

The Assessment of Women's Knowledge
of Menopause

by

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ABSTRACT

The purpose of this study was to assess the amount of knowledge women have about menopause, its symptoms, and treatment options with an emphasis on using exercise as management tool. Fifty-two women between the ages 40-65 years old volunteered to be participants. Two sites were utilized for data collection: the Capital Region (CR) site (29 participants) and the Central NY (CNY) site (23 participants). Results indicated that menopausal women have sought out information about menopause by discussions with a doctor in order to help manage their symptoms. Topics discussed most often with a doctor included osteoporosis, calcium supplements, exercise, healthy eating, weight, and emotional and mental health. Only a little more than half of the participants had discussed exercise with a doctor, expressing a greater need for improved communication on that topic. Women were generally satisfied at some level with the information they have received and believe that symptoms can be dealt with by using natural (non-HRT) methods though most women have not tried those methods. From analysis of this active cohort (> 82% being active 3 or more days per week) it was found that physical activity was not significantly correlated to lesser severity ratings of the top three most experienced symptoms. While not statistically significant in this study, other research has shown the importance of exercise to help aid women through this process and women in this cohort have adopted physical activity regimens to help cope with menopause. Sources, satisfaction of information, treatment options, physical activity associated with severity of symptoms, and interest of learning more were primary hypotheses of this study and while most were supported, physical activity and severity of symptoms needs further evaluation. Exercise still remains a highly suggested treatment option to help women deal with menopause.

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Chapter 1

Introduction

As women go through life, they approach the age in which they will experience menopause: the cessation of the menstrual cycle due to the slowed physiological production of estrogen (Saladin, 2004). Menopause can be a long process lasting from 2 to 15 years and typically occurs between the ages of 40 – 60 years old (Greendale et al., 1999). During menopause, women can go through different stages. Women can be classified as premenstrual, having a regular cycle with no symptoms accompanying it, perimenstrual, having irregular cycles and experiencing some symptoms, or postmenstrual, having no cycle for 12 months or more and experiencing menopausal symptoms. With menopause comes a wealth of physical, psychological, emotional, and physiological symptoms. Some of which include hot flashes, night sweats, memory loss, weight gain, depression, mood irregularities, urinary incontinence, vaginal dryness, and bone mineral density (BMD) loss (Woods & Mitchell, 2005). Some of these symptoms experienced by women have been severe enough to disrupt their daily lives and have caused them to seek treatment (Greendale, Lee, & Arrioloa, 1999).

In order to manage their symptoms, women have consulted an array of different sources to find treatment options. Hormone Replacement Therapy (HRT) has been prescribed to women to replace the females' reproductive hormones known as estrogen and progesterone to alleviate some the symptoms that come with menopause (NIH, 2007). In a 5-year study conducted by Vestergaard et al. (2003), a daily regimen consisting of estrogen and progestin was found to significantly reduce the hot flashes experienced by the women, and also reduce vaginal dryness and increase libido. However, like many other prescribed

medications, HRT can come with side-effects (depending on the regimen). Women may experience an increased risk of breast cancer and/or an increased risk of ovarian cancer (Schairer et al., 2000). While women may have a reduction in the amount or severity of symptoms, they are exposed to a greater threat of cancer and/or disease.

Alternative treatment options have also been sought after by menopausal women; treatments have included herbal treatments, dietary supplements, relaxation techniques including aromatherapy or touch therapy, and acupuncture (Kronenberg & Fugh-Berman, 2002). Studies conducted on treatments like herbal remedies and some dietary supplements have shown promise in providing some relief of the severity of symptoms. Pockaj et al. (2004) conducted a study using Remifemin (black cohosh) to help reduce the severity of hot flashes and the results showed just that; women experienced a reduction in hot flashes, fatigue, and mood changes after four weeks of taking Remifemin. Dietary supplements like food containing phytoestrogens have also been suggested to help lessen the severity of symptoms; however, strong evidential support is lacking (Kronenberg & Fugh-Berman, 2002).

Exercise as a treatment option has not always been seen as a way to relieve symptoms of menopause. There have been studies conducted on the effects of a regular regimen of daily exercise on the severity and frequency of symptoms (Mirzaiinjtabadi et al., 2007; Sternfeld, Quesenberry, & Husson, 1999). Sternfeld et al., (1999) reported that women who exercised regularly reported less moderate or severe hot flashes when compared with a control group. Mirzaiinjtabadi et al. (2006) also reported that after exercise, both premenstrual women and postmenstrual women experienced elevated levels of estrogen, which could lead to a decrease in severity of symptoms.

Exercise can also positively affect the loss of bone density. In a study conducted by Kerr, Ackland, Maslen, Morton, and Prince (2001), it was found that women who endured a two-year strength-training regimen with appropriate progressions showed an increase in BMD at the hip as compared to a control group. Exercise can be accessible to everyone, costs are minimal (if any), risks are low, and there is an array of positive effects that come from it. It is an uncommonly used treatment option for the management of menopausal symptoms despite the benefits it comes with (Nelson et al., 2007).

With all the literature and information available to women concerning this transitional period, it is hard to assess what women know about menopause without asking them. In order to understand where information is lacking about menopause and to better serve the population, researchers have designed studies to find out the feelings, beliefs, opinions, and overall knowledge of women. The most common method among these studies is the use of cross-sectional surveys given out to various female populations all over the world (Cheng, Wang, Wang, & Fuh, 2005; Genzanni, Schneider, Panay, & Nijland, 2006; Kaufert, Boggs, Ettinger, Woods, & Utian, 1998; Lee & Kim, 2008). Utian and Schiff (1994) conducted a survey in which they asked women about their level of knowledge of menopause, their feelings about it, and the severity of symptoms. Surveys have also addressed issues concerning where women get their information from. According to Utian and Schiff (1994), many women in the United States have received their information from a physician or magazines and journals. Objectives of these studies are similar; the researchers wish to identify obstacles for communication between physicians and patients and seek to improve upon it with the data they collect (Conboy, Domar, & O'Connell, 2001; Utian & Schiff, 1994).

Statement of the Problem

There is an abundance of information available to women to help increase their general knowledge about menopause and inform them about treatment options; however, it is difficult to ascertain whether the information about treatment options is actually getting to the female population and if it is helping with the management of menopausal symptoms.

Purpose of the study

The purpose of this study was to assess women's general knowledge of menopause and its symptoms. Particularly, the purpose was to find out what treatments women have tried and if those options have worked, especially exercise.

Research Questions

The research questions were as follows:

1. Where do women get most of their information from about menopause?
2. Are they satisfied with that information?
3. What menopausal issues have they discussed with their doctor including treatment options?
4. What treatment options have they tried?
5. Is there a positive correlation between exercise and severity of symptoms?
6. Would the women in this study be interested in finding out more about menopause?

Hypothesis

It was hypothesized that most women had gotten their information about menopause from physicians or the Internet and magazines. It was also hypothesized that exercise had been discussed as a treatment option, and that women were satisfied with the overall knowledge they had about menopause. In addition, it was hypothesized that there would be

positive correlation between exercise and severity of symptoms and that women would want to learn more about menopause.

Delimitations

The delimitations of the study were as follows:

1. Only women were included in the survey.
2. Only women who were given the survey were included.
3. Only women who were affiliated with a fitness facility in the Capital Region (CR) and/or the Central New York (CNY) area were asked to complete in this survey.

Limitations

The limitations of the study were as follows:

1. Small participant pool.
2. Lack of an ethnically diverse participant pool.

Assumptions

The assumptions were as follows:

1. All of the participants will answer the questions honestly and to the best of their ability.

Significance of Study

This study holds the potential for showing a greater need for information about menopause and treatment options as expressed by the women surveyed. It also can show whether or not women use exercise as a way to deal with their symptoms of menopause and if it works. If a positive correlation is found between the two, encouragement can be made to other women to use exercise as a means for symptom management. If it is found that women

are not satisfied with the information they have, adjustments to doctor visits can be suggested to facilitate better communication. Additionally, information can be made available through the use of educational sessions or group meetings thus allowing for gaps in knowledge to be addressed by other researchers to better serve this community.

Furthermore, women may be able to explore different treatment options to help manage their symptoms due to ideas that are presented in the survey itself. This research will add to existing knowledge by providing up-to-date data concerning what knowledge women have about menopause, what symptoms they experience, and their feelings on treatment options that are available to them. An end product of this research may include propositioning a Menopause Forum for women to go to and learn more about menopause if they would like to and possibly share their experiences so that they may help others.

Definition of Terms

Menopause: the transitional period in which a woman ceases to have a regular menstrual cycle (Greendale et al., 1999).

Symptoms: Signs and indications of menopause experienced by women during the menopausal transition (Hammond, 1997).

Exercise/Physical Activity: Physical exertion that requires a person to put effort upon doing an activity and raises heart rate for an extended period of time (Baechle & Earle, 2008).

Hot Flashes/Flushes: A symptom of menopause in which a woman may experience a rise in body temperature lasting seconds to minutes (Gallicchio et al., 2006). Hot flashes and hot flushes will be used interchangeably within this thesis.

BMD: Bone mineral density (Baechle & Earle, 2008).

CAM: Complementary and Alternative Medicine (Kronenberg & Fugh-Berman, 2002).

Chapter 2

Review of Literature

Menopause will eventually affect every natural-born woman in the world.

Menopause, and the transitional periods that surround it, is the cessation of a woman's menstrual cycle and her inability to continue to bear children (Greendale et al., 1999; Shangold & Sherman, 1998). Most women experience this phase of life between the ages of 40 and 60 years old (Gold et al., 2001; Greendale et al., 1999). Along with the cessation of menses, comes an array of physiological, physical, and emotional symptoms. Some of these symptoms include hot flashes, urogenital atrophy, depression, estrogen loss, and osteoporosis (Hammond, 1997; Shangold & Sherman, 1998; Woods & Sullivan, 2005). According to Shangold and Sherman (1998), menopausal women account for 80% of Americans who are diagnosed with osteoporosis, a degenerative disease that causes rapid losses in bone mineral density (BMD). There are options for women to help manage their symptoms, but it is uncertain what they know, what they have tried, and where they are getting their information. Some research has found that exercise training can help women manage their symptoms and also positively affect the bone density loss experienced by menopausal women (Heinonen, Oja, Sievanen, Pasanen, & Vuori, 1998; Shangold & Sherman, 1998). One way to help women during this phase is by assessing what women know about menopause and the treatment options that are available to them (with an emphasis on exercise to help manage their symptoms and how they feel about the information that they are receiving). This review of literature will discuss: a) menopause, b) the symptoms of menopause, c) some treatment options to manage symptoms (including the

use of exercise), and d) attempt to unveil what research has been done to understand what women know about menopause.

