2015

Improving Perceptions of Menopause with an Educational Tool about Non- pharmacologic Menopause Symptom Management

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BY

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A paper submitted in partial fulfillment of the requirements for the degree

Doctor of Nursing Practice

South Dakota State University

2015

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This Practice Innovation Project is approved as a credible and independent investigation by a candidate for the Doctor of Nursing Practice degree and is acceptable for meeting the project requirements for this degree. Acceptance of this practice innovation project does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Acknowledgements

I wish to acknowledge the assistance of Robin Arends, DNP, CNP, FNP-BC, my major advisor, who provided invaluable insight to this project. Julie Kircher, CNP, who served as my stakeholder. My committee members: Lori Hendrickx, RN, EdD, CCRN, Joseph Santos, Ph. D, and Polly Hulme, Ph. D, CNP, RN. I would also like to acknowledge the support of my husband and family, who have always encouraged me.

Abstract

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The time period surrounding menopause, or perimenopause, often is associated with many symptoms that are unpleasant and life changing for women. These symptoms, which occur in up to 70% of perimenopausal women, can negatively impact quality of life. There is little information available about how a woman can proactively reduce her menopause symptoms naturally, and many are unable to utilize pharmacologic methods. The literature review included in this paper reveals several different non-pharmacologic treatment methods that are supported by peer reviewed research, including: relaxation and stress reduction, ingestion of soy nuts, acupuncture, lifestyle behavior changes, and exercise. It has been shown that a positive attitude and increased educational level about menopause leads to less reported and perceived symptoms. This project tested that finding, by gauging perceptions before and after reading and discussing a brochure on the non-pharmacologic treatment methods. A paired t-test was used to analyze the pre- and post-test Likert-scale responses. It was determined that women had an increased understanding of menopause ($p= 0.019$), an increased knowledge about ways to reduce symptoms ($p=0.000$), and an improved attitude about menopause after the intervention ($p= 0.123$). This project shows the importance of evidence based practice, and that a written educational tool is a beneficial way to deliver menopause education.

Keywords: menopause, symptoms, non-pharmacological management.

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HRT: Hormone Replacement Therapy

Chapter I: Development of the Clinical Question and Problem Identification

Menopause is a transitional stage in a woman's life, producing many changes due to the declining production of estrogen by her ovaries. This natural process begins after age 35 with the average age of the menopausal woman being 51 years old (Walsh & Caple, 2013). This process can also be initiated surgically, with the removal of the ovaries. Carpenter, Studts, and Byrne (2011) predict that within the next decade, over 50 million women will have gone through menopause.

The time period surrounding menopause, or perimenopause, often is associated with many symptoms that are unpleasant and life changing for women. These symptoms may include: cycle irregularity, hot flashes, night sweats, decreased libido, vaginal dryness, painful intercourse, insomnia, mood swings, difficulty concentrating, weight gain, depression, irritability, or anxiety (Holloway, 2008; Walsh & Caple, 2013). Carpenter et al. (2011) suggest that usually woman experience at least two of these symptoms during the perimenopausal process.

Women are seeking information about non-hormonal treatments, but many still feel under-informed (Carpenter et al., 2011). As 75% of women in this stage of their lives seek medical care for menopausal symptoms, it is imperative that the health care provider be equipped with answers and options for all women going through this life change (Carpenter et al., 2011).

Significance of Problem

The symptoms of menopause do not occur in every woman, but for those who are affected, symptoms can alter the woman's quality of life. According to Newhart (2013), 25% of women report severe symptoms during the perimenopausal stage, while 50%

report moderate to mild symptoms. Hot flashes and night sweats are the most common symptoms, with 70% of women experiencing these at some point in the perimenopausal process (Brokie, 2013). These symptoms can affect sleep, mood, and social life. Although often there is a precipitating event, hot flashes can occur at any time; the unexpected discomfort may decrease women's quality of life.

Holloway (2008) and Brokie (2013) suggest that Hormone Replacement Therapy (HRT) is the current standard in treatment for menopausal symptoms, and is the most effective; but, there are many contraindications, and many women decline this treatment. Carpenter et al. (2011) note that the risk-to-benefit ratio shifts in some women, and utilizing HRT is potentially more dangerous than the menopausal symptoms a woman may be experiencing. The current guidelines list contraindications to HRT: history of liver disease, gallstones, personal or family history of blood clots, migraines with aura, smoking, high cholesterol, cardiovascular problems, or problems with gastrointestinal absorption, should not take HRT because of the risks involved (Brokie, 2013). Bath and Gray (2005) found through meta-analysis that the use of HRT significantly increases the likelihood of ischemic stroke in women. These findings have contributed to the increased interest in non-hormonal treatment options.

Hormone therapy has proven to be the most successful treatment option for menopause symptoms; but there are more reasons, other than contraindications, that cause women to search for other options. According to Holloway (2008), a popular reason women decide against HRT is the desire for a more natural option. Gollschewski et al. (2008), found that women who managed their symptoms with diet, exercise, and vitamins report feeling more in control and were invested in long term wellness. Herbal

supplements are a popular natural method used to treat and prevent menopausal symptoms, but the Food and Drug Administration (FDA) does not regulate the safety or quality of those products (Reed & Guiltinan, 2010). Antidepressants, like Effexor (Venlafaxine), have been studied and used in the treatment of vasomotor symptoms of menopause, but Johnson and Carroll (2011) found that the following adverse effects of these drugs are fairly common: dry mouth, insomnia, dizziness, nausea, somnolence, anxiety, and constipation.

The contraindications and side effects of HRT and other prescription medications create a need for education on non-pharmacologic treatment for symptoms of menopause. Women report that finding credible information about natural menopause treatment is quite difficult, and that even with reliable information, it is difficult to interpret how best to use it (Gollschewski et al., 2008). Van Die (2011) reports that although there is research needed on alternatives to HRT, there are non-prescription options that are proven to help with sleep, anxiety, and night sweats. Midlife women want information and want to be educated on the topic of menopause management, and health care providers need to improve their methods of delivering that information (Rothert et al., 1997).

Empirical Evidence to Substantiate the Choice of this Clinical Question

The transition of menopause creates many changes for women. In addition to the changes in her own body, she is faced with the decision-making process on how to best deal with those changes (Walsh & Caple, 2013). The variety of information available over the internet, from unaware providers, or even influence of peers, may lead to under, over, or mistreatment of the symptoms (Walsh & Caple, 2013). Walsh and Caple (2013)

also report that many women lack the proper information to make an informed decision on what their options are to help their symptoms, often leading to confusion and frustration.

Regardless of whether women seek information from their healthcare provider on menopausal symptoms, most seek information from the media (Rozenberg et al., 1998). Rozenberg et al. (1998) found that the media tends to oversimplify information, fabricate or embellish information in order to gain an emotional connection with the reader. If accurate research is utilized in the media, it is increasingly difficult for the lay person to take that complicated information and synthesize an understanding of it (Rozenberg et al., 1998).

Currently, there are many gaps in appropriate sources of information for women going through menopause (Walsh & Caple, 2013). Gollschewski et al. (2008) found that women report difficulty in exploring natural options with the primary provider, and that HRT is usually the center of discussion. The current decision making models in healthcare need to evolve to one that is shared between the provider and the patient; the provider's skill and knowledge should meet the patient's autonomy and personal values (Rothert et al., 1997). Health care providers need to be prepared to educate about alternative treatments, including: lifestyle changes complimentary therapies, herbal remedies, homeopathy, phytoestrogens, and psycho-educational approaches (Holloway, 2008; Walsh & Caple, 2013). These approaches can be used in conjunction with HRT and prescribed medications for menopausal symptoms, or alone, depending on the patient.

The disparity in proper education for perimenopausal women about treatment options for menopause symptoms can be resolved. Peate et al. (2012) developed a written educational tool describing menopause symptom treatment and gave it to women in the perimenopausal stage after breast cancer. The study shows that the tool was quite effective; 74% found the tool useful and 95% of women would recommend the tool to other women (Peate et al., 2012). Rothert et al. (1997) claim that written educational tools are very effective for menopausal women who are interested in learning and are motivated, and can promote satisfaction and compliance. Walsh and Caple (2013) suggest providing menopausal women with written information regarding treatment options, to fully encourage expression of the patient's desires. These sets of data provide a foundation of evidence to support the use of an educational tool for menopause education.

