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Improving quality of life in menopausal women through lifestyle management: a web-based health promotion project

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IMPROVING QUALITY OF LIFE IN MENOPAUSAL WOMEN THROUGH LIFESTYLE MANAGEMENT: A WEB-BASED HEALTH PROMOTION PROJECT

by

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A DNP PROJECT

Submitted in partial fulfillment of the requirements for the Degree of Doctor of Nursing Practice to The School of Graduate Studies of The University of Alabama in Huntsville

HUNTSVILLE, ALABAMA

2019
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DNP PROJECT APPROVAL FORM

Submitted by Dana Essner in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice and accepted on behalf of the Faculty of the School of Graduate Studies by the DNP project committee.

We, the undersigned members of the Graduate Faculty of The University of Alabama in Huntsville, certify that we have advised and/or supervised the candidate on the work described in this DNP project. We further certify that we have reviewed the DNP project manuscript and approve it in partial fulfillment of the requirements for the degree of Doctor of Nursing Practice.

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ABSTRACT
The School of Graduate Studies
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Degree: Doctor of Nursing Practice College: Nursing

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Title: IMPROVING QUALITY OF LIFE IN MENOPAUSAL WOMEN THROUGH LIFESTYLE MANAGEMENT: A WEB-BASED PROJECT

Introduction: The symptoms of menopause affect 2 million women per year. Patient education and health promotion are key components of the primary care well visit. Lifestyle medicine focuses on behavioral changes to improve health and quality of life. One can use lifestyle medicine to promote wellness in menopausal women, thus improving their mental and physical health. Current data suggests that behavioral counseling enhances the patient education experience. A series of behavioral changes in diet, exercise, and mindfulness can be used. Social media is an effective tool to engage the population at large, while small group or individual counseling works on a more personal level. One of the roles of the DNP is to ensure that interventions reach the population at large. This project gives nurse practitioners a unique means for interacting with menopausal women. A lifestyle approach to addressing the health issues of menopausal women can be as global or as individual as one desires. The use of social media is an innovative approach to menopause management.

Purpose: The purpose of this study was to implement a web-based lifestyle management intervention to improve quality of life (QOL) in menopausal women. The objectives were: to create an interactive web-based model for health promotion for menopausal women; to assess QOL and health habits of selected menopausal women in a private Facebook® group; to evaluate the effectiveness of a lifestyle medicine intervention on QOL and health habits of the women participating in the project.

Method: A health promotion initiative was undertaken with a pre-intervention/post-intervention design. A sample of 54 women (n = 54) was used. This health promotion initiative was designed as a web-based support group and took place virtually in a private Facebook® group.

Intervention: A lifestyle medicine educational intervention was offered to peri- and post-menopausal women who volunteered to participate in the program. The intervention included dietary, exercise and mindfulness guidelines, using a private Facebook® group as the vehicle for communication. Women were surveyed before and after the intervention with two surveys, a Healthy Lifestyle Survey (HLS) which identified
women’s perception of their overall habits of health and the Menopause Rating Scale (MRS), a QOL tool.

**Results:** A web-based lifestyle management intervention may improve QOL and health habits in menopausal women. Statistically significant improvements in sleep patterns \((p=.009)\) and exercise patterns \((p=.02)\) were noted. Overall perceptions of improved health and mindfulness were also noted, although these findings were not statistically significant.

*Keywords:* menopause, lifestyle medicine, health promotion, diet, exercise, mindfulness, quality of life
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# TABLE OF CONTENTS

## SECTION I: DNP PROJECT

I. Introduction ...................................................................................................................... 12

II. Background and Significance .......................................................................................... 12

   a. Quality of Life ............................................................................................................. 13

   b. Hormone Replacement Therapy ............................................................................. 13

   c. Lifestyle Medicine .................................................................................................... 14

   d. Health Promotion ...................................................................................................... 15

III. Identification of the Problem .......................................................................................... 15

   a. Purpose ...................................................................................................................... 16

   b. PICOT ......................................................................................................................... 16

IV. Aims and Objectives ........................................................................................................ 16

V. Review of the Evidence ................................................................................................... 17

   a. Quality of Life and Menopause ............................................................................ 18

   b. Lifestyle Medicine and Chronic Disease ........................................................... 19

   c. Use of Social Media in Health Care .................................................................... 23

   d. Summary of the Literature .................................................................................... 24

VI. Conceptual Framework .................................................................................................. 26

VII. Methodology ................................................................................................................. 30
a. Setting .................................................................................................................. 31
b. Project Population and Recruitment ................................................................. 31
c. Project Intervention .......................................................................................... 32
d. Outcomes Measures ......................................................................................... 34
e. Ethics and Consent ........................................................................................... 35
f. Risks .................................................................................................................... 36
g. Benefits ............................................................................................................. 36
h. Budget ................................................................................................................ 37
i. Timeline ............................................................................................................. 37
j. Resources ........................................................................................................... 37
k. Data Maintenance and Security ......................................................................... 38
l. Data Analysis ..................................................................................................... 39

VIII. Results ............................................................................................................ 39
IX. Discussion ......................................................................................................... 44
X. Implications ........................................................................................................ 45
  a. Limitations ....................................................................................................... 46
XI. Application to Practice .................................................................................... 46
  a. Dissemination .................................................................................................. 48
XII. Conclusion ........................................................................................................ 49

SECTION II: DNP PROJECT PRODUCT

I. Professional Journal Selection ........................................................................ 50
   A. Scope of Journal ............................................................................................ 50
B. Aims of Journal .................................................................50

II. Improving quality of life in menopausal women through lifestyle intervention:
   A web-based health promotion project........................................51

References ................................................................................63

Figures and Tables ....................................................................76

Appendices ..............................................................................88

   Appendix A – Concept Map
   Appendix B - Recruitment Post
   Appendix C – Eligibility Survey
   Appendix D – Consent Form
   Appendix E - Demographic Survey
   Appendix F - Menopause Rating Scale
   Appendix G – Healthy Lifestyle Survey
   Appendix H – You Tube® Videos
   Appendix I – Morning Intentions
   Appendix J – Evening Reflection
   Appendix K - Workout Wednesday
   Appendix L – Mindful Monday
Appendix M – Thoughtful Thursday
Appendix N – Self Care Sunday
Appendix O – Tasty Tuesday
Appendix P – Food Fact Friday
Appendix Q – Spicy Saturday
Appendix R -Choose You Food Pyramid
Appendix S – Recipes
Appendix T – Exercise Explanations
Appendix U – Sample Workouts
Appendix V – UAH IRB Letter
Improving Quality of Life in Menopausal Women Through Lifestyle Management:
A Web-Based Health Promotion Project

Menopause is defined as ovarian failure with reduction in estrogen and progesterone, manifested by a cessation of menses for 12 months (Hunt, 2016). It can be a natural event due to aging, occur as a result of primary ovarian failure, or can be induced through medical or surgical intervention. Perimenopause is defined as the onset of vasomotor or climacteric symptoms and irregular menstrual cycles (ACOG, 2014). Most women reach menopause between the ages of 45-64, with a mean age of 51, and symptoms can last anywhere from two to ten years (ACOG, 2014; Hunt, 2016). In the United States, approximately 6000 women reach menopause every day, which translates to over two million women per year (ACOG, 2014). Twenty percent of the American workforce, nearly 31 million women, experience symptoms related to menopause, including anxiety, insomnia, hot flashes, headaches, brain fog, aches and pains, and lack of energy (ACOG, 2014). Menopause not only affects the physical and emotional health of women; it also affects the work lives and personal lives of women every day.

Background and Significance

The issues women face with the onset of menopause are both physical and psychosocial. Physically, menopausal women gain weight, usually around their abdomen, and are at increased risk of cardiovascular disease, diabetes mellitus, and osteoporosis (Shifren & Gass, 2014). Psychosocially, women are faced with quality of life (QOL) issues related to change in appearance, emotional lability, changing home life, and perceived loss of womanhood (Asghari, Mirghafourvand, Mohammad-Alizadeh-Charandabi, Malakouti, & Nedjat, 2017).
The American College of Obstetrics and Gynecology (ACOG) practice guidelines propose hormone replacement therapy (HRT) to alleviate climacteric symptoms and reduce physical health effects (ACOG, 2014). These guidelines do not address lifestyle medicine intervention or quality of life issues. The National Institute for Health and Care (NICE) guidelines propose an individualized approach to symptom management, with diet and lifestyle changes as a large component, and HRT therapy to be used with a clear understanding of the risks versus benefits (Orvos, 2017). Many women cannot, or will not, use HRT, so a diet and lifestyle approach to quality of life issues is a necessary component of menopausal management (Orvos, 2017). This DNP project addressed QOL issues in menopausal women through lifestyle management rather than with the use of HRT in the context of Pender’s health promotion theoretical framework and Lewin and Bandura’s theories of change (Bandura, 2004; Cummings, Bridgman, & Brown, 2016; Pender, 2011).

**Quality of Life**

Quality of life can be difficult to define and can mean different things to different people. Health-related QOL as defined in MedicineNet (2018) is “the patient’s ability to enjoy normal life activities.” It is a subjective measurement that is based upon patient perception. Quality of life is multidimensional; physical, functional, emotional, and social well-being all contribute to a patient’s perception of their own quality of life (Shiel, 2018).

**Hormone Replacement Therapy**

Research shows that hormone therapy, estrogen plus progesterone, is the most effective treatment for the vasomotor symptoms of menopause, including hot flashes, night sweats, and vaginal dryness (Roush, 2012). Unfortunately, this treatment comes with known cardiovascular and breast cancer risks (Roush, 2012). While HRT improves vasomotor symptoms in
menopause, it does not effectively address many QOL issues in menopause such as anxiety, insomnia, weight gain, and poor self-esteem. Additionally, there are women who cannot use HRT due to underlying health issues or personal choice. Lifestyle management has been shown to be effective in improving QOL in some menopausal women (Asghari et al., 2017).

**Lifestyle Medicine**

Lifestyle medicine is defined as the treatment of the underlying cause of disease rather than just the treatment of the disease itself (ACLM, 2018). It focuses on behavioral changes to improve health and quality of life and promotes prevention before the need for treatment. Lifestyle medicine maximizes healing through the application of evidence-based practice with a goal of preventing and reversing chronic disease (Kushner & Sorensen, 2013). Modalities used include a plant-based diet, regular physical activity, stress management, adequate sleep, and smoking and alcohol cessation (ACLM, 2018).

Menopause is not a chronic disease, but rather, a function of the aging process; however, lifestyle management may improve QOL in some menopausal women (Jayabharathi & Judie, 2014; Magobe, Poggenpoel, & Myburgh, 2017; NAMS, 2015). Thus, by implementing lifestyle changes, including a minimally processed, whole food diet in conjunction with exercise and mindfulness activities, menopausal women may improve QOL and may minimize the negative physical effects of heart disease, diabetes, and osteoporosis (Cramer, Peng, & Lauche, 2018; Garcia et al., 2014; Im et al., 2017). In primary care, lifestyle medicine management often occurs during the health promotion portion of the visit. This project should give primary care providers a unique approach to health promotion for menopausal women.
Health Promotion

Health promotion is defined by the World Health Organization (2018) as “the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behavior towards a wide range of social and environmental interventions”. It is an important, yet underutilized component of the primary care office visit (Leppin et al., 2018). The focus of the primary care visit tends to be more on governmental health care metric requirements, like Merit-Based Incentive Payment System (MIPS) or Medicare Access and CHIP Reauthorization Act (MACRA), which are tied to payments, rather than evidence-based health promotion, which can be time consuming and often not reimbursable. Time, or lack thereof, is the most often cited reason for limited health promotion activities (Clark et al., 2017; Leppin et al., 2018). Providers also cite lack of knowledge regarding resources and little incentive in the form of reimbursement as reasons for not performing health promotion activities (Clark et al., 2017).

Perhaps the simplest, most cost-effective method to incorporate health promotion into primary care is through technology. A multimedia approach to health promotion yields higher rates of success, while connecting patients to a community of support (Eun-Ok, Wonshik, & Chee, 2014; Magobe et al., 2017). Unfortunately, some menopausal women may feel marginalized by their primary care providers and actively search for solutions on the Internet. Therefore, a web-based health promotion model may be the key to successfully improving the QOL of menopausal women (Clark et al., 2017; Eun-Ok et al., 2014; Hunt, 2016).

Identification of the Problem

While menopause is a normal process of aging, for many women it negatively impacts their QOL. These women are looking for ways to improve their QOL, and many are turning to
the Internet for answers (Eun-Ok et al., 2014; McGloin & Eslami, 2015; Sowter, Astin, Dye, Marshall, & Knapp, 2016). Web-based support groups can be an effective tool for health promotion (Gruver et al., 2016; Morrow et al., 2013; Nakamura et al., 2017). The Internet, however, is riddled with misinformation, so a support group run by a health care provider may ensure that the information shared is medically accurate (Giles, 2012).

Purpose

The purpose of this DNP project was to address QOL issues in menopausal women without the use of HRT in the context of Pender’s Health Promotion Model and Lewin and Bandura’s theories of change.

PICOT

In menopausal women, ages 40-65, how does a web-based lifestyle management intervention of diet, exercise, and mindfulness activities improve QOL and health habits over a 30-day period compared to participant QOL prior to the intervention?

Aims and Objectives

The impetus behind this project was to improve provider support for menopausal women. Health promotion was the focus of this project. The overarching aim of the project was to establish web-based support for menopausal women as they navigate the physical and emotional changes occurring in their bodies. To achieve this aim, three objectives were identified:

1. To create an interactive web-based model for health promotion in menopausal women;

2. To assess QOL and health habits of selected menopausal women in a private Facebook® group;
3. To evaluate the effectiveness of a lifestyle medicine intervention on QOL and health habits of the women participating in the project.

**Review of Evidence**

A literature review was conducted to explore three phenomena:

1. QOL issues in menopausal women;
2. The use of lifestyle medicine to manage disease;
3. Use of web-based, specifically Facebook®, support for medical issues.

It was important to review evidence regarding each of these three phenomena as they are interrelated and represent the core interests of this project. While this study addresses QOL and health habits in menopause, if a women’s physical health is not optimized, her QOL will suffer. Chronic disease, specifically heart disease, diabetes, and osteoporosis, can be a consequence of menopause (Hunt, 2016). The use of the Internet in health care, by health care providers, is relatively new. It was necessary to do this search to validate the interventions of this project.

Databases reviewed include CINAHL, Pubmed, Cochrane Database of Systematic Reviews, SCOPUS, and Medline. Subject terms utilized included menopause, quality of life, lifestyle medicine, health promotion, diet, coronary artery disease, paleo, plant-based, web-based support, and Facebook®. Data searched was confined to publication dates of 2004 to 2019. A fifteen-year date range was used because quality of life in menopausal women is not a frequently studied topic; however, the majority of sources were within a ten-year date range. Only publications written in English were used. A total of 200 articles were accessed and 86 articles were deemed relevant to this project.
QOL and Menopause

There are multiple randomized controlled trials (RCT) that demonstrate the effectiveness of a lifestyle medicine intervention (diet, exercise, mindfulness) on improving the physical health of menopausal women (Anderson, Mizzari, Kain, & Webster, 2006; Egelund et al., 2017; Fujimoto, 2017; Hsiu-Chin, Lee-Ing, & Mei-Hsiang, 2015; Kai, Nagamatsu, Kitabatake, & Sensui, 2016; Mandrup et al., 2018). Anderson et al. (2006) concluded that a diet and exercise intervention did improve physical health in menopausal women. Egelund et al. (2017) studied the impact of aerobic exercise on cardiac health, while Mandrup et al. (2018) examined its impact on insulin levels. In both studies, aerobic exercise improved participant health scores. Hsui-Chin et al. (2015) showed that sleep issues can be improved with mindfulness interventions. Laughter was noted to improve mood in a study by Cha et al. (2012).

A recent RCT by Im (2017) showed that using an Internet web-based approach to lifestyle intervention was effective in improving symptoms of menopause in women (Im et al., 2017). Hoga et al. (2015) conducted a systematic review of qualitative data about how women experience and cope with menopause and associated behaviors. They found that perception and education improved the menopause experience and that the act of “living through” menopause was more important than the physical management of symptoms (Hoga, Rodolfo, Gonçalves, & Quirino, 2015). In other words, empowering women to embrace the changes that occur during menopause improved their QOL.

There are two clinical guidelines that address the vasomotor symptoms of menopause. The American College of Obstetrics and Gynecology practice guidelines propose estrogen hormone replacement therapy, with or without progesterone, at the lowest dose for the shortest possible period of time (ACOG, 2014). There is strong evidence that this treatment will improve
vasomotor symptoms; however, in 50% of menopausal women vasomotor symptoms will return upon cessation of HRT (ACOG, 2014). ACOG guidelines do not address the use of lifestyle management as a means to improve QOL in menopausal women. On the other hand, the National Institute for Health and Care guidelines propose an individualized approach to symptom management. They promote diet and lifestyle changes, with HRT therapy to be used after carefully assessing the risks versus benefits (Orvos, 2017).