Menopause

As stated before, menopause is the end of the menstrual cycle. It can occur naturally or be induced surgically, depending on the circumstances of the individual. Women who experience natural menopause have no surgical interventions that are used to induce the final menses; cessation of menses will simply occur on its own (Gold et al., 2001). According to Gold et al. (2001), a study found that the median age for natural menses was 50 years old with an age range from around 49-52 years old. With natural menopause, the woman experiences ovarian follicle loss and subsequent changes in hormone levels, particularly in estrogen and progesterone (Gallicchio et al., 2006). Estrogen and progesterone are hormones that are responsible for creating and maintaining the endometrium (among other responsibilities) in a woman's uterus (Saladin, 2004). Surgical menopause can occur through having medical procedures such as hysterectomies (primarily the removal of the uterus), bilateral oophorectomies (removal of just the ovaries), or a combination of both; it is estimated that over 570,000 hysterectomies are performed each year (Gallicchio et al., 2006). As some hysterectomies do not include the removal of the ovaries, menopause may not occur immediately after having the procedure. Hysterectomies may however induce an earlier transition into menopause as compared to if the woman had experienced natural menopause (Gallicchio et al., 2006). Both types of menopause, natural and surgical, still result in the decrease of estrogen, which in turn leads to the various symptoms experienced by menopausal women. A difference between natural and surgical (aside from organ removal) lies within the timing of the onset of menopause (Gallicchio et al. 2006).

Population

Women are the sex that experience menopause (Greendale et al., 1999). A large portion of the population in the United States is made up of women experiencing menopause and/or the transitional periods that surround it. According to Greendale et al. (1999), common terms that are used to classify which transitional period of menopause women are experiencing are: premenopausal, perimenopausal, menopausal, and postmenopausal periods. The premenopausal period includes women that have a regular menstrual flow and experience little to no menopausal symptoms. The perimenopausal period includes women that may experience irregular bleeding patterns and suffer from some menopausal symptoms. This is the largest transitional period, as menopause does not occur abruptly. Postmenopausal women are defined as not having a menstrual cycle for 12 months consecutively or more (Greendale et al., 1999). From previous studies and research, the average age in which women are most likely to experience menopause is estimated to be around 50 years old with an onset of perimenopause being around age of 49 years old. (Rymer & Morris, 2000). Generally, this age range is commonly referred to as middle-aged. Most studies have shown that menopause occurs around the mean age of 50 years old with a range of plus or minus 1.5 years (Lee & Kim, 2008; Mirzaiinj Mabadi et al., 2006). Some research has described the range of menopause anywhere from 40 to 55 years old (Torpy, 2003). As the experience of menopause holds no discrimination towards race and/or ethnicity, socioeconomic status, geographic location, and/or culture, many studies have been conducted exploring any differences between populations (Cheng et al., 2005; Gold et al., 2001; Nelson et al., 2007). Differences were not defined by race/ethnicity; rather they were based on individual circumstances (Nelson et al., 2007). Differences regarding the onset of

menopause, the common symptoms experienced around menopause, the attitudes and beliefs about menopause, and the general knowledge about menopause have also been explored among various populations (Cheng et al., 2005; Conboy et al., 2001; Mirzaiinj Mabadi et al., 2006). Some of the various differences studied included educational background and non-employment of women. These differences have been associated with an earlier onset age of menopause according to Gold et al. (2001).

Women can be classified as experiencing menopause early or late as compared to the median age. Non-Caucasian women, including African-American women and Hispanic women, have been reported to experience menopause at an earlier age than Caucasian women, while Asian women experience menopause at a similar age as Caucasian women (Gold et al., 2001). Late menopause can be classified as any onset after 55 years old (Torpy, 2003).

Symptoms

As previously stated there are many symptoms associated with experiencing the last menses. The most commonly reported symptoms by menopausal women are as follows: depressed mood, hot flashes/flushes, irritability, sleep disturbances, forgetfulness, lowered sexual desire/decreased arousal, sexual dysfunction, vaginal dryness, irregular bleeding, urinary incontinence, body aches, stiff joints, weight gain, decline in muscle strength, and bone loss (Shangold & Sherman, 1998; Woods & Mitchell, 2005). Women who are perimenopausal or postmenopausal can experience one or more of these symptoms.

Women of all stages can experience hot flashes and night sweats. Greendale et al. (1999) found that women have reported hot flashes to be occasional or frequent, lasting from mere seconds all the way up to an hour. Women who seek treatment for hot flashes usually

do so because of the disruption it can cause in daily life (Greendale et al., 1999; Hammond, 1997). The Study of Women's Health Across the Nation, (SWAN), concluded that more than one quarter of the women involved in the study (4632 out of more than 16,000) reported difficulty sleeping which is when these symptoms typically occur (Woods & Mitchell, 2005).

When concerned with sexual symptoms, it is reported from the data of the Massachusetts Women's Health Study conducted from 1982 to 1987, that menopausal status (being classified as perimenopausal or postmenopausal) was related to having less desire to be involved in sexual intercourse (Woods & Mitchell, 2005). Also, the prevalence of sexual dysfunction rose as women became postmenopausal from 42% to 88%; a trend is also noted that as women age a decrease in sexual activity is experienced (Greendale et al., 1999; Woods & Mitchell, 2005). The symptoms experienced during menopause are believed to have a negative effect on sexual interest as well (Greendale et al., 1999).

Mood irregularities can occur during this period including depression, distress, memory loss, and irritability (Greendale et al., 1999; Shangold & Sherman 1998). Greendale et al. (1999) found a strong association between depression and menopause. However, menopause may not be the only cause of depression as women might already be predisposed towards having it. There have been high scores for depression related to poor perceived health which may not necessarily be due to menopause (Greendale et al., 1999); however, the perception of health could be related to the weight gain that some women experience as they go through menopause (Greendale et al., 1999; Shangold & Sherman 1998). Other irregularities may lie within the cognitive aspect of women. According to Woods and Mitchell (2005), women do report forgetfulness or memory issues; even still few women

have rated these issues as serious. Also, these cognitive issues may not be attributed only to menopause as mentioned by the women in the SWAN study (Woods & Mitchell, 2005). The symptom of weight gain during menopause is discussed later in the paper.

Bone Mineral Density

Bone mineral density (BMD) refers to the amount of mineral that is deposited on a particular area of bone (Baechle & Earle, 2008). Bone consists of two types: trabecular (spongy) and cortical (compact) bone; most bone consists of trabecular (Baechle & Earle, 2008). Osteoporosis can occur after a sustained period of bone maintenance that lasts until about age 30, followed by reduction of bone mass of .5% to 1% annually until age 40 when bone loss accelerates greatly, increasing the most about 5 to 10 years after menopause (Baechle & Earle, 2008; Shangold & Sherman, 1998). There are certain sites in which BMD is measured most often and they are: the distal wrist, the midshaft of the radius, the lumbar spine, and the hip (Kritz-Silverstein & Barrett-Connor, 1993). A cause and effect relationship exists between menopause and osteoporosis as menopause can cause osteoporosis. This is concluded due to the higher amounts of fractures caused by osteoporosis in postmenopausal women as compared to premenopausal women (Greendale et al., 1999). As bone loss is experienced by all sexes after achieving peak bone mass, the difference of how much bone loss women experience is affected by the stage of menopause they are in as well as the age at which they have their final menses (Baechle & Earle, 2008; Kritz-Silverstein & Barrett-Connor, 1993). According to Kritz-Silverstein and Barrett-Connor (1993), women who went through menopause early experienced a disadvantage in retaining BMD (regardless of natural or surgical menopause) as compared to women who experienced menopause at a later stage in life.

The decline in BMD can be attributed to the deficiency of estrogen in menopausal women; however, that is not the only influential factor (Hammond, 1997; Shangold & Sherman, 1998). Low intake of dietary calcium has also been associated with and contributes to the decrease in BMD (Baechle & Earle, 2008; Hammond, 1997). As calcium levels in the blood decrease, calcium is extracted from bone to meet the physiological demands of the body, adding to the depletion of BMD (Saladin, 2004). Other risk factors associated with declining BMD can include cigarette smoking, race/ethnicity, peak bone mass, as well as, sedentary lifestyle and thinness (Hammond, 1997).

The depletion experienced in BMD during menopause can have serious repercussions. Osteoporotic fractures occur most frequently in the lumbar spine, proximal femur, and distal forearm with wrist fractures being most common in perimenopausal women, and hip fractures being most common among postmenopausal women (Cummings & Melton, 2002). Sustained hip fractures are associated with extended hospital stays due to chronic illness and can be a possible cause of mortality. Vertebral fractures can cause physical deformities and back pain. Regardless of the location of the fracture, all types of fractures can cause financial disparities on the individual who sustains them. Osteoporotic fractures may land a person in the hospital, nursing home, or requiring daily home care (Cummings & Melton, 2002).

Treatment Options

After finding that menopausal symptoms can disrupt women's everyday lives, different treatment options have been sought after to better manage menopause. Women have used an array of various methods and/or dietary substances in order to gain control during this difficult period. From doctors, women seek hormone replacement therapy (HRT)

and from local drug stores, women have sought dietary supplements simply to lessen the negative impact of their symptoms (Hammond, 1997).

Hormone Replacement Therapy (HRT).

According to the National Institutes of Health (NIH), HRT is when a woman is prescribed a specific dose of hormones to replenish or replace the hormones she used to make (2007). These hormones are usually estrogen and/or progesterone, also known as the female reproductive hormones. The treatment's purpose is to increase the level of hormones as to prevent or alleviate some of the signs and vasomotor symptoms like hot flashes (Vestergaard et al., 2003). In a 5-year study conducted by Vestergaard et al. (2003), researchers found that estrogen and progestin positively affected the women in the HRT group by showing a significant reduction in hot flashes, sleeping difficulties related to hot flashes, vaginal dryness, and dyspareunia. Additionally, an increase in libido was also noted. The women in the HRT group followed a regimen of taking a 2mg pill of Estrodial once a day for 12 days, 2mg of Estrodial and 1 mg of Norethisterone Acetate for 10 days followed by 1mg of Estrodial for another 6 days totaling 28 days of treatment.

Some women who have tried HRT expressed concern with this type of treatment due to the potential increased risks of cancer and/or disease. In 2005, a study entitled the European Menopause Study was conducted in which women were asked to express their thoughts, opinions, and concerns about HRT. The results showed that of the women who knew of HRT as a treatment option, the number one risk they were concerned with was breast cancer, followed by developing cancer in general. The women who had used HRT at some point as a treatment option ended up stopping treatment primarily because of adverse effects and secondly because of the risk of developing breast cancer. Most of these women

in the study received their information from magazines or newspapers (approximately 49%), and television or radio (approximately 32%). Only 28% of the women who participated in this study received their information from their doctors (Genazzani et al., 2006).

These apprehensions and fears about an increased risk of developing breast cancer or disease do not come without support. In a follow-up study by Schairer et al. (2000), researchers examined an increased risk of cancer due to the use of HRT. It was found that estrogen and progestin combined as a treatment was associated with an increased risk in breast cancer as compared to using estrogen alone as a treatment. Another study by Lacey et al. (2002), examined the risks of developing ovarian cancer while using HRT. Lacey et al. (2002) found that women who followed a regimen of estrogen only for ten or more years experienced a greater increased risk of ovarian cancer as compared to short-term estrogen and progestin therapy. While some forms and regimens of HRT do make positive changes for women concerning their quality of life and managing menopause symptoms, it is not without inherent risks similar to other prescribed medications. These risks that come with taking HRT have lead some women to seek out help in other non-traditional fields (Genazzani et al., 2006).

Alternative Treatments.