Population of Interest

The population that was included in this project are women of perimenopausal age. Usually, women in perimenopause are ages 40-65 (Walsh & Caple, 2013). Rothert et al. (1997) describe that the perimenopausal woman is a consumer of healthcare, and new strategies need to be developed to assist her in gaining knowledge about different treatment options. The healthcare provider should be equipped with options for these autonomous women. Modern women are empowered and seek control over their health and decision-making, often leading to self-managed treatments (Gollschewski et al., 2008). Borelli and Ernst (2010) note that there is a recent movement towards natural medicine, and menopausal women are increasingly seeking complimentary or alternative remedies.

Clinical question

Every patient deserves the best care possible from their provider. As every woman is different, with different needs and values, it is important to provide options and education. This is especially true regarding education about symptom management in menopause, an area in need of improvement. The following PICOT question guided this project: will women of perimenopausal age, who are given a written educational tool describing non-pharmacologic options for menopause symptoms, compared to perceptions prior to the tool, have more positive perceptions about their treatment choices and improve perceptions of menopause management by the end of their visit.

Purpose of the project

The purpose of this project was to determine whether education can improve women's perceptions about menopause. Offering non-pharmacologic options about menopausal treatments has the potential to reduce the menopausal symptoms in women who do not have pharmacologic options. It was anticipated that after receiving an educational tool about non-pharmacologic options, the women would have an improved attitude, and perceive to have a higher level of education on the topic. This project sought to motivate women to gain control and improve their quality of life as they transition through the perimenopausal stages. If this project was not implemented, the educational disparity would continue; and many women could continue to be frustrated about this natural life transition. This educational tool could give hope to women, and demonstrate that medication is not the only option for feeling better. Women could learn new ways that they can care for themselves, creating empowerment that may very well be reflected in other aspects of their lives.

Research Questions

1. What are women's current perceptions and opinions about menopause?
2. Does education about menopause, and non-pharmacological treatment modalities, improve women's attitude towards menopause?
3. Is a written educational tool beneficial for providing information to women of the perimenopausal age?

Definitions

Acupuncture: A complimentary alternative treatment involving the use of small sterile needles to create a stimulus along specific points of the body (Australian Acupuncture and Chinese Medicine Association, 2014).

Aerobic exercise: physical activity that increasing the heart and respiratory rate for a sustained period. Involves moving the large muscle groups, thus, increasing blood flow throughout the body (Mayo Foundation for Medical Education and Research, 2014).

Attitude: a way of thinking or feeling about someone or something, typically one that is reflected in a person's behavior.

Empowerment: practice of inspiring and sharing information with patients so that they can take initiative and make decisions to solve problems and improve their health.

Hormone replacement Therapy (HRT): use of estrogen and progesterone, the natural hormones that are not produced after menopause, to reduce the resultant symptoms a woman may experience (Daley et al., 2007; Ortmann & Lattrich, 2012).

Knowledge: facts, information, and skills acquired by a person through experience or education.

Meditation: A quiet awareness of the body and spirit. Slowing the thought processes and allowing the mind to be free of constant stimulation (Osho International Foundation, 2011).

Menopause: the natural or secondary infertility of a woman, after twelve months of amenorrhea. The mean age for this onset is 51 years old (Morrow et al., 2011).

Perceptions: a way of regarding, understanding, or interpreting something; a mental impression.

Perimenopause: the stage surrounding menopause in which the woman's body transitions to an infertile state. Symptoms of estrogen deficiency may start during this stage (Morrow, Mattair & Hortobagyi, 2011).

Chapter 2: Review of Literature and Model of Evidence-Based Care

The review of the literature was completed to further support the significance of the problem, and provide more detailed evidence to help solve the problem. This review shows the efficacy of educational tools for providing information to menopausal women, the benefit of non-pharmacologic symptom management, and highlight the best evidence available. The evidence supports the intervention that this project utilized, and also helped create the content that served as the educational intervention for this project. The options for non-pharmacologic management are outlined, and the efficacy discussed.

Four databases were utilized for this review: Cochrane, Cinahl, Pubmed, and Google Scholar. Keywords used include menopause, perimenopause, symptoms, education, decision, decision-making, management, treatment, non-hormonal, hot-flash, vasomotor, complimentary, natural, climacteric, information, tool, booklet, and pamphlet. Inclusion criteria include a population of women, at any age, in the perimenopausal transition. Articles that included women in premature or surgical menopause were not excluded. Studies not written in the English language were excluded. Studies and articles over the past 20 years were reviewed. The Johns Hopkins model was used to appraise the evidence utilized in this project. The levels of evidence are defined as follows: level 1 is an experimental study, randomized control trial (RCT) or meta-analysis of RCTs; Level 2 is a quasi-experimental study; level 3 is a non-experimental study, a qualitative study, or meta-synthesis; level 4 includes systematic reviews and clinical practice guidelines; level 5 includes quality improvements projects, expert opinions, case studies, and literature reviews (American Nurses Association, 2014). Grade A evidence is high quality with consistent results and solid strategies, B is good

quality with reasonably appropriate strategies, and C is low quality with some major flaws and inconsistent results (American Nurses Association, 2014). The full individual evidence table can be found in appendix E, and a summary of the quality and types of evidence can be seen below in Table 1.

Table 1

Summary of Quality and Types of Evidence Utilized in the Literature Review

Number of articles	**Type of study**	**Quality/level**
4	Meta-analysis (Cochrane Reviews)	Level 1, Grade A
5	Randomized Control Trial (RTC)	Level 1, Grade A
3	Systematic Reviews	Level 4, Grade A
4	Descriptive (guidelines, literature reviews, opinions, non-experimental)	Level 3-5, Grade A and B
3	Qualitative	Level 3, Grade A and B

Education, Perceptions, and the Efficacy of a Written Educational Tool

Use of an educational tool for menopause knowledge.

Rothert et al. (1997) and Legare et al., (2008) completed RCTs to determine efficacy of different educational methods pertaining to menopause. Rothert et al. (1997) studied the efficacy of three different educational interventions: printed information, discussion with provider, or individualized decision making and interaction with the provider. The results showed that all three interventions helped women gain knowledge about menopause management and retain it for at least 12 months. The most beneficial proved to be the intervention that included a mix of education and provider education to

develop an appropriate management plan (Rothert et al., 1997). Legare et al., (2008) and Towey, Bundy and Cordingley (2006) determined the impact of a decision aid on decreasing decisional conflict when choosing menopause treatments. This study determined that whether a standardized decision aid was used, or even just a brochure, the decisional conflict decreased in women (Legare, 2008).

Walsh and Caple (2013) present a clinical practice guideline reporting that women who are undereducated about menopause are not equipped to make appropriate decisions about treatment options; these authors suggest providing written information to patients about this subject.

Peate et al. (2012) expressed a professional opinion based on a quasi-experimental study done to determine efficacy of a written educational tool for women about menopause symptom management following breast cancer. It was expressed that the educational tool (brochure) was well received by the women. There were 62 women involved in this study, and 91% found the tool beneficial, 69% gained knowledge about menopausal treatments, and 76% read the booklet in its entirety (Peate et al., 2012).

The relationship between education, attitude, and menopause symptoms.

The more education women receive on menopause, the better their attitude about menopause (Odiari & Chambers, 2012; Kisa, Zeyneloğlu & Ozdemir, 2012). A more positive attitude is then correlated to less or less severe reported menopause symptoms (Ayers at al., 2010; Strauss, 2011)

Strauss (2011) utilized two waves of the National Survey of Midlife Development in the United States (MIDUS 1 and MIDUS 2) results to establish a relationship between positive attitude and lesser symptoms through a qualitative study. Ayers at al., 2010

showed the same results on the link between positive attitude and fewer symptoms or fewer perceived symptoms. Gollschewski et al. (2008) found through the qualitative use of focus groups that women want and need more education on their options for menopause symptom management. Women want to feel empowered and take more control by being more educated on how to help themselves (Gollschewski et al., 2008).

Odiari and Chambers (2012) reflect that the women who have been taught about menopause, what it is, what it means for their body, and how to manage it, were much more accepting of the transition. The women who have been educated, no matter the source of information, found the change to be a normal part of aging and a majority of them independently acted on symptoms control (Odiari & Chambers, 2012).

