six papers focusing on prevalence of vasomotor symptoms in female populations from various geographic locations around the world, revealed that although vasomotor symptoms, including night sweats, are prevalent in most societies, various factors may influence their presence. Some of the factors that may influence the presence of vasomotor symptoms include climate, diet, lifestyle, women's roles, and attitudes toward menopause (Freeman & Sherif, 2007). However, in review of the literature, no associations were noted between marital status and night sweats.

Menopause knowledge and source of knowledge. Women who reported only little menopause knowledge were less likely to report physicians as their source of information compared to those who reported average or above average knowledge. Consequently, women who were reportedly less knowledgeable were less likely to have reported five plus years of treatment. Another notable finding related to source of knowledge, was the relationship revealed between source of knowledge and menopause symptoms in general, as well as specific symptoms including hot flashes, night sweats, mood changes, and sleep disturbances and insomnia. Women who reported physicians as their source of menopause knowledge were more likely than women who reported knowledge from other sources to report symptoms, and specifically the symptoms previously mentioned. Women who report physicians as their primary source of

knowledge may be more likely to have repeated visits to a healthcare provider, and are more likely to be questioned about menstrual status and consequently the presence of menopausal symptoms. This would especially be true if they are approaching average age for spontaneous menopause or if they had undergone surgically induced menopause.

Theory of Planned Behavior

Results that were most closely linked to the theoretical basis for this study include the significant relationships revealed between knowledge and treatment/therapy use, source of knowledge and treatment/therapy use, attitudes toward menopause and treatment/therapy use, general views toward menopause and treatment/therapy use, and views toward hormone therapy and treatment/therapy use. Women who reported little knowledge were less likely to report current treatment/therapy use compared to those who reported average or above average knowledge. This relationship corresponds to behavioral control beliefs. Knowledge, skills, and resources related to a behavior of focus increase the ability to make healthy decisions related to the behavior. The significant relationship revealed between source of knowledge and treatment/therapy use is most linked to the normative belief construct of the TPB, since women who reported physicians as their primary source of information about menopause were more likely to be currently using some type of menopause treatment/therapy than women who reported other sources of information. In this study, normative beliefs reflect the level of influence that other people's opinions about menopause have on the participants' menopause decisions. The results related to the behavioral belief construct of the TPB

include those related to attitudes and views toward menopause and hormone therapy. Women who considered menopause a natural part of the aging process that may require treatment, and those who considered menopause a natural part of the aging process that requires no treatment, were at significantly lesser odds for treatment/therapy use than those who considered menopause a medical condition requiring treatment. Additionally, those who had mixed general views toward menopause were more likely to report current treatment/therapy use than those who had positive or negative views toward menopause. Furthermore, women who had positive views toward hormone therapy were more likely to report current treatment/therapy use compared to women with negative or unsure views toward hormone therapy. A person's attitudes and views toward a target behavior influence their intention to engage in the behavior.

Limitations

Some of the limitations of this study relate to the design and selection process involved. This descriptive study included a purposeful convenience sample, and thus, the ability to generalize results to other populations of women is limited. As mentioned in the synopsis section of this chapter, participants in this study were predominantly white (88.3%), non-hispanic (98.5%), married (77.7%), employed (96.7%), and college graduates and postgraduates (79.2%). This limits the generalization of the results to women with other demographics, but does open the door for future research. Also, because a majority of the participants for this study were recruited from the faculty and staff of various school systems and one of the universities in Northeast Louisiana,

generalization to women of other geographic and socioeconomic groups is discouraged. The survey was administered via an internet site and, thus, was limited to respondents who had access to a computer and internet connection. Additionally, with self-report instruments there is always potential for information bias regardless of the format by which the instruments are administered. Another limitation of the instrument was the lack of descriptive information to better define the categories of health status and menopause knowledge. Adding definitions for categories would enable women to better evaluate their responses.