There are a couple of studies that indicate a whole food diet combined with lifestyle modifications improve physical health and QOL in menopausal women (Chedraui & Pérez-López, 2013; Davari, Dolutian, Maracy, Sharifirad, & Safavi, 2011). Chedraui et al. (2013) examined how a Mediterranean lifestyle, including a minimally processed food diet along with exercise, improved health and longevity of menopausal women at the biological level. The effect of a healthy nutritional program on the nutritional behavior of menopausal women was assessed by Davani et al. (2011). They noted that this type of program does improve health behavior in menopausal women.

**Lifestyle Medicine and Chronic Disease**

Exercise has been identified as a means to reduce CVD, diabetes, and osteoporosis and to improve general health (Anderson et al., 2006; Asghari et al., 2017; Del Rosso, 2017; Egelund et al., 2017; Kai et al., 2016). Aerobic exercise was determined by both Anderson et al. (2016) and Asghari et al. (2017) to reduce CVD risk factors. Egelund et al. (2017) identified high intensity interval training (HIIT) as a means to maintain cardiac health. Kai et al. (2016) noted that stretching, as in yoga, improved flexibility and reduced joint pain. In a systemic review, Del Russo (2017) found that weightlifting and weight bearing exercise reduce the risk for osteoporosis.
Mindfulness is also an important part of lifestyle medicine. It is defined as being present in the moment, being purposefully aware. It is a quieting of the mind (Savel & Munro, 2017). Mindfulness activities include meditation and yoga. Cha et al. (2012) identified laughter as a key component in mood improvement. Garcia et al. (2014) showed that mindful meditation helps with insomnia. Mindfulness can help menopausal women deal with the symptoms of menopause, thus improving quality of life (Cha, Na, & Hong, 2012; Garcia et al., 2014).

Numerous studies have shown the benefits of dietary approaches to improve general health. The PURE study, the WISEWOMEN study, the Nurse’s Health study, the EPIC study, and the Seven Countries study all identify that diet is a key factor in heart disease, diabetes, and all-cause mortality, which can be a consequence of menopause in some women (Hayashi, Farrell, Chaput, Rocha, & Hernandez, 2010; Miller et al., 2017; Papandreou & Tuomilehto, 2014; von Ruesten, Feller, Bergmann, & Boeing, 2013; Yu et al., 2016). Systematic reviews examined a few different concepts regarding health promotion and diet (Bhattarai et al., 2013; Manheimer, van Zuuren, Fedorowicz, & Pijl, 2015; Shirani, Salehi-Abargouei, & Azadbakht, 2013; Yoko, Levin, & Barnard, 2017). Manheimer et al. (2015) evaluated whether a Paleolithic diet improved risk factors for chronic disease. Sample size was small (n = 159) but this systematic review showed that dietary changes can improve risk factors for metabolic syndrome, which can be a consequence of menopause (Manheimer et al., 2015). Bhattarai et al. (2013) evaluated the effectiveness of primary care interventions related to dietary counseling. They reviewed ten studies, from 1990-2006, and found that dietary counseling in the primary care visits did yield positive results they noted increases in vegetable, fruit and fiber intake and a decrease in fat intake (Bhattarai et al., 2013). A large systematic review by Yoko et al. (2017) evaluated how plant-based diets affect lipids. This review found that a plant-based diet does improve overall
total cholesterol measurement, however its effect on triglycerides was not statistically significant (Yoko et al., 2017). Finally, Shirani et al. (2013) reviewed the effect of the Dietary Approaches to Stop Hypertension (DASH) diet on type 2 diabetes. This review noted that the DASH diet positively impacted blood glucose levels in type 2 diabetics (Shirani et al., 2013). As menopausal women are at risk for diabetes, this is an important study (Harland & Garton, 2016).

Multiple RCTs examined how diet affected risk factors of cardiovascular disease (CVD) (Martin & Akers, 2013; Martínez-González et al., 2015; Otten et al., 2017; Vitale et al., 2016). This is important as CVD is a leading health risk in menopausal women (Harland & Garton, 2016; Hayashi et al., 2010). Martin et al. (2013) concluded that a Paleolithic-style diet improves body fat and reduces blood pressure. Martinez et al., (2015) used the PREDIMED study to identify that a Mediterranean diet improves CVD risk factors; and Otten et al. (2017) noted a reduction in CVD risk factors, including fat mass and insulin sensitivity, in type 2 diabetes using a Paleolithic diet. In the TOSCA.IT study, Vitale et al. (2016) concluded that carbohydrates are not unhealthy, if they are nutrient dense complex carbohydrates. Aa a matter of fact, an increase in complex carbohydrates, thus an increase in fiber, reduced triglycerides and c-reactive protein levels. The WISEWOMAN study revealed that a dietary change to a whole foods diet improved menopausal women’s other health behaviors, including exercise and mindfulness, and improved their 10-year coronary heart disease risk scores (Hayashi et al., 2010).

The PURE study and the Seven Countries study are prospective studies that evaluated the effect of healthy behaviors, diet, and exercise on morbidity and mortality (Dehghan et al., 2017; Menotti & Puddu, 2015; Miller et al., 2017; Papandreou & Tuomilehto, 2014; Teo, Chow, Vaz, Rangarajan, & Yusuf, 2009). The Seven Countries study found that there was a direct correlation between unhealthy behaviors and morbidity and mortality (Papandreou & Tuomilehto, 2014).
The PURE study contraindicated current nutritional guidelines and identified that sugar, not fat, is the primary risk factor in heart disease (Mente et al., 2017; Miller et al., 2017; Teo, Chow, Vaz, Rangarajan, & Yusuf, 2009). As heart disease can be a risk for menopausal women, this is important. In general, menopausal women who have chronic disease, like CVD and diabetes, tend to have poorer QOL (Asghari et al., 2017; Millen et al., 2016). In review of case-controlled studies and case reports, Jarl et al. (2014) noted that the DASH diet reduced blood pressure in patients in their clinic (Jarl, Tolentino, James, Clark, & Ryan, 2014). Lastly, Fuhrman studied the effect of a plant-based diet on modifiable chronic conditions. The results showed that a plant-based diet does reduce CVD risk factors (Sutliffe, Fuhrman, Carnot, Beetham, & Peddy, 2016).

What do the DASH diet, Paleolithic diet, Mediterranean diet, and the plant-based diet all have in common? They recommend eating minimally processed, whole foods, mostly fruit and vegetables, with healthy fat and optimally sourced protein. They minimize dairy and recommend avoidance of processed foods and trans-fat. Based on these studies, a minimally processed, whole foods diet should decrease the risk for CVD and diabetes and reduce morbidity and mortality in menopausal women, which may improve QOL. For the purposes of this project, a minimally processed, whole foods diet was defined by the DNP student as a diet rich in vegetables, animal and plant-based protein, and healthy fat. Fruit was used in moderation, and dairy was used sparingly. Processed food and grains were discouraged.

In a minimally processed, whole foods diet, the source of macronutrients (protein, fat, carbohydrates) is more important than the breakdown of the macronutrients themselves (Dehghan et al., 2017). For example, the macronutrient fat can be healthy if sourced from poly- and mono-unsaturated fats like olive oil, olives, avocado, nuts, and seeds. On the other hand, fat from trans-fats, which is in most processed foods and poor-quality meat sources, is detrimental to
health (Dehghan et al., 2017). The health value of carbohydrates is also dependent upon their sourcing. Carbohydrates from fruit and vegetables are nutrient dense and healthy. Carbohydrates from refined sources like bread, most rice, pasta, pizza, and cookies are calorie dense but nutrient poor, and thus, unhealthy (Vitale et al., 2016). Refined carbohydrate sources have little nutrient value and convert to sugar in the body, causing widespread inflammation, which is a risk factor for heart disease (Dehghan et al., 2017). Protein’s value is also determined by its sourcing. Plant-based proteins are an optimal choice and include beans and legumes in addition to green vegetables like broccoli (Sutliffe et al., 2016). Animal sources of protein should generally be eaten in small quantities after ensuring the animal was optimally fed, i.e., grass fed rather than grain fed (Sutliffe et al., 2016).

Use of Social Media in Health Care

The data on the use of web-based intervention for medical issues is not as strong. The use of social media in health care, by health care providers, is a relatively new concept and one not rigorously studied. There are numerous cohort studies, however, that show that web-based support groups do indeed improve outcomes (Eun-Ok, Wonshik, & Chee, 2014; Gruver et al., 2016; Kattelmann et al., 2014; McGloin & Eslami, 2015; Morrow et al., 2013; Nakamura et al., 2017; Sowter, Astin, Dye, Marshall, & Knapp, 2016). Eun-Ok et al. (2014) concluded that menopausal women can benefit from social media support groups early on, so they do not suffer the symptoms of menopause alone. Gruver et al. (2016) identified that social media support is useful in the prevention of obesity, as it provides knowledge and support. Behavior change after Internet support was examined by Kattelmann et al. (2014). They concluded that Internet intervention supported more positive behaviors and more healthful eating. McGloin et al. (2015) examined the digital age and the use of social media for behavioral change. They concluded that
although social media support groups tend to have positive results, there can be concerns about privacy and misinformation. Diabetic education via web-based educations programs was examined by Morrow et al. (2013). They found that these programs increased patient compliance and improved diagnostic metrics like blood pressure, lipid levels and HgA1C measurement. Nakamura et al. (2017) examined the use of a web-based interventional program to increase vegetable intake of low- and moderate-income Japanese. Their study yielded statistically significant increases in vegetable intake in both income levels. Lastly, Sowter et al. (2016) examined the quality of website information regarding herbal supplements for menopausal women. They found the quality of the information available was poor, which demonstrates a need for health care provider led, accessible information.

There is also limited data regarding the ethics of using social media in health care (Giles, 2012). It is recommended that when using a social media platform like Facebook®, project participants must be informed that total privacy cannot be expected as the experience is interactive (Moreno, Goniu, Moreno, & Diekema, 2013). It is also recommended that participants who wish anonymity can maintain some semblance of privacy by creating a new Facebook® account with a pseudonym as an added layer of privacy (Wang, Lit Woo, Lang Quek, Yang, & Liu, 2012). Data mining, which is sorting through the Facebook® database for information regarding the participant, should not take place without specific participant consent as it can compromise confidentiality (Moreno et al., 2013; Wang et al., 2012).

**Summary of the Literature**

The evidence from the literature reviewed supports that the quality of life, health habits, and physical health of menopausal women can be greatly improved through lifestyle changes and that web-based support groups can help women achieve their goals (Anderson et al., 2006;
Lifestyle changes should include a minimally processed, whole foods diet, exercise, and mindfulness activities. Health promotion during the primary care visit, in conjunction with social media encouragement through group activities, can help solidify these changes (Jane et al., 2017; Wang et al., 2012). Almost all studies noted looked at physical manifestations that can occur in menopause. There are significant gaps in the literature regarding overall QOL of menopausal women and how lifestyle management can improve this QOL. This project can be a first step in closing that gap.

**Rationale for the Project**

Many women are searching for non-hormonal methods to combat menopausal symptoms and improve QOL (Hunt, 2016). A comprehensive diet plan that focuses on minimally processed, whole foods can be effective in reducing comorbidities in menopause (Brończyk-Puzoń et al., 2015; Mente et al., 2017; Miller et al., 2017). Daily exercise, which combines yoga, weight training and cardiovascular conditioning, can reduce instances of both osteoporosis and heart disease, which are common issues associated with menopause (Anderson et al., 2006; Asghari et al., 2017; Egelund et al., 2017). Mindfulness activities like meditation can reduce anxiety and insomnia, two major issues that menopausal women face (Goldstein et al., 2017; Green, Key, & McCabe, 2015). Combining these activities with a multi-media approach, including a web-based interactive group and YouTube® videos, allows women to engage in the learning process (Eun-Ok et al., 2014; Im et al., 2017; Magobe et al., 2017). Therefore, implementation of a web-based lifestyle management health promotion activity should improve QOL in menopausal women and may improve modifiable risk factors, including hypertension, hyperlipidemia and diabetes (Chedraui & Pérez-López, 2013; Jarl et al., 2014).
Conceptual Framework

Primary care practitioners are tasked with applying health promotion models to assist patients with making lifestyle changes (Motaghi, Mojarrad, Nadjafi, & Omidi, 2017). Using Pender’s Health Promotion Model in conjunction with Lewin’s Change Theory and Bandura’s Social Learning Theory, the primary care practitioner can utilize a multimodal approach to promoting lifestyle changes to reduce symptoms in menopausal women, thus improving QOL (Bandura, 2004; Cummings et al., 2016; Pender, 2011).

Nola Pender’s theory of health promotion, also known as the Health Promotion Model (HPM) is a middle range nursing theory (Pender, 2011). It gets its philosophical roots from the Reciprocal Interaction World View, which identifies that individuals are parts of the whole, change is probabilistic and has multiple possible outcomes, reality is relative and that individuals and the environment are shaped by reciprocal interactions (Alkhalailah, Khaled, Baker, & Bond, 2011). The HPM’s theoretical roots are grounded in the Expectancy Value Theory and the Social Cognitive Theory (Pender, 2011). Expectancy Value Theory states that actions are a result of goals and lead to expected outcomes (Alkhalailah et al., 2011). Social Cognitive Theory states that thoughts, behaviors and the environment all interact, and to change behavior, one must first change one’s thoughts (Alkhalailah et al., 2011). In using Pender’s health promotion model as a theoretical framework, one can examine health promoting behaviors and what influences them. The HPM directs interventions towards those most likely to effect change (Alkhalailah, Khaled, Baker, & Bond, 2011; Pender, 2011).

Change theories as a whole, are psychosocial theories that explains how to assist people to effect change (Cummings et al., 2016). Kurt Lewin’s Change Theory is the foundation of change management. It’s simple “change as three steps (CATS)” is the basis for most current
change theory (Cummings et al., 2016). The three steps of the model are unfreezing, change, and refreezing. To effect change, one must be willing to reject prior learning and replace it with new knowledge (Cummings et al., 2016). Changed behavior is achieved in a balance between opposing forces (Cummings et al., 2016).

Social learning theories are a combination of cognitive and behavioral learning theories that explains how people learn, which impacts how their behaviors change (Chen, Wang, & Hung, 2015). Albert Bandura’s Theory of Social Learning states that people have the ability to learn new behavior simply by observing and modeling it (Chen et al., 2015). If said behavior has observed negative consequences, people will be reluctant to make those behavioral changes (Bandura, 2004). This theory assumes that personal factors, environmental factors, and behavioral factors all interact to influence behavioral change (Chen et al., 2015).

**Description of Theory Concepts**

Pender’s Health Promotion Model states that by addressing eight key factors behavior can be changed to achieve a healthy lifestyle. These eight factors include person, environment, nursing, health, illness, individual characteristics and experiences, behavior specific cognitions and affect, and behavioral outcomes-health promoting behaviors (Valek, Greenwald, & Lewis, 2015). These factors fluidly interact to impact behavior. The HPM identifies that health is impacted by the environment, a person’s individualized characteristics, and behavioral influencers such as self-confidence, situational and interpersonal influences and competing demands, commitment to the plan of action, and subjective feelings regarding the plan of action (Valek et al., 2015).

Lewin’s Change Theory can be seen throughout Pender’s Health Promotion Model. Change Theory identifies three concepts: driving forces, restraining forces, and equilibrium
(Bearman, 2015). Driving forces move one in the desired direction of change, restraining forces hold one back from change. In equilibrium, driving and restraining forces are equal and no change occurs (Bearman, 2015). In the CATS model, during the unfreezing stage, driving forces increase to move the person toward a change. In the change stage, the person makes the change in thoughts, feelings, and behaviors through various interventions. In the refreezing stage the change is established as a new habit (Bearman, 2015). If the person does not refreeze, she may slide back into old habits. Bandura’s Social Learning Theory explains the driving and restraining forces that affect a person’s ability to change. Bandura’s theory can be utilized by using a social media platform, such as a support group, for health promotion to encourage modeling.

**Relationship between Theory and Problem**

Lifestyle modification requires a change in behavior. Personal factors, such as physical health and emotional health, interact with environmental factors, such as culture, family and peer relationships, social norms, and fiscal issues to impact behavior (Khodaveisi, Omidi, Farokhi, & Soltanian, 2017). Behavior is also impacted by prior behaviors and perceptions regarding the intended intervention (Khodaveisi et al., 2017). Personal factors, environmental factors, and behavioral factors all influence a person’s commitment to the plan of action (Bond, 2013). These factors can be driving forces, restraining forces, or a combination of both. A person’s commitment to the plan of action plus the actual intervention determines her ability to unfreeze, change, and refreeze and establish a habit (Cummings et al., 2016). That habit then becomes the new equilibrium. This process can be visualized in the concept map (Appendix A).
Application of Concepts to Problem

Using Pender’s Health Promotion Model to improve quality of life in menopausal women is a microsystem approach as it will impact people on an individual level. By addressing the eight key factors of the HPM, behavior can be changed to achieve a healthy lifestyle. Person is the participant and her interaction with her environment, each are shaped by the other. Environment is the context in which the participant lives. It can be manipulated to change behavior. Nursing is the collaboration amongst the participant, her family, the community and her health care provider to ensure optimal wellbeing. Health is ever changing and fluidly interacts with the environment. It is the state of human potential. This DNP project is designed
to positively impact health. *Illnesses* are events that hinder wellbeing and are restraining behaviors. *Individual characteristics* are those that influence health like personality, age, and socioeconomic status. *Individual experiences* are shaped by previous health behaviors.