The non-experimental, descriptive study by Kisa, Zeyneloğlu and Ozdemir (2012) was conducted in Turkey, where there is little access to pharmacological treatment options for menopause symptoms. Women completed a questionnaire and also the Menopause Attitudes scale to measure the link between menopause education and their attitudes (Kisa, et al., 2012). The relationship between attitude and education was found to be positive and linear, and was significant ($P<.05$) (Kisa et al., 2012).

Non-pharmacological Management of Menopause Symptoms

Relaxation techniques and stress reduction

Relaxation techniques and stress reduction are beneficial in reduction of the vasomotor symptoms of menopause. (Rada et al., 2010; Tremblay et al., 2008; Carmody et al., 2011). A significant reduction in symptoms was found when women participated in muscle relaxation, guided imagery, stress education, or deep breathing exercises (Rada et al., 2010). Tremblay et al. (2008) determined that there is a significant improvement in

menopausal symptoms when psychoeducational interventions are utilized, but especially relaxation techniques. Carmody et al. (2011) studied the severity of menopause symptoms during and after a 20 week mindfulness-based stress reduction course, which improves women's awareness of stressors and coping abilities. Symptom reduction was seen less than halfway through the course; and after 20 weeks, the women reported a 22% decrease in symptoms, and a significant improvement in quality of life (Carmody et al., 2011).

Aerobic exercise

The Cochrane review by Daley et al. (2007) found that there are not enough quality studies available to determine if there is a relationship between exercise and a significant reduction in menopausal symptoms. It was noted, though, that there is a small improvement reported by women who exercise, compared with no exercise, but it is undetermined how significant this is.

Soy consumption

A randomized control trial by Welty et al. (2007) studied the effects of diet on menopausal vasomotor symptoms. This study determined that a diet high in soy, specifically a half cup of soy nuts eaten throughout the day, decreased hot flashes by 45% after 8 weeks (Welty et al., 2007). Women reported an increased quality of life, and that the diet is very practical (Welty et al., 2007).

Acupuncture

Acupuncture appears to reduce vasomotor symptoms (Dodin et al., 2012; Borud et al., 2009). Dodin et al. (2012) determined that when acupuncture is compared to a control group of no intervention, the group receiving acupuncture reported less

symptoms. Borud et al., (2009) completed a randomized control trial that included both an improvement in self-care techniques and acupuncture. All women in the study were taught better wellness techniques, and half received acupuncture. The acupuncture group reported a higher rate of reduction in hot flash intensity and severity; significantly more than the control group (Borud et al, 2012).

Behavioral modifications

Simple behavior modifications are the foundation for hot flash relief (Morrow, Mattair and Hortobagyi, 2011). It is very beneficial to keep the body temperature as low as possible to combat symptoms. Dressing in layers, limiting caffeine, using a fan, drinking cold or cool liquids and refraining from drinking hot liquids can be very helpful in management the vasomotor symptoms of menopause. Morrow et al. (2011) also supports the information found thought the Cochrane Organization and determined that relaxation techniques, such as deep, slow breathing exercises, significantly reduced the frequency of hot flashes.

Gaps in the Evidence

The systematic review by Carpenter et al. (2011) failed to determine which type of decision-aid cultivated the best results in menopause treatment education. These authors describe a significant gap in that there is no standardization with this subject. Carpenter et al. (2011) describe that there is no comprehensive educational tool to help women study every existing option for menopause treatment to base decision making upon.

Tremblay et al. (2008) and Daley et al. (2007) report that more evidence is needed to demonstrate significance of utilizing alternative therapies for treatment of

menopause. In many of the reviews, a small improvement has been found for most interventions, but more specific research is needed. Also, more research is needed on exercise and its effects on menopause symptoms. Daley et al. (2007) report that there is not enough literature available to demonstrate that exercise has a significant effect on reduction of symptoms.

Recommendations for Practice

The following are the recommendations for practice, based on the literature review:

1. Provide education on non-pharmacological management options (Gollschewski et al., 2008; Ayers et al., 2010; Kisa et al., 2012; Odiari & Chambers, 2012).
2. Develop a written educational tool for providers to give to, and discuss with patients (Rothert et al.; 1997; Peate et al., 2012; Legare, 2008).
3. Utilize the best available evidence for the educational tool:
    - Behavior modifications: dress in layers, avoid hot beverages/foods, drink cool or cold liquids, use a fan (Morrow et al., 2011).
    - Relaxation techniques: psycho-education, muscle relaxation, guided imagery, stress education, or deep breathing exercises (Rada et al., 2010; Tremblay et al., 2008; Carmody et al., 2011).
    - ½ cup of soy nuts eaten throughout the day. (Welty et al., 2007).
    - Acupuncture (Dodin et al., 2012; Borud et al., 2009).
    - Aerobic exercise needs more research, but may reduce some women's symptoms (Daley et al., 2007).

Model of Evidence-Based Care

The Evidence-based care model that is used to guide this PIP is the ACE Star Model. The ACE model provides a framework for finding high quality evidence and directs the process of implementation. This model is a five stage system, represented by a star. Together, the stages are known as knowledge transformation (Melnyk & Fineout-Overholt, 2010). The five stages are: knowledge discovery, evidence summary, translation into practice recommendations, implementation into practice, and evaluation (Melnyk & Fineout-Overholt, 2010). Knowledge discovery consists of utilization of original research studies (Melnyk & Fineout-Overholt, 2010). Four randomized control trials, 3 qualitative articles, and 3 descriptive articles have been utilized in this literature review. Evidence summaries include systematic reviews and meta-analyses that summarize evidence into a single piece of literature (Larsen, 2012). The Cochrane Collaboration, Cinahl, Pubmed and Google scholar provided nine systematic reviews and meta-analysis of randomized control trials for this literature review. According to Melnyk and Fineout-Overholt (2011) these synthesized studies help provide evidence based recommendations for providers with greater ease than single pieces of literature.

The final two stages of this evidence based practice model are implementation and evaluation (Melnyk & Fineout-Overholt, 2010). Implementation into clinical practice was completed in the next stage of this project, and stakeholders were educated on the process. After the evidence based intervention was carried out, the evaluation of its efficacy was completed (Melnyk & Fineout-Overholt, 2010). A diagram of this model from Stevens (2004) can be found in appendix D.

Nursing Theory

The theoretical framework that guides this project is Dorthea Orem's Self-Care Deficit nursing theory. Orem describes that a patient has a self-care deficit when they are unable to care for themselves in the best way possible; it is then the role of the nurse to educate and empower the patient to be able to do so (Parker, 2010). The population in this project is capable of caring for themselves and complete tasks that may reduce the unpleasant symptoms of menopause, but many have not had the proper education and instruction on how to do so.

The deficit in this case is educational, and the nursing role was to intervene with an educational tool to empower and fill that deficit. Parker (2010) describes that Orem's theory views the role of nursing as one that enables patients to care for themselves to the fullest extent. The goal of this intervention is to follow Orem's theory and provide evidenced based information on how women can make positive changes to improve their quality of life. Orem's theory guides the PIP in multiple ways. First of all, the focus of the project is to empower the women to care for themselves. The intervention is an educational tool that highlights things that the women can choose to do outside of the family practice clinic. Second, the brochure is laid out clearly and in lay-terms; the patient also had the opportunity to ask the provider questions prior to leaving the appointment. This was to ensure that the educational deficit is reduced prior to leaving the facility.

Change Model

The model that guides this innovation is Kotter and Cohen's Model of Change (Kotter and Cohen, 2002). Utilizing this change model assisted the process of innovation

in the practice setting and increase participation of others (Melnyk &Fineout-Overholt, 2011). This model provides 8 steps to successful change according to Melnyk and Fineout-Overholt (2011):

1. Increase a sense of urgency
2. Build the guiding team
3. Get the vision right
4. Communicate for "buy-in"
5. Empower action and remove barriers
6. Create short-term wins
7. Don't let up
8. Make the change stick

Creating a sense of urgency, a vision, and a team.

The first step was realized by showing colleagues and stakeholders the problem, and sharing evidence to demonstrate that it can be overcome. This lead to the formation of a motivated team. The team includes the investigator, the major advisor, the nurse practitioner, nursing and clinic support staff, and the clinic director. The key stakeholder in this project is the nurse practitioner who administered the intervention to her patients in the family practice setting. The provider's nurse helped to administer the surveys and served as an important member of the team. Discussion took place about strategy and the best way for the nurse practitioner to deliver the information and the educational tool.

Removal of barriers and creating short term wins.