In order to gain some control over the symptoms experienced and the severity of those symptoms, women have turned to what is referred to as Complementary and Alternative Medicine, also known as CAM, to help them in this on-going battle (Kronenberg & Fugh-Berman, 2002). Examples of CAM treatments include: herbal treatments, dietary supplements, relaxation techniques like aromatherapy or touch therapy, and acupuncture (Kronenberg & Fugh-Berman, 2002). Although research is lacking in this area for long-term

trials, the sparse research that has been conducted shows some promising beneficial effects in managing menopause symptoms among certain herbal remedies and dietary supplements (Pockaj et al., 2004). In a study conducted by Pockaj et al. (2004), women between the ages of 38-80 with a history of breast cancer and who experienced on average 8.3 hot flashes per day were given a regimen of Remifemin (black cohosh). The women took one pill of Remifemin twice a day for four weeks of the five-week study. At the end of the four weeks, there was a significant reduction in hot flash activity as reported by the women participating (Pockaj et al., 2004).

Other dietary supplements like soy products containing isoflavones have been explored to identify potential beneficial effects on menopause symptoms; however, strong clinical research to support this is lacking. There is speculation that due to the diets rich in phytoestrogens like that in Japan, China, and Korea, women in those countries tend to show less prevalence in reporting menopause symptoms (Kronenberg & Fugh-Berman, 2002). Another management technique that could potentially positively affect an array of symptoms is physical activity or exercise. The symptoms of weight gain and bone mineral loss can be specifically addressed by exercise.

Weight gain is another symptom experienced by menopausal women. Sternfeld et al. (2004) found that postmenopausal women had greater total fat mass when compared to premenopausal women. Reasons for the increased fat mass (especially in the abdominal region of postmenopausal women) could be due to estrogen depletion. It was also found that postmenopausal women had greater waist-to-hip ratio as compared to premenopausal women even after accounting for age (Sternfeld et al., 2004).

Bone loss is an issue not only affecting menopausal women, but it also affects men at midlife. However, it occurs much more rapidly in women who are estrogen deficient, which usually occurs during menopause (Hammond, 1997). Bone loss can result in osteopenia (low bone mass), which can turn into osteoporosis (loss of bone density) if not addressed and treated (Shangold & Sherman, 1998).

Exercise Training.

In a study conducted by Sternfeld et al. (1999), the researchers found that perimenopausal women who exercised regularly, reported hot flashes that were classified as moderate or severe, with less prevalence when compared to a control group. They also speculated that the short-term rise in beta-endorphins after vigorous activity could provide acute protective effects as well. Physical activity can have potentially positive effects on all women no matter where they are in the transitional period of menopause (Shangold & Sherman, 1998). Mirzaiinjmaadi, Anderson, and Barnes (2006) stated that after exercise, both pre- and postmenopausal women showed an increased level of estrogens. This increase in estrogen level after exercise may lead to a decrease in the severity of menopausal symptoms in that stage of life.

Exercise can have effects on mood as well (Nelson et al., 2007). Sternfeld et al. (1999) concludes that physical activity is directly related to positive moods and contributes to a general well being. Nelson et al. (2007) conducted a study examining physical activity and its effect on menopausal symptoms and found that higher activity levels among urban women were associated with lower levels of stress. The higher activity levels were also associated with lower levels of depressive symptoms and perceived stress and anxiety.

After examining changes in weight and waist circumference in midlife women, Sternfeld et al. (2004) found that women involved in higher levels of physical activity (a daily exercise routine) had lower weights and waist circumferences than compared to those who were not engaged in physical activity on a daily basis. They also found that women who increased activity levels had the least amount of weight gain.

The question of what is the appropriate and successful way to replenish BMD in menopausal women still remains. One method to replenish BMD is through resistance training. Resistance training can include any activity that stresses the bone such as walking or any high-impact loading exercises (Baechle & Earle, 2008; Shangold & Sherman, 1998). Certain exercises that are classified as high-impact loading for the lower body, have been shown to increase BMD in important areas of the hips and spine (Baechle & Earle, 2008). Thus BMD loading at a younger age will help to maximize peak bone mass, putting women with higher peak bone mass at an advantage due to having a greater starting value before experiencing bone loss (Kritz-Silverstein & Barrett-Connor, 1993). These techniques of loading the bones have been researched on pre- and postmenopausal women (Heinonen et al., 1998). Additionally, exercise and/or athletic activity has also shown that BMD does increase within the college age group by eliciting maximal osteogenic stimuli (Baechle & Earle, 2008).

For any person, regardless of age, mechanical stress put on bone is necessary for bone maintenance (Basse, Rothwell, Littlewood, & Pye, 1998). Exercise and physical activity of a certain type, frequency, and duration have shown to increase BMD and maintain existing levels of BMD in menopausal women (Basse et al., 1998; Pluijm et al., 2001). Women who live a sedentary lifestyle with little to no physical exercise/activity have

been shown to have lower BMD when compared to their counterparts who regularly participated in exercise (Shangold & Sherman, 1998). Women who walked 20 minutes or more per day had a positive association with total hip BMD when compared to women who did not walk (Pluijm et al., 2001). According to a study conducted by Kerr et al. (2001), postmenopausal women who endured a strength-training regimen over the course of two years showed a significant increase in BMD at the intertrochanter hip site. In another study conducted by Heinonen et al. (1998), results showed that perimenopausal women had maintained BMD in the femoral neck due to a regimen of high intensity (around 70% of VO_2 max) multi-exercise endurance training over an 18-month period. Subsequently, a study by Bassey et al. (1998) also illustrated that the discontinuation of an exercise training regimen involving weight-bearing exercises results in decreases of any BMD gained and slowly diminishes returning back to baseline.

According to Miller et al. (2004) increases in BMD at the lumbar spine and femoral neck of the hip could be due to the responsiveness of trabecular bone compared to cortical bone, as those sites are composed of a higher ratio of trabecular to cortical bone. The researchers indicated that the greater metabolic rate of trabecular bone makes it more responsive to exercise and weight-bearing activity than cortical bone. It is seen primarily in the spine and hip because the spine consists of 66% trabecular bone and the hip consists of about 25% trabecular bone. Another study by Stevenson et al. (1989) speculated that differences of BMD after exercise interventions can lie within the composition ratio of trabecular bone to cortical bone, as there is more metabolic activity in trabecular bone.

Women's Knowledge

As more research is conducted about menopause, more information becomes available to address the issues associated with it. However, an issue that still remains is determining how much of that new information is getting back to the population that it is intended to serve. In order to discover what women know about menopause, researchers have developed surveys to assess women's knowledge, attitudes, experiences, and beliefs of menopause (Conboy et al, 2007; Lee & Kim, 2008). Many surveys that have already been conducted about menopause are cross-sectional surveys whose participants included middle-aged women (Conboy, Domar, & O'Connell, 2001; Lee & Kim, 2008). Additionally, there have been longitudinal surveys conducted regarding the changes that come along with the onset of menopause (Mansfield & Voda, 1997).

There are certain consistencies within surveys when exploring women's knowledge about menopause and its related issues. Along with the age of the population, many of the objectives of these studies are similar as well. The researchers want to assess women's knowledge about menopause, identify symptoms and the severity of those symptoms, and identify women's feelings about menopause (Lee & Kim, 2008; Utian & Schiff, 1994). Previous research has found that many women in the United States receive their information about menopause from a physician or from magazines and journals (Utian & Schiff, 1994).

Demographics have been used in surveys to observe correlations between symptoms and educational level, marital status, household income, exercise, and state of depression as researchers hope to make generalizations about certain populations (Lee & Kim, 2008). A study by Utian and Schiff (1994), included a survey on issues of information sources, satisfaction of information, and discussions with doctors about menopause, treatment

options, symptoms, and severity of symptoms. Their objectives were to determine women's knowledge about menopause, to identify the obstacles that prevent effective physician/patient communication, and to define the issues that concern women who are over the age of 45 years old (Utian & Schiff, 1994). Conboy et al. (2001) employed a survey that discussed similar matters including types and severity of symptoms. Each item on these surveys presented less than minimal risk (no more risk than what risk they have in everyday, normal activity) and provided greater benefits to the women after data analysis.

Summary

Menopause can be a climacteric period in a woman's life and the more knowledge that is gained through research could help lessen the physical and physiological downfalls of this experience. There is an array of treatment options available from which many women have employed in an attempt to decrease the severity of their symptoms during this tumultuous period. However, with the wealth of information that is available to women, it is difficult to ascertain whether they are actually utilizing that information for their own benefit. Information can be abundant about HRT, but not about CAM. Additionally, information about exercise and how it could be used as a treatment option is lacking. As compared to the other treatment options, exercise has virtually no adverse effects and presents multiple benefits. It imposes no increased risk of breast cancer and can reduce the risks of cardiovascular disease. A positive correlation is seen with exercise and/or physical activity especially with BMD in premenopausal women, perimenopausal women, and postmenopausal women (Heinonen et al., 1998; Kerr et al., 2001; Lee & Kim, 2008). Low bone mass is experienced by most people after a certain age, most noted in the female menopausal population. However, it can be slowed through regimens of exercise of certain

intensities, frequencies, and durations (Heinonen et al., 1998; Mirzaiinj Mabadi et al., 2006). There is a lack of research within this field regarding what women specifically know about exercise/physical activity and how it can better the quality of life for them through this transitional time. In order to better equip women with dealing with menopause, it is important to understand what knowledge they already have and determine what information they are seeking. Assessing women's knowledge is an important factor in furthering research in menopause; it will help researchers supplement that existing knowledge with new information. While surveys have been conducted to expose the thoughts, feelings, and attitudes towards menopause, there is still a need for current perspectives to address the situations that women are facing today.

Chapter 3

Methodology

The purpose of the study was to assess what women know about menopause, the symptoms that come with menopause, and knowledge of the treatment options available to them. Data were collected directly from women in order to obtain their thoughts about menopause. The following section will examine: a) the population, b) the research, c) the procedures, and d) data analysis.

Population

Women ages 40-65 years old were asked to participate in this research due to the fact that menopause occurs only in the female population. The age range was selected based on previous research conducted in this field; it is the median age when women go through menopause. Women who did not fall in this age range were excluded from the data collection. Religion, ethnicity, and/or socioeconomic status did not determine the participation of women in this research. The targeted population was recruited from two separate sites; one in Central NY, (which is referred to as CNY) at a fitness facility, and the other in the Capital Region of NY (which is referred to as CR) at a fitness facility. The study surveyed 52 women, 23 from CNY and 29 from CR. Many of the women were in the range of 52-57 years old (38.5% of the total amount surveyed).

Design

A cross-sectional survey consisting of 16 questions was used to assess the information that women know about menopause. The questions came from a study conducted by Utian and Schiff in 1994; permission to use these questions was obtained via email correspondence with the clinician (Utian & Schiff, 1994). Questions concerning

demographics were also asked for comparative purposes only. It was not a main concern within the research. The survey can be found in Appendix A. Surveys are relatively inexpensive to create and distribute and can potentially reach a broad participant pool (Thomas et al., 2005). Surveys in this context are used in order to classify symptoms, beliefs, and attitudes that face a large population and offer insight as to what most women are experiencing (Thomas et al., 2005).