*Behavior specific cognitions and affect* are the most important pieces of the Health Promotion Model. They are the pressures that influence behaviors and include perceived benefits of and barriers to action; self-confidence; situational and interpersonal influences and competing demands; commitment to the plan of action; subjective feelings regarding the plan of action (Alkhalaileh et al., 2011). *Behavioral outcome-health promoting behavior* is the actual behavior the participant is trying to achieve, which is lifestyle changes to improve QOL. The participant’s experiences, characteristics, health, and illness states, as well as her environment will all impact her health promoting behavior (Alkhalaileh et al., 2011). Her behavioral influencers and her response to the interventions will also impact her success. An approach that targets the behavioral influencers to help the patient make a lifestyle change, through the use of social media and positive reinforcement, should ensure that the participant is successful in this lifestyle management program (M. F. Chen, Wang, & Hung, 2015). Interventions in this DNP project include dietary changes, exercise, and mindfulness interactions through a private Facebook® group.

**Methodology**

This health promotion DNP project used a single group pre-intervention/post-intervention format that included the implementation of a web-based lifestyle intervention of a minimally processed, whole foods diet, exercise, and mindfulness activities to improve QOL in menopausal women.
Setting

This DNP project was implemented virtually. There were no in-person interactions. Participants interacted in a private Facebook® group called Choose You. Facebook® is the world’s largest online social networking service with headquarters in California. It currently averages 1.49 billion users daily. Sixty-eight percent of Americans currently use Facebook® and 66% of them use Facebook® daily. Fifty-three percent of Facebook® users are women and 72% of those aged 50-65 who use the Internet, use Facebook®. Average time spent on Facebook® is 58 minutes a day, spread out over multiple logins throughout the day. Eighty-eight percent of users access Facebook® via a mobile device and over 200 million people participate in meaningful Facebook® groups like the one implemented in this project (Cooper, 2018).

Project Population and Recruitment

The population for this DNP project was a convenience sample of menopausal and perimenopausal women, ages 40-65. Subjects were recruited from a local woman’s Facebook® group called Manalapan Women’s Page. This group is local to the DNP student and she knows the administrator. The group has 2372 members who are women from Monmouth County, NJ.

Eligibility was limited to women who self-identify as peri-menopausal or menopausal. Exclusion criteria included:

- Inability to participate in the full educational program intervention or data collection activities;
- Involvement in other nutritional or health coaching activities;
- Disclosure of illicit drug use;
- Pregnancy, lactation or medically restricted diet.
Participants were volunteers from within the aforementioned Facebook® group. All women who met the criteria were invited to participate. No compensation was offered for participation in the project. A recruitment post (Appendix B) was posted in the Facebook® group and those who wanted to participate were asked to send an email to the DNP student’s UAH email. They were then added to a private Facebook® group where they received an in-depth description of the project. They were given an eligibility survey through SurveyMonkey® (Appendix C) to determine eligibility to participate in the project. Once eligibility was established, they were asked to complete a SurveyMonkey® consent form (Appendix D) if they chose to participate in the project.

A sample size of at least 60, but no more than 100, women was desired for this project. Sixty-eight women volunteered to participate. These 68 women remained as part of the private Facebook® group and all others were removed from the group. This ensured that the only people who could see the interactions were participants in the study. This private Facebook® group was an interactive community to encourage change behavior.

No personal demographic data was mined by the DNP student through Facebook®. Demographic data was collected via participant survey (Appendix E). Prior to the start of the intervention participants were asked to complete two additional SurveyMonkey® surveys, the Menopause Rating Scale (Appendix F) and a Healthy Lifestyle Survey (Appendix G). These surveys served as a baseline assessment and responses were compared to the post-intervention survey responses. It took no more than ten minutes for these surveys to be completed.

**Project Intervention**

This single arm project was designed to evaluate post-intervention quality of life in menopausal women through a web-based lifestyle management program. The 30-day
intervention took place from April 13, 2019 to May 12, 2019. It took place virtually in the private Facebook® group, Choose You. The intervention consisted of:

- Educational YouTube® videos (Appendix H);
- Twice daily mindfulness posts:
  - Morning Intentions (Appendix I);
  - Evening Reflection (Appendix J);
- Online engaging discussion posts (ongoing and based on current discussions);
- Workout Wednesday exercise reminder posts (Appendix K);
- Mindfulness reminder posts:
  - Mindful Monday (Appendix L);
  - Thoughtful Thursday (Appendix M);
  - Self-Care Sunday (Appendix N);
- Nutritional reminder posts:
  - Tasty Tuesday (Appendix O);
  - Food Fact Friday (Appendix P);
  - Spicy Saturday Appendix Q);
- Files with:
  - A food pyramid (Appendix R);
  - Recipes (Appendix S);
  - Exercise explanations (Appendix T);
  - Sample workouts (Appendix U);
  - Mindfulness videos (Appendix V).
Interventions were conducted by the DNP student who has many years of experience in health promotion counseling and lifestyle management of physical health. The rationale for combining education about the menopause process with lifestyle change education was to improve knowledge, self-efficacy, and symptom management skills. In addition, providing information about the menopause process has the potential to validate the physical, emotional, and social experiences of the participants. A multimedia approach to health promotion is thought to yield higher rates of success while connecting participants to a community of support (Eun-Ok et al., 2014; Magobe et al., 2017). Furthermore, use of a variety of web-based interventions may allow for different styles of learning.

**Outcome Measures**

Quality of life outcomes, including reduction in vasomotor symptoms, fatigue, and insomnia, were measured using the Menopause Rating Scale, a reliable and valid tool to measure patient’s perceptions of improvement of menopausal symptoms and quality of life (Tao, Shao, Li, & Teng, 2013). Studies show that if a woman’s vasomotor symptoms are controlled, her QOL improves, and she views menopause in a positive light (Hoga et al., 2015). Additionally, participant’s perception of their own health habits, as measured by the Healthy Lifestyle Survey, was explored. Finally, demographic data was reviewed for trends related to demographics. The Healthy Lifestyle Survey and demographic survey were simple questionnaires created by the DNP student on SurveyMonkey®.

It was anticipated that a lifestyle medicine intervention of dietary change, exercise, and mindfulness would improve quality of life in menopausal women as measured by the Menopause Rating Scale. Further, it was anticipated that there would be an improvement in health habits of participants as measured by the Healthy Lifestyle Survey.
Ethics and Consent

This project adhered to ethical principles. It observed principles of beneficence and non-maleficence while minimizing potential harm. Principles of autonomy were honored by respecting the free choice of participants to participate in the project. The principle of justice was promoted by treating all participants equitably and fairly, regardless of their age, religion, race or participation in the project.

Ethical Concerns Regarding Facebook®

Data collection did not occur on Facebook®; Facebook® was merely a vehicle for communication. Data collection took place via SurveyMonkey®, an online survey tool with embedded privacy controls (Herreid, Schiller, Herreid, & Wright, 2014). SurveyMonkey® uses Transport Layer Security encryption for its data. Passwords were protected through a Secure Hash Algorithm, SHA-256, with a unique 128-bit salt per user (Survey Monkey, 2018). SurveyMonkey® data is stored in the United States. Users had complete control over their own data and could delete their data or account at any time. SurveyMonkey® is certified to collect protected health information and is HIPAA compliant (SurveyMonkey®, 2018). Survey data used in this project was downloaded to a local drive and kept in a secure filing cabinet to maintain the integrity of the data.

Consent

After approval from the University of Alabama at Huntsville Institutional Review Board (Appendix W), informed consent for project participation was obtained. All participants were asked to sign a basic consent form (Appendix E) prior to participating in the project. Consent was obtained from each participant by the DNP student. It was emphasized by the DNP student that participation in this project was voluntary and consent could be withdrawn at any time.
without penalty. Participants were given the opportunity to ask questions, consider the risks and benefits of participation, and were not coerced into signing consent. Participants were advised that privacy is of the utmost importance but that total privacy could not be ensured as they were participants in a private Facebook® group with other participants.

**Human Subject Statement**

This scholarly project was approved by the University of Alabama in Huntsville Internal Review Board. Participants gave informed consent after eligibility screening.

**Conflict of Interest**

The DNP student had no conflict of interest to report regarding this scholarly project.

**Risks**

Although there was no foreseeable risk, participants were advised to speak with their primary care provider before embarking on this health journey. They were not required to provide documentation of this approval. The identity of all participants was kept private to the group. The nature of the project relied upon participants interacting with each other, so total privacy was not feasible.

**Benefits**

The benefit of this program was improved quality of life and health habits in menopausal women. Participants may have also seen improvements in relationships through improved self-efficacy. On a macrosystem level, benefits also may include improved health promotion processes in primary care offices. Overall, health improvements can potentially reduce health care costs and morbidity and mortality.
Budget

The budget for this health promotion project was small as there were few expenses. Nominal funds, exceeding no more than $300, were required to put together the content of the program and make an educational poster. This was self-funded by the DNP student. The program took place virtually in a private Facebook® group and interactions were through that same group. No additional costs were incurred by the participants. The DNP student donated 500 volunteer hours to this project.

Timeline

Recruitment of participants began April 1, 2019 and ended April 7, 2019. Consents and pre-intervention surveys were completed from April 7, 2019 to April 12, 2019. The intervention took place virtually over the next four weeks, from April 13, 2019 through May 12, 2019. Intervention wrap-up, and the post-intervention Healthy Lifestyle Survey and Menopause Rating Scale assessment took place from May 13, 2019 through May 19, 2019.

Resources

DNP student administered data collection occurred at recruitment, pre-intervention and immediately post-intervention through SurveyMonkey® online surveys. SurveyMonkey® surveys, including the Healthy Lifestyle Survey (HLS) were simple questionnaires. The MRS tool used has been tested for reliability and validity (Heinemann, 2003). The effectiveness of the intervention was measured using the MRS tool and the HLS in a pre- and post-intervention format. The variables measured were:

- QOL perception as measured by the Menopause Rating Scale;
- Diet, exercise, and mindfulness activities pre- and post-intervention as measured by the Healthy Lifestyle Survey;
Impact of sociodemographic data on results.

No other space, equipment or staffing was needed. The DNP student volunteered her time to complete the project and does not expect to receive any payment for her work.

**Evaluation**

**Data Maintenance and Security**

Data was stripped of participant identifiers and there was no way to link data back to the participant. Each participant was randomly assigned a number. The master list, as well as signed consent forms, was kept on a flash drive in a locked filing cabinet in the DNP student’s office at Shrewsbury Family Medicine, Shrewsbury, NJ. Access to this office is restricted to providers in the practice. The coded data list was kept as a spreadsheet in Excel and was not shared with anyone other than the DNP student. Communication regarding this project was through University of Alabama in Huntsville (UAH) email. Information was presented via an oral presentation to the UAH College of Nursing DNP Committee. Only de-identified data was used for statistical analysis. After project completion all links to participant identifiers, including the master list of participants and email correspondence with participants, was shredded and disposed of appropriately. Email correspondence with participants was erased and the Facebook® group was deleted. Participant consent forms will be kept on a flash drive in a locked filing cabinet in the DNP student’s office for three years. In accordance with University of Alabama in Huntsville policy, all data and subject consent forms will be shredded and discarded after six years.
Data Analysis

The goal of data analysis was to measure the impact of a web-based lifestyle management program on perceived QOL and health habits of menopausal women, via a Facebook® support group. To achieve this goal, data analysis of the following occurred:

- Sociodemographic factors that may impact success;
- Comparison of pre- and post-intervention QOL perception;
- Comparison of pre- and post-intervention health habits activity.

Statistical analysis was performed using Excel 2016. First, the data was cleaned by running frequency tables to look for missing values (Osborne, 2013). Any missing values found were filled via mean substitution (Kang, 2013). Descriptive statistics were run on the sociodemographic data (Sheskin, 2011). The questions of gender, menopausal status, health coaching activities, taking illicit drugs, and pregnancy were all nominal data, therefore frequencies and percentages were obtained (Table 1).

Inferential statistical analysis was run on the Menopause Rating Scale (Table 2) and Healthy Lifestyle Survey (Table 3) to answer the PICOT question. They both produced interval scores for both pre-intervention and post-intervention. A paired t-test is used when the participants are the same in pre- and post-conditions and the dependent variable is interval (Sheskin, 2011). Two paired t-tests were used to analyze the Menopause Rating Scale and Healthy Lifestyle Survey.

Results

Data collection occurred in the two weeks prior to the 30-day intervention and in the one week following the intervention. Sixty-eight women volunteered to participate in the program and all 68 were deemed eligible. Sixty-five women completed the pre-intervention surveys and
were admitted to the private Facebook® page. The intervention consisted of at least three Facebook® posts daily and engaging interaction with the participants. There were also YouTube® videos for the participants to watch. Two women left the group in the middle of the intervention for unknown reasons. Sixty-three women completed the intervention and were sent post-intervention surveys. Of those 63, 54 women completed the entire program inclusive of the exit surveys (n=54).

The sample (n=54) included 54 women. As seen in Table 1, most participants reported being between 48-51 years old (n = 14, 25.9%), and having a Bachelor’s degree (n = 15, 27.8%) or Graduate degree (n = 14, 25.9%). Most were employed part time (n = 24, 44.4%) or full time (n = 24, 44.4%). Household earnings varied from $10,000 a year to $200,000 and up, with the majority earning $200,000 or more (n = 11, 20.4%). Most participants reported being White (n = 52, 96.3%) and not Hispanic (n = 51, 94.4%). Finally, most participants reported being married (n = 43, 79.6%).

The sample group had a relatively normal distribution for their ages (Figure 1), with a very slight skew toward the younger age groups. The education demographic was moderately skewed toward Bachelor’s and Master’s degrees (Figure 2), and the income demographic was moderately skewed to higher income brackets (Figure 3). The race, employment, and relationship demographics were all heavily skewed toward white (Figure 4), employed (Figure 5), and married (Figure 6), respectively. Therefore, this sample group was a representative of employed, wealthy, married, white women, who have at least attained a Bachelor’s degree.

In assessment of Facebook® statistics, 50 out of the initial 63 women actively participated in the group, either by posting comments, liking posts, or creating their own posts. This is indicative of a very interactive group. Eight out of the 9 women who did not complete the post-
intervention surveys also did not actively participate in the group. It is possible that lack of participation signified that the women were not ready to make a change, thus they did not finish the project. The most popular days to post were Mondays and Saturdays and the most popular post times were 10 am and 11 pm. This is important to note for future Facebook® support group interaction.

Findings

A paired $t$-test was used to analyze the Menopause Rating Scale. On the Menopause Rating Scale, the lower the score, the less symptomology reported. The paired $t$-test was run for each question (Table 2) and the only statistically significant mean difference was found in sleep problems ($p = .009$). There was a significant change in the mean for the question “Do you have sleep problems?” (Table 3). There was a 100% increase for “none” (pre $n = 4$, post $n = 8$), and a 100% increase for “mild” rating (pre $n = 10$, post $n = 20$). Conversely, there was a 28% decrease (pre $n = 25$, post $n = 18$) in the “moderate” rating, and a 50% decrease (pre $n = 14$, post $n = 7$) in the “severe” category (Figure 7).

When applicable, a paired $t$-test was used to analyze the Healthy Lifestyle Survey. For the test to be effective, the question had to have a sliding scale answer, with no open answers. This requirement precluded the questions “Do you take supplements?”, “What do you most often do for exercise?”, and “What do you think of when someone uses the term ‘mindfulness’?”. There were no statistically significant differences found between the pre-Healthy Lifestyle Survey (pre-HLS) and the post-Healthy Lifestyle Survey (post-HLS), except for the question “How much exercise do you feel you get?” (Table 4). On the pre-HLS, 28 individuals felt they received “Too Little” exercise, 12 individuals felt they received “Too Much” exercise, and 14 individuals felt they received “Just Right” amounts of exercise. On the post-HLS, 18 felt they received “Too
Little”, and 22 felt they received “Too Much”, representing a 35.7% decrease and an 83.3% increase, respectively (Figure 8).