Removal of barriers was an important step in creating positive change. The potential barriers included a patient who is unwilling to learn, a provider who is not passionate about the material and willing to answer questions, and finally, a patient not answering honestly on the Likert scales. Promotion of a positive attitude, open and therapeutic communication, and providing the opportunity to ask questions helped to remove these barriers.

The goal of this project was to determine if the women's perceptions changed for the better, and the delivery by the provider had large part in that. A positive outlook can create hope and, as shown in the literature review, could make menopause a much more pleasant experience. As the process continued, the stakeholder became invested in the project as they began the process with her own patients. It was anticipated that the nurse practitioner would see an improvement in the women's outlook after the education, empowering the practitioner and removing the potential barriers to participation.

Continuation and making the change stick.

After the intervention was delivered and measured at each appointment, the stakeholder could see the change in the patient and the benefit of the intervention. This helped create momentum and short-term wins. If this project is determined to be successful, it should be implemented as a permanent intervention for women of the perimenopausal age in this setting.

Chapter 3: Project Design and Methodology

Introduction

This PIP was designed to promote evidence based practice. The literature review has provided the best available evidence on non-pharmacologic menopause symptom management, and was used to create the evidence based tool. Melnyk and Fineout-Overholt (2011) describe evidence-based practice as a process that combines the expertise of the clinician, critical thinking, and the search for and utilization of the highest quality of evidence available to create positive change. The model of evidence based care utilized for this PIP was the ACE Star model. This chapter will discuss the design of this project and the statistical analysis that was utilized for evaluation.

Design/approach to Integrate Evidence in Creating the Practice Innovation Project

This project used a pre-test, post-test format. The pre- and post-test survey was given to the participant before and after the intervention to gauge any significant changes in their attitudes and perceptions. The intervention of this project utilized evidence based practice and created an outlet for the information to be integrated into practice. The literature review determined that there are a number of non-pharmacological management methods that have been identified to successfully relieve menopause symptoms.

This evidence based literature, found through randomized controlled trials, systematic reviews, and the Cochrane organization's meta-analyses were collected and compiled into one source for use in the patient setting. This project capitalized on high level evidence and provided it directly to the patient through an educational brochure, using the family practice nurse practitioner as a vehicle.

Population and Setting

The anticipated sample size was 30. Eligibility criteria for this project included women of the perimenopausal or postmenopausal age presenting for their well-woman visit, approximately between 40-65 years, or any woman who presented to the clinic with complaints of menopausal symptoms. Exclusion criteria included women with a history of breast cancer. The rural southwestern Minnesota county in which this project was completed has a female population of 50.41%, and 55.28% of the residents are between ages 18-64, according to the 2010 census (Census Viewer, 2012). The total population for the county is 16,059, is 89% Caucasian and 4.89% Native American (Census Viewer, 2010).

The setting was a rural family practice clinic in Southwest Minnesota, and this population was in need of this intervention. In this rural city, primary care providers offer all women's healthcare from obstetrics and labor/delivery to routine physicals for women. The rural clinic employs 13 providers, including five nurse practitioners and eight physicians in the family practice specialty. The clinic has a laboratory on site, and offers minimal radiology, with ultrasound and CT services available at a hospital located in the same community. Multiple outreach services are available at limited times, including: cardiology, podiatry, ophthalmology, gastroenterology, urology, and surgery. The nearest women's health specialty provider is nearly an hour in any direction, and many women seek their women's healthcare from their primary provider in this clinic.

Organizational Mission

The mission statement of this rural organization involves improving the health of their community, and vision is to improve quality, access, and coordination of care

(ACMC, 2014). The goal of this organization is to provide top level care in the rural setting. This project highlighted those values. The project sought to improve the educational process in the rural family practice setting, filling gaps between it and the women's health specialty practice.

Protection of Human Subjects

The protection of the human subjects that was involved in this project was of utmost importance. This project was designed and carried out in a manner that respects the autonomy of the patient, strives for justice, and is benevolent (Bonnel & Smith, 2014).

To ensure that this project followed the comprehensive standards of human subject protection, it underwent review by South Dakota State University's Institutional Review Board (IRB). The project also underwent review by the healthcare clinic administration. Informed consent was obtained prior to the patient seeing the provider or nurse. Patients were also given details about the project, information about why they were being asked to participate, and their rights: the right not to participate, to withdraw at any time, to ask questions, to volunteer for the project, to know the benefits and risks, and confidentiality (Bonnel & Smith, 2014). Finally, the project director's contact information was made available to the participant if they should have questions or concerns.

During the study process, the provider and nurse kept the written informed consent papers, and the pre- and post- survey Likert scales, in locked storage to ensure confidentiality. There was no identifying information on the Likert scales, only age and race. Each participant's corresponding pre- and post-scale was numbered to ensure

organization, without utilization of identifying information. After the project time-period finished, the papers were given to the project director and were kept in locked storage throughout the analysis process. All records will be kept for 6 years after the project.

Evidence-Based Intervention

The highest level research findings on non-pharmacologic menopause symptom management has been utilized in the educational tool. This evidence was synthesized through the literature review and will be compiled in the form of a brochure. This educational pamphlet was based on the following evidence found in the literature review:

1. Behavioral modifications: keep body temperature low, dress in layers, use a fan, drink cold or cool liquids, refrain from drinking hot liquids (Morrow et al., 2011).
2. Relaxation techniques: psycho-education, muscle relaxation, guided imagery, stress education, or deep breathing exercises (Tremblay et al., 2008)
3. Diet: half cup of soy nuts eaten throughout the day (Welty et al., 2007).
4. Acupuncture (Dodin et al., 2012).
5. Aerobic exercise needs more research, but may reduce some women's symptoms (Daley et al., 2007).

In addition to the above information, a brief educational overview of menopause and the potential symptoms was provided. The educational brochure can be found in Appendix F.

Project procedure and action plan

The pamphlet, along with both the pre-test, the informed consent form, was handed to the women by the nurse, prior to seeing the provider. The nurse provided education on the order in which to complete the documents, and answered any questions the participant may have had about the study. After signing the consent form, and completing the pre-test, the patient viewed the brochure, which she kept. During the appointment time, the provider discussed the brochure with the patient; there was also the option for the patient to ask the provider any questions about the content prior to leaving the appointment. When the provider left the room, the participant was given the post-test test. The provider or nurse then collected all of the documents, and stored them securely, locked in the provider's office.

This intervention was delivered to patients seen over a three month period. The pamphlet was offered to women of the perimenopausal age at well-women exams, episodic women's health appointments, or to women outside that age range who had questions or concerns of menopause.

Projected Analysis and the Instrument

The design of this project involved implementing an intervention that could potentially influence a women's perceptions of menopause management. The effect of the education tool on the women's perceptions was analyzed. Analysis consisted of a Likert style pre- and post-survey, the Menopause Knowledge and Perceptions Scale. The scale measures the women's knowledge, her attitude, and perceptions about menopause. This scale was developed by the author of this project. The anticipated outcome was that

women will report a better attitude and feel more educated about menopause management options that they can do independently.

The patient was provided with the pre- Likert scale at the beginning of the appointment, and filled it out at that time, based on her current knowledge and perceptions of menopause. She completed the post-test Likert scale after the education has been provided to her. After the three month period, the pre- and post- Likert scales were statistically analyzed using a paired T-test. This evaluation was used to determine if there was a significant change, overall, in the participant's perceptions before and after the intervention.

It was anticipated that the paired T-test would reveal a significant change from pre- and post- surveys, and that the educational tool would improve the women's perceptions of menopause.

Impact on organizational, financial, and policy decisions

This project was completed at very minimal cost to the organization. The only monetary commitment was that of the development of the brochure, scales, and consent forms, specifically, printing costs. The printing cost was the responsibility of this author. The other cost was that of time. The time of the provider is very valuable, and a small fraction of the patient/provider time was spent in discussion of the information contained in the educational tool. It was anticipated that the impact of the benefit, though, would outweigh the cost of time. Having evidence-based, educational information readily available to both the patients and providers could be helpful to streamline processes, potentially inspire new policies and tools, and improve quality of care given.

Facilitators and stakeholders

The stakeholders and facilitators involved in this project include a group of highly educated individuals, most who have had research experience. Facilitators include the project committee and the project chair. The nurse practitioner who implemented this intervention is the principal stakeholder: the bridge that connects the evidence to practice. This provider has a passion for women's health, and has also shown a passion for this project.