Methods

Prior to the start of this study, the CNY site and CR site were contacted and asked for their assistance with the recruitment of women to be participants in this research. Permission was granted to conduct this study within their facility, specifically targeting exercise classes containing the women needed for this study (permission letters can be found in Appendix D and E). Upon IRB approval, women were asked to participate voluntarily in this research either before or after an exercise class (the IRB approval letter can be found in Appendix C). The membership director of the CR site and CNY site handed the survey out in paper format. The directors explained that this is a voluntary survey to be used for completion of a Master's thesis and would not affect their membership at the facility whatsoever. The women were asked not to leave any identifying markers on the paper as this survey was to be completed anonymously. An informed consent statement was at the top of each survey explaining to the women that they were free to withdraw at any time and that upon completing the survey, they had given their consent to be a part of this research (see Appendix B). Informed consent documentation was not collected, as it would have been the only identifying documents involved in this data collection. After they finished answering all the questions, they returned the completed survey to the director. The

collection of surveys that took place at the CR site was over the course of two days and the collection of surveys that took place at the CNY site was over the course of four days. Both periods of collection included a Saturday and Sunday in hopes of reaching more participants than during a weekday. Surveys were collected, organized, and coded (which survey came from which site) to be considered during analysis.

Pilot Study

In the fall semester of 2008, a pilot study, using this survey, was conducted among 40 women. The women were recruited through a mutual contact and were given the survey via email by that mutual contact. Similar to this current procedure, participants remained anonymous throughout the process. The survey was received well by the women who participated. The women, by observation of the mutual contact as well as feedback she received, seemed very interested in the topic and were eager to take part in the survey. The survey stimulated discussion about menopause among the women who participated. Based on the feedback from the pilot study, it appeared that if conducted as an actual research study, the population needed would be easily obtained. The exact procedures were used in this current study with the exception of distributing the survey in paper format as opposed to an electronic version via email.

Data Analysis

The statistical analysis program Predictive Analysis Software (PASW) by SPSS was used by the researcher. Data from the surveys were first entered into a Microsoft Excel spreadsheet and then saved so that it could be transferred into the PASW program once the variables were set up. Nonparametric statistical tests at the .05 alpha level were run for the nominal data. These tests included Chi Square, and Spearman rank correlations to examine

the associations between variables. For each question in the survey, frequencies were generated to show descriptive statistics for the participants. Frequency, percent, valid percent, and cumulative percent were given for each answer choice. Nonparametric correlations were run for age range compared to period of menopause, as well as site, range, and period. For example, Spearman's r_s were calculated to determine if a relationship existed between age range and period of menopause, the results are discussed further in chapter 4.

Chapter 4

Results and Discussion

For this study, data were collected from volunteer participants aged 40-65 years old. At the Capital Region (CR) site, 29 (55.8%) women completed the survey, and at the Central NY (CNY) site, 23 (44.2%) women completed the 16 item survey for a total of 52 participants with a mean age of 56 years old. No differences were found between the two sites so both will be discussed as one cohort.

Demographic information was collected within this survey among questions 1, 2, 3, 4, and 5. The age range, period of menopause, education level, ethnicity, and if they had a hysterectomy or oophorectomy were asked so that this study's results may be used to compare the results found in other studies. In Figure 1, these demographics are given. The results are inclusive of only those women who answered that particular question. The largest group of women fell within the age range of 52-57 years old. Most women have not had a hysterectomy or oophorectomy. The majority of the women categorized themselves as postmenopausal and Caucasian women, with all participants having at minimum a high school degree for level of education. The level of education within this cohort is not representative of the typical population.

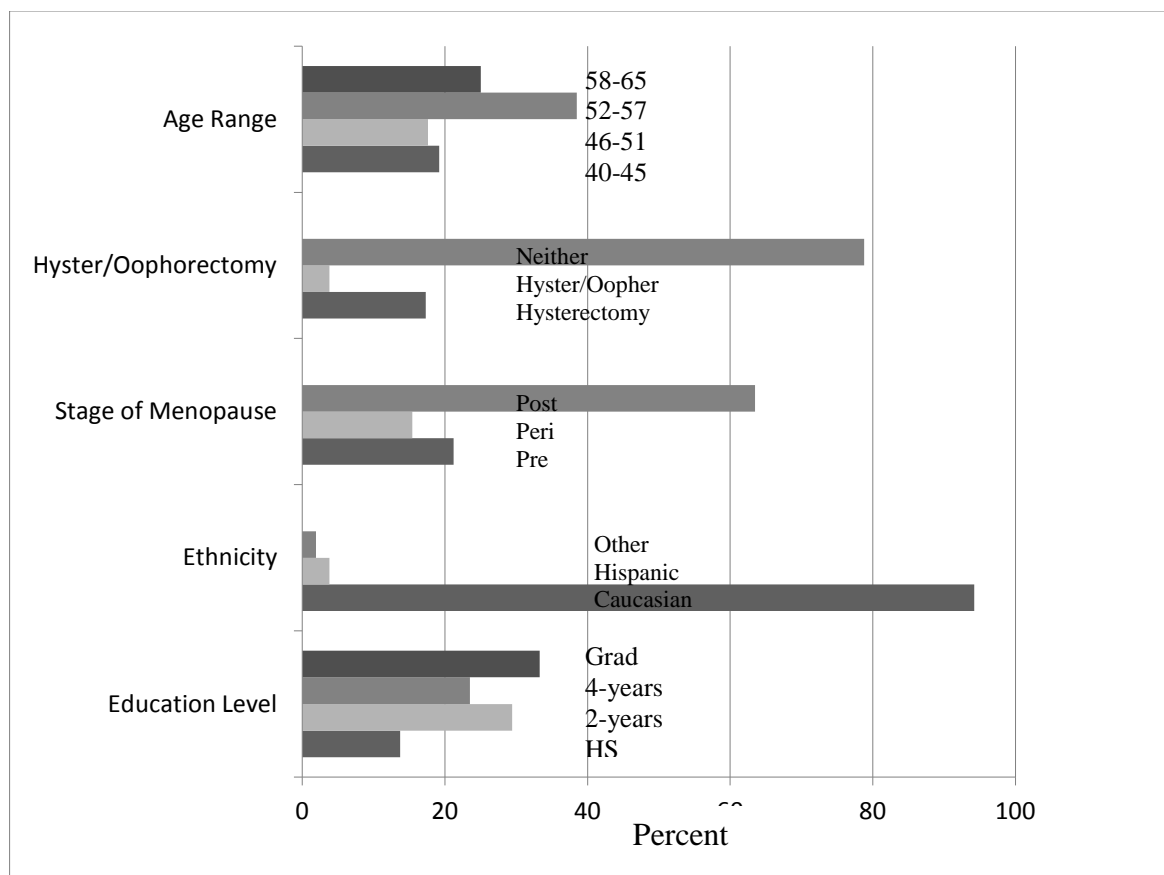


Figure 1. Demographics of the population surveyed. Subdivisions of each question are given (N = 52).

Participants were asked about where they received information and their satisfaction of that information, respectively. Responses are shown in Figure 2. Most women received their information from their Obstetrician/Gynecologist (OB/GYN) with their General Practitioner (GP) as the second highest source of information. Most women who responded to question 8 felt somewhat satisfied with the information they have received. No one who responded to this question felt very dissatisfied with their information.

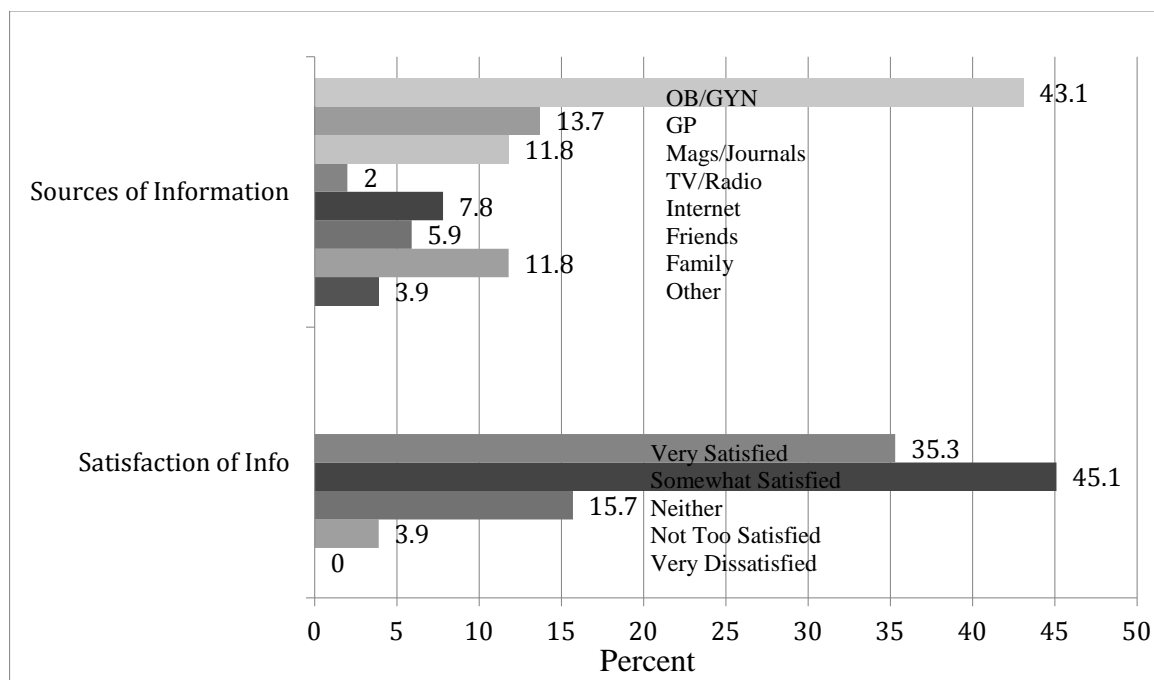


Figure 2. Most commonly used sources of information and satisfaction of those sources given in percents (N = 51 for both questions).

For physical activity, question 6, the four answer choices were dichotomized into two groups. The women who said they were physically active for either 1-2 days per week or not active on any day of the week, were classified as less physically active and those who were active for 3-4 days per week or 5 or more days per week were classified as more physically active. As seen in Figure 3, 15.4% of women were classified as less physically active during a given week, and 82.7% were considered more physically active during a given week. Overall, this cohort of women was very active.

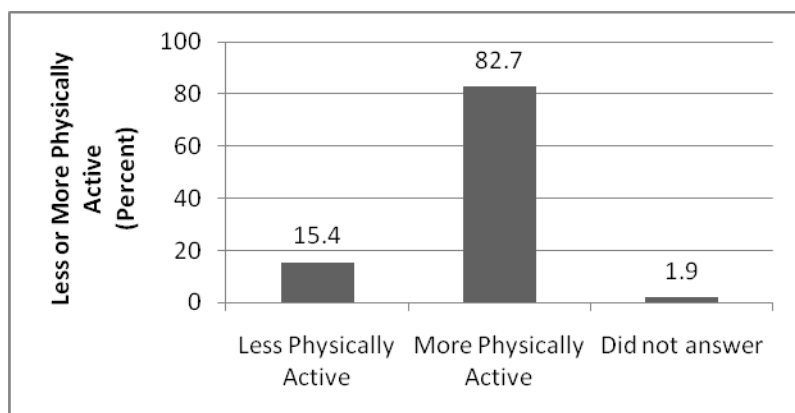


Figure 3. Dichotomy of Physical Activity; women indicated if they were more physically active or less physically active (N = 52).

Question 9 asked women about their discussions of menopause with a doctor. Three quarters of the women said they had discussed menopause with a doctor, while 25% said they had not. Figure 4 depicts the topics women had or had not discussed with their doctor. The most common topic discussed was osteoporosis followed by calcium supplements. The least discussed topic was emotional and mental health.