In looking at sociodemographic data, higher educated adults tend to live healthier lives (Montez et al., 2019). To determine if the findings of Montez et al. correlated with the Healthy Lifestyle Survey, comparison amongst the different educational demographics and the HLS was performed. Two significant results were found: the Bachelor’s degree demographic had a significant change with regard to feelings about exercise, and the Associate’s degree had a significant difference in carbohydrate consumption (Table 5). In the Bachelor’s degree subgroup, there was a significant change for the answer to “How much exercise do you feel you get?” On the pre-HLS, 6 individuals felt they received “Too Little”, 4 felt they received “Just Right” and 4 felt they received “Too Much” exercise. On the post-HLS, 3 felt they received “Too Little”, 2 felt they had “Just Right”, and 9 felt they had “Too Much” exercise. This represents a 50% decrease in the first and second categories, and a 125% increase in the “Too Much” exercise category (Figure 9). In the Associate degree subgroup, there was a significant change for the answer to “On a typical day, how many of your meals or snacks include carbohydrates?” (Figure 10). Two individuals answered 1 meal, two individuals answered 2 meals, and two individuals answered 3 meals in both pre-HLS and post-HLS surveys. There was a 300% increase in the post-HLS survey for 4 meals, increasing from 1 individual to 4 (Figure 10).

Other Findings

Although not statistically significant, a review of the data of the MRS tool noted that mood, irritability, anxiety, exhaustion, and muscle/joint discomfort all improved post-intervention. There was no improvement in hot flashes, heart discomfort, sexual problems, bladder problems, or vaginal dryness. A review of the data of the Healthy Lifestyle Survey also
showed some key improvements. In looking at the question "How healthy are you?", one-third of the participants felt their health improved post-intervention and 35 out of 54 felt they were in good health. The question “Do you take nutritional supplements?” showed that two-thirds of the women take supplements and they most frequently took a multi-vitamin, vitamin D3, and magnesium. As noted above, the question about exercise showed a statistically significant increase in exercise \((p = .02)\). Pre-intervention more than half felt they did not get enough exercise; post-intervention only one-third felt they were not getting enough exercise. More than 50% of the women walk for their exercise and another 20% do a variety of classes including Pilates, Barre, yoga, Zumba, and martial arts. In looking at diet, the question “How many meals/snacks include carbohydrates?” yielded negligible results. Two-thirds of participants eat carbohydrates 3 or less times a day. Twenty-two participants decreased their carbohydrate intake and 17 increased their carbohydrate intake. In the program, there was discussion about carbohydrates and that micronutrient dense carbohydrates from vegetables and fruit like sweet potatoes and berries provided energy for the body. However, the program also identified that carbohydrates should be eaten less frequently than other vegetables, which may have been the impetus for change in both directions as three-quarters of the participants made changes in the carbohydrate intake.

The question “How many meals/snacks include protein?” identified that most participants eat protein 2-3 times a day, 19 participants increased their protein intake and 14 participants decreased their protein intake. Two-thirds of participants made a change in their protein intake. The program focused on protein as a necessary macronutrient to maintain muscle mass, so an adequate protein intake is important. The question “How many meals/snacks include vegetables?” showed that half the participants eat 3 or more servings of vegetables a day. The
number that eats only one serving a day went from 17 to 10 participants. Because vegetables are so micronutrient dense, they are the mainstay of the dietary program. The answers to “How many meals/snacks include fruit?” were unchanged. Most participants eat 1-2 servings a day, which was deemed appropriate. In looking at “How many participants eat ready-made meals?” an astonishing 52 out of 54 do not eat ready-made or microwave food. This is perhaps the most telling data point, as most of these participants were already eating a diet of minimally processed food. The last question had to do with mindfulness. Most women had a general idea of what mindfulness was pre-intervention, but they all became much more focused on what mindfulness was to each of them individually post-intervention. This was evidenced by their statements, which were self-focused rather than general definitions. This was an exciting thing to see as post-intervention they were more thoughtful and more focused on their own lifestyle.

Discussion

A web-based interactive lifestyle management program for menopausal women yielded statistically significant reductions in insomnia and sleep related disorders and an increase in exercise as perceived by the women in this study. Not statistically significant, but important nonetheless, the data revealed that participants had a decrease in irritability, anxiety, and exhaustion; an increase in understanding of mindfulness; an increased awareness of what they were eating and its health value. The participants may not have learned new eating or exercising habits, as they may have already had them. Rather, perhaps the participants learned to feel more comfortable with themselves. This behavioral change was noted because the participants felt that they were receiving more than adequate exercise post-intervention, possibly signifying a comfort with their physique. They were also sleeping better, possibly signifying a better ability to relax.
In their final comments on Facebook®, many participants indicated that they enjoyed the web-based support and asked to continue the group when the project is done.

**Implications**

Implications for practice include future development of guidelines for primary care providers (PCP) to use in the lifestyle management of menopausal women. If PCPs do not address the health promotion needs of patients, the patients may turn to the Internet (Magobe et al., 2017). There is a plethora of information on the Internet and patients have a difficult time sifting through to find sound medical advice (Giles, 2012). Because of these difficulties, they may not participate in any health promotion practices (Giles, 2012). This lack of participation can be detrimental to both the patient’s health and the trust in the patient-provider relationship. Telling patients to make lifestyle changes to improve menopausal symptoms but giving them no guidance dooms them to fail. This results in more patient visits, a lack of understanding of the menopausal process, lack of understanding of lifestyle modifications, and patients turning to the Internet for answers (Magobe et al., 2017). It is the responsibility of providers to ensure that patients have the tools they need to succeed in the management of their own health. While sometimes that includes medication, many times lifestyle modifications may be all a patient requires (Magobe et al., 2017).

It is also important to understand the whys of patient behavior as one cannot effect change without patient participation (Chen et al., 2015). By focusing interventions on behavior influencers, one can break down the barriers to change. Pender’s Health Promotion Model has been used effectively in exercise and nutritional counseling prior to the advent of disease, rather than after disease has occurred (Alkhalaileh et al., 2011; Khodaveisi et al., 2017). It is proactive rather than reactive. Thus, Pender’s Health Promotion Model was an effective model to
implement this DNP project. Web-based support, in conjunction with lifestyle changes can help menopausal women improve their health habits and QOL and decrease their risk for chronic disease.

This model for improvement may have far reaching implications. By shifting health promotion to web-based support, providers may improve the quality of life of menopausal women. In addition, with modifications, this model may also be adapted to reduce symptoms in many chronic diseases (Sutliffe et al., 2016).

Lifestyle medicine is a necessary component of primary care. Many patients are no longer content to be handed medication for their medical issues. Many patients want a more natural, lifestyle driven approach to health care, and DNPs are leading the charge to healthier lifestyles and healthier patients.

Limitations

This project was limited by the study demographics of women in Monmouth County, NJ who tend to be white, wealthy with advanced degrees. Further studies are needed to determine generalization to other sociodemographic areas. Sample size was small \(n = 54\). A larger, more diverse sample population would be important to study. A longitudinal study would help determine the long-term effectiveness of this web-based intervention. Also, it cannot be accurately determined if participants would have felt equally better on another program. Lastly, eligibility for participation and study results are dependent upon the participant’s ability to accurately self-report.

Application to Clinical Practice

This project can be applied to clinical practice in primary care with the development of guidelines for primary care providers (PCP) to use in the health promotion of menopausal
women. Use of lifestyle management and web-based technology as the vehicle for patient-focused care, improves outcomes. Disseminating knowledge hits many of the DNP Essentials.

- **Scientific Underpinning (DNP Essential I)**
  - Pender’s Health Promotion Model, Lewin’s Change Theory, Bandura's Theory of Social Learning;

- **Leadership for Quality Improvement (DNP Essential II)**
  - While this activity was done on a microsystem level, the use of a web-based program has broad implications as improvement in health and wellbeing impacts societal relationships and health care costs;
  - This research can be translated to a web-based platform of lifestyle management activities for menopausal women and others with chronic disease;

- **The Use of Evidence-Based Practice (DNP Essential III)**
  - Clear evidence was found in the literature review that lifestyle modifications may improve QOL and health habits of menopausal women while using a web-based platform to take a unique approach to health promotion;

- **Technology (DNP Essential IV)**
  - This project used a multimedia approach to effect behavior change while maintaining ethical values;

- **Health Care Policy and Advocacy (DNP Essential V)**
  - This is a unique method of health promotion and patient advocacy; policy would need to be developed to address any HIPAA concerns;
Interprofessional Collaboration (*DNP Essential VI*)

- This health promotion activity was team-based, and had input from multiple disciplines as well as the participant and her own team.
- For this project, the disciplines involved include a registered dietician, a certified personal trainer, a certified health coach, a certified yoga instructor, and a biostatistician in addition to the DNP student.

Population Health (*DNP Essential VII*)

- Outcomes impact both the individual on the microsystem level and ultimately the health care arena as a whole (macrosystem) in relation to health care cost, lost productivity, and morbidity and mortality. In addition, this model can be applied to any population and to the prevention or treatment of any lifestyle-related disease.

Advanced Nursing Practice (*DNP Essential VIII*)

- This project demonstrates advanced critical thinking, systems thinking and delivery of evidence-based care while guiding patients through complex health transition as evidenced by the multimodal approach used in this project.

**Dissemination**

The results of this project were presented orally as a DNP project to the College of Nursing DNP committee at the University of Alabama at Huntsville. It was submitted as a paper to the University of Alabama and an altered version will be presented for publication through the Journal of the American College of Lifestyle Medicine. A condensed version may be presented.
in poster format at the DNP Intensive at the University of Alabama at Huntsville in October, 2019 or the American College of Lifestyle Medicine conference in October, 2019.

CONCLUSION

Web-based support groups for menopausal women may improve their perceived quality of life. Based on participant comments, improvements in diet and exercise habits and participation in mindfulness activities seemed to make participant women feel better about themselves. The group setting made them feel less alone in their journey through womanhood. And the relative anonymity of the private Facebook® group gave them courage to discuss issues that they may have felt shy about discussing in a live support group.

Eating a minimally processed, whole foods diet which includes micronutrient dense carbohydrate choices and limited processed foods supports optimal health. Exercise choices can maximize cardiovascular, muscle and bone health. Mindfulness activities can nourish a woman’s mental and emotional health. It is important to address these issues in the health promotion piece of the primary care visit. Health care provider run Facebook® support groups can bridge the gaps in the care of menopausal women.
SECTION II: DNP PROJECT PRODUCT

Professional Journal Selection

The professional journal that has been identified for publication of this DNP project is American Journal of Lifestyle Medicine (AJLM). The American Journal of Lifestyle Medicine is the official peer-reviewed journal of the American College of Lifestyle Medicine. The scope and aim of the AJLM were identified on the American College of Lifestyle Medicine (ACLM) website and are provided below.

Scope of Journal

The American Journal of Lifestyle Medicine seeks peer-reviewed manuscripts pertinent to the practice of lifestyle medicine. The purpose of the journal is to help primary care practitioners guide their patients towards healthier lifestyles. Journal content includes topics related to nutrition and diet, physical activity, behavior change, cardiovascular disease, obesity, anxiety and depression, sleep problems, metabolic disease, women’s health as well as other pertinent topics in a readable format.

This journal looks for manuscripts that are current reviews or original research articles. Article types include clinical trials, before-and-after studies, cohort studies, case-control studies, cross-sectional surveys, and diagnostic test assessments. The AJLM is published through Sage Publishing and is a member of the Committee on Publication Ethics (COPE).

Aims of Journal

The American Journal of Lifestyle Medicine is a professional resource for practitioners seeking to incorporate lifestyle medicine into clinical practice. AJLM focuses on the impact that lifestyle choices have on health, encouraging the interaction between traditional medicine and
lifestyle medicine to treat disease, and providing information about interventions that minimize the impact of illness.

**ABSTRACT**

**Introduction:** The symptoms of menopause affect 2 million women per year. Patient education and health promotion are key components of the primary care well visit. Lifestyle medicine focuses on behavioral changes to improve health and quality of life. One can use lifestyle medicine to promote wellness in menopausal women, thus improving their mental and physical health. Current data suggests that behavioral counseling enhances the patient education experience. A series of behavioral changes in diet, exercise and mindfulness can be used. Social media is an effective tool to engage the population at large, while small group or individual counseling works on a more personal level. The goal of lifestyle medicine is to ensure that interventions reach the population at large. This project gives providers a unique approach to interacting with menopausal women. A lifestyle approach to addressing the health issues of menopausal women can be as global or as individual as one desires. The primary care provider is the optimal provider to engage patients in this process.

**Purpose:** The purpose of this project was to implement a web-based lifestyle medicine intervention to improve quality of life (QOL) in menopausal women. The objectives were to create an interactive web-based model for health promotion for menopausal women, to assess QOL and health habits of selected menopausal women in a private Facebook® group and to evaluate the effectiveness of a lifestyle medicine intervention on QOL and health habits of the women participating in the project.

**Method:** A health promotion initiative was undertaken with a preintervention/postintervention design. This health promotion initiative was designed as a web-based support group and took place virtually in a private Facebook® group.

**Intervention:** A web-based lifestyle medicine educational intervention was offered to peri and post-menopausal women (n = 54) who volunteered to participate in the program. The intervention included dietary, exercise and mindfulness guidelines, using a private Facebook® group as the vehicle for communication. Women were surveyed before and after the intervention with two surveys, a Healthy Lifestyle Survey which identified women’s perception of their overall habits of health and the Menopause Rating Scale, a QOL tool.

**Results:** A web-based lifestyle medicine intervention may improve QOL and health habits in menopausal women. Statistically significant improvements in sleep patterns (p=.009) and exercise patterns (p=.02) were noted. Overall perceptions of improved health and mindfulness were also noted, although these findings were not statistically significant.

**Keywords:** menopause, lifestyle medicine, health promotion, diet, exercise, mindfulness, quality of life
BACKGROUND

Menopause is defined as ovarian failure with reduction in estrogen and progesterone, manifested by a cessation of menses for 12 months (Hunt, 2016). It can be a natural event due to aging, occur as a result of primary ovarian failure, or can be induced through medical or surgical intervention. Perimenopause is defined as the onset of vasomotor or climacteric symptoms and irregular menstrual cycles (ACOG, 2014). Most women reach menopause between the ages of 45-64, with a mean age of 51, and symptoms can last anywhere from two to ten years (ACOG, 2014; Hunt, 2016). In the United States, approximately 6000 women reach menopause every day, which translates to over two million women per year (ACOG, 2014). Twenty percent of the American workforce, nearly 31 million women, experience symptoms related to menopause, including anxiety, insomnia, hot flashes, headaches, brain fog, aches and pains, and lack of energy (ACOG, 2014). Menopausal symptoms not only affect the physical and emotional health of women, they also affect the work lives and personal lives of women every day.

Menopausal issues can both physical and psychosocial. Physically, menopausal women gain weight, usually around their abdomen, and are at increased risk of cardiovascular disease, diabetes mellitus, and osteoporosis (Shifren & Gass, 2014). Psychosocially, women are faced with quality of life (QOL) issues related to change in appearance, emotional lability, changing home life, and perceived loss of womanhood (Asghari et al., 2017).

The American College of Obstetrics and Gynecology (ACOG) practice guidelines propose hormone replacement therapy (HRT) to alleviate climacteric symptoms and reduce physical health effects (ACOG, 2014). The National Institute for Health and Care (NICE) guidelines propose an individualized approach to symptom management with diet and lifestyle changes as a large component, and HRT therapy to be used with a clear understanding of the
risks versus benefits (Orvos, 2017). Many women cannot or will not use HRT, so a diet and lifestyle approach to quality of life issues may be a necessary component of menopause management (Orvos, 2017).

**Hormone Replacement Therapy**

Research shows that hormone therapy, estrogen plus progesterone, is the most effective treatment for the vasomotor symptoms of menopause, including hot flashes, night sweats, and vaginal dryness (Roush, 2012). Unfortunately, this treatment comes with known cardiovascular and breast cancer risks (Roush, 2012). While HRT improves vasomotor symptoms in menopause, it does not effectively address many QOL issues in menopause, such as anxiety, insomnia, weight gain, and poor self-esteem. Lifestyle management has been shown to be effective in improving QOL in some menopausal women (Asghari et al., 2017).

**Lifestyle Medicine**

The American College of Lifestyle Medicine (2018) defines lifestyle medicine as the treatment of the underlying cause of disease and not just the disease itself. It focuses on prevention before the need for treatment. Lifestyle medicine maximizes healing through the application of evidenced based practice to both individuals and communities with a goal of preventing and reversing chronic disease (Kushner & Sorensen, 2013). Menopause is not a chronic disease but rather a function of the aging process; however, lifestyle management can improve QOL in some menopausal women (Jayabharathi & Judie, 2014; Magobe, Poggenpoel, & Myburgh, 2017; NAMS, 2015). By using lifestyle changes, including a whole food diet in conjunction with exercise and mindfulness activities, menopausal women can improve QOL and minimize the negative physical effects of heart disease, diabetes and osteoporosis (Cramer, Peng,
Lifestyle intervention can be used in the health promotion piece of the primary care visit.