Barriers

There were potential barriers that could have affected how this tool was received by the patient, and how it affected her willingness to learn. First and foremost, the women must be willing to learn and be open to new information. If not, their perceptions and attitude would likely not change. Open conversation, and the provider taking time to ask questions, did help overcome this barrier.

Another barrier was the ethical consideration that the nurse practitioner is in a position of power over the patient, which could have caused skewing of the patient's expression of opinion. To counter this, the patient was educated that the responses on the open-ended survey were not to be seen by their provider; but were sent directly to the investigator after the study process. Second, the provider's attitude and motivation to see this project succeed was be noticeable to the patient. If the provider was uninterested and did not effectively deliver the information to the patient, or did not answer initial questions, the educational tool may have been ineffective. In contrast, the positive attitude and an enthusiasm for the tool and the information on the provider's part proved to be a facilitator to its success.

Impact on rural and underserved population.

This tool served as a bridge between high quality evidence and the patient, which could potentially improve the quality of patient care. This is especially true in a rural population, where resources are usually limited. There is not often a women's health specialist for women to see in regards to menopause symptom management. This tool, however, is a low-cost and efficient method for both the provider and the patient in the rural setting. It was anticipated that if project was successful in the rural population at focus, it could be generalized to other rural areas.

Conclusion

Providing an educational tool to a population in need of information could improve the quality and delivery of care in the rural healthcare setting. The population of women in the perimenopausal transition do have opportunities to improve self-care and reduce the common symptoms of menopause that many women often suffer from. Whether pharmacologic treatments are contraindicated, or the women prefer a more natural route, this educational tool could prove to be a very helpful resource and decrease symptoms of menopause through improved perceptions and attitudes.

Chapter 4: Outcomes & Impact of Practice Innovation Project

Introduction

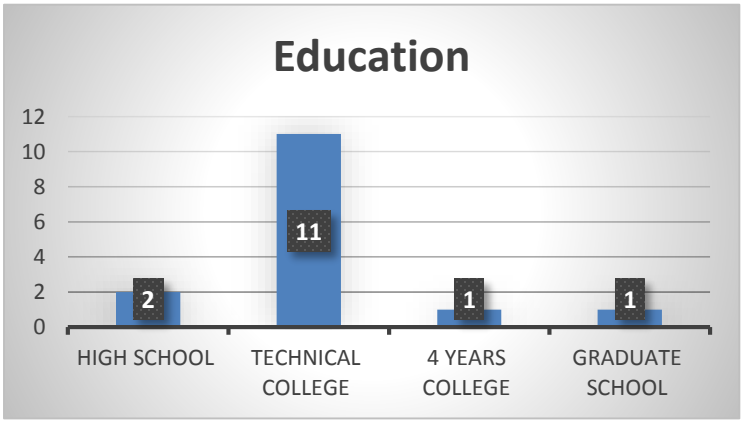
The outcomes of this project revealed statistically significant results. Three out of the five questions on the Menopause Knowledge and Perceptions Scale showed a significant improvement after the intervention was administered. This chapter will reveal the results of the project and the statistical analysis that was completed to determine significance.

Demographics

Demographic information for the 15 female participants were analyzed. The mean age of the participants was 56.4 years old. The youngest participant was 49 and the oldest was 69 years old. All 15 participants were of Caucasian race. The average number years of education was 14 years, which is a high school plus technical or vocational school education. As shown in Figure 1, two (13%) participants hold a bachelor's degree or higher, two (13%) were educated at a high school level; the remaining 11 (73%) of participants hold a 2 year degree past high school.

Figure 1

Educational Level of Participants



The number of participants that were experiencing symptoms at the time of the study was about 50%; 8 women were experiencing menopausal symptoms, while 7 were not. None of the participants older than 60 years of age were having symptoms, and most who were experiencing symptoms were between 49 and 56 years old.

Outcomes

Statistical analysis was completed to determine significance of the results of the pre- and post- surveys. A paired T-Test was completed for each question on the survey. The table of statistics can be found below. The highlighted p-values show statistically significant results.

Table 2

Statistical Analysis of Pre- and Post- Test Results

Participant #	Question 1 PRE	Question 1 POST	Question 2 PRE	Question 2 POST	Question 3 PRE	Question 3 POST	Question 4 PRE	Question 4 POST	Question 5 PRE	Question 5 POST
1	4	5	4	5	4	5	5	5	4	5
2	4	5	3	5	4	2	3	1	2	4
3	4	5	4	5	5	2	3	4	3	4
4	4	4	2	4	5	5	3	3	4	4
5	4	4	4	4	1	2	4	4	4	4
6	4	5	3	5	3	1	3	3	4	5
7	5	5	5	5	1	1	2	2	4	4
8	5	5	3	3	3	3	4	4	4	4
9	5	5	4	4	2	2	4	4	5	5
10	5	5	4	5	1	1	4	4	4	5
11	5	5	4	5	2	1	5	5	4	5
12	4	5	4	5	2	4	5	5	5	5
13	5	5	3	5	2	1	1	1	5	5
14	4	4	3	4	1	5	1	1	5	5
15	5	5	5	5	1	1	1	1	5	5
MEAN	4.47	4.80	3.67	4.60	2.47	2.40	3.20	3.13	4.13	4.60
DIFFERENCE	0.33		0.93		0.07		0.07		0.47	
p-value	0.01919		0.00048		0.88213		0.67022		0.01352	

Three questions on the survey were shown to be statistically significant, and two questions were not. Four of the participants pre- and post- test score were identical, while the other 11 showed a change in at least one area.

Knowledge.

There were three questions on the survey relating to knowledge about menopause and symptom management. The first question (question #1), "I feel like I have a good understanding of menopause symptoms" did show a significant improvement after the intervention. The range of scores pre-intervention was 4 to 5 with a mean score of 4.47. The range of score post-intervention was 4 to 5 with a mean score of 4.80. As seen in table 2, the difference in menopause understanding was statistically significant (p= 0.019).

The second question (question #2) is "I know of things that I can do to reduce menopause symptoms". The range of scores pre-intervention was 2 to 5 with a mean score of 3.67. The range of score post-intervention was 3 to 5 with a mean score of 4.60. The difference in knowledge of symptom reduction was statistically significant (p= 0.000). This question revealed the most change after the intervention, as the difference between the means was 0.93. As each of these values are less than 0.1, it can be assumed that it can be 90% certain that these results were not found by chance, and that they are statistically significant.

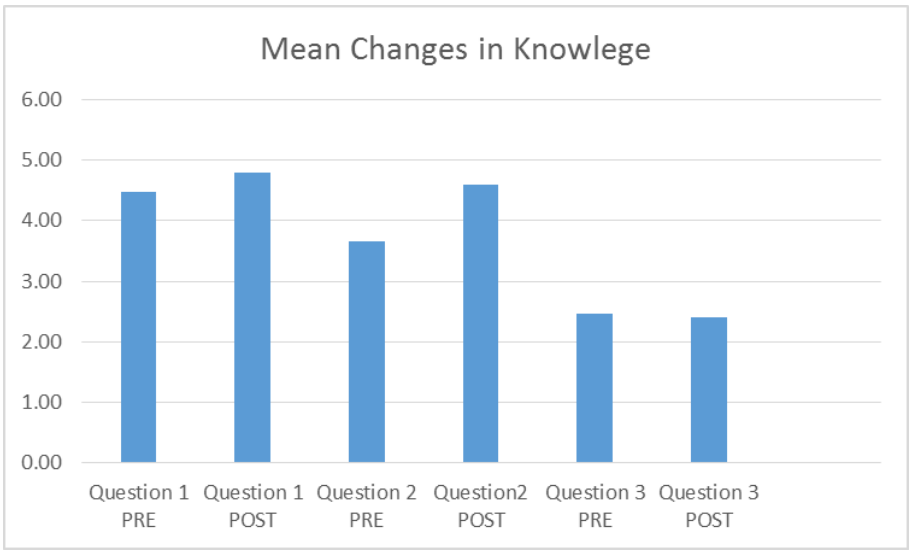
The final question regarding the women's knowledge (question #3) is "I have many questions about menopause". The range of scores pre-intervention was 1 to 5 with a mean score of 2.47. The range of score post-intervention was 1 to 5 with a mean score

of 2.40. The difference in knowledge of symptom reduction was not statistically significant (p= 0.882).