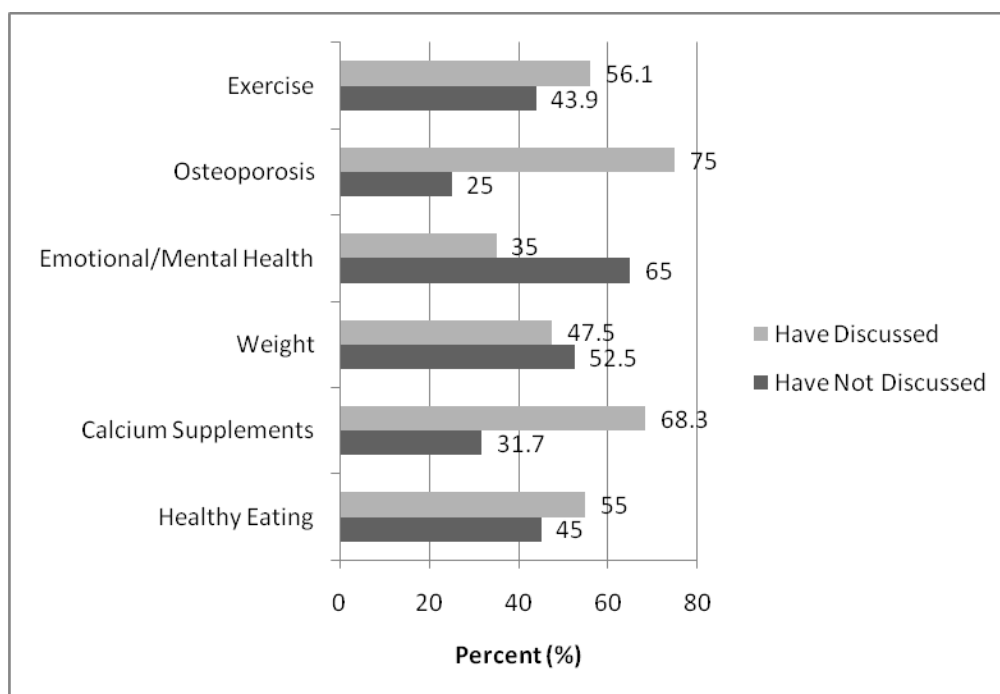


Figure 4. Percent of women who discussed or did not discussed given topics with a doctor (N = 52).

The women were asked how much time (if any) they spent discussing these matters about menopause. Responses are shown in Figure 5 with the percentages given for each time frame. Usually, more than half of the women have discussed these topics with a doctor, the most frequent time range was 5 – 10 minutes with the second most frequent range being 10-15 minutes.

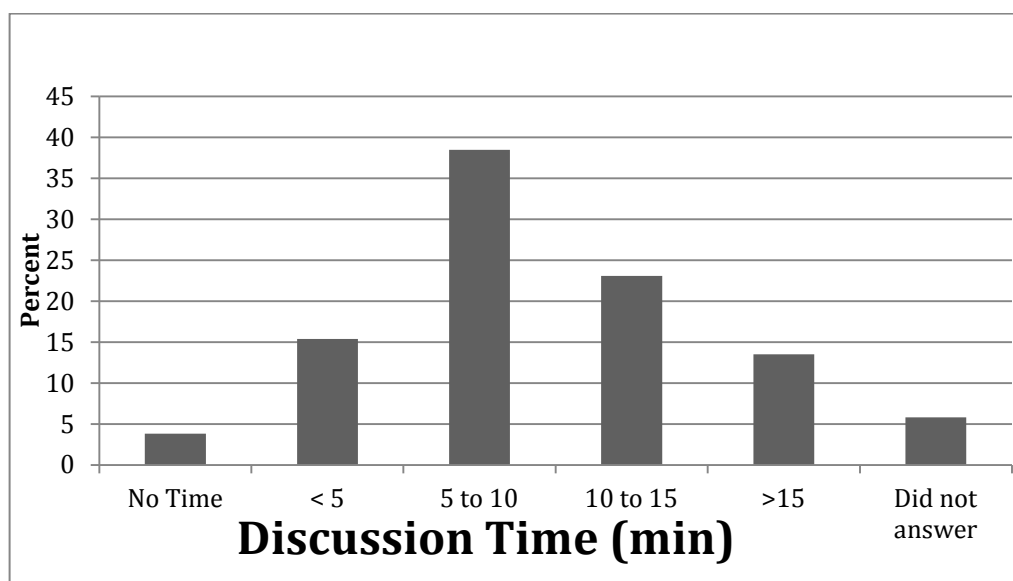


Figure 5. Discussion time in minutes of various topics between the patient and the doctor given in percentages (N = 52).

The following statement, “menopausal conditions can be treated with natural approaches such as healthy eating, vitamins, and exercise, not only by prescription hormones,” was presented to the women. They were asked if they agreed or disagreed to that statement. Most women agreed, indicating that they believed there are other methods to manage symptoms associated with menopause; they are not limited to prescription hormones for relief (refer to Figure 6).

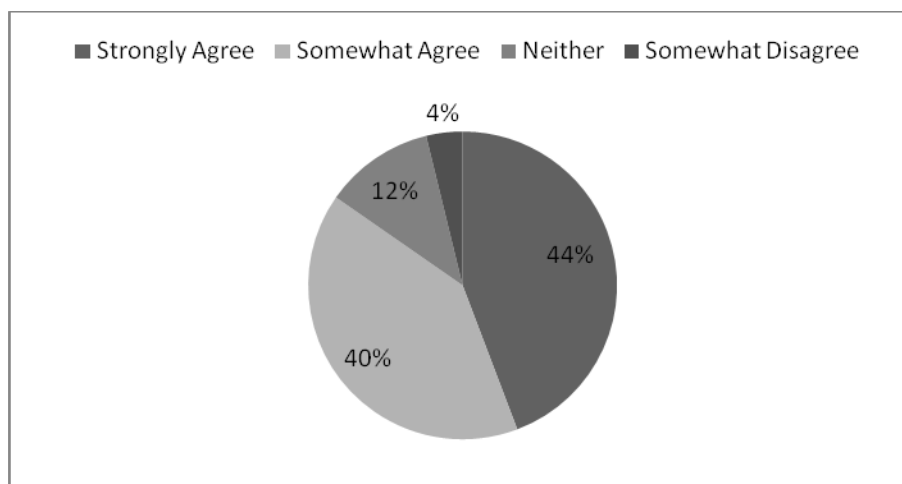


Figure 6. Level of agreement to the statement, “menopausal conditions can be treated with natural approaches such as healthy eating, vitamins, and exercise, not only by prescription hormones,” (N = 52).

Women were asked about hormone replacement therapy (HRT) and whether or not they have taken it or are currently on HRT. As shown in Figure 7, most women had not nor were currently on HRT. Women were also asked if they have tried natural treatments to help cope with menopausal symptoms simply in a yes or no fashion. Only 26.9% of women have taken HRT or are currently on HRT, while 34.6% of women have tried natural treatments to deal with symptoms (see Figure 7).

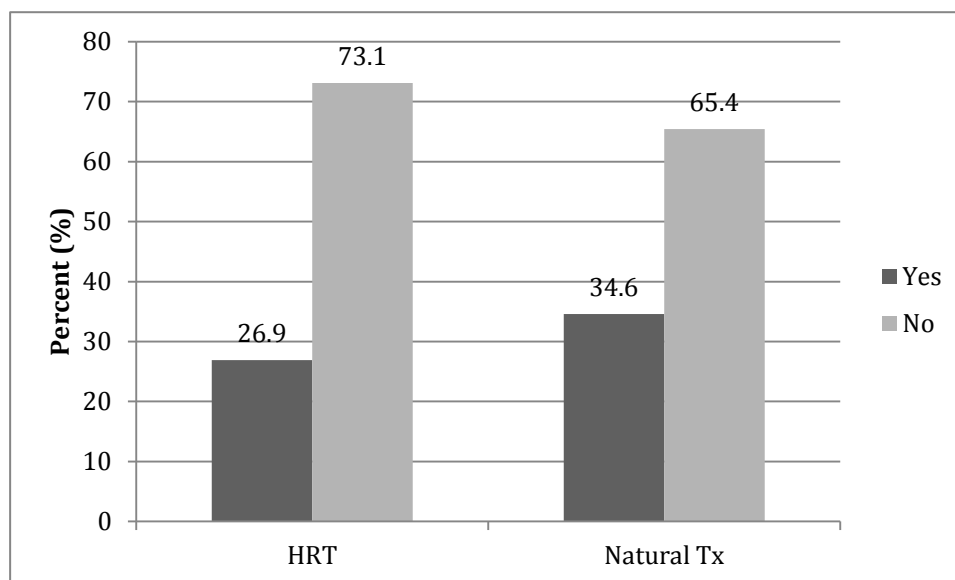


Figure 7. Percentage of women who have or have not taken HRT and women who have tried or have not tried Natural Treatment (N = 52 for both questions).

Women were asked to identify the symptom(s) they were experiencing and to rate those symptom(s) on a scale from 0-3; zero being the least severe, one being somewhat severe, two being moderately severe, and three being the most severe rating. The top four symptoms out of a list of fourteen were hot flashes, troubled sleeping, vaginal dryness, and weight gain. The severity rating that was selected most frequently was a rating of 1, somewhat severe. Figure 8 gives the response percentages for each symptom listed in greater detail.