**Health Promotion**

Health promotion is defined by the World Health Organization (2018) as “the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behavior towards a wide range of social and environmental interventions.” It is an important, yet underutilized component of the primary care office visit (Leppin et al., 2018). The focus of the primary care visit tends to be more on governmental health care metric requirements, like Merit-Based Incentive Payment System (MIPS) or Medicare Access and CHIP Reauthorization Act (MACRA), which are tied to payments, rather than evidence-based health promotion, which can be time consuming and often not reimbursable. Time, or lack thereof, is the most often cited reason for limited health promotion activities (Clark et al., 2017; Leppin et al., 2018). Providers also cite lack of knowledge regarding resources and little incentive in the form of reimbursement as reasons for not performing health promotion activities (Clark et al., 2017).

Perhaps the simplest, most cost-effective method to incorporate health promotion into the primary care visit is through technology. A multimedia approach to health promotion yields higher rates of success, while connecting patients to a community of support (Eun-Ok et al., 2014; Magobe et al., 2017). Menopausal women sometimes feel marginalized by their primary care providers and actively search for solutions on the Internet. Therefore, a web-based health promotion model may be the key to successfully improving the QOL of menopausal women (Clark et al., 2017; Eun-Ok et al., 2014; Hunt, 2016).
Social Media Support Groups

Social media support groups exist throughout the Internet, and Facebook® is one of the largest repositories of support (Cooper, 2018). In fact, over 200 million people participate in Facebook® support groups. Facebook® is the world’s largest online social networking service with headquarters in California. It currently averages 1.49 billion users daily. Sixty-eight percent of Americans currently use Facebook® and 66% of them use Facebook® daily. Fifty-three percent of Facebook® users are women and 72% of those aged 50-65 who use the Internet use Facebook®. Average time spent on Facebook® is 58 minutes a day, spread out over multiple logins throughout the day. Eighty-eight percent of users access Facebook® via a mobile device (Cooper, 2018). These staggering statistics show that Facebook® support groups can be a useful tool for health promotion in primary care.

PROBLEM

While menopause is a normal process of aging, for many women it negatively impacts their QOL. These women are looking for ways to improve their QOL, and many are turning to the Internet for answers (Eun-Ok et al., 2014; McGloin & Eslami, 2015; Sowter et al., 2016). Web-based support groups can be an effective tool for health promotion (Gruver et al., 2016; Morrow et al., 2013; Nakamura et al., 2017). The Internet, however, is riddled with misinformation, so a group run by a health care provider may ensure that the information shared is medically accurate (Giles, 2012). The author looked at QOL of menopausal women, ages 40-65 before and after a web-based lifestyle management intervention of nutrition, exercise and mindfulness activities. The goal was to improve provider support for menopausal women through a health promotion lens. The overarching aim was to establish web-based support for
menopausal women as they navigate the physical and emotional changes occurring in their bodies.

**METHODS**

The intervention of dietary support, exercise and mindfulness activities took place virtually in a private Facebook® group. There were no in-person interactions. No personal data was mined from Facebook® and participants were reminded that, although the group was private, nothing they wrote in the group should contain protected patient data as the security of this forum cannot be guaranteed. This Facebook® group was solely for information and support.

This lifestyle management program was a 30-day intervention which took place virtually in a private Facebook® group. The intervention consisted of educational YouTube® videos, online engaging discussion posts, nutritional reminder posts, exercise reminder posts, and mindfulness reminder posts. Additionally, the group files section contained a food pyramid, recipes, exercise type explanations, sample workouts, and mindfulness/yoga videos.

Combining education about the menopause process with lifestyle change education enabled the participants to improve knowledge, self-efficacy, and symptom management skills. Use of a variety of web-based interventions allowed for different styles of learning. Providing information about menopause validates the physical, emotional and social experiences the participants have. A multimedia approach to health promotion can yield higher rates of success while connecting participants to a community of support (Eun-Ok et al., 2014; Magobe et al., 2017).

The dietary portion of the intervention consisted of a clean, whole foods diet that was plant-based. It allowed for small amounts of optimally sourced animal-based proteins in addition to plant-based proteins such as beans and legumes. It removed processed foods and limited dairy
and carbohydrates to nutrient dense foods. The participants were given a food pyramid to use as a guide.

The exercise portion of the program focused on maintaining muscle mass, bone strength, and cardiovascular health. The optimal mix of exercises to achieve these goals is two days of interval high intensity cardiovascular exercise, like HIIT training, for cardiovascular health, two days of strength training to maintain muscle mass and optimize bone health, and two days of yoga to improve flexibility and mindfulness (Burrup, Tucker, Le Cheminant, & Bailey, 2018; Egelund et al., 2017; Jayabharathi & Judie, 2014).

The mindfulness portion of the program gave participants daily positive reminders in an attempt to ensure the days were greeted with a positive mindset. Positive mindset has been shown to improve QOL (Cha et al., 2012).

RESULTS

Quality of life outcomes, including reduction in climacteric symptoms, fatigue and insomnia, were measured using the Menopause Rating Scale (MRS), a reliable and valid tool to measure patient’s perceptions of improvement in menopausal symptoms and quality of life (J. T. Chen & Kotani, 2013; Tao, Shao, Li, & Teng, 2013). Studies show that if a woman’s climacteric symptoms are controlled, her QOL improves and she views menopause in a positive light (Hoga, Rodolpho, Gonçalves, & Quirino, 2015). Additionally, participant’s perception of their own health habits, as measured by the Healthy Lifestyle Survey, was explored. Demographic data was reviewed for trends related to demographics. Data collection occurred through SurveyMonkey® online surveys.

Sixty-eight women volunteered to participate in the program and all 68 were deemed eligible. Sixty-five women completed the pre-intervention surveys and were admitted to the
private Facebook® page. Intervention consisted of at least three Facebook® posts daily and engaging interaction with the participants. There were also YouTube® videos for the participants to watch. Two women left the group in the middle of the intervention for unknown reasons. Sixty-three women completed the intervention and were sent post-intervention surveys. Of those 63, 54 women completed the entire program inclusive of the exit surveys (n=54).

The sample (n=54) included 54 participants and all were female. Most participants reported being between 48-51 years old (n = 14, 25.9%), and having a Bachelor’s degree (n = 15, 27.8%) or Graduate degree (n = 14, 25.9%). Most were employed part time (n = 24, 44.4%) or full time (n = 24, 44.4%). Household earnings varied from $10,000 a year to $200,000 and up, with the majority earning $200,000 or more (n = 11, 20.4%). Most participants reported being White (n = 52, 96.3%) and not Hispanic (n = 51, 94.4%). Finally, most participants reported being married (n = 43, 79.6%).

The sample group had a relatively normal distribution for their ages, with a very slight skew toward the younger age groups. The education demographic was moderately skewed toward Bachelor’s and Master’s degrees, and the income demographic was moderately skewed to higher income brackets. The race, employment, and relationship demographics were all heavily skewed, toward white, employed, and married, respectively. Therefore, this sample group was a representative of employed, wealthy, married, white women, who have at least attained a Bachelor’s degree.

Assessment of the Facebook® statistics showed that 50 out of the initial 63 women actively participated in the group. Eight out of the 9 women who did not complete the post-intervention surveys also did not actively participate in the group. The most popular days to post
were Mondays and Saturdays and the most popular post times were 10 am and 11 pm. This is important to know to ensure high group interactions.

**Findings**

A paired $t$-test was used to analyze the Menopause Rating Scale. On the Menopause Rating Scale, the lower the score, the less symptomology reported. The only statistically significant mean difference was found in sleep problems. There was a significant change in the means for the question “Do you have sleep problems?”. There was a 100% increase for “none” (pre $n=4$, post $n=8$), and a 100% increase for “mild” rating (pre $n=10$, post $n=20$). Conversely, there was a 28% decrease (pre $n=25$, post $n=18$) in the “moderate” rating, and a 50% decrease (pre $n=14$, post $n=7$) in the “severe” category.

When applicable, a paired $t$-test was used to analyze the Healthy Lifestyle Survey. For the test to be effective, the question had to have a sliding scale answer, with no open answers. Statistically significant differences were found between the pre-Healthy Lifestyle Survey (pre-HLS) and the post-Healthy Lifestyle Survey (post-HLS) for the question “How much exercise do you feel you get?”. On the pre-HLS, 28 individuals felt they received “Too Little” exercise, 12 individuals felt they received “Too Much” exercise, and 14 individuals felt they received “Just Right” amounts of exercise. On the post-HLS, 18 felt they received “Too Little”, and 22 felt they received “Too Much”, representing a 35.7% decrease and a 83.3% increase, respectively.

**Other Findings**

Although not statistically significant, a review of the data of the MRS tool noted that mood, irritability, anxiety, exhaustion and muscle/joint discomfort all improved post-intervention. There was no improvement in hot flashes, heart discomfort, sexual problems, bladder problems or vaginal dryness. A review of the data of the Healthy Lifestyle Survey also showed some key improvements. In looking at the question ”How healthy are you?”, one-third
of the participants felt their health improved post-intervention and 35 out of 54 felt they were in good health. The question “Do you take nutritional supplements?” showed that two-thirds of the women took supplements and they most frequently took a multi-vitamin, Vitamin D3, and Magnesium. As noted above, the question about exercise showed a statistically significant increase in exercise (p=0.02). Pre-intervention more than half felt they did not get enough exercise, post-intervention only one-third felt they did not get enough exercise. More than 50% of the women walk for their exercise and another 20% do a variety of classes including Pilates, Barre, yoga, Zumba and martial arts. In looking at diet, the question “How many meals/snacks include carbohydrates?” yielded negligible results. Two-thirds of participants eat carbohydrates 3 or less times a day. Twenty-two participants decreased their carbohydrate intake and 17 increased their carbohydrate intake. In the program, there was discussion about carbohydrates, and that micronutrient dense carbohydrates from vegetables and fruit like sweet potatoes and berries provide energy for the body. However, the program also identified that carbohydrates should be eaten less frequently than other vegetables, which may have been the impetus for change in both directions as three-quarters of the participants made changes in the carbohydrate intake.

The question “How many meals/snacks include protein?” identified that most participants eat protein 2-3 times a day, 19 participants increased their protein intake and 14 participants decreased their protein intake post-intervention. Two-thirds of participants made a change in their protein intake. The program focused on protein as a necessary macronutrient to maintain muscle mass, so an adequate protein intake was important. The question “How many meals/snacks include vegetables?” showed that half the participants eat 3 or more servings of vegetables a day. The number that ate only one serving a day went from 17 to 10 participants
post-intervention. Because vegetables are so micronutrient dense, they were the mainstay of the dietary program. The answers to “How many meals/snacks include fruit?” were unchanged. Most participants ate 1-2 servings a day, which is appropriate. In looking at “How many participants eat ready-made meals?” an astonishing 52 out of 54 did not eat ready-made or microwave food. This is perhaps the most telling data point, as most of these participants were already eating a diet low in processed foods. The last question had to do with mindfulness. Most women had a general idea of what mindfulness was pre-intervention, but they all became much more focused on what mindfulness was to each of them individually post-intervention. This was an exciting thing to see as post-intervention they were more thoughtful and more focused on their own lifestyle.

**DISCUSSION**

A web-based interactive lifestyle modification program for menopausal women yielded statistically significant reductions in insomnia and sleep related disorders and an increase in exercise as perceived by the women in this study. Not statistically significant, but important nonetheless, the data revealed that participants had a decrease in irritability, anxiety and exhaustion and an increase in understanding of mindfulness and an increased awareness of what they were eating and its health value. The participants may not have learned new eating or exercising habits, as they may have already had them. Rather, the participants may have learned to feel more comfortable with themselves. This behavioral change was noted because the participants felt that they were receiving more than adequate exercise afterward, possibly signifying a comfort with their physique, and they were sleeping better, possibly signifying a better ability to relax. Participants enjoyed the web-based support and asked to continue the group when the project is done.
CONCLUSION

Web-based support groups for menopausal women may improve their perceived quality of life. Improvements in diet and exercise habits and participation in mindfulness activities seemed to make participant women feel better about themselves. The group setting made them feel less alone in their journey through womanhood. And the relative anonymity of the private Facebook® page gave them courage to discuss issues that they may have felt shy about discussing in a live support group.

Eating a minimally processed, whole foods diet which includes micronutrient dense carbohydrate choices and limited processed foods supports optimal health. Exercise choices can maximize cardiovascular, muscle and bone health. Mindfulness activities nourish a woman’s mental and emotional health. It is important to address these issues in the health promotion piece of the primary care visit. Health care provider run Facebook® support groups can bridge the gaps in the care of menopausal women.


Bond, M. H. (2013). Refining Lewin's formula: A general model for explaining situational
doi:10.1111/ajsp.12012

Brończyk-Puzoń, A., Piecha, D., Nowak, J., Koszowska, A., Kulik-Kupka, K., Dittfeld, A., &
doi:10.5114/pm.2015.48678

Fitness, 58*(1-2), 82-91. doi:10.23736/S0022-4707.17.06706-8

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Chen, J. T., & Kotani, K. (2013). An inverse relation between the Simplified Menopausal Index


doi:10.1093/nutrit/nux030


doi:10.2105/AJPH.2016.303316
Table 1

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<th>Question</th>
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<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Female</td>
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<td>40-43</td>
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<tr>
<td>44-47</td>
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</tr>
<tr>
<td>52-55</td>
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<td>24.1%</td>
</tr>
<tr>
<td>56-59</td>
<td>10</td>
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<td>64-65</td>
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</tr>
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<td>11.1%</td>
</tr>
<tr>
<td>Some college but no degree</td>
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<td>20.4%</td>
</tr>
<tr>
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</tr>
<tr>
<td>Retired</td>
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<tr>
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</tr>
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<td>$200,000 and up</td>
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<td>Prefer not to answer</td>
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<tr>
<td>Race</td>
<td>52</td>
<td>96.3%</td>
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<tr>
<td>------------------------------</td>
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<td>-------</td>
</tr>
<tr>
<td>White</td>
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<td>96.3%</td>
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<td>0.0%</td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
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<td>0.0%</td>
</tr>
<tr>
<td>Asian</td>
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<td>0.0%</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
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<td>0.0%</td>
</tr>
<tr>
<td>From multiple races</td>
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<td>1.9%</td>
</tr>
<tr>
<td>Latin American</td>
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<table>
<thead>
<tr>
<th>Spanish, Hispanic, Latino Ethnicity?</th>
<th>51</th>
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</tr>
</thead>
<tbody>
<tr>
<td>I am not Spanish, Hispanic, or Latino</td>
<td>51</td>
<td>94.4%</td>
</tr>
<tr>
<td>Some other Spanish, Hispanic, or Latino group</td>
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<td>5.6%</td>
</tr>
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<table>
<thead>
<tr>
<th>Relationship Status</th>
<th>43</th>
<th>79.6%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>43</td>
<td>79.6%</td>
</tr>
<tr>
<td>Widowed</td>
<td>2</td>
<td>3.7%</td>
</tr>
<tr>
<td>Divorced</td>
<td>5</td>
<td>9.3%</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1.9%</td>
</tr>
<tr>
<td>In a domestic partnership or civil union</td>
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<td>3.7%</td>
</tr>
<tr>
<td>Single, but cohabiting with a significant other</td>
<td>1</td>
<td>1.9%</td>
</tr>
<tr>
<td>Single, never married</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Table 1
Demographic makeup of sample group.

![Figure 1: Histogram of age demographics.](image)
Figure 2: Histogram of education level.

Figure 3: Histogram of household income.
Figure 4: Histogram of ethnicity.