The difference in the means between the pre- and post- test scores for this question was a decrease of .07, so it can be interpreted that overall, the questions the women had were slightly reduced after the intervention. This information can be found in the figure below.

Figure 2

Mean Changes in Knowledge



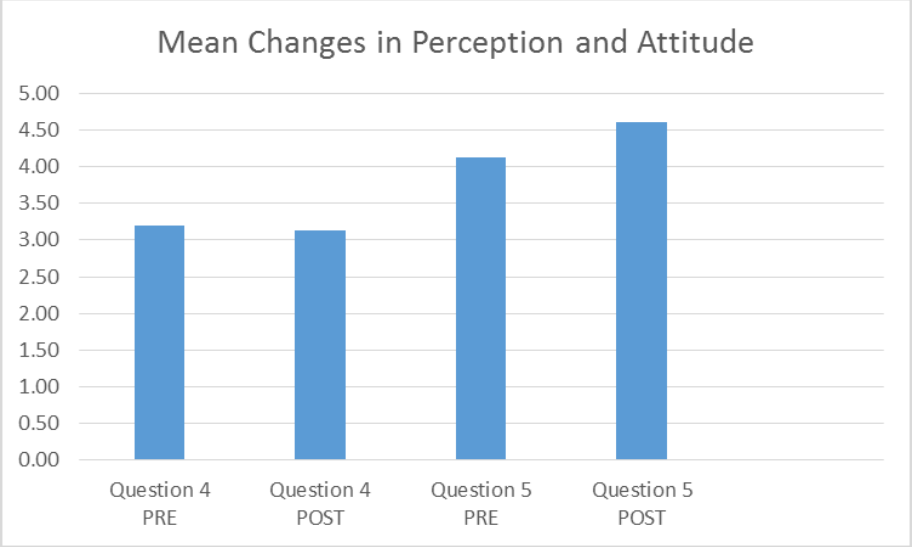
Perception and attitude.

There were two questions on the survey that sought information on the women's perceptions and attitudes of menopause. The first question is (question #4), "I believe that menopause will significantly change my life". The range of scores pre-intervention was 1 to 5 with a mean score of 3.20. The range of score post-intervention was 1 to 5 with a mean score of 3.13. The difference in perceived life impact was not statistically significant (p= 0.670).

The final question of the survey (question #5) is "Overall, I have a positive attitude about menopause". The range of scores pre-intervention was 2 to 5 with a mean score of 4.13. The range of score post-intervention was 4 to 5 with a mean score of 4.60. The difference in attitude was statistically significant (p= 0.013). The perception and attitude values can be found in the figure below.

Figure 3

Mean Changes in Perception and Attitude



Chapter 5: Summary

Discussion of Outcomes

Analysis of the pre- and post- test surveys has given insight into the efficacy of the intervention. It can be interpreted from the above results that women gained a better understanding of menopause after viewing the educational brochure. The results reveal that women are more aware of things they can do to reduce their menopausal symptoms. The most significant difference was found in this area, which is an indicator of success for this intervention. It can also be interpreted that the education provided improved the overall attitude that the women have about menopause. These favorable results reflect the literature findings correlating education to improved attitude in menopausal women.

The 15 women who have participated in this study are now equipped with information that may serve as a tool to reduce menopausal hot flashes and potentially improve their quality of life. Although not all women were experiencing symptoms at the time of the project, overall, attitudes were improved. As the review of current evidence found, many women rely on their peers for information on health related issues. The women who participated may pass this reliable information that they received from their healthcare provider on to their peers. The literature also revealed that improved attitudes of menopause correlate with less perceived symptoms. This project did improve attitude, which may, in itself, reduce the perception of hot-flashes, even without the interventions. Again, it is a measure of success that women who participated became more educated on menopause, know how to reduce symptoms, and also have a better attitude about menopause. These women are now prepared with information to make

positive changes in their lives, without medication, and can start implementing those changes immediately.

Although two of the questions were not found to be significant, valuable information has been provided. Despite the women not having many questions about menopause, they still felt they gained knowledge about the subject. The results also showed that some women had more questions after reading the brochure, although overall questions were slightly decreased. It could be suggested that the intervention inspired some questions that a few of the participants hadn't thought of in the past. It was one of the goals of this project to spark dialogue and open communication about menopause with the provider. The provider was available to the participants to answer any questions that she had about the brochure.

The statistical analysis in this project answers many questions that were raised earlier in this paper. The PICO question, "will women of perimenopausal age, who are given a written educational tool describing non-pharmacologic options for menopause symptoms, compared to perceptions prior to the tool, have more positive perceptions about their treatment choices and improve perceptions of menopause management by the end of their visit?", can be answered. The women participating in this study report more positive perceptions after being given the educational tool. The significance of the problem discussed in chapter 1 highlighted that this population of women are trying to seek information about menopause, but often utilize sources that are not credible. This project provides these women with current and accurate information. In addition, some medications, including HRT, may not an option for some women. This project showed that the educational tool, which is created from credible resources, is an effective way to

educate women. It is also a beneficial way to educate on non-pharmacologic methods, which can be utilized by virtually any peri-menopausal woman.

The literature review presented early in this project presented many topics of information. Rothert et al (1997), Legare (2008), Walsh and Caple (2003), and Peate et al (2012) suggest the use of an educational brochure or written information paired with provider education for menopausal education. This project supports that idea, as the educational tool did improve perceived education level. Odiari & Chambers (2012) and Kisa et al (2012) show that education about menopause improves a woman's perceptions and attitudes of menopause; this finding is supported by this project as well. After reading more about menopause, through the educational tool, women reported better attitudes.

None of the evidence found in the literature review can be opposed by this project. This project did not seek to measure symptoms or whether or not certain methods of symptom management were successful. Rather, this project relied on the high quality research completed on these methods and presented them to women to help manage symptoms. It can be assumed that not all methods presented in the educational brochure will work for every women, but each woman will be armed with the knowledge of these methods, none-the-less.

The nursing theory that was used to guide this project is Dorthea Orem's Self Care Deficit Theory. As Parker (2010) describes, this theory refers to a self-care deficit in which this nurse must intervene and to educate, empower, and help the patient care for herself in an effective manner. This project filled an educational deficit, empowered women to be able to care for themselves, and take control in management of their

menopause symptoms. This theory was an excellent guide for the project, and helped to make this project successful and make positive changes.

Limitations

The most substantial limitation to this project was the low participation in the project. The participation rate resulted in half of the anticipated sample size. It was anticipated to have a sample size of approximately 30, while only 15 women participated in the three month study period. The barriers to participation have been discussed with the participating provider. The most substantial reported barrier was the excess of paperwork already associated with the women's annual physical. The patients who reported for a physical with the nurse practitioner were also asked to fill out a PHQ-9 questionnaire for depression, CAGE screening for alcohol use, and also a history form in preparation for the physical exam. The amount of paperwork seemed overwhelming to some of the women, which led them to opt out of the project. The provider noted that time restraints were also a factor in low participation, as some women would come late for their appointment time, and have only enough time to fill out the required paperwork. To combat this barrier, it may be a benefit to choose patients within the age population that are not presenting for their annual physical. This way the participant would only have the study materials to go through, and no materials from the clinic.

Another reported limitation is the lack of menopausal symptoms. The provider reported that many women would reply that they do not have any symptoms or concerns, so do not need any information about menopause symptom management. It would be beneficial in the future to educate the women when introducing the project that the goal is to provide education that may be beneficial to them in the future, should they develop

symptoms. It would have been prudent to include in the methodology of this project, some discussion with the provider's nurse, who introduced this project to the patients. It may have helped improve the perception of the project to provide some scripting when introducing the project.

As mentioned, all but two of the participants had a higher level of education than high school. The provider made the observation that women with a higher level of education were much more likely to participate. One may speculate that women with a higher level of education appreciate educational materials more than one who has less education. It may also be speculated that women with a higher education have a greater interest in participating in a scholarly project as she may have been involved with projects in the her education. Although the sample size was smaller than anticipated, the results of the 15 pre- and post- tests showed statistical significance, and an opportunity for future studies in this field area.

An additional limitation includes the lack of reliability or validity data associated with the Likert-scale, as it was developed by this author. Repeat testing, such as pre- and post- testing, is a threat to internal validity. This, in addition to the small sample size, may limit the generalizability of this project.