Implications for Health Education

A large proportion (49.3%) of the women in this study reported physicians as their primary source of menopause information, but postmenopausal women were reportedly more likely to obtain information from physicians than premenopausal and perimenopausal women. Postmenopausal women were also less likely to report only little knowledge about menopause. This presents an opportunity to educate women prior to cessation of menses about the possible symptoms that occur during the menopausal transition, treatment/therapy options, important health implications related to menopause in general, and benefits and risks related to decisions on the use of treatment/therapy.

Health educators can play a key role in providing information related to various treatment options, common menopause symptoms, maintenance of bone density, colon and rectal health, cardiovascular health, breast cancer, and other health implications related to the menopausal transition. There are many misconceptions related to

menopause, the symptoms a woman may encounter, and the possible treatments based on her health history. The health educator can help to dispel these misconceptions via community programs or educational sessions within the clinic setting.

Another avenue by which health educators can offer innovative strategies for menopause education is through social media outlets. According to a report in Nation's Health, health departments are already utilizing Facebook to promote their health campaigns. To assist health educators in the application of best practices for using social media, the Centers for Disease Control and Prevention has a new link in their health communicator toolbox especially designed for communication via social networks (Cunie, 2012). Social media offers a way to reach younger women so they may have accurate information before and during their menopausal transition. Health educators could develop peer-to-peer blogging or other social media outlets to foster communication between women to promote positive perceptions of this life transition and to dispel any inaccurate messaging.

Recommendations

Future studies that focus on minority populations would be valuable in providing an insight into the knowledge, attitudes, and other factors that influence their decisions related to menopause. Additionally, women who have hysterectomies well before the age of 50 are presented with health issues that typically plague older female populations like urogenital atrophy, bone density loss, and reduced libido. Thus, studies that evaluate knowledge, attitudes, treatment/therapy decisions, and short and long term health

implications of those who experienced surgically induced menopause could provide a better understanding of the unique challenges with which this population may be faced.

Additionally, future studies that focus on perimenopausal women, exclusively, would provide insight into menopause related knowledge, attitudes, and concerns of this menstrual status group. As this phase progresses over a period of years, it is important for women to receive accurate and timely information so they may make the most appropriate decisions based on their history and symptoms. Information gleaned from these studies would be useful in the development of health education and promotion programs for women as they are transitioning through the perimenopausal phase.

Finally, longitudinal studies should be conducted to delineate the benefits and risks associated with lower dosage transdermal hormone therapy and alternative therapies. Studies examining the benefit risk ratio of long term use of low dosage hormone therapies in younger women could be beneficial. Transdermal hormone therapy has emerged as a common form of hormonal therapy, and is believed to have a better benefit risk ratio since it can be administered at lower dosages than the traditional oral hormone therapies (Carroll, 2010).

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Appendix A

IRB Approval Letters & Human Participants Protection Training Certificates

TEXAS WOMAN'S UNIVERSITY
DENTON DALLAS HOUSTON

Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378 Fax 940-898-3416
e-mail: IRB@twu.edu

October 15, 2010

Ms. Tommie Church
7068 East Lake Rd.
Sterlington, LA 71280

Dear Ms. Church:

Re: Factors Affecting North Louisiana Women's Decisions Related to Menopause Therapy Options (Protocol #: 16289)

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to be exempt from further review.

If applicable, agency approval letters must be submitted to the IRB upon receipt PRIOR to any data collection at that agency. Because a signed consent form is not required for exempt studies, the filing of signatures of participants with the TWU IRB is not necessary.

Any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any unanticipated incidents. If you have any questions, please contact the TWU IRB.

Sincerely,

Kathy DeOrnellas, PhD.