Figure 5: Histogram of employment.
Figure 6: Histogram of marital status.
Table 2

<table>
<thead>
<tr>
<th>Question</th>
<th>Groups</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Std Err</th>
<th>t</th>
<th>Cohen d</th>
<th>Effect r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot flushes, sweating</td>
<td>Pre - HLS</td>
<td>1.2222</td>
<td>1.02178</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
<td>1.1667</td>
<td>0.92655</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>0.0556</td>
<td>1.29464</td>
<td>0.17618</td>
<td>0.31534</td>
<td>0.04291</td>
<td>0.04327</td>
</tr>
<tr>
<td>Heart discomfort</td>
<td>Pre - HLS</td>
<td>0.6111</td>
<td>0.85598</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
<td>0.7963</td>
<td>0.78619</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>-0.18519</td>
<td>1.19865</td>
<td>0.16312</td>
<td>1.13530</td>
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<td>0.15408</td>
</tr>
<tr>
<td>Sleep problems</td>
<td>Pre - HLS</td>
<td>1.96296</td>
<td>0.91038</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Post-HLS</td>
<td>1.50000</td>
<td>0.96642</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>0.46296</td>
<td>1.25462</td>
<td>0.17073</td>
<td>2.71163</td>
<td>0.36901</td>
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<td>Depressive mood</td>
<td>Pre - HLS</td>
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<td>1.03080</td>
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<tr>
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<td>Post-HLS</td>
<td>1.25926</td>
<td>0.80529</td>
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<tr>
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<td>Difference</td>
<td>0.09259</td>
<td>1.30700</td>
<td>0.17786</td>
<td>0.52059</td>
<td>0.07084</td>
<td>0.07133</td>
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<tr>
<td>Irritability</td>
<td>Pre - HLS</td>
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<td>0.94595</td>
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<td></td>
</tr>
<tr>
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<td>Difference</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Post-HHS</td>
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<td>0.78619</td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>Difference</td>
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<td>1.63279</td>
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<tr>
<td>Physical and mental exhaustion</td>
<td>Pre - HLS</td>
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<td>0.90344</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
<td>1.44444</td>
<td>0.79305</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td>1.16854</td>
<td>0.15902</td>
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<tr>
<td>Sexual problems</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
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<td>1.19865</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>Difference</td>
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<td>0.25136</td>
<td>1.10508</td>
<td>0.15038</td>
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<td>Bladder problems</td>
<td>Pre - HLS</td>
<td>0.92593</td>
<td>1.13023</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
<td>0.81481</td>
<td>0.99193</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Difference</td>
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<td>1.53778</td>
<td>0.20927</td>
<td>0.53096</td>
<td>0.07225</td>
<td>0.07274</td>
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<tr>
<td>Dryness of vagina</td>
<td>Pre - HLS</td>
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<td>1.32294</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Post-HLS</td>
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<td>1.19748</td>
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<tr>
<td></td>
<td>Difference</td>
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<td>0.26353</td>
<td>0.77298</td>
<td>0.10519</td>
<td>0.10558</td>
</tr>
<tr>
<td>Joint and muscular discomfort</td>
<td>Pre - HLS</td>
<td>1.31481</td>
<td>0.98716</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-HLS</td>
<td>1.12963</td>
<td>0.91211</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Difference</td>
<td>0.18519</td>
<td>1.37462</td>
<td>0.18706</td>
<td>0.98996</td>
<td>0.13472</td>
<td>0.13474</td>
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</tbody>
</table>
Table 2

<table>
<thead>
<tr>
<th>Question</th>
<th>p-value</th>
<th>t-crit</th>
<th>lower</th>
<th>upper</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot flushes, sweating</td>
<td>0.7537443</td>
<td>2.005746</td>
<td>-0.297814</td>
<td>0.408925</td>
<td>no</td>
</tr>
<tr>
<td>Heart discomfort</td>
<td>0.26135701</td>
<td>2.005746</td>
<td>-0.5123532</td>
<td>0.141983</td>
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</tr>
<tr>
<td>Sleep problems</td>
<td>0.00900571</td>
<td>2.005746</td>
<td>0.1205173</td>
<td>0.805409</td>
<td>yes</td>
</tr>
<tr>
<td>Depressive mood</td>
<td>0.60481882</td>
<td>2.005746</td>
<td>0.2641494</td>
<td>0.449335</td>
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</tr>
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<td>Irritability</td>
<td>0.3555001</td>
<td>2.005746</td>
<td>-0.1919675</td>
<td>0.525301</td>
<td>no</td>
</tr>
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<td>Anxiety</td>
<td>0.10844143</td>
<td>2.005746</td>
<td>-0.0634495</td>
<td>0.619005</td>
<td>no</td>
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<tr>
<td>Physical and mental exhaustion</td>
<td>0.10895071</td>
<td>2.005746</td>
<td>-0.0596899</td>
<td>0.578208</td>
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<td>Sexual problems</td>
<td>0.27411713</td>
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<td>-0.2263961</td>
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</tr>
<tr>
<td>Bladder problems</td>
<td>0.59766696</td>
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<td>-0.3086231</td>
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<td>Dryness of vagina</td>
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<td>-0.3248691</td>
<td>0.732276</td>
<td>no</td>
</tr>
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</table>

Table 3

Paired t-test Results for the Menopause Rating Scale QOL Tool.
Figure 7: Graph of pre- and post-intervention Menopause Rating Scale for the question “Do you have sleep problems?”
### Table 4

Paired t-test results for the Healthy Lifestyle Survey

<table>
<thead>
<tr>
<th>Question</th>
<th>p-value</th>
<th>t-crit</th>
<th>lower</th>
<th>upper</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>How physically healthy are you?</td>
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<td>2.005746</td>
<td>-0.3984175</td>
<td>0.213232</td>
<td>no</td>
</tr>
<tr>
<td>How much exercise do you feel you get?</td>
<td>0.02577282</td>
<td>2.005746</td>
<td>-0.6941794</td>
<td>-0.04656</td>
<td>yes</td>
</tr>
<tr>
<td>meals or snacks include carbohydrates?</td>
<td>0.54447225</td>
<td>2.005746</td>
<td>-0.3389836</td>
<td>0.63528</td>
<td>no</td>
</tr>
<tr>
<td>meals or snacks include protein?</td>
<td>0.41438527</td>
<td>2.005746</td>
<td>-0.5093498</td>
<td>0.213054</td>
<td>no</td>
</tr>
<tr>
<td>meals or snacks include vegetables?</td>
<td>0.2287459</td>
<td>2.005746</td>
<td>-0.6372914</td>
<td>0.15581</td>
<td>no</td>
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<td>meals or snacks include fruit?</td>
<td>0.92736336</td>
<td>2.005746</td>
<td>-0.3869897</td>
<td>0.424027</td>
<td>no</td>
</tr>
<tr>
<td>how many microwavable or ready-made meals do you eat?</td>
<td>0.59471975</td>
<td>2.005746</td>
<td>-0.1526304</td>
<td>0.263741</td>
<td>no</td>
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</table>
Figure 8: Graph of the answers to the question “Do you feel you get too much exercise, too little exercise, or about the right amount of exercise?”
Table 5

<table>
<thead>
<tr>
<th>Degree - Question</th>
<th>n</th>
<th>Mean</th>
<th>Std Dev</th>
<th>p-value</th>
<th>df</th>
<th>t-crit</th>
<th>lower</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associates - how many of your meals or snacks include carbohydrates?</td>
<td>7</td>
<td>0.7142857</td>
<td>0.7559289</td>
<td>0.046528</td>
<td>6</td>
<td>2.446912</td>
<td>0.01516804</td>
<td>1.4134034</td>
</tr>
<tr>
<td>Bachelors - How much exercise do you feel you get?</td>
<td>14</td>
<td>-0.571429</td>
<td>0.7559289</td>
<td>0.014233</td>
<td>13</td>
<td>2.160369</td>
<td>-1.007889</td>
<td>-0.1349682</td>
</tr>
</tbody>
</table>

Table 5

Significant results from paired t-test analyses, when compared strictly amongst the education demographic.

Figure 9: Graph of how much exercise the Bachelor’s Degree subgroup felt they received
**Figure 10:** Graph of the Associate’s Degree subgroup’s response to the question “On a typical day, how many of your meals or snacks include carbohydrates?”
Appendices

Appendix A
Appendix B

You may qualify to take part in a Doctor of Nursing Practice scholarly project that was created to improve the quality of life of menopausal women. If you are a woman between the ages of 40-65 and are interested in participating in an online lifestyle modification program to improve quality of life during menopause, please email Dana Essner, APN at de0026@uah.edu.

Participation in this study is not and should not be considered a replacement for traditional medical services.

There is no cost to participate. There is no compensation for participation.
Appendix C

DNP Eligibility Survey

Eligibility Survey

This survey will determine if you are eligible to participate in this DNP scholarly project, Improving quality of life in menopausal women.

1. Are you interested in participating in a Doctor of Nursing Practice scholarly project that aims to improve quality of life in menopausal women?
   - Yes
   - No

2. Are you able to fully participate in this 30 day intervention? The intervention includes participation in a private Facebook group that provides dietary, exercise and mindfulness guidance. You must be willing to interact within the Facebook group and be willing to try the interventions suggested. You must be able to fully participate to be selected.
   - Yes
   - No

3. Are you willing to complete all of the surveys pre and post intervention? This should take no more than 20 minutes of your time.
   - Yes
   - No

4. Are you a female?
   - Yes
   - No
   - Other (please specify)

5. Are you menopausal or perimenopausal?
   - Yes
   - No
   - I don't know
<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Are you involved in any other nutritional or health coaching activities? (Excluding gym membership)</td>
<td>Yes, No</td>
</tr>
<tr>
<td>7. Are you currently taking illicit drugs?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>8. Are you currently pregnant, lactating or on a medically restricted diet?</td>
<td>Yes, No</td>
</tr>
</tbody>
</table>
You are invited to participate in a research study about improving quality of life in menopausal women through lifestyle management. This study is a web based Doctor of Nursing Practice (DNP) scholarly project. The study is designed to help us better understand how menopause impacts a woman's quality of life.

The primary investigator is Dana Essner, from Shrewsbury, NJ. Dana is a DNP student at the University of Alabama in Huntsville. She can be contacted via email at de0028@uah.edu or via phone at (732) 559-5500. Dana’s project Chair is Dr Lynx McCllellan, professor at University of Alabama in Huntsville. Dr McCllellan can be reached via email at Lynx.McCllellan@uah.edu or via phone at (256) 824-6146.

PROCEDURE TO BE FOLLOWED IN THE STUDY: Participation in this study is completely voluntary. Once written consent is given, you will be asked to join a private Facebook group. In that group, you will be asked to interact with the primary investigator as well as other participants. You will receive guidance on a clean, whole foods diet, exercise and mindfulness activities. There will be pre and post intervention surveys that you must complete. The goal is for quality of life to improve through this intervention. This session will take 6 weeks to complete. Once accepted into the project, there will be 1 week to complete the surveys and introductory videos. The intervention itself will take 30 days. There will then be 1 week to complete the post intervention surveys.

DISCOMFORTS AND RISKS FROM PARTICIPATING IN THIS STUDY: There are no expected risks associated with your participation.

EXPECTED BENEFITS: Results from this study can benefit society by showing that lifestyle modifications can improve quality of life in menopausal women.

INCENTIVES AND COMPENSATION FOR PARTICIPATION: There are no incentives or compensation for participation in this scholarly project.

CONFIDENTIALITY OF RESULTS: Participant numbers will be used to record your data, and these numbers will be made available only to those researchers directly involved with this study, thereby ensuring strict confidentiality. This consent form will be destroyed after 3 years. The data from your session will only be released to those individuals who are directly involved in the research and only using your participant number.

FREEDOM TO WITHDRAW: You are free to withdraw from the study at any time. You will not be penalized because of withdrawal in any form. Investigators reserve the right to remove any participant from the session without regard to the participant’s consent.
CONTACT INFORMATION: If you have any questions, please ask them now. If you have questions later on, you may contact the Principal Investigator Dana Essner, in Shrewsbury, NJ, at (732) 559-5500 or at de0026@uah.edu or the faculty supervisor Dr Lynx McClellan, in University of Alabama in Huntsville, at (256) 824-6146 or at lynx.mcclellan@uah.edu. If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact the Office of the IRB (IRB) at 256.824.6992 or email the IRB chair Dr. Bruce Stallsmith at irb@uah.edu.

If you agree to participate in our research, please acknowledge below in the questions.

This study was approved by the Institutional Review Board at UAH and will expire in one year from <date of IRB approval>.

1. Do you voluntarily consent to participate in this DNP scholarly project? The project looks at improving quality of life in menopausal women through lifestyle management, including a clean, whole foods diet, exercise and mindfulness activities.
   ○ Yes
   ○ No

2. Do you understand that you have the right to withdraw consent at any time during the project implementation? And that the primary investigator has the right to remove you from the project at any time?
   ○ Yes
   ○ No

3. Do you understand that there are no anticipated risks from participating in this project?
   ○ Yes
   ○ No

4. Do you understand that you will not receive compensation for participation in this DNP scholarly project?
   ○ Yes
   ○ No

5. If you agree to participate in our research, please sign below.

Name __________________________
6. date

Date / Time
MM/DD/YYYY
Appendix E

DNP Demographic Survey

1. What is your gender?
   - Female
   - Male
   - Other (specify)

2. Which category below includes your age?
   - 40-43
   - 44-47
   - 48-51
   - 52-65
   - 56-59
   - 60-63
   - 64-65

3. What is the highest level of school you have completed or the highest degree you have received?
   - Less than high school degree
   - High school degree or equivalent (e.g., GED)
   - Some college but no degree
   - Associate degree
   - Bachelor degree
   - Graduate degree

4. Which of the following categories best describes your employment status?
   - Employed, working 40 or more hours per week
   - Employed, working 1-39 hours per week
   - Not employed, looking for work
   - Not employed, NOT looking for work
   - Retired
   - Disabled, not able to work

5. How much total combined money did all members of your HOUSEHOLD earn last year?
   - $0 to $9,999
   - $10,000 to $24,999
   - $25,000 to $49,999
   - $50,000 to $74,999
   - $75,000 to $99,999
   - $100,000 to $124,999
   - $125,000 to $149,999
   - $150,000 to $174,999
   - $175,000 to $199,999
   - $200,000 and up
   - Prefer not to answer
6. Are you White, Black or African-American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, or some other race?

- White
- Black or African-American
- American Indian or Alaskan Native
- Some other race (please specify)
- Asian
- Native Hawaiian or other Pacific Islander
- From multiple races

7. Are you Mexican, Mexican-American, Chicano, Puerto Rican, Cuban, Cuban-American, or some other Spanish, Hispanic, or Latino group?

- I am not Spanish, Hispanic, or Latino
- Mexican
- Mexican-American
- Chicano
- Puerto Rican
- Cuban
- Cuban-American
- Some other Spanish, Hispanic, or Latino group
- From multiple Spanish, Hispanic, or Latino groups

8. Which of the following best describes your current relationship status?

- Married
- Widowed
- Divorced
- Separated
- In a domestic partnership or civil union
- Single, but cohabiting with a significant other
- Single, never married
Appendix F

**Menopause Rating Scale (MRS)**

The Menopause Rating Scale (MRS) is a formally validated scale according to the requirements for quality of life instruments. It is used to assess quality of life in menopausal women worldwide.

Please answer the following questions to the best of your ability.

Which of the following symptoms apply to you at this time? Please, mark the appropriate box for each symptom. For symptoms that do not apply, please mark 'none'.

1. **Hot flushes, sweating** (episodes of sweating).
   - none
   - mild
   - moderate
   - severe
   - very severe

2. **Heart discomfort** (unusual awareness of heart beat, heart skipping, heart racing, tightness)
   - none
   - mild
   - moderate
   - severe
   - very severe

3. **Sleep problems** (difficulty in falling asleep, difficulty in sleeping through, waking up early)
   - none
   - mild
   - moderate
   - severe
   - very severe

4. **Depressive mood** (feeling down, sad, on the verge of tears, lack of drive, mood swings).
   - none
   - mild
   - moderate
   - severe
   - very severe

5. **Irritability** (feeling nervous, inner tension, feeling aggressive)
   - none
   - mild
   - moderate
   - severe
   - very severe

6. **Anxiety** (inner restlessness, feeling panicky)
   - none
   - mild
   - moderate
   - severe
   - very severe
7. Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
</table>

8. Sexual problems (change in sexual desire, in sexual activity and satisfaction)

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
</table>

9. Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
</table>

10. Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
</table>

11. Joint and muscular discomfort (pain in the joints, rheumatoid complaints)

<table>
<thead>
<tr>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very Severe</th>
</tr>
</thead>
</table>
Appendix G

DNP Wellness Survey

Healthy Lifestyle Survey

This is a survey about healthy habits related to diet, exercise and mindfulness.

1. How physically healthy are you?

- Not at all healthy
- Eh, I'm ok, but could do better
- Extremely healthy

2. Do you take nutritional supplements?

- Yes
- No

If yes, which supplements do you take?

3. Do you feel you get too much exercise, too little exercise, or about the right amount of exercise?

- Too little
- Just right for me
- Too much

4. What do you most often do for exercise?

- Lift weights
- Dance
- Walk
- HIIT
- Run
- Pilates
- Hike
- Play a team sport
- Swim
- Other (please specify)

5. In a typical day, how many of your meals or snacks include carbohydrates?
* 6. In a typical day, how many of your meals or snacks include protein?

* 7. In a typical day, how many of your meals or snacks include vegetables?

* 8. In a typical day, how many of your meals or snacks include fruit?

* 9. In a typical day, how many microwavable or ready-made meals do you eat?

* 10. What do you think of when someone uses the term "mindfulness"?
Appendix H

DNP You Tube® Videos

Welcome
https://www.youtube.com/watch?v=cpGvTVUKzCw&t=6s

Menopause
https://www.youtube.com/watch?v=oIVI_LGOas&t=4s

Self Care
https://www.youtube.com/watch?v=FUEVPQMMEMI&t=25s

Diet
https://www.youtube.com/watch?v=A5FKaFVCtEI&t=11s

Exercise
https://www.youtube.com/watch?v=Sx5k2w7NwKY&t=9s

Mindfulness
https://www.youtube.com/watch?v=XhGCBLVQY4g&t=7s

Thank you
https://www.youtube.com/watch?v=N5JBDY2MOGw

Yoga Videos, Yoga with Adriene
Day 1 Discern
Day 2 Foundation
Day 3 Observe
Day 4 Feel
Day 5 Flow
Day 6 Core
Day 7 Surya
Appendix I

Facebook® Post – Morning Intention

Morning Intention
I will lead by example.