Reflections on the Practice Innovation Project

Completion of the study period of this project has highlighted the importance of education, especially for the middle aged female population. The brochure developed for this project has shown to create significant results in favor of education women and improving their perceptions of menopause. The importance of evidence based practice

shines through in this project, and will help remind providers to seek high quality research in their practice.

The process that went into this project, from beginning to end, enlightened me on how to create positive changes in a healthcare setting. What is thought to be a daunting task, can be broken down into many smaller parts. I have learned a great deal about seeking out high quality evidence, critiquing that evidence, and the best ways to put them into practice. Although this project was not without challenges and barriers, I believe it will promote positive change in the future, and has inspired me to continue to seek out ways to improve the quality of patient care.

I hope this project will grow in the coming years, possibly investigating a different practice setting, exploring new methods of symptom reduction, or even the inclusion of medications or herbals in the educational tool.

This project is a sustainable practice that could be continued in the rural clinic setting. The brochure is available, along with additional copies, for the provider to continue to use to educate patients on menopause symptom management; or so use simply as a reference. The brochure could be made available to any provider that has an interest in using it, as unlimited copies could be made.

Recommendations for future study

As the educational brochure has proven to be effective in educating women on ways to reduce menopausal hot flashes, I would recommend it be adopted by practitioners who would like to provide an additional resource to their patients. This may start with the provider participating in this project, or her colleagues who may have heard about the brochure. It may also inspire system change with a larger focus on evidence-

based literature being utilized in the practice setting. Another goal of this project was to fill the gap between the high quality evidence and the patient. This project, and the provider implementing it, has served that purpose. Ultimately, I would like to see this project expand and provide education to a larger population. There is also an opportunity for more research on this topic, which may prove to open many doors in this field of study. It would be ideal to repeat this project on a larger scale, with a much larger population. It would also be beneficial to include pharmacologic and hormone education to reach a larger population of women.

Conclusion

Nearly 70% of women suffer from menopausal symptoms in their lifetime. This project utilized current, high quality evidence to formulate an educational brochure on the non-pharmacologic methods to reduce hot-flashes. This intervention showed significant positive results. Women report that they are more educated and have a better attitude after reading about the ways to reduce symptoms, and having the opportunity to discuss with their provider. This project shows the importance of evidence based practice, and that a written educational tool is a beneficial way to deliver that information to patients. The brochure acted as a bridge between the research and the patient, and positive changes were created. Based on the reports of the participants, the intervention has great potential to improve the quality of life of the peri-menopausal woman.

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Appendix A: IRB

To: Megan Larsen, College of Nursing

Date: December 23, 2014

Project Title: Improving Perceptions of Menopause with an Educational Tool about Non-pharmacologic Menopause Symptom Management

Approval #: IRB-1412010-EXP

The committee approved your project using expedited procedures as described in 45 CFR 46.110. The research activity was deemed to be no greater than minimal risk, and the following expedited categories from 63 FR 60364-60367 were found to be applicable to your activity:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

One-year approval of your project will be dated starting 12/23/14. If you require additional time to complete your project, please submit a request for extension before 12/22/15.

If there are any unanticipated problems involving risks to subjects or others, or changes in the procedures during the study, contact the SDSU Research Compliance Coordinator. Protocol changes must be approved by the Committee prior to implementation. Forms may be found on the Human Subjects web page. At the end of the project please inform the committee that your project is complete.

If I can be of any further assistance, don't hesitate to let me know.

Sincerely,

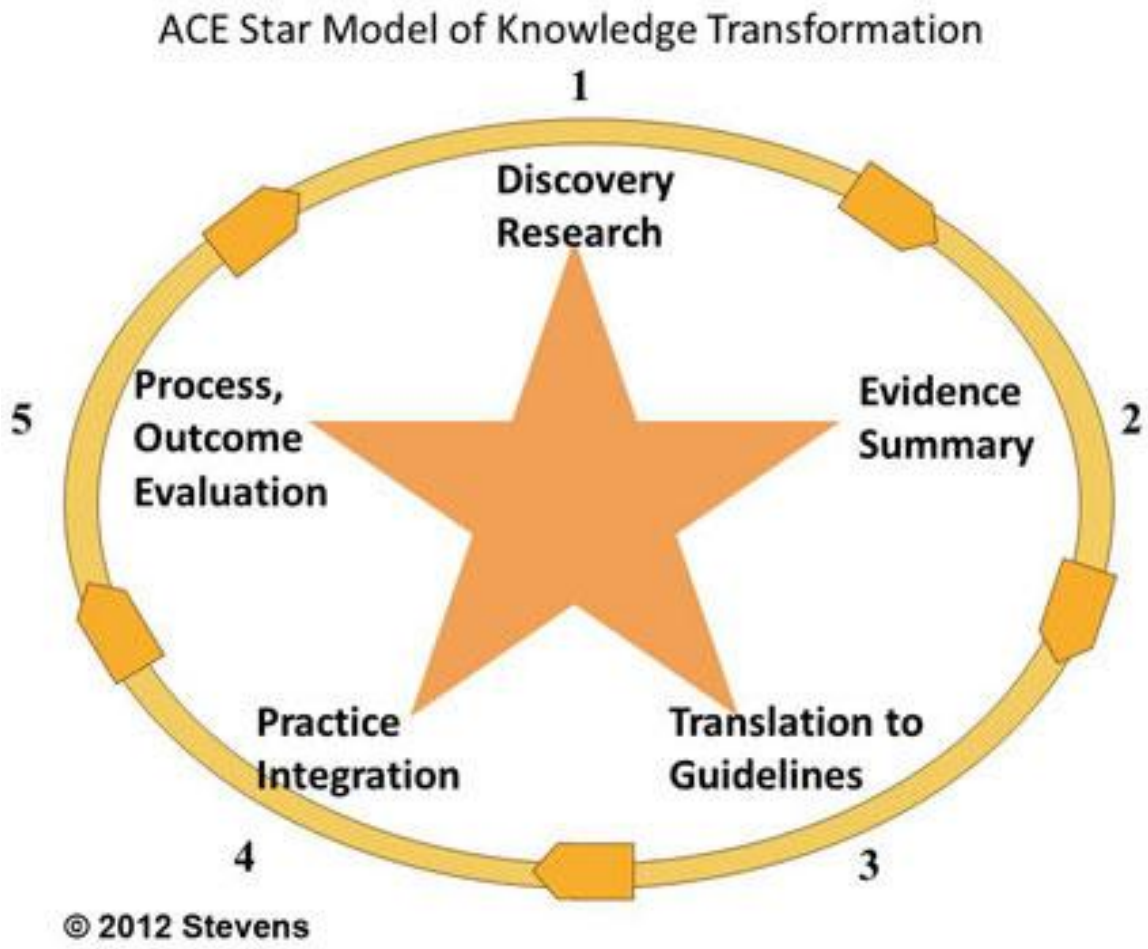
Norman O. Braaten
SDSU Research Compliance Coordinator

Appendix B: Institutional Approval

Statement from project stakeholder on 9/23/14 regarding intuitional approval:

"I have discussed this project with leadership at my clinic and participation in the project has been approved. I agree to participate and serve as a stakeholder in the project. I look forward to learning the results of this project."

Appendix C: Ace Star Model



(Stevens, 2004).