Dr. Kathy DeOrnellas, Chair
Institutional Review Board - Denton

cc. Dr. Gay James, Department of Health Studies
Dr. Kristin Wiginton, Department of Health Studies
Graduate School

The University of Louisiana at Monroe

Institutional Review Board

Notice of Determination for Projects using Human Subjects

Protocol ID#:	187 -2010
Principal Investigator:	Tommie Church
Project Title:	Factors Affecting North Louisiana Women's Decisions Related to Menopause Therapy Options
Date Approved:	3/3/2010
Expiration Date:	3/3/2011

☑ 1) In accordance with the ULM Policy for the Protection of Human Subjects, the ULM Institutional Review Board reviewed and APPROVED this project on the above date. Note: The project is subject to continuing review and any conditions listed in the comments section below.

- ☐ a. This project has received FULL COMMITTEE REVIEW.
- ☑ b. This project has received EXPEDITED REVIEW.
- ☐ c. This project is exempt based on the following part and sections(s) of the ULM Policy for the Protection of Human Subjects:

☐ 2) In accordance with the ULM Policy for the Protection of Human Subjects, the ULM Institutional Review Board reviewed this project and have determined that this project does not meet IRB standards and is therefore DEFICIENT for the reasons listed in the comments section below.

Exempt because:

Comments:

Thank you for your submission. Please contact the Office of Sponsored Programs and Research if you require any further assistance.

Judy A. Fellows, Ph.D.
Chair, ULM's IRB

cc: PI's Department Head
IRB protocol file

Wednesday, March 03, 2010

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Kristin Wiginton** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 11/13/2008

Certification Number: 133542

Appendix B

Letters of Support from Organizations and Institutions

Tommie Church, M.Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church,

This letter is to inform you that I, Dr. Steven Dozier, Superintendent, Union Parish School System, support your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010, and that you will need to access the email addresses of faculty and staff from this school system in order to recruit participants for your study. This letter evidences my support of the study, and grants permission to access email addresses of members of the faculty and staff from the Union Parish School System for the purpose of recruitment.

Sincerely,

Dr. Steven Dozier
Superintendent
Union Parish School System

Re: Research change request

From : Lawanna Gilbert-Bell <lbell@ulm.edu> Tue, Aug 24, 2010 04:23 PM
Subject : Re: Research change request
To : Tommie Church <church@ulm.edu>

Good afternoon Tommie.

This is to inform you that the ULM Institutional Review Board has reviewed and approved your request to add the ULM faculty and staff to your participation group for your IRB proposal entitled "Factors Affecting North Louisiana Women's Decisions Related to Menopause Therapy Options".

Please let me know if there is anything further that you may need.

Thank you.

LaWanna Bell
Office of Sponsored Programs and Research
University of Louisiana at Monroe
700 University Avenue
Library Suite 211
Monroe, LA 71209-3925
lbell@ulm.edu
Ph: 318-342-1039
Fx: 318-342-1479

From: "Tommie Church" <church@ulm.edu>
To: "Lawanna Gilbert-Bell" <lbell@ulm.edu>
Sent: Wednesday, August 11, 2010 10:54:11 AM
Subject: Research change request

Lawanna,

The purpose of this email is to request the addition of the ULM Faculty and Staff to the participant section of my IRB proposal. I plan to send a bulk email to the faculty and staff of ULM with the purpose of recruiting participants that meet the criteria of my study. This is the only change that will be made to the proposal previously submitted and approved by ULM's Institutional Review Board.

Thank you,
Tommie Church

Instructor
Department of Kinesiology
Brown Hall 121
Phone: 342-1321

Tommie Church, M.Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church,

This letter is to inform you that I, Dr. Wayne R. Alford, Superintendent, Jackson Parish School System, support your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010, and that you will need to access the email addresses of faculty and staff from this school system in order to recruit participants for your study. This letter evidences my support of the study, and grants permission to access email addresses of members of the faculty and staff from the Jackson Parish School System for the purpose of recruitment.