Morning Intention
I will make someone smile today.

Morning Intention
I will respond first, then react.

Morning Intention
I will talk back to my inner critic when it wants to keep me insecure and paralyzed in fear.

Morning Intention
I will open my heart and mind to learning something new today.

Morning Intention
I will try to be as transparent with others as I can.

Morning Intention
I will honor myself and let go of the need to people-please, even if it makes me uncomfortable.

Morning Intention
I will ask for what I want and need with no shame.

Morning Intention
I will be mindful, especially when I eat, and walk.

Morning Intention
I will try to be thankful as I can for the job I have, even if I don’t like it.

Morning Intention
I will practice forgiveness to those I am angry at or feel resentful toward.

Morning Intention
I will take actions not to isolate myself.
Morning Intention

I will light a candle or burn incense when I get home to ground myself.

Morning Intention

When I notice my mind thinking about the future, I will be aware and bring it back to the present.

Morning Intention

I will do some form of physical activity for at least 45 minutes.

Morning Intention

I will truly listen when someone else is talking to me instead of planning what I want to say next.

Morning Intention

I will disconnect from my electronics 30 minutes before bed.

Morning Intention

I will have at least one genuine conversation today.

Morning Intention

I won’t sweat the small stuff.

Morning Intention

I will make time for myself, even if it’s just five minutes.

Morning Intention

When I notice my defense mechanisms present, I will be aware and take the next right action.
Morning Intention
I will identify and honor my needs.

Morning Intention
I will nourish my body and eat one warm meal.

Morning Intention
I recognize that I have flaws, and I will embrace them with love and forgiveness.

Morning Intention
I will recognize the labels and judgments I have, then will release them.

Morning Intention
I will love and honor myself today.

Morning Intention
I will be mindful, especially when I eat, and walk.
Appendix J

Facebook® Post - Evening Reflection

- Where there is no struggle, there is no strength.
- Do what is right, not what is easy.
- The one who falls and gets up is so much stronger than the one who never falls.

- Sometimes when things are falling apart, they may actually be falling into place.
- Stars cannot shine without darkness.
- Be your own inspiration.

- Worrying does not take away tomorrow's troubles, it takes away today's peace.
- Don't say "why me?" say "try me!"
- You must make a choice to take a chance or your life will never change.
Sometimes when you're in a dark place you think you've been buried, when you've actually been planted.

Stop looking for happiness in the same place you lost it.

The difference between a good day and a bad day is your attitude.

You will never win if you never begin.

You are always one decision away from a totally different life.

One day or Day one. You decide.

Change your thoughts and you change your world.

The key to change is to let go of fear.

Talk to yourself as you would talk to someone you love.

If it doesn't challenge you, it doesn't change you.

The flower doesn't dream of the bee. It blossoms and the bee comes.

Where there is no struggle, there is no strength
What lies behind us and what lies before us are tiny matters compared to what lies within us.

Ralph Waldo Emerson

Life isn't about waiting for the storm to pass, it's about learning to dance in the rain.

Evening Reflection

Your desire to change must be greater than your desire to stay the same.

Evening Reflection

I may not be there yet, but I am closer than I was yesterday.

Evening Reflection

Everything in your life is a reflection of the choices you have made. If you want a different result, make a different choice.

Evening Reflection

Create a life that feels good on the inside, not one that just looks good on the outside.

Evening Reflection

The beauty you see in me is a reflection of you.

Evening Reflection

I am not a product of my circumstances, I am a product of my decisions.

Evening Reflection

Take time to be thankful for what you have. You could always have more, but you could also have less.

Evening Reflection

Evening Reflection

Evening Reflection
Appendix K

Facebook® Post – Workout Wednesday

WORKOUT WEDNESDAY
FITNESS IS NOT ABOUT BEING BETTER THAN SOMEONE ELSE...
IT’S ABOUT BEING BETTER THAN YOU USED TO BE

WORKOUT WEDNESDAY
Wake Up with DETERMINATION
Go to bed with SATISFACTION

WORKOUT WEDNESDAY
Suffer the Pain of Discipline or Suffer the Pain of Regret

WORKOUT WEDNESDAY
BE STRONGER THAN YOUR STRONGEST EXCUSE

WORKOUT WEDNESDAY
PUSH HARDER THAN YESTERDAY IF YOU WANT A DIFFERENT TOMORROW.

I am working on myself, for myself, by myself.
**Workout Wednesday**

I would rather try and FAIL than fail to TRY.

**Workout Wednesday**

LOOK IN THE MIRROR.
THAT’S YOUR COMPETITION.

**Workout Wednesday**

I will beat her.
I will train harder.
I will eat cleaner.
I know her weaknesses.
I know her strengths.
I’ve lost to her before,
but not this time.
She is going down.
I have the advantage
because I know her well.
She is the old me.

**Workout Wednesday**

I can.
I will.

End of story.
Appendix L

Facebook® Post – Mindful Monday

You don't have to be great to start, but you have to start to be great.

Almost every successful person begins with two beliefs: the future can be better than the present, and I have the power to make it so.

If you're not sitting at the table, you're probably on the menu.

I am thankful for my struggle, because without it, I wouldn't have stumbled across my strength.

4 things you can't get back:
The stone after it's thrown.
The word after it's said.
The occasion after it's missed.
The time after it's gone.
Appendix M

Facebook® Post – Thoughtful Thursday

Thoughtful Thursday
Your value does not decrease, based on someone's inability to see your worth.

Thoughtful Thursday
What we see depends mainly on what we look for.

Thoughtful Thursday
Imagination is more important than knowledge.
Albert Einstein

Thoughtful Thursday
You can't start the next chapter of your life if you keep re-reading your last one.

Thoughtful Thursday
One small positive thought in the morning can change your whole day.
Appendix N

Facebook® Post – Self Care Sunday

Self care is not selfish. Give your heart, soul, and mind the rest you need.

Self Care is Giving the World the Best of You instead of what is left of you.

An empty lantern shines no light. Self care is the fuel that allows your light to shine brightly.

Self Care Activities

• Go for a walk
• Deep breathe
• Take a nap
• Read a book
• Engage in a hobby
• Meditate
• Take a bath

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Appendix O

Facebook® Post – Treat Tuesday

TASTY TUESDAY

Fall Recipes

PUMPKIN SPICE KETO FAT BOMB

Ingredients:
1/2 cup coconut oil
3/4 cup pumpkin puree
1/2 cup golden flax
1 teaspoon cinnamon
1/2 teaspoon nutmeg
1/4 teaspoon sea salt
1/3 teaspoon stevia

Instructions:
Mix all the ingredients in a bowl and place in the freezer for 30 minutes. Roll into balls and place on a plate. Let the balls sit in the refrigerator for 1 hour before eating. Keep for a week or longer in the freezer.

TASTY TUESDAY

ALMOND CHAI TRUFFLES

Ingredients:
1/2 cup smooth almond butter
1/4 cup cocoa butter, melted
1 tbsp chai spice
2-4 drops stevia
1/2 tbsp vanilla extract
pinch of salt
3 tbsp roasted almonds

Instructions:
In a medium bowl, combine almond butter, cocoa butter, chai spice, stevia, vanilla and salt. Stir. Place in fridge for 30-45 minutes, until firm. Meanwhile, mash almonds and place in small bowl. Remove truffle mix, break up large clumps with fork. Scoop dough into 1 Tbsp-size portions and shape into balls. Toss in almonds, cover. Place on prepared tray and chill for 10 minutes to set. Store chilled.

TASTY TUESDAY

CHOCOLATE PEANUT BUTTER FAT BOMBS

Ingredients:
1/2 cup coconut oil
2 Tbsp raw peanut butter (no sugar)
2 Tbsp unsweetened cocoa (1 use Churadilla)
1 scoop chocolate protein powder
1 Tbsp stevia powder

Directions:
Place coconut oil, butter and peanut butter in a glass measuring cup. Microwave for 30 seconds. Stir until melted and smooth. Add cocoa powder, protein powder and stevia. Mix until smooth. Pour into molds or mini muffin tin. Freeze for 30 minutes. Remove from molds and store in freezer. Enjoy mid-afternoon with a cup of coffee or as a late night snack.

TASTY TUESDAY

CHOCOLATE MUG CAKE

Ingredients:
1 large egg
2 Tbsp almond flour
2 tbsp unsweetened cocoa powder
1/2 tsp stevia
2 tsp coconut flour
1/4 tsp baking powder
1/2 tsp baking soda

Directions:
Measure out 2 Tbsp. of butter and put it aside. The mug will be used! Microwave the butter for 20-25 seconds until it melts and is hot. Add the stevia to the melted butter. Add the cocoa powder to the butter. Add the coconut flour, almond flour, baking powder, and vanilla. Whisk the egg in a separate bowl then add to the mug. Mix the ingredients well until everything is combined and there are no lumps. Cook mug cakes. This recipe makes 2 servings so measure the batter out into 2 mugs or 2 ramekins. Microwave the cake for 60-75 seconds. One cake will take 75 seconds, 2 cakes take closer to 90 seconds. Top with low carb whipped cream if you (and I) desire.

Let the cake cool before you spoon on the whipped cream or it will melt.
Appendix P

Facebook® Post – Food Fact Friday

**Swiss Chard**
Swiss Chard is a true nutritional powerhouse. It has a strong, bitter flavor and its stalks come in a rainbow of colors. These colors make it extremely nutrient dense. In addition to the Vitamins A, K and C found in most leafy greens, Swiss Chard is a good source of carotenoids, flavonoids and lutein. These compounds are beneficial for heart, nerve, eye and pancreatic health as well as helping prevent diabetes. It helps pancreatic beta cells regenerate, improving insulin production and reduces the activity of enzymes that block any beneficial effect. It can lower blood glucose levels and maintain steadier blood sugar levels. As it can be bitter, you should quickly blanch, strain, or saute Swiss Chard. Of note, Swiss Chard contains oxalates which can inhibit absorption of certain minerals. Those with gallbladder or kidney issues should limit consumption.

**Sweet Potatoes**
Sweet potatoes are a great source of vitamin A, vitamin C, manganese, copper, pantothenic acid and vitamin B6.

**Beans**
Beans are a great, inexpensive source of plant-based protein. Beans also contain complex carbs and fiber in addition to copper, folate, iron, magnesium, manganese, phosphorous, potassium and zinc. White beans have the most protein, followed by black, lima, garbanzo, pinto, kidney, and navy. They can be thrown into soups, salads, burrito bowls, eaten as a side, or even put into wraps. They are also really, really cheap.

**Collard Greens**
Collard greens are popular in the south, but can be found in grocery stores in the north as well. They have dark blue green leaves and a mild smoky flavor. They are good steamed or in soups. Collard greens support the body’s detox system and digestive system. They have anti-inflammatory and anti-cancer properties. They are high in vitamin K and omega 3s (specifically alpha linolenic acid) and are an excellent source or vitamin A, manganese, calcium, and fiber.

**Blueberries**
Blueberries have amazing health benefits and are believed to contain the highest amount of antioxidants of all fruits. They contain many phytonutrients including anthocyanins and flavonols and are also high in vitamin C, fiber, and manganese.

At least less than 100 calories per cup, and a low score on the glycemic index, blueberries are a great choice for a sweet snack. In addition to being enjoyed fresh, blueberries make a great sweet addition to salads, yogurt, smoothies, and oatmeal.

**Avocados**
Avocados, which are actually a fruit, are pear-shaped with green or blackish rough skin. They have a smooth yellow-green edible flesh and contain a large seed. Avocados are rich and creamy and, although higher in fat, they are not necessarily unhealthy. They have a high amount of monounsaturated fat (oleic acid) which has been linked to reduced inflammation. They are also very high in potassium which helps reduce blood pressure. Avocados can be sliced up and added to salad, cut in half and sprinkled with salt or mashed to spread on toast or used to make some delicious guacamole.
Appendix Q

Facebook® Post – Spicy Saturday

Dill

Use the seeds or the leaves to add a strong, tangy flavor to your favorite dish or add it to your medicine cabinet for medicinal purposes. Dill has been around for centuries and has many health benefits. It aids in digestion and helps insomnia. The calcium in dill increases bone health. It aides in gas relief and boosts the immune system. Dill gets rid of hiccups, and helps with diarrhea.

Cardamom

Cardamom is the third most expensive spice in the world! This small greenish-black pod has a spicy sweet flavor. The tiny black seeds inside the pod are ground to a milky. Cardamom is used in East Indian cuisine, tea, coffee and sausage. It is high in magnesium and it improves blood circulation, and may prevent heart disease. It is high in fibre, and many studies also indicate that high levels of flavonoids in cardamom may have antioxidant properties. Evidence shows it to be one of the healthiest foods on the planet.

Cinnamon

Cinnamon has been used by people for thousands of years. It has been praised for its health benefits and is often used in medicines. Cinnamon is known to help with heart disease, blood circulation, and relaxation and can lower your cholesterol, as well as arthritis. Add to your morning smoothie or sprinkle it on your smoothie for added flavor.

Spicy Saturday

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Turmeric

Turmeric is known for its anti-inflammatory properties. It has been used in medicine for centuries. It has been used to treat many medical issues like arthritis, asthma, bronchitis, and much more. Turmeric can be found in many spices and can be added to your smoothie for added flavor.

Garam Masala

Garam Masala is a spice mixture that includes black pepper, cumin, ground coriander, cinnamon, cloves, and nutmeg. It is used in many Asian and African dishes. It is a spicy, aromatic, and flavorful spice that can be added to your smoothie for added flavor.

Spicy Saturday

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Appendix R

Food Pyramid
Appendix S

Recipes

TASTY TUESDAY

ZUCCHINI CHIPS

Ingredients:
- 1 zucchini
- 2 teaspoons olive oil
- Salt to taste
- Bake at 375°F for 10 minutes

Instructions:
- Preheat the oven to 375°F.
- Cut the zucchini into wedges or circles by hand or in a food processor.
- Place the wedges on a baking sheet lined with parchment paper.
- Sprinkle with salt and bake for 10 minutes.
- Remove excess liquid with paper towels (pressed down on the chips).
- Top the zucchini with olive oil and bake for another 5 minutes, or until lightly browned.
- Serve hot.

TASTY TUESDAY

VEGETABLE SOUP

Ingredients:
- 1 zucchini, peeled and chopped
- 1 sweet potato, peeled and chopped
- 2 cloves garlic, chopped
- 1 red bell pepper, chopped
- 1 teaspoon dried thyme
- 1 can (14 ounces) diced tomatoes

Instructions:
- In a large soup pot, sauté the vegetables in olive oil until tender.
- Add beef broth and simmer for 15 minutes.
- Serve hot.

TASTY TUESDAY

MISO ROASTED CORN ON THE CUB

Ingredients:
- 4 ears of corn on the cob
- 2 tbsp white miso paste
- 1 tbsp butter
- Cheese or scallions, to garnish

Instructions:
- Preheat oven to 400°F.
- Cut the ears of corn in half and brush with miso and butter.
- Place on a baking sheet and broil for 8-10 minutes.
- Garnish with cheese or scallions.

KALE PATE

Ingredients:
- 1 head (5 cups) kale, chopped
- 1 tablespoon extra-virgin olive oil
- 1 clove garlic, minced
- 1 teaspoon cumin seeds

Instructions:
- In a blender, puree the kale, olive oil, garlic, and cumin seeds until smooth.
- Pour into a bowl and serve as a dip.

EGGPLANT FRIES

Ingredients:
- 2 eggplants
- 2 cups almond flour
- Cayenne pepper to taste
- Salt and pepper to taste

Instructions:
- Preheat the oven to 400°F.
- Cut the eggplant into fries and dip in the batter.
- Bake for 15-20 minutes, or until golden brown.

TASTY TUESDAY

THIRSTY THURSDAY

CUCUMBER KALE PROTEIN SHAKE

Ingredients:
- 1/2 cup coconut milk
- 1/2 cucumber, peeled
- 1/2 cup strawberries
- 1 scoop of your favorite protein powder

Instructions:
- Blend all ingredients in a blender until smooth.

Enjoy!

If you don't like coconut milk, you can use water, almond milk, or coconut water as the base.

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TASTY TUESDAY

NOATMEAL

Ingredients:
- Flax seeds
- 2 tbsp oats
- 2 tbsp unsweetened milk (or almond or cashew milk)
- 1/2 spoon of your choice: pears, bananas, apples, etc.
- Maple syrup or honey

Instructions:
- Mix all ingredients in a pot on the stove over medium heat, stirring frequently, until dry and fluffy.
- Serve immediately, use the remaining mixture the next day.