Appendix D: Individual Evidence Table

Article #	Citation	Evidence type and level	Sample, Sample Size, & Setting	Study findings that help answer the EBP Question	Limitation
1	Welty et al. (2007)	Experimental Study, RCT Level 1, grade A	menopausal women (12 mo. post menses), N=60, 8 weeks long.	diets with increased soy had 45% decrease in hot flashes Increases quality of life	Limited information about the background of the problem Does not discuss application of the findings. Only included woman in menopause, not perimenopause
2	Carpenter, J., Studts, J., & Byrne, M. (2011).	Systematic review Level 4, Grade A	Utilized 18 research articles from 15 studies with a focus on natural menopause symptom remedy education	Recognizes the need for educational tools and decision aids in menopause treatment	Lacks direct link to symptom management, some studies did not reflect modern treatment education, inconsistent selection criteria
3	Ayers, B., Forshaw, M., & Hunter, M. S. (2010).	Systematic review Level 4, Grade A	Thirteen studies were included in the review, 1 longitudinal, prospective study and 12 cross-sectional studies	Woman with poorer attitudes about menopause experienced worse symptoms	Studies lack standardization of determining attitudes in a culturally sensitive way; do not include specific symptoms
4	Rothert et al. (1997)	Experimental study, RCT Level 1, Grade A	Midlife women age 40-65 from small Midwestern community, N=248, over 12 month period	Shows the importance of educational assistance in menopause treatment decision making,	Study is dated (conducted 17 years ago), woman were highly motivated to learn (not always the case)

				interventions promote optimism and adherence to treatment decisions.	
5	Kısa, S., Zeyneloğlu, S., & Ozdemir, N. (2012).	Non-experimental Level 3, grade B	Perimenopausal woman over age 40, N=154, one clinic in SE Turkey	Education improved the attitude towards menopause. Sexuality after menopause is a major concern	No control group, no randomization. Foreign study done in a single clinic
6	Strauss, J. R. (2011).	Qualitative Level 3, grade B	Used results from the MIDUS surveys in 1996 and 2005. N=1037, population of "baby boomers" born between 1946 and 1964	Women with more positive attitudes report fewer symptoms, reports need for increased menopause education	Lacks scientific evidence and not able to be generalized.
7	(Gollschewski et al., 2008).	Qualitative Level 3, Grade A	N=15, 13 focus groups and 2 telephone interviews. Population of women ages 47-67	Women are undereducated on CAM menopause options. Women want to be empowered with options and be able to gain control. Empowerment is a central theme.	Small sample size, lacks ability to be generalized. Sample population were volunteers and not likely representative of general population.
8	Walsh &Caple (2013)	Clinical practice guideline Level 4, Grade A	N/A	Written information coupled with provider discussion is a successful way	Non-research, may have some bias or opinion.

				to educate women. Without being educated on them, women should not make treatment decisions.	
9	Peate et al. (2012)	Professional opinion, based on quasi-experimental study findings. Level 5, grade A	Based on study with sample size N=62. includes women in the perimenopausal process, who have had breast cancer treatment , ages 18-50.	91% found educational tool on menopause treatment beneficial. 65% gained knowledge and 76% fully utilized the tool.	Articles does not include study methods or details of research process. Opinion written by author of study may include bias.
10	Towey, Bundy and Cordingley (2006)	Literature review Level 5, grade B	Number of articles utilized not identified. Included articles to review about decision-aids, and behavioral, educational or social interventions for treatment.	Women given a decision aid have less internal conflict surround making menopause decisions.	Vague evidence about what articles were used in this study.
11	Legare et al., (2008)	Experimental study, RTC Level 1, grade A	N=90, women aged 45-64 who are facing a decision about natural menopause treatments	Decision conflict is decreased when either a standardized decision aid is used, or even just a brochure. Education delivered in most formats about menopause is beneficial and	Women were recruited from a clinical setting and may have had previous education or bias, findings may not be generalizable to the general population of middle aged women.

				welcomed by women. Evidence based tools will be more accepted by patients and providers.	
12	(Odiari & Chambers, 2012).	Qualitative Level 3, grade A	N=34. Interviews of women in the menopausal transition. Goal is to determine how women in low-resource areas manage their symptoms without hormones.	As education about the facets of menopause increase, so does acceptance levels of women. Women with more menopause education (no matter the source) thought of menopause as a normal change. Many women look to a provider for information and find it beneficial and trustworthy.	Foreign study may not be generalizable to American population.
13	Morrow, Mattair and Hortobagyi (2011)	Systematic review Level 4, grade A	Reviewed 27 significant articles about hot flash management	Behavioral changes are the gold standard for menopause symptoms management, especially vasomotor symptoms.	Hot flash studies are limited by researcher and patient subjectivity
14	Rada et al. (2010)	Meta-analysis (Cochrane)	Utilized 16 RCTs for the analysis.	most effective non-pharmacologic	Side effects were inconsistently

		Level 1, grade A		intervention for reduction of vasomotor symptoms is relaxation techniques	reported in the studies
15	Tremblay, Sheeran and Aranda (2008)	Meta-analysis (Cochrane) Level 1, grade A	14 studies, including 475 participants. Studies included involved utilizing psycho-educational interventions for menopause symptom management	Significant improvement in symptoms when psycho-educational interventions used (counseling, education, mindfulness based stress reduction) especially relaxation techniques. Includes menopausal women and breast cancer survivors.	Some studies included pharmacological interventions as well so the results may not be accurate for the non-pharmacological intervention.
16	Carmody et al. (2011)	Experimental study, RCT Level 1, grade A	N=110. Sample of women in the menopausal transition who experience at least 5 hot flashes daily.	22% decrease in hot flash symptoms after a 20 week course in mindfulness based stress reduction. Increased perceptions of quality of life, stress, sleep quality, and anxiety.	Did not have an "active" control group, only a waitlist to compare to. Cannot rule out placebo effect.
17	Daley et al. (2007)	Meta-analysis (Cochrane)	6 RCTs included	Unable to prove that exercise is beneficial for reducing	Low number of studies included.

		Level 1, grade A		vasomotor symptoms of menopause	
18	(Dodin et al., 2012).	Meta-analysis (Cochrane) Level 1, grade A	15 RCT studies, including 1155 women	when acupuncture is compared to a control group of no intervention, the group receiving acupuncture reports less symptoms, and higher quality of life.	Included some low quality studies
19	(Borud et al, 2012).	Experimental study, RTC Level 1, grade A	Included postmenopausal having at approximately 7 hot flashes daily. Acupuncture group N=134, control group N=133	All women were taught wellness techniques, half also got acupuncture; higher rate of reduction in hot flash intensity and severity in acupuncture group	Foreign study were acupuncture is very common; may limit generalizability to U.S.

Appendix E:

Menopause Knowledge and Perceptions Scale

Age _____
Race_____

Highest level of education _____

Do you currently have symptoms of menopause? Yes/No

Please answer the questions below, by circling the appropriate number following each question.

	Strongly disagree	Somewhat disagree	Not sure	Somewhat agree	Strongly agree
I feel like I have a good understanding of menopause symptoms	1	2	3	4	5
I know of things that I can do to reduce menopause symptoms	1	2	3	4	5
I have many questions about menopause.	1	2	3	4	5
I believe that menopause will significantly change my life	1	2	3	4	5
Overall, I have a positive attitude about menopause	1	2	3	4	5

Menopause and Hot Flashes

- Menopause is a natural transition in which the hormone estrogen gradually decreases. This usually occurs between age 40-65. (Walsh & Caple, 2013).
- Hot flashes are not the only symptom of menopause, but are the most common.
- 70% of women will experience hot flashes at some point during the menopausal process (Brokie, 2013).
- Hot flashes are caused by blood vessel dilation near the skin's surface, causing a sudden, hot, flushed feeling. (Walsh & Caple, 2013).

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How to Reduce Menopausal Hot Flashes:

WITHOUT MEDICATION

Relaxation Techniques

Relaxation and stress relief are proven to lessen the symptoms of hot flashes

- Deep breathing exercises
- Muscle relaxation or massage
- Become aware of your stressors, and learn ways to avoid stress.
- Talk through things that stress you out- find a friend, family member, or a professional.
- Meditation- in quiet place, sit or lie comfortably, allowing your thoughts to come and go. Start with even 5 minutes a day.
  (Rada et al., 2010; Tremblay et al., 2008; Carmody et al., 2011)

SDSU MEGAN LARSEN
Doctor of Nursing Practice Student

--Decreasing hot flashes without medication:
Demonstrated methods of symptom reduction--

Soy products

- Eating a half cup of soy nuts through-out the day may decrease menopausal hot flashes by up to 45%

  (Welty et al., 2007).

Acupuncture

- Acupuncture has been proven to reduce hot flashes in menopausal women. Some rural chiropractors or medical clinics do offer this service.

  (Dodin et al., 2012; Borud et al., 2009).

Changing behaviors

Certain changes in behaviors are linked to lessened hot flashes, or lessened severity of hot flashes.

- Dress in layers, always be able to remove a layer if needed.
- Avoid hot beverages or foods
- Avoid spicy beverages or foods
- Drink cool or cold liquids
- Limit caffeine
- Use a fan, especially at night

  (Morrow et al., 2011).

Exercise

- Although more research is needed, many women report that aerobic exercise does help reduce hot flash symptoms. Moderate activity done most days of the week promotes a healthy lifestyle and disease prevention. (Daley et al., 2007).