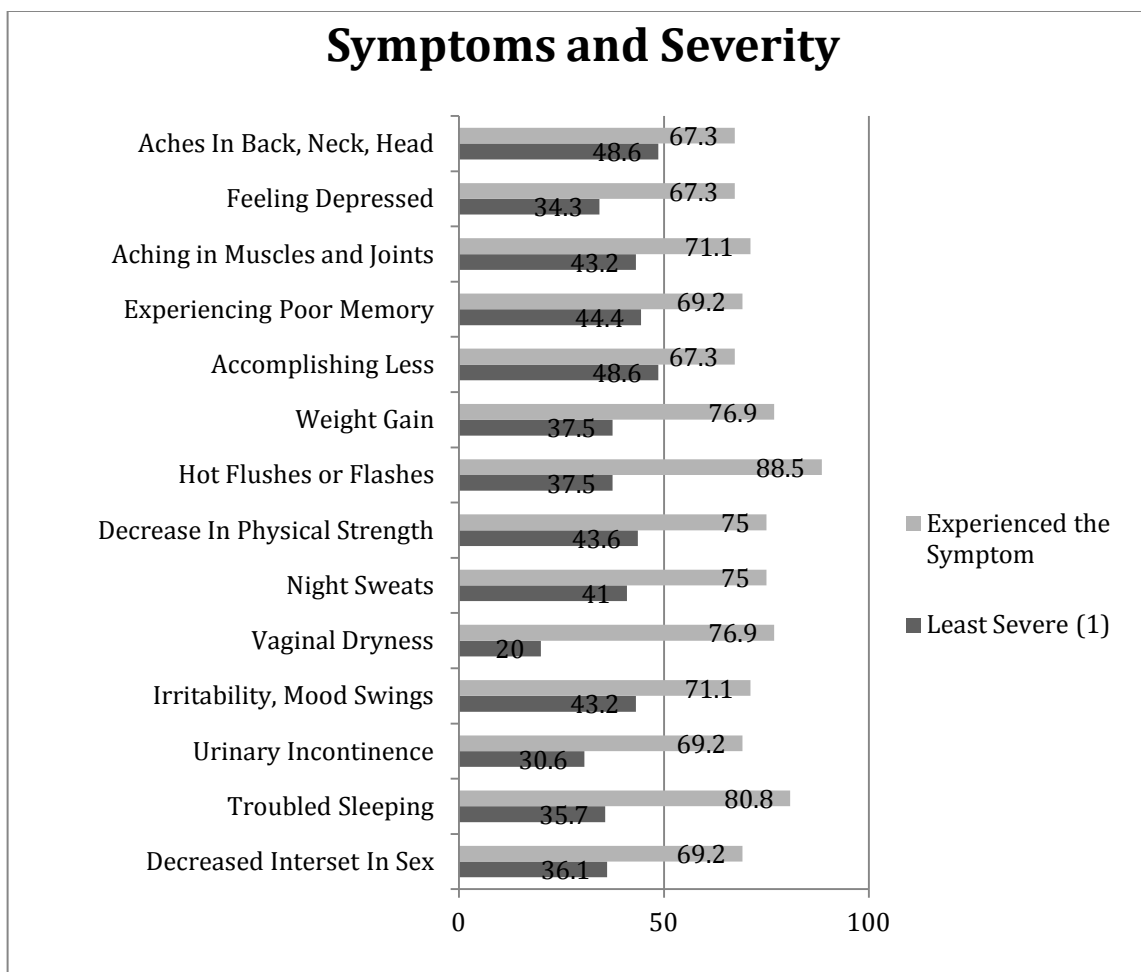


Figure 8. The percentage of women who have experienced the given symptoms and the most frequent rating of least severe (N = 52).

Women were asked if they had talked to a doctor about exercise and after talking with a doctor had then adopted a physical activity regimen to help cope with menopause. The response options included: yes, I have started one, no, but I plan to start one, I'm currently engaged in one, and no, I have no plans to start one. Responses can be seen in figure 9. It would appear that most women see exercise as a way to deal with menopause. However, the results in this question are misleading due to the fact that only 56% of women earlier in the survey had responded that they discussed exercise with a doctor. It could also indicate selection bias due to the fact that women were surveyed at fitness facilities.

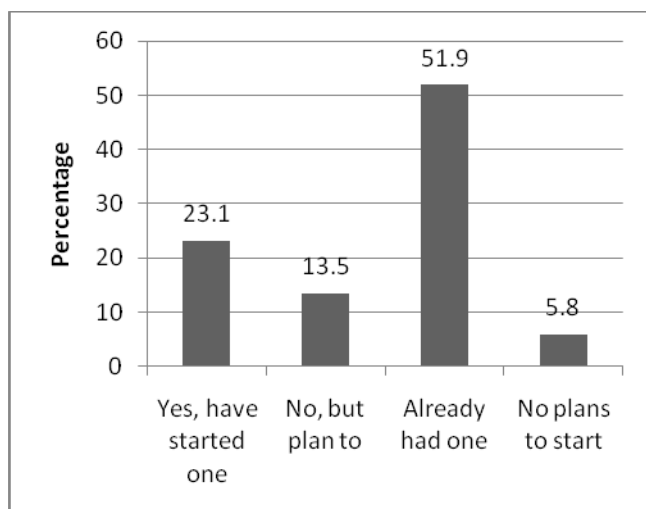


Figure 9. Percentage of women who have adopted a physical regimen to help cope with menopausal symptoms (N = 49).

Finally, women were asked if they would be interested in attending an education class about menopause; a little more than half (55%) of the women said they would not be interested in attending a class geared towards menopause.

Nonparametric tests, Spearman's rank correlations, were run to show correlations among some of the identifying data. There was a significant positive correlation between age range and period of menopause ($r_s = .696, N = 52, p \leq .010$, two-tailed). Not surprisingly, the older women identified themselves as being in a later stage of menopause. There was also a significant negative correlation between site and period of menopause ($r_s = -.354, N = 52, p = .010$, two-tailed). Nonparametric tests for correlation (Spearman's r) were run for the variables found in Table 1, none of these relationships were found to be significant upon analysis.

Table 1

Nonparametric Measures Found Insignificant Between Survey Variables

Variables	Number	Spearman's r
1. Sources of Info & Satisfaction of Info	51	.249
2. Education Level & Discussion w/ Dr.	51	-.064
3. P.A. & Weight Gain	52	-.054
4. P.A. & Hot Flushes	52	-.043
5. P.A. & Troubled Sleeping	52	-.123
6. P.A. & Agreement	52	.250

Note. P.A. = Physical Activity. Significance is at the $p \leq 0.05$ level.

Discussion

Two different sites were used for the collection of this data. Based on the analysis, no differences were found between the two sites. The CNY site had 23 completed surveys, while the CR site had 29 completed surveys. After combining all the surveys, the majority of the women classified themselves as postmenopausal and fell into the age range of 52-65 years old. The nonparametric test of Spearman's r between age range and period of menopause was found to be a positive correlation; as age increased, the stage of menopause was later. There was also a negative correlation between site and age range. From this result it can be concluded that the CR site (site one) had a younger population than the CNY site (site two). Most of the women surveyed (78.8%) had never had a hysterectomy or an

oophorectomy and had experienced what is called natural menopause (Gallicchio et al., 2006). Most of the women described themselves as being Caucasian (94.2%) and had completed the education of a high school degree or higher (100%).

For physical activity, it was found that 82.7% of the women surveyed were active three days or more per week for 20 minutes or more. This was not a surprising finding seeing that the surveys were given out facilities that encourage fitness and physical activity. Had the surveys been handed out to women at other types of facilities besides just fitness centers, the results may have been significantly different. A majority of the women (43.1%) did receive most of their information about menopause primarily from their OB/Gyn. The general practitioner selection was the second most sought after source (13.7%), with magazines/journals and friends sharing the third most popular source for information (both at 11.8%).

The hypothesis that women would receive most of their information from a physician was supported; magazines were another main source. However, the Internet as an information source was only fifth out of the eight options available for women to choose from. It's a surprising finding especially within this technological advanced setting and the ease in which information can be obtained by searching the internet. This finding is inconsistent with Clinkingbeard et al. (1999) Conboy et al. (2001), as the both cited magazines as the primary source for women to learn about menopause and other health issues. This could imply that there has been more communication about menopause between physicians and patients since those surveys have been done. However, it cannot be completely conclusive due to the nature of the small population surveyed in this study.

Overall, the majority of the women in this survey indicated that they were satisfied at some level about the information they have received concerning menopause. This finding is consistent with Utian and Schiff (1994), who also found that most of the women were satisfied with their information about menopause. The results have proven the third hypothesis correct which was that the women are satisfied with the overall knowledge or information they have about menopause.

Most women (75%), said they had discussed menopause and its related issues with a doctor. Of those women, most have discussed the topics of exercise, osteoporosis, calcium, and healthy eating (56.1%, 75%, 68.3%, and 52.4% respectively). On average, 5-10 minutes were used to discuss these issues and some women were able to spend 10-15 minutes with their doctor. While a majority of the women have not tried natural treatments to help lessen the severity of symptoms, most of the women do agree that natural treatments like healthy eating, vitamins, and exercise can help treat menopausal symptoms. Concerning exercise as a way to cope with symptoms, about half of the women (51.9%) were already engaged in an exercise program, while 26.6% of the women have started one or plan to start one. This finding could be taken in different ways. It could imply that women are hopeful that exercise will help them through this process, which has been found to work for some women (Sternfeld et al., 1999) or it could be a coincidental finding among this very active cohort.

Hot flashes were the number one symptom experienced by these women; they rated their hot flashes as somewhat severe to moderately severe, which are not an uncommon finding among women going through menopause (Woods & Mitchell, 2005). Troubled sleeping was the second most experienced symptom, with weight gain and vaginal dryness tied as the third most experienced symptom. Decreases in strength and night sweats were

both the fourth most experienced symptom. For the majority of the symptoms experienced, women rated them as somewhat severe, or 1, the most. Nonparametric tests for correlation were run concerning level of physical activity and these top 3 symptoms however, none of the results revealed a significant positive correlation between physical activity and severity of symptoms. Therefore, it cannot be concluded that higher levels of physical activity are associated with lesser severities of symptoms. As a result, the hypothesis of having a positive correlation between exercise and severity of symptoms was not supported at this time. A reason for this finding could be a limited amount of low-level physical activity respondents.

A surprising result was that more than half of the women were not interested in attending an informational session to learn more about menopause. Perhaps a reason for this is because most of the women surveyed were postmenopausal and had therefore already obtained a desired amount of information during their experience with menopause. Younger women in their 40's and early 50's may be more receptive to the idea of attending informational sessions compared to an older population.

Chapter 5

Summary, Conclusions, and Recommendations for Future Research

The purpose of this research was to assess women's general knowledge about menopause and gain some insight into what their experiences are like today. The specific research questions of interest were: 1) Where do women get most of their information from? 2) Are they satisfied with the information they have? 3) What menopausal issues including treatment options have they discussed with a doctor if any? 4) What treatment options have they tried? 5) Is there a positive correlation between exercise and severity of symptoms? 6) Would they be interested in finding out more about menopause? As these were the primary questions that answers were sought after, the descriptive questions that were asked in this survey can offer insight to help explain why some of these results were obtained.

Summary

Upon completion of this research, it can be concluded that most women in this study are generally satisfied with the information about menopause they have received from their gynecologists, general practitioners, and the journals they have read. The topics these women have discussed with a physician include osteoporosis, calcium supplements, healthy eating, exercise, weight issues, and emotional and mental health. According to survey results, exercise was only discussed by 56% of women showing there is a greater need for this potential option to be a part of the discussion between physicians and patients. Most women in this study have not tried naturalistic ways to help cope with menopause nor have most women taken HRT as a way to deal with it. There was not a significant correlation between exercise and the severity of symptoms indicating that, for this particular group of women, exercise did not play a role in reducing the severity of symptoms. While this

hypothesis wasn't supported here, other research has shown precisely that; that exercise does in fact positively affect women's experience with menopausal symptoms.

Conclusions

The goal of assessing women's overall knowledge about menopause has been accomplished with this study. What was discovered was that women do seek information about menopausal issues and treatment options from a doctor if given the opportunity. They take the initiative to discover ways to diminish the impact menopausal symptoms have on their daily lives, like exercise, and not necessarily seeking HRT for relief. Since it was found that only a little more than half of the women had discussed exercise with a doctor, and other research has shown its importance in derailing the severity of symptoms experienced, it can be understood from this study that more information about this treatment options needs to have a greater presence within doctor-patient communications. It is still suggested that women continue to be physically active throughout this process in hopes of maintaining and improving their overall health.

There is always a need to periodically assess what women know, what women are trying in regards to coping with menopausal symptoms, and how they feel about the information that is available to them. There are hopes that from this study, that the women who participated feel they can discuss more matters concerning menopause with their physicians. From a research perspective, more thorough surveys can be drawn up to better assess women's thoughts and feelings about menopause and obtain more in depth responses concerning this topic.