Sincerely,

Wayne R. Alford

Dr. Wayne R. Alford
Superintendent
Jackson Parish School System

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100 Bry Street – P.O. Box 1642 – Monroe, Louisiana 71210-1642 – Phone: (318)432-5000 – Fax: (318)432-5320

Dr. Robert W. Webber
Superintendent
318-432-5204

August 11, 2010

Tommie Church, M.Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church,

This letter is to inform you that I, Dr. Robert Webber, Superintendent, Ouachita Parish School System, support your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010, and that you will need to access the email addresses of faculty and staff from this school system in order to recruit participants for your study. This letter evidences my support of the study and grants permission to access email addresses of members of the faculty and staff from the Ouachita Parish School System for the purpose of recruitment.

Sincerely,

Robert Webber, Ed.D.
Superintendent

RWW:ps

Ouachita Women's Tennis Association

P O Box 15053
Monroe, LA 71207

August 30, 2010

Tommie Church, M.Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church,

This letter is to inform you that the Ouachita Women's Tennis Association supports your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010. Our board voted, at our last meeting, that we will e-mail your participation request to our members who have shared their e-mail addresses. This letter evidences our support of the study.

Sincerely,

Debra L Blackman

Debra L Blackman, President

OFFICE OF
RICHLAND PARISH SCHOOL BOARD
CATHY STOCKTON
P. O. BOX 599
RAYVILLE, LOUISIANA 71269

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Robert Adams, District 5
Patricia Jordan, District 7
District 9

Tommie Church, M.Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church,

This letter is to inform you that I, Dr. Cathy Stockton, Superintendent, Richland Parish School System, support your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010, and that you will need to access the email addresses of faculty and staff from this school system in order to recruit participants for your study. This letter evidences my support of the study, and grants permission to access email addresses of members of the faculty and staff from the Richland Parish School System for the purpose of recruitment. *

Sincerely,

Cathy Stockton

Dr. Cathy Stockton
Superintendent
Richland Parish School System

* My administrator assistant, Rocky Tree will be your contact.

Phone: (318) 728-5964 Fax: (318) 728-4577 Website: www.richland.k12.la.us

FRANKLIN PARISH SCHOOL BOARD

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August 20, 2010

Mrs. Tommie Church, M. Ed.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church:

This letter is to inform you that I, Dr. Lanny Johnson, Superintendent, Franklin Parish School System, support your research study titled, "Factors that influence women's menopausal treatment option decisions".

It is my understanding the project will begin in August 2010, and that you will need to access the email address of faculty and staff from this school system in order to recruit participants for your study. This letter evidences my support of the study, and grants permission to access email addresses of members of the faculty and staff from the Franklin Parish School System for the purpose of recruitment.

Sincerely,

Lanny

Dr. Lanny Johnson
Superintendent

LJ:yb

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Caldwell Parish School Board

John R. Sartin, Superintendent

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Russell Flint Ward 2
Mark May Ward 3
Baron Glass Ward 4

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219 Main Street
Columbia, LA 71418
Ph. (318) 649-2689 Fax (318) 649-0636

C. R. Martin Ward 5
John Garrett Ward 6
Hershel Volentine Ward 7

August 31, 2010

Tommie Church, M. ED.
Kinesiology Department
University of Louisiana at Monroe
700 University Avenue
Monroe, LA 71209

Dear Mrs. Church:

RE: Letter of Support for Research Study, "Factors that influence women's menopausal treatment option decisions"

This letter is to inform you that I support your research study referenced above. It is my understanding that the project is to begin this month. In order that you may recruit participants from our school system, please send the recruitment requirements for your research to Merrick Morrow, mmorrow@caldwelledu.org, so that she can ask our personnel if they would be agreeable to voluntarily participate in this study.

Thank you for your inclusion of our school district in your study.

Sincerely,

John R. Sartin
Superintendent
CALDWELL PARISH SCHOOL SYSTEM

Appendix C

Informed Consent and Questionnaire

Principal Investigator: Tommie Church, M.Ed.