CAULIFLOWER RICE STUFFED TOMATOES

Ingredients:
- 4 medium tomatoes
- 1 medium head cauliflower
- 1 small onion
- 1 tsp dried oregano
- 1/4 tsp paprika
- 3 cloves garlic
- 1/4 tsp salt
- 1/4 tsp black pepper

Instructions:
- Preheat oven to 375°F. Cut open tomatoes and remove seeds and membranes.
- Blend 1/2 of the cauliflower with 1/2 of the onions, 1/2 of the garlic, 1/2 of the oregano, and 1/2 of the salt.
- Fill tomatoes with the blended mixture.
- Add the remaining cauliflower, onions, garlic, and oregano to the pot and simmer for 10 minutes.
- Stuff the tomatoes with the mixture, place on a baking sheet, and bake for 30 minutes.

SPINACH & GOAT CHEESE FRITTATA

Ingredients:
- 6 eggs
- 1 cup spinach
- 1/2 cup crumbled goat cheese
- Salt and pepper to taste

Instructions:
- Preheat oven to 350°F. Whisk eggs together, add salt and pepper to taste, and pour into a greased pan.
- Add spinach and crumbled goat cheese to the top of the eggs.
- Bake for 20-25 minutes or until eggs are set.

Black Bean Soup

Ingredients:
- 3 cups black beans
- 1 onion, chopped
- 1 green pepper, minced
- 2 cloves garlic, minced
- 2 cups chicken broth
- 1 cup tomatoes, diced
- 1 tsp cumin
- 1 tsp chili powder
- Salt and pepper to taste

Instructions:
- Cook beans in a pressure cooker for 30 minutes with 2 cups water.
- Saute onion and green pepper in a large pot.
- Add black beans, broth, cumin, chili powder, and salt.
- Bring to a boil and simmer for 15 minutes.
- Garnish with cilantro and lime juice.

CocoKale Soup

Ingredients:
- 3 cups vegetable broth
- 1 cup kale
- 1 potato, diced
- 1 carrot, diced
- 1 cup coconut milk
- Salt and pepper to taste

Instructions:
- In a large pot, sauté kale and carrots in oil until tender.
- Add vegetable broth, potatoes, and coconut milk.
- Bring to a boil and simmer for 15 minutes.
- Garnish with parsley and lemon juice.

Avocado Soup

Ingredients:
- 1 avocado
- 1 cup vegetable broth
- 1 cup water
- 1 lime, juiced
- 1 tsp cumin
- Salt and pepper to taste

Instructions:
- In a blender, blend avocado, vegetable broth, and water until smooth.
- Add lime juice, cumin, salt, and pepper.
- Blend until smooth.
- Garnish with cilantro and lime juice.

Serving Suggestions:
- Serve hot or chilled.

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Broccolo-Cauliflower Soup

**Ingredients:**
- 1 tbsp. olive oil or canola oil
- 1 red onion, diced
- 4 cloves garlic, minced
- 3 cups low-fat chicken broth
- 1 lb. cauliflower, chopped
- 1 lb. broccoli, chopped
- 2 cups low-fat milk
- 2 tbsp. cornstarch, dissolved in 1 tbsp. cold water
- Salt and pepper

**Directions:**
1. Heat the oil in a large pot.
2. Add the onion and garlic and cook until softened.
3. Add the cauliflower and broccoli and cook for 5 minutes.
4. Add the chicken broth and milk and bring to a boil.
5. Reduce heat and let simmer for 10 minutes.
6. Puree the soup in a blender or food processor.
7. Return the soup to the pot and bring to a boil.
8. Season with salt and pepper.

**Serves 8.**

Beet Soup

**Ingredients:**
- 1 pound beets
- 1 1/2 cups chicken broth
- 1 1/2 cups water
- 1/2 cup cornmeal
- 1/2 cup brown sugar
- 1/4 cup butter
- 1/4 cup sour cream
- Salt and pepper

**Directions:**
1. Peel and cut the beets. 
2. In a large pot, combine the beets, broth, water, cornmeal, brown sugar, and butter. 
3. Bring to a boil, reduce heat, and let simmer for 20 minutes. 
4. Add sour cream and season with salt and pepper. 

**Serves 6.**

Green Soup

**Ingredients:**
- 1 cup each of carrots, celery, and onions
- 1 cup each of tomatoes and broccoli
- 1 cup each of spinach and kale
- 1 cup each of green beans and peas
- 1 cup each of zucchini and squash
- 1 cup each of mushrooms and artichokes
- 1 cup each of asparagus and cauliflower
- 1 cup each of bell peppers and tomatoes
- 1 cup each of garlic and ginger
- 1 cup each of rice and quinoa
- 1 cup each of beans and lentils
- 1 cup each of tofu and tempeh
- 1 cup each of nuts and seeds

**Directions:**
1. Heat the oil in a large pot.
2. Add the onion and garlic and cook until softened.
3. Add the chicken broth and milk and bring to a boil.
4. Reduce heat and let simmer for 10 minutes.
5. Puree the soup in a blender or food processor.
6. Return the soup to the pot and bring to a boil.
7. Season with salt and pepper.

**Serves 8.**
Appendix T

Exercise Explanations

## #Workout Wednesday

### Barre

Barre class combines pilates, yoga and ballet in a fun, energetic workout. You will use a ballet barre in addition to small hand weights and some exercise equipment like small exercise balls or resistance bands. The movements in Barre are small, isometric movements which engage the muscle without tearing it. It's efficiency comes from the fact that you are doing multiple movements at once, holding, pulsing, stretching.

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## #Workout Wednesday

### Big Box Gym

The Big Box gym is a good choice for someone who wants a lot of equipment for a low price. They usually have machines, free weights and cardio equipment. Most also offer classes. The upside is that there is a wide variety of equipment and you can usually find something that you like to do. The downside is that you are pretty much on your own. Most do have trainers on the floor who can show you how to use a piece of equipment, but, for the most part, these are do it yourself kinds of gyms.

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## #Workout Wednesday

### Bootcamp

Boot Camp classes are a form of group physical training. They are a type of interval training, where you alternate between levels of intensity. It combines calisthenics, like pushups and jumping jacks, with body weight exercises, like squats and lunges. It also usually has some strength training components. It is a full body workout and the intensity level can be high. Expect a good sweat from this workout!

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## #Workout Wednesday

### Core Strength Training

Core-strength exercises strengthen your core muscles, including your abdominal muscles, back muscles and the muscles around the pelvic. Strong core muscles make it easier to do many physical activities. You can do core-strength exercises on a targeted floor or mat.

**Plank:** The definitive core exercise: Lie on your back with your arms extended straight up towards the ceiling, and your legs raised with your knees bent at 90°.

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## #Workout Wednesday

### Crossfit

Crossfit is essentially varied functional movements done with high intensity. It combines features of weightlifting, gymnastics, running and rowing. Crossfit was designed to enhance your competency at physical tasks. It increases strength, stamina, flexibility, power, speed, coordination, agility, balance and accuracy. The CrossFit community is a tight-knit group of people who support each other. While some people may be intimidated, it is generally a welcoming group and all the movements can be scaled to your own fitness level.

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## #Workout Wednesday

### HIIT

**High Intensity Interval Training**

HIIT Training is based on the premise that interval training is more effective than sustained exercise. It alternates low or moderate intensity exercises with high intensity exercises. Interval training increases aerobic and anaerobic capacity. Barbell complexes and tabas are examples of interval training. HIIT training is a great way to burn fat and build muscle.

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#Workout Wednesday
**Hip Circle Band**
A great effective way to begin a workout using the hip circle resistance band for your warm up stretching. Or during yoga practice to add extra tension to your positions. The ultimate is to use the hip band for heavy resistance, to build muscle during your strength training.

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#Workout Wednesday
**Kettlebells**
Kettlebells are cast iron balls with a handle.
You swing them in a variety of moves designed to blast fat and build muscle. A kettlebell workout is a functional workout, which means the movements you do work your muscles the same way they move in everyday activities, like lifting and carrying groceries. This is a great workout to tone muscles, especially in the core. A 15 minute kettlebell session can burn 500 calories!

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#Workout Wednesday
**Kickboxing**
Kickboxing is a form of martial arts that combines kicking and punching. It is a fitness sport. The kickboxing that you see in gyms is cardio kickboxing. The kickboxing you are doing is doing some sort of body weight exercise in between rounds. Also, you are hitting a heavy bag; not other people. It is an excellent cardiovascular workout.

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#Workout Wednesday
**Pilates**
Pilates is great for improving flexibility and strengthening your core. Like yoga practitioners of pilates expose the mind body connection, but pilates is a little more intense workout. Pilates consist of a series of body movements designed to activate the core muscles of the body. It emphasizes lengthening the body and aligning the spine. It is a great low impact workout and is good for people who have low back issues.

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#Workout Wednesday
**Powerlifting**
Powerlifting is an anaerobic exercise, which means it depletes the muscles of oxygen, making them bigger and stronger. Powerlifting is a ‘pick things up and put them down’ type of sport. Your goal is to lift, deadlift, squats and bench press, one repetition maximum (rep max). Meaning, you lift as heavy as possible one time. Powerlifters tend to do heavy lift for shorter repetitions to build their muscle capacity. This type of exercise strengthens muscle and bone.

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#Workout Wednesday
**Spin**
Spinning is an indoor cycling class set to music. It is a tremendous cardiovascular workout. Not can be customized to each person’s individual fitness level. You do a series of ‘sprints’ while cycling, and alternate between standing and sitting while pedaling. You also vary the intensity while cycling. This is a fun, intense, cardiovascular workout.

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**Swimming**

It’s the perfect time of year although many swim all year round. Swimming is great for people who need a low impact workout. It is a cardiovascular workout and improves endurance. Because you propel yourself through the water, it is also consider resistance training. Swimming works your arms and legs as well as your core. It is a great workout for those with back issues.

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**TRX**

TRX is a bodyweight type of exercise using suspension straps. It was created by the Navy SEALs to improve strength, endurance and core stability. The straps hang from the ceiling and you use your body weight as resistance. Because the straps have 360 degree mobility, it engages multiple muscle groups at once to give a great core mobility workout. TRX is a total body workout. Many personal trainers incorporate TRX bands in their overall workouts.

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**Walking**

When you begin an exercise program for health, you don’t have to jump into the hardest fitness classes out there. A 21 minute walk 5 days a week can cut your cardiovascular risk by 9%. It is a low impact way to get fit and can be started with little monetary outlay—1 do recommend you invest in a good pair of walking sneakers though. I usually recommend a 20-30 minute walk after dinner. It will help digest your food prior to going to bed.

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**ZUMBA**

Zumba is a fitness program that combines Latin and International music with dance moves. Zumba routines incorporate interval training—alternating fast and slow rhythms—and resistance training. According to the Mayo Clinic, Zumba can count toward the 120 minutes a week of moderate aerobic activity or 75 minutes a week of vigorous aerobic activity recommended for most healthy adults.

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## Aerobics Classes

Many big box gyms have a variety of aerobics classes in them. Aerobics classes are high-energy group classes that keep you moving for the length of the class. Step classes have you stepping on and off a step throughout the class. You may also use light weights with choreographed moves. There are belly dancing, Zumba and Hip Hop dance classes as well. Many gyms also offer senior classes that are less intense, but will still improve cardiovascular health.

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#Workout Wednesday

## Yoga

Yoga is an ancient Indian method of harmonizing the mind and body through yoga postures, meditation and breathing techniques. The yoga poses are said to purify the body and give it the strength and stamina to meditate. Yoga will give you strength and flexibility and enable you to transition into mindfulness. It is a great workout for those who need a low impact type of workout.

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#Workout Wednesday

## Running

Running is, well, running. It is moving at a faster speed than walking. Some run at a steady state, usually for distances. Others, run very fast for short distances, called sprinting. Interval training combines fast and slow running and is an excellent way to burn calories and get fit.

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Appendix U

Sample Workouts

**WORKOUT OF THE DAY**
- Forward plank 10 reps
- Side plank 10 reps
- Plank shoulder taps 20 reps
- Plank ring 20 reps
- Plank shoulder extension 20 reps
- Plank hip extension alternating 20 reps
- Side plank knee crunch 10 reps
- Side plank twist 10 reps
- Bear crawl under 10 reps
- Forward plank to push up 10 reps

5 sets of each exercise, one x one

**WORKOUT OF THE DAY**
- 90° planks 20 reps
- Wrist twist combo anti-cross combo
- Breakdance with push up 10 reps
- Plank elbow row with hip extension 40 reps
- Bear shoulder tap with push up 10 reps
- High knees with sprawl 40 reps
- Split jump squats 40 reps
- Tuck jumps 40 reps

**WORKOUT OF THE DAY**
- High knees 10 reps
- Hamstring "bang and jump" 20 reps
- Shoulder and elbow circles 20 reps
- Single leg glute bridges 40 reps
- Pro Pumps 40 reps
- Glute bridge leg extension 40 reps
- Plank row to shoulder press 40 reps
- Pike jumps 40 reps
- Bear back rows shoulder press 40 reps

**WORKOUT OF THE DAY**
- Glute bridge 40 reps
- Double knee down to squat 40 reps
- Pulse squats 40 reps
- Lifting jack 40 reps
- Forward lunge backjQuery 40 reps
- Standing 40 in activation 20 reps
- Hip flexor 40 reps
- Push ups 40 reps
- Side plank reach 40 reps
- Glute bridge 40 reps
- Double knee down to squat 40 reps
- Pulse squats 40 reps

**WORKOUT OF THE DAY**
- Invisible jump rope 4x1 minute
- Split jump hinge 4x12
- 90° planks 4x20 reps
- Breakdance 40 reps
- Plank jacks 4x40
- V ups 4x40
- Push ups 4x40
- Pulse squats 4x30

**WORKOUT OF THE DAY**
- High knees 10 reps
- Hamstring "bang and jump" 20 reps
- Shoulder and elbow circles 20 reps
- Side plank knee crunch 4x30
- Plank to push up 4x30
- Bear shoulder tape 4x30
- Glute bridge 4x30
- Double knee down to squat 4x30
- Pulse squats 4x30
March 29th 2019

Dana Essner
Department of Nursing
University of Alabama in Huntsville

Dear Mrs. Essner,

The UAH Institutional Review Board of Human Subjects Committee has reviewed your proposal, *Improving Quality of Life in Menopausal Women through Lifestyle Management: A Web Based Health Promotion Project*, and found it meets the necessary criteria for approval. Your proposal seems to be in compliance with this institution's Federal Wide Assurance (FWA) 00019998 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46).

Please note that this approval is good for one year from the date on this letter. If data collection continues past this period, you are responsible for processing a renewal application a minimum of 60 days prior to the expiration date.

No changes are to be made to the approved protocol without prior review and approval from the UAH IRB. All changes (e.g. a change in procedure, number of subjects, personnel, study locations, new recruitment materials, study instruments, etc) must be prospectively reviewed and approved by the IRB before they are implemented. You should report any unanticipated problems involving risks to the participants or others to the IRB Chair.

If you have any questions regarding the IRB’s decision, please contact me.
Sincerely,

Bruce Stallsmith

IRB Chair
Professor, Biological Sciences

**Expedited:**

☐ Clinical studies of drugs and medical devices only when condition (a) or (b) is met. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review. (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

☐ Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows: (a) from healthy, nonpregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or (b) from other adults and children, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

☐ Prospective collection of biological specimens for research purposes by noninvasive means. Examples: (a) hair and nail clippings in a nondisfiguring manner; (b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction; (c) permanent teeth if routine patient care indicates a need for extraction; (d) excreta and external secretions (including sweat); (e) uncannulated saliva collected either in an unstimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue; (f) placenta removed at delivery; (g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor; (h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the process is accomplished in accordance with accepted prophylactic techniques; (i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings; (j) sputum collected after saline mist nebulization.

☐ Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications).

☐ Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for nonresearch purposes (such as medical treatment or diagnosis).

☐ Collection of data from voice, video, digital, or image recordings made for research purposes.
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.

Exempt

Unchecked

Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (a) research on regular and special education instructional strategies, or (b) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods. The research is not FDA regulated and does not involve prisoners as participants.

Unchecked

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interviews, or observation of public behavior in which information is obtained in a manner that human subjects cannot be identified directly or through identifiers linked to the subjects and any disclosure of the human subject’s responses outside the research would NOT place the subjects at risk of criminal or civil liability or be damaging to the subject’s financial standing, employability, or reputation. The research is not FDA regulated and does not involve prisoners as participants.

Unchecked

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement) survey procedures, interview procedures, or observation of public behavior if (a) the human subjects are elected or appointed public officials or candidates for public office, or (b) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter. The research is not FDA regulated and does not involve prisoners as participants.

Unchecked

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. The research is not FDA regulated and does not involve prisoners as participants.

Unchecked

Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs. The protocol will be conducted pursuant to specific federal statutory authority; has no statutory requirement for IRB review; does not involve significant physical invasions or intrusions upon the privacy interests of the participant; has authorization or concurrent by the funding agency and does not involve prisoners as participants.

Unchecked

Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. The research does not involve prisoners as participants.

Surveys, interviews, or observation of public behavior involving children cannot be exempt.