Limitations

The goal for this study was to reach 100 women from two different sites and survey them about their knowledge of menopause. Only 52 women were reached and successfully completed the survey. Not many significant results were found from this data and it could be due to the small number of participants in this study. Another reason for the small amount of participants could have been the short amount of time the surveys were made available to the targeted populations. The data collection period only lasted two to four days, which is not a lot of time for potential participants to be recruited and surveys filled out.

Another limitation stems from the use of specific facilities to do participant recruitment. At both sites, two fitness facilities were used to do the recruiting which may have skewed some of the results. If the surveys had been handed out in a wider array of facilities and not just fitness centers, a broader population could have been reached. In reaching a broader population, more generalizable conclusions may have been drawn. The overall recruitment process was also inadequate for this study. Attempts to alert the target population about an ongoing research study at early dates other than right before the surveys were distributed may have gotten a better response both in numbers of participants as well as quality of answers (some participants may have felt rushed and did not take enough time to properly fill out the survey if their schedules did not allow time for filling out surveys).

The results of this study may have also been different if there was a more diverse population. A more diverse population could have also made the findings of this study more generalizable to a broader population. Like suspected, the majority of the women in this study were Caucasian. The socioeconomic classes of the participants which has potential to

change the results due to the fact that people in different situations experience things differently, was not known.

Suggested Future Research

While this study served its original purpose of assessing women's knowledge of menopause, it did so on somewhat of a small scale. For future research, this survey could be amended to include more specific information to enhance the study; information like their socioeconomic status, asking the age in which the women experienced menopause, and questioning why someone is not interested in learning more about menopause. Again, distribution to a broader population including a variety of facilities and areas would also be helpful. This particular survey also did not give the option for women to write in responses and perhaps with that option more information concerning these topics about menopause can be gathered and assessed.

This research study targeted a particular age range and while it was meant to do so, maybe opening up the age range will allow for different needs to be expressed by women not yet going through menopause. Also if a positive correlation was found with exercise and severity of symptoms, maybe finding out what type of exercise programs women were involved in could help guide other researchers in determining which programs offer the greatest help in managing symptoms.

One of the results revealed that women agreed that menopause conditions can be treated with natural methods, yet most women in this study had not tried those methods. It would be interesting to find out why women had not tried these techniques personally, yet had agreed natural methods would work.

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*Appendix A***Research Survey**

Your participation in this survey will only be used for research purposes. I am looking to find out how much women (aged 40-65) know about menopause, its symptoms, and exercise. You can expect to spend about 5-10 minutes completing the survey and will only be asked to complete it once. Your participation in this research is completely voluntary and you can stop taking the survey at anytime with no repercussions. This survey is meant to be anonymous so please do not leave any identifying markings on the survey. By completing the survey you are giving consent on your participation in this research. Thank you!

Circle the most appropriate answer (s) for each question.

1. Please select the age range that you fall into:
 - A. 40-45 years old
 - B. 46-51 years old
 - C. 52-57 years old
 - D. 58-65 years old

2. Please select the menopausal transition period in which you are currently in:
 - A. Premenopausal (Regular menstruation w/out menopausal symptoms)
 - B. Perimenopausal (Experiencing menopausal symptoms, irregular cycle, have had menstruation in past 12 months)
 - C. Postmenopausal (12 month or more without a menstrual cycle)

3. Have you had a surgical procedure like a hysterectomy and/or oophorectomy?
 - A. Yes, I've had a hysterectomy
 - B. Yes, I've had an oophorectomy
 - C. Yes, I've had both a hysterectomy and oophorectomy
 - D. No, I've had neither a hysterectomy nor an oophorectomy

4. For demographic purposes only, please indicate your ethnicity:
 - A. Caucasian
 - B. African American
 - C. Hispanic
 - D. Asian
 - E. Western European
 - F. Middle Eastern
 - G. Other

5. Please indicate the level of education you have completed:
 - A. Less than high school
 - B. High School
 - C. 2- year College
 - D. 4- year College
 - E. Graduate College

6. Please indicate your level of physical activity for a typical week in the past month:
 - A. Not active on any day (< 20 minutes each day)
 - B. Active for 1-2 days (\geq 20 minutes each day)
 - C. Active for 3-4 days (\geq 20 minutes each day)
 - D. Active for 5 or more days (\geq 20 minutes each day)

7. Where do you get **most** of your information about menopause and other health issues? (Select 1 choice)
 - A. OB-GYN
 - B. General practitioner/ Family practitioner
 - C. Magazines/Journals
 - D. Television/Radio
 - E. Internet
 - F. Friends
 - G. Family (mother, sister, etc.)
 - H. Other

8. Overall, how satisfied are you with the information about menopause that you have gotten from all sources? Would you say you are:
 - 1 - Very Satisfied
 - 2 – Somewhat Satisfied
 - 3 – Neither satisfied nor dissatisfied
 - 4 – Not too satisfied
 - 5 – Not at all satisfied

9. Have you discussed menopause or its related conditions with a doctor?
 - A. Yes
 - B. No

If you answered yes, please answer Questions #9 and #10
If you answered no, please proceed to Question #11

10. Please select what you have discussed with a doctor from the following, choose all that apply:
 - A. Exercise
 - B. Osteoporosis
 - C. Emotional or mental health problems
 - D. Losing or gaining weight
 - E. Calcium supplements
 - F. Healthy eating

11. About how much time, if any, did the doctor take to discuss these matters?
- A. None/no time
 - B. Less than five minutes
 - C. Five to ten minutes
 - D. Ten to fifteen minutes
 - E. More than fifteen minutes
12. Menopausal conditions can be treated with natural approaches, such as healthy eating, vitamins, and exercise, not only by prescription hormones. Do you agree/disagree with this statement?
- 1 – Strongly Agree
 - 2 – Somewhat Agree
 - 3 – Neither agree nor disagree
 - 4 – Somewhat Disagree
 - 5 – Strongly Disagree
13. Have you ever taken, or are you currently, taking any prescription hormone replacement therapy?
- A. Yes
 - B. No
 - C. Decline to Answer
14. Have you tried “natural” treatments to help lessen the severity of menopause symptoms? “Natural” treatments include: dietary supplements and/or herbal supplements (isoflavones, calcium, soy products)
- A. Yes
 - B. No
 - C. Decline to answer

15. Please indicate any or all of the symptoms in which you currently experience and indicate the severity for each symptom (0- being the least severe to 3- being the most severe):

	Least			
Most				
A. Aches in back or neck or head	0	1	2	3
B. Feeling depressed, down or blue	0	1	2	3
C. Aching in muscles and joints	0	1	2	3
D. Experiencing poor memory	0	1	2	3
E. Accomplishing less than use to	0	1	2	3
F. Weight gain	0	1	2	3
G. Hot flushes or flashes	0	1	2	3
H. Decrease in physical strength	0	1	2	3
I. Night sweats	0	1	2	3
J. Vaginal dryness	0	1	2	3
K. Irritability, mood swings	0	1	2	3
L. Urinary incontinence	0	1	2	3
M. Troubled Sleeping	0	1	2	3
N. Decreased interest in sex	0	1	2	3

16. If you have talked to a physician about exercise, have you adopted a physical exercise regimen to help cope with menopause?
- A. Yes, I have started an exercise regimen
 - B. No, I have not started an exercise regimen, but plan to start one soon
 - C. I was already engaged in an exercise regimen
 - D. I have no plans to start an exercise regimen
17. If an educational class is being offered near you to expand women's knowledge about menopause including symptoms, nutrition, exercise, treatment, experiences, etc, would you be interested in attending it?
- A. Yes, I would be interested in attending this class
 - B. No, I would not be interested in attending this class

Most Questions are from the NAMS-Gallup Survey of 1994 comprised by Utian & Schiff

For more information contact:

Justine (Cici) Carter

Primary Researcher

SUNY Cortland

Dept. of Kinesiology

Justine.Carter@cortland.edu

Appendix B

Informed Consent Statement

Your participation in this survey will only be used for research purposes. I am looking to find out how much women (aged 40-65) know about menopause, its symptoms, and exercise. You can expect to spend about 5-10 minutes completing the survey and will only be asked to complete it once. Your participation in this research is completely voluntary and you can stop taking the survey at anytime with no repercussions. This survey is meant to be anonymous so please do not leave any identifying markings on the survey. By completing the survey you are giving consent on your participation in this research. Thank you!

Appendix C

IRB Approval Letter

April 24, 2009

Ms. Justine Carter
6998 Suzanne Lane
Schenectady, N.Y. 12303

Dear Ms. Carter:

As the Chair of the SUNY Cortland Institutional Review Board, I am writing to indicate IRB approval of your protocol: "The Assessment of Women's Knowledge on Menopause, Symptoms, and Treatment Options."

For future reference, the protocol number for your project is: 809515. Please indicate on all your materials that IRB approval is effective from April 24, 2009 until April 24, 2010.

If you have any questions or concerns, please do not hesitate to contact me as the IRB Chair.

Very best wishes as you proceed with your research project.

Sincerely,

Nancy J. Aumann
Chair, Institutional Review Board

Cc: Dr. Kate Polasek

Cc: Dr. Lynn Anderson, Faculty Advisor
Recreation, Parks and Leisure Studies Department

Appendix D

Permission Letter (Capital Region)



YMCA

We build strong kids,
strong families, strong communities.

April 21, 2009
Cici (Justine) Carter
SUNY Cortland
Exercise Physiology Graduate Assistant
Department of Exercise Science
Studio West A-3

Dear Cici:

Please accept this letter as approval to conduct your thesis project at the Guilderland YMCA. I have read the introductory letter and reviewed the survey and I will be able to assist you and distribute the survey to a targeted group of YMCA members.

If you need any further assistance, please contact me at 518-456-3634 x 1110.

Best wishes, ~ ~ ,.

Jennifer Rittner-Paniccia
Membership Director
Guilderland YMCA

Appendix E

Permission Letter (CNY)

**YWCA of Cortland**

14 Clayton Avenue
Cortland, NY 13045

- Aid to Victims of Violence
 - 24 Hour Crisis Hotline
 - Crime Victims Assistance
 - Domestic Violence Shelter
 - Educational Programming
 - Support and Advocacy Services
- Breast Cancer Support Group
- Bridges for Kids
- Childcare
 - Drop-In Child Care Center
 - Here We Grow Child Care Center
 - Learning Adventure Childcare Center
 - Nursery and Day School
 - School Age Care
 - Summer Care and Recreation
- Health and Fitness
 - Aerobics
 - Aquatics
 - Recreation
 - Weight Training

MEMO

TO: To Whom It may Concern
FROM: Amy Simrell, Executive Director
RE: Cici (Justine) Carter
DATE: May 5, 2009

I have reviewed the survey Ms. Carter has asked to distribute to members of the YWCA and give my permission for its use at our organization, headquartered at 14 Clayton Avenue in Cortland, NY.