Title of Project: Factors affecting North Louisiana women's decisions related to menopause therapy options.

This Informed Consent describes the nature of the study. Therefore, it is important to read this information prior to making your decision as a potential participant. Participation in this survey gives informed consent and is strictly voluntary. You may exit the survey and have the right to not participate at any time prior to submitting it.

The purpose of this study is to determine factors that have an effect on decisions about therapy options for those women transitioning through menopause. It will also examine differences in attitudes, knowledge, and decisions related to menopause among women of various age groups, racial/ethnic backgrounds, socio/economic levels, and those with varying frequency of physician visits related to reproductive health.

Duration: It will take approximately 30 minutes to complete the menopause survey.

Possible Risks/Discomforts: *There is a potential risk of loss of confidentiality in all email, downloading, and internet transactions.* While there is always a potential risk of loss of confidentiality in all Internet transactions, the providers of Surveymonkey have addressed these concerns by placing surveys in a secure survey environment. You may choose to stop participating at any time during the research without penalty.

Financial Costs: None.

Possible Benefits: Participation in this study will provide additional health-related information related to women transitioning through menopause. Upon submitting the survey, participants may choose to enter a raffle for a $500 gift card by visiting a new website to which they will be directed. On this new website they can enter name, address, and phone number to be used in the drawing for the gift card; survey data and raffle information are not related to each other, and names will not be able to be connected, in any way, to data submitted in the survey.

Contact for Questions: Tommie Church, primary investigator (318-381-0359) or Dr. Kristin Wiginton, research advisor (940-898-2848).

Voluntary Participation: Participation in this study is completely voluntary. Participants may choose to stop participating at any time during the study. Questions that arise during the study may be directed to the principle investigator. The return/submission of your completed questionnaire constitutes your informed consent to act as a participant in this study.

Menopause Questionnaire

A. Demographic Information

1. To which of the following age groups do you belong?

- o 40-44 years old

- 45-50 years old
- 50-54 years old
- 55-60 years old

2. To which of the following best describes your ethnicity?

- Hispanic
- Non-Hispanic

3. Which of the following best describes your race?

- White
- Black or African American
- Asian
- American Indian or Alaskan Native
- Native Hawaiian or Pacific Islander
- Other

4. What is your current marital status?

- Single
- Married
- Divorced

- Widowed
- Committed relationship

5. Which best describes your current educational level?

- Less than high school diploma or GED
- High School Diploma or GED
- Some College
- College Graduate (B.S., B.A, etc.)
- Postgraduate (Master's or Doctorate)

6. Which of the following describes your current household income level?

- Household income less than $25,000 per year
- Household income $25,000 – 50,0000 per year
- Household income $50,000-75,000 per year
- Household income $75,000-100,000 per year
- Household income greater than $100,000 per year

7. Which of the following best describes your employment status?

- Unemployed
- Employed

- Retired
- Disabled

8. Which of the following best describes your current health insurance/ method of payment for medical expenses?

- PPO/ commercial health insurance (Example: Blue Cross/Blue Shield)
- HMO
- Medicaid
- Medicare
- Medicare + supplemental insurance
- Disability
- Self pay(out of pocket)/Uninsured
- Other (Explain/describe):

9. Which of the following best describes your current health status?

- Excellent health status
- Good health status
- Average health status
- Fair health status
- Poor health status

B. Menopause Information

10. Which of the following best describes your current menstrual status?

- Premenopausal (before menopause; having regular menstrual periods)

- Perimenopausal (changes in periods but have not gone 12 months without period)
- Postmenopausal (have not had a period in one or more years)

11. If you checked Postmenopausal, which of the following best describes the cause of your menopause?

- Spontaneous (naturally occurring menopause)
- Surgical (removal of ovaries)
- Due to chemotherapy or radiation therapy
- Other (Explain):

