

12-2013

The Effects of Yoga Participation on Symptoms Associated with Menopause: A Mixed Methods Study

Brandi Crowe

Clemson University, brandi.m.crowe@gmail.com

Follow this and additional works at: https://tigerprints.clemson.edu/all_dissertations



Part of the [Alternative and Complementary Medicine Commons](#)

Recommended Citation

Crowe, Brandi, "The Effects of Yoga Participation on Symptoms Associated with Menopause: A Mixed Methods Study" (2013). *All Dissertations*. 1241.

https://tigerprints.clemson.edu/all_dissertations/1241

This Dissertation is brought to you for free and open access by the Dissertations at TigerPrints. It has been accepted for inclusion in All Dissertations by an authorized administrator of TigerPrints. For more information, please contact kokeefe@clemson.edu.

THE EFFECTS OF YOGA PARTICIPATION ON SYMPTOMS ASSOCIATED WITH
MENOPAUSE: A MIXED METHODS STUDY

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Parks, Recreation, and Tourism Management

by
Brandi Michelle Crowe
December 2013

Accepted by:
Dr. Brett A. Wright, Committee Chair
Dr. Alison L. Cory
Dr. Francis A. McGuire
Dr. Sandra M. Linder
Dr. Paula J. Watt

ABSTRACT

The Effects of Yoga Participation on Symptoms Associated with Menopause:

A Mixed Methods Study

During midlife, it is expected that women will progress towards the biological state of menopause; the permanent condition of infertility due to alterations or diminution of reproductive hormones. Typically lasting 5-10 years, the menopausal transition is associated with symptoms including hot flashes, night sweats, interrupted sleep, anxiety, forgetfulness, and inconsistent mood. As these symptoms often hinder a women's successful functioning in everyday life, hormone therapy is commonly prescribed as a means for diminishing symptoms. However, many women are seeking alternative/complementary treatments that can assist in managing menopausal symptoms due to the detrimental health-risks associated with the use of conventional therapies. The purpose of this mixed methods study was (a) to determine the effects of participation in a ten-week yoga intervention on the physiological symptoms experienced by women during menopause; and (b) to determine to what extent a change in symptoms can be attributed to yoga, as opposed to any other form of physical activity. Findings support previous literature indicating there to be a direct relationship between yoga participation and a reduction in the severity and/or frequency of menopausal symptoms. Additional results support an indirect relationship between yoga participation and improved management of menopausal symptoms due to decreased levels of perceived stress.

DEDICATION

This dissertation is dedicated to my parents, Donny and Lori Crowe, for reasons no words on paper could ever do adequate justice.

Saying thank you just doesn't seem like enough. Y'all have been my greatest confidants and anchors of support since this process began. The completion of this degree is just as much your accomplishment as it is mine.

ACKNOWLEDGMENTS

First, a humungous thank you to my committee members: Dr. Brett Wright, Dr. Lynne Cory, Dr. Fran McGuire, Dr. Sandra Linder, and Dr. Paula Watt. For your patience in answering my unending questions, for your expertise and the knowledge you've shared, for your encouragement on the days I wasn't sure if I was going to make it (aka: I was a hot mess), for your time and willingness to read revision after revision, and for your guidance in making sure I got it right...my sincerest thanks, and immense appreciation. Y'all are awesome.

To the women who participated in my pilot study and dissertation research: thank you for your time and commitment to this process. I appreciate your willingness to have openly shared your life experiences, and thank you for your contribution in further advocating the need for women to receive improved education regarding the what, when, and why of menopause, including the supports and resources available for effectively navigating the transition, while upholding one's quality of life and wellbeing.

To Dr. Ellen Broach, Dr. Steve Broyles, Dr. Dwayne Moore, Cathy O'Keefe, Ms. Jones, Ms. Sanders, and Dr. Sharon Todd: thank you for the example you set in your classrooms, the passion you have for your professions, and the commitment you make to your students and their learning. So much I have learned from each of you as a student, I now strive to emulate as an instructor in the classroom myself.

Finally, to my office mates, and fellow grad students: thank you for your assistance on many a research paper, proposal, and presentation; for the camaraderie we've shared and the dozens of Oreos we've eaten. Remember: we're gonna make it.