Amy Simrell,
Executive Director
5/5/09

Phone: (607) 753-9651
Fax: (607) 753-8774
E-mail: info@cortlandywca.org
Website: www.cortlandywca.org



Appendix F
Statistical Output

Frequency Table

		Site			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Central NY	23	44.2	44.2	44.2
	Capital Region	29	55.8	55.8	100.0
	Total	52	100.0	100.0	

		Range			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	40-45	10	19.2	19.2	19.2
	46-51	9	17.3	17.3	36.5
	52-57	20	38.5	38.5	75.0
	58-65	13	25.0	25.0	100.0
	Total	52	100.0	100.0	

		Period			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Premenopausal	11	21.2	21.2	21.2
	Perimenopausal	8	15.4	15.4	36.5
	Postmenopausal	33	63.5	63.5	100.0
	Total	52	100.0	100.0	

Hysterectomy Oophorectomy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hysterectomy	9	17.3	17.3	17.3
	Both	2	3.8	3.8	21.2
	Neither	41	78.8	78.8	100.0
	Total	52	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Caucasian	49	94.2	94.2	94.2
	Hispanic	2	3.8	3.8	98.1
	Other	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	HS	7	13.5	13.7	13.7
	2-year degree	15	28.8	29.4	43.1
	4-year degree	12	23.1	23.5	66.7
	Graduate College	17	32.7	33.3	100.0
	Total	51	98.1	100.0	
Missing	System	1	1.9		
Total		52	100.0		

Physical Activity per week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Active 2 days or less	8	15.4	15.4	15.4
	Active 3 days or more	43	82.7	82.7	98.1
	3	1	1.9	1.9	100.0
	Total	52	100.0	100.0	

Sources of Info

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OB-GYN	22	42.3	43.1	43.1
	GP	7	13.5	13.7	56.9
	Mags/Journals	6	11.5	11.8	68.6
	TV/Radio	1	1.9	2.0	70.6
	Internet	4	7.7	7.8	78.4
	Friends	3	5.8	5.9	84.3
	Family	6	11.5	11.8	96.1
	Other	2	3.8	3.9	100.0
	Total	51	98.1	100.0	
Missing	99	1	1.9		
Total		52	100.0		

Satisfaction of Info

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very satisfied	18	34.6	35.3	35.3
	somewhat satisfied	23	44.2	45.1	80.4
	neither satisfied nor dissatisfied	8	15.4	15.7	96.1
	not too satisfied	2	3.8	3.9	100.0
	Total	51	98.1	100.0	
Missing	99	1	1.9		
Total		52	100.0		

Discussed Meno

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	39	75.0	75.0	75.0
	no	13	25.0	25.0	100.0
Total		52	100.0	100.0	

Exercise

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	23	44.2	44.2	44.2
	no	18	34.6	34.6	78.8
	answered no to Q9	11	21.2	21.2	100.0
Total		52	100.0	100.0	

Osteoporosis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	30	57.7	57.7	57.7
no	10	19.2	19.2	76.9
Answered no to Q9	12	23.1	23.1	100.0
Total	52	100.0	100.0	

Emotional Issues

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	14	26.9	26.9	26.9
no	26	50.0	50.0	76.9
answered no to Q9	12	23.1	23.1	100.0
Total	52	100.0	100.0	

Gaining or Losing

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	19	36.5	36.5	36.5
no	21	40.4	40.4	76.9
Answered no to Q9	12	23.1	23.1	100.0
Total	52	100.0	100.0	

Calcium

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	28	53.8	53.8	53.8
no	13	25.0	25.0	78.8
answered no to Q9	11	21.2	21.2	100.0
Total	52	100.0	100.0	

Healthy Eating

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	22	42.3	42.3	42.3
	no	20	38.5	38.5	80.8
	answered no to Q9	10	19.2	19.2	100.0
	Total	52	100.0	100.0	

Time discussing matters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no time	2	3.8	4.1	4.1
	less than 5 min	8	15.4	16.3	20.4
	5-10 min	20	38.5	40.8	61.2
	10-15 min	12	23.1	24.5	85.7
	more than 15 min	7	13.5	14.3	100.0
	Total	49	94.2	100.0	
Missing	99	3	5.8		
	Total	52	100.0		

Agree or Disagree to Statement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	23	44.2	44.2	44.2
	somewhat agree	21	40.4	40.4	84.6
	neither disagree nor agree	6	11.5	11.5	96.2
	somewhat disagree	2	3.8	3.8	100.0
	Total	52	100.0	100.0	

Natural Treatments

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	18	34.6	34.6	34.6
no	34	65.4	65.4	100.0
Total	52	100.0	100.0	

PA to cope with Meno

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes, i've started one	12	23.1	24.5	24.5
no, but plan to start	7	13.5	14.3	38.8
i was already engaged in PA	27	51.9	55.1	93.9
i have no plans to start	3	5.8	6.1	100.0
Total	49	94.2	100.0	
Missing 99	3	5.8		
Total	52	100.0		

HRT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	14	26.9	26.9	26.9
no	38	73.1	73.1	100.0
Total	52	100.0	100.0	

Aches in Back

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	11	21.2	21.2	21.2
	somewhat severe	17	32.7	32.7	53.8
	moderately severe	4	7.7	7.7	61.5
	most severe	3	5.8	5.8	67.3
	Does not experience	17	32.7	32.7	100.0
	Total	52	100.0	100.0	

Depressed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	13	25.0	25.0	25.0
	somewhat severe	12	23.1	23.1	48.1
	moderately severe	8	15.4	15.4	63.5
	most severe	2	3.8	3.8	67.3
	does not experience	17	32.7	32.7	100.0
	Total	52	100.0	100.0	

Weight Gain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	6	11.5	11.5	11.5
	somewhat severe	15	28.8	28.8	40.4
	moderately severe	11	21.2	21.2	61.5
	most severe	8	15.4	15.4	76.9
	does not experience	12	23.1	23.1	100.0
	Total	52	100.0	100.0	

Hot Flashes

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	12	23.1	23.1	23.1
	somewhat severe	15	28.8	28.8	51.9
	moderately severe	10	19.2	19.2	71.2
	most severe	9	17.3	17.3	88.5
	does not experience	6	11.5	11.5	100.0
	Total	52	100.0	100.0	

Strength

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	10	19.2	19.2	19.2
	somewhat severe	17	32.7	32.7	51.9
	moderately severe	9	17.3	17.3	69.2
	most severe	3	5.8	5.8	75.0
	does not experience	13	25.0	25.0	100.0
	Total	52	100.0	100.0	

Night Sweats

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	9	17.3	17.3	17.3
	somewhat severe	16	30.8	30.8	48.1
	moderately severe	8	15.4	15.4	63.5
	most severe	6	11.5	11.5	75.0
	does not experience	13	25.0	25.0	100.0
	Total	52	100.0	100.0	

Vaginal Dryness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	17	32.7	32.7	32.7
	somewhat severe	8	15.4	15.4	48.1
	moderately severe	8	15.4	15.4	63.5
	most severe	7	13.5	13.5	76.9
	does not experience	12	23.1	23.1	100.0
	Total	52	100.0	100.0	

Mood swings

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	8	15.4	15.4	15.4
	somewhat severe	16	30.8	30.8	46.2
	moderately severe	11	21.2	21.2	67.3
	most severe	2	3.8	3.8	71.2
	does not experience	15	28.8	28.8	100.0
	Total	52	100.0	100.0	

Urinary incontinence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	15	28.8	28.8	28.8
	somewhat severe	11	21.2	21.2	50.0
	moderately severe	6	11.5	11.5	61.5
	most severe	4	7.7	7.7	69.2
	does not experience	16	30.8	30.8	100.0
	Total	52	100.0	100.0	

Troubled Sleeping

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	4	7.7	7.7	7.7
	somewhat severe	15	28.8	28.8	36.5
	moderately severe	12	23.1	23.1	59.6
	most severe	11	21.2	21.2	80.8
	does not experience	10	19.2	19.2	100.0
	Total	52	100.0	100.0	

Decreased interest in sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	least severe	9	17.3	17.3	17.3
	somewhat severe	13	25.0	25.0	42.3
	moderately severe	10	19.2	19.2	61.5
	most severe	4	7.7	7.7	69.2
	does not experience	16	30.8	30.8	100.0
	Total	52	100.0	100.0	

Interest in Info meeting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	23	44.2	45.1	45.1
	no	28	53.8	54.9	100.0
	Total	51	98.1	100.0	
Missing	99	1	1.9		
Total		52	100.0		

Nonparametric Correlations

Correlations

			Site	Range	Period
Spearman's rho	Site	Correlation Coefficient	1.000	-.147	-.354**
		Sig. (2-tailed)	.	.299	.010
		N	52	52	52
Range	Range	Correlation Coefficient	-.147	1.000	.696**
		Sig. (2-tailed)	.299	.	.000
		N	52	52	52
Period	Period	Correlation Coefficient	-.354**	.696**	1.000
		Sig. (2-tailed)	.010	.000	.
		N	52	52	52

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Sources of Info	Satisfaction of Info
Spearman's rho	Sources of Info	Correlation Coefficient	1.000	.249
		Sig. (2-tailed)	.	.078
		N	51	51
Satisfaction of Info	Satisfaction of Info	Correlation Coefficient	.249	1.000
		Sig. (2-tailed)	.078	.
		N	51	51

Correlations

			Education Level	Discussed Meno
Spearman's rho	Education Level	Correlation Coefficient	1.000	-.064
		Sig. (1-tailed)	.	.329
		N	51	51
	Discussed Meno	Correlation Coefficient	-.064	1.000
		Sig. (1-tailed)	.329	.
		N	51	52

Correlations

			Physical Activity per week	Weight Gain
Spearman's rho	Physical Activity per week	Correlation Coefficient	1.000	-.054
		Sig. (2-tailed)	.	.706
		N	52	52
	Weight Gain	Correlation Coefficient	-.054	1.000
		Sig. (2-tailed)	.706	.
		N	52	52

Correlations

			Physical Activity per week	Hot Flashes
Spearman's rho	Physical Activity per week	Correlation Coefficient	1.000	-.043
		Sig. (2-tailed)	.	.763
		N	52	52
	Hot Flashes	Correlation Coefficient	-.043	1.000
		Sig. (2-tailed)	.763	.
		N	52	52

Correlations

			Physical Activity per week	Troubled Sleeping
Spearman's rho	Physical Activity per week	Correlation Coefficient	1.000	-.123
		Sig. (2-tailed)	.	.386
		N	52	52
	Troubled Sleeping	Correlation Coefficient	-.123	1.000
		Sig. (2-tailed)	.386	.
		N	52	52

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Site * Range	52	100.0%	0	.0%	52	100.0%

Site * Range Crosstabulation

			Range				Total
			40-45	46-51	52-57	58-65	
Site	Central NY	Count	3	4	9	7	23
		% within Site	13.0%	17.4%	39.1%	30.4%	100.0%
		% within Range	30.0%	44.4%	45.0%	53.8%	44.2%
		% of Total	5.8%	7.7%	17.3%	13.5%	44.2%
	Capital Region	Count	7	5	11	6	29
		% within Site	24.1%	17.2%	37.9%	20.7%	100.0%
		% within Range	70.0%	55.6%	55.0%	46.2%	55.8%
		% of Total	13.5%	9.6%	21.2%	11.5%	55.8%
Total		Count	10	9	20	13	52
		% within Site	19.2%	17.3%	38.5%	25.0%	100.0%
		% within Range	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	19.2%	17.3%	38.5%	25.0%	100.0%

Symmetric Measures

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Nominal by Nominal	Contingency Coefficient	.157			.726
Interval by Interval	Pearson's R	-.151	.134	-1.078	.286 ^c
Ordinal by Ordinal	Spearman Correlation	-.147	.136	-1.050	.299 ^c
N of Valid Cases		52			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.