12. Have you ever experienced menopausal symptoms?

- Yes
- No

13. If you answered yes to question 11, check all of the following that apply:

- Hot flashes
- Night sweats
- Mood changes(irritability, nervousness, depression)
- Inability to concentrate
- Sleep disturbances or insomnia
- Vaginal dryness
- Loss of interest in sex
- Other (Explain/describe):

14. Which of the following best describes your attitude toward menopause?

- A natural part of the aging process that does not require treatment
- A natural part of the aging process that may require treatment
- A medical condition requiring treatment

15. How do you view menopause?
    - Positively(For example, menopause means no more periods or need for contraception)
    - Negatively(For example, menopause means loss of youth and fertility)
    - Mixed feelings regarding menopause
16. What is your current view on Hormone Therapy as treatment for menopause?
    - Positive(Hormone therapy is appropriate for some women)
    - Negative(I do not support the use of Hormone Therapy)
    - Unsure (I do not have enough knowledge or have no opinion)
17. How would you rate your knowledge about menopause and menopausal treatment options?
    - Very good
    - Moderate
    - Little knowledge
18. Which of the following is your primary source of information related to menopause? (Check only one.)
    - Books
    - Internet

- Magazines
- Friends or family members
- TV
- Physician/Heathcare provider

19. How often do you visit a physician/ heathcare provider regarding reproductive health?

- At least once a year
- Every 2-3 years
- Every 4-5 years
- Every 6-10 years
- Less often than every 10 years

20. Are you currently using some type of treatment/therapy for menopause?

- Yes
- No

21. If you answered yes to question 19, which of the following most influenced your decision to seek treatment/therapy? (Check only one.)

- Presence of menopausal symptoms
- Knowledge of benefits

- Advice of family members or friends
- Advice of Physician/healthcare provider
- Other (Explain):

22. If you answered **yes** to question 19, which of the following treatment options do you currently use? (Check only one.)

- Estrogen Hormone Therapy (Premarin, Climara, Estraderm, Estrace, etc.)
- Progesterone (Provera, Cycrin, Amen, etc.)
- Combined Hormone Therapy (Estrogen and Progestin such as Prempro, Premphase, etc.)
- Bioidentical Hormone Therapy
- Alternative Therapy (Examples: Black Cohosh, soy products, etc.) Please specify what type of Alternative Therapy used:
- Over the counter therapy (Example: Estroven) Please specify what type of OTC therapy used:
- Other (Explain):

23. If you answered yes to question 19, how long have you used your current treatment option?

- Less than one year
- 1-5 years

- 6-10 years
- 11-15 years
- 16-20 years
- Greater than 20 years

24. If you answered **no** to question 19, which of the following most influenced your decision not to seek treatment? (Check only one.)

- Lack of menopausal symptoms
- Concerns regarding the risks vs. benefits of treatment
- Advice of family members or friends
- Advice of Physician/healthcare provider
- Other (Explain):

25. If you are not currently using a treatment option but have used one in the past, **Or** you are currently using a treatment but used a different treatment option in the past, which type of treatment was previously used? (Check only one.)

- Estrogen Hormone Therapy (Premarin, Climara, Estraderm, Estrace,etc.)
- Progesterone (Provera, Cycrin, Amen, etc.)

- Combined Hormone Therapy (Estrogen and Progestin such as Prempro, Premphase, etc.)
- Bioidentical Hormone Therapy
- Alternative therapies (Examples: Black Cohosh, soy products) Please specify what type of alternative therapy you used:
- Over the counter therapy (Example: Estroven) Please specify what type of OTC therapy you used:
- Other (Explain):

26. If you used one of the above treatment options in the past, how long did you use the treatment option?

- Less than one year
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- Greater than 20 years

27. If you stopped using a menopause treatment option in the past, which of the following best describes reason for stopping treatment? (Choose only one)

- Side effects
- Concerns with risks

- No longer needed for alleviating menopausal symptoms
- Physician/healthcare provider advice
- Other (Explain):