TABLE OF CONTENTS

	Page
TITLE PAGE	i
ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER	
I. INTRODUCTION	1
Purpose of the study	3
Research questions	3
Theoretical framework	4
II. LITERATURE REVIEW	20
Menopausal transition	20
Cause of menopause	23
Physical implications	24
Psychological implications	29
Conventional/traditional hormone therapy	31
Complementary and alternative medicine	38
Treatment modality: yoga	47
III. METHODS	59
Methods, findings, and implications of the pilot study	59
Research questions	63
Treatment intervention	64
Participants	66
Mixed methods research design	69

Table of Contents (Continued)

	Page
Experimental design.....	73
Phenomenological design	90
Mixing the data	95
IV. RESULTS	99
Phenomenological perspective.....	99
Quantitative results	108
Qualitative results	117
Mixed methods results	128
Unanticipated findings	131
Member checking results	136
V. DISCUSSION	144
Findings that extend existing research.....	144
Findings compatible with theoretical framework	145
Discussion related to unanticipated findings	151
Implications for recreational therapy practice	153
Limitations	156
Recommendations for future research	166
APPENDICES	171
A: Participant invite letter/informational recruitment flyer	172
B: Informed consent	173
C: Yoga intervention: curriculum.....	176
D: Demographic questionnaire	190
E: Yoga for menopause questionnaire.....	193
F: Menopause rating scale.....	194
G: Perceived stress scale.....	195
H: World Health Organization Quality of Life – BREF Scale	197
I: Participant instructions for measuring blood pressure.....	201
J: Participant instructions for measuring body temperature	202
K: Electronic journal entry questions	203
L: Semi-structured interview protocol.....	206
M: Member checking protocol	208
REFERENCES	212

LIST OF TABLES

Table		Page
4.1	Participant profiles	99
4.2	Overall group means for pre-, mid-, post-intervention assessments.....	109
4.3	Overall changes in symptoms, stress, and quality of life.....	110
4.4	Participant with the most positive change	112
4.5	Participant with the most negative change.....	112
4.6	Participant with the least change.....	113
4.7	Trends in blood pressure measures	115
4.8	Decreases in blood pressure measures pre- and post-yoga sessions.....	116
4.9	Use of audio recordings and exercise outside of yoga sessions.....	127
4.10	Member checking results	137
4.11	Summary of findings.....	140

LIST OF FIGURES

Figure		Page
3.1	Curriculum outline	65
3.2	Mixed methods embedded research design	71
3.3	Research lens	90
3.4	“Mixing” qualitative and quantitative data	97

CHAPTER ONE

INTRODUCTION

Universally, but in varying degrees, all women progress towards the natural, biological state of menopause – the permanent condition of infertility due to alterations or diminution of reproductive hormones. Typically occurring between the age of 45 and 55, the average onset of menopause is at the age of 51 (Northrup, 2006; Randolph, Jr., & James, 2009; Roush, 2011; Wingert & Kantrowitz, 2009). Opposite of what many in the community perceive, menopause is not an illness, nor a disease, nor a phenomenon solely influenced by and/or affecting estrogen levels. Rather, it is an organic process that transpires in a woman’s life cycle and “involves all of the sex hormones, not just estrogen” (Randolph, Jr., & James, 2009, p.58-59; Wingert & Kantrowitz, 2009).

The United States has undergone, and rapidly continues to progress towards a sizeable modification in the composition of its population demographic (Gutheil, 1996). The U.S. Department of Health and Human Services Administration on Aging (2010) identified that within the last century, “the percentage of Americas 65+ years has more than tripled (from 4.1% in 1900 to 12.9% in 2009)” (p.2). Looking further ahead, by 2020 it is estimated that persons age 65 and older will account for 16% of the United States population; and 20% (approximately one-fifth) by the year 2030, with individuals 85 and older reaching 9.6 million (Anderson, Goodman, Holtzman, Posner, & Northridge, 2012; Karel, Gatz, & Smyer, 2012; Young, 2004). In essence, due to medical and technological advancements, improved pharmaceuticals, elevated living conditions, reduced rates and/or delayed-onset diagnoses of chronic diseases, and the aging of the baby boomer

generation, Americans are living longer than any previous generation in history (Rice & Fineman, 2004).

In the United States, it is estimated that over two million women transition into menopause each year; the equivalent of approximately 6,000 women reaching menopause each day (North American Menopause Society, 2010). Keep in mind that the average life expectancy for women in the Western world is 80 years old, and that by the year 2020 there will be an anticipated 50 million women living in the United States age 51 or older (North American Menopause Society, 2010). Subsequently, contemplate that the average age of menopause is 51; in 2000, there were a projected 45.6 million postmenopausal women in the United States, 40 million of which were age 51 and older (North American Menopause Society, 2010). Coupled with the fact that women are living longer, it becomes essential to recognize that women may potentially experience just as many years in perimenopause and/or postmenopause, as they do pre-menopause (Ojeda, 2003). Likewise, Wingert and Kantrowitz (2009) contend that “women can expect to live a third of their lives past menopause” (p.8). The North American Menopause Society (2010) projected that “by 2025, the number of postmenopausal women” would reach 1.1 billion (p.1.4). Thus, the need for effective solutions for dealing with this long-term life transition (and its associated symptoms) becomes imperative.

As menopause often hinders or has a negative impact on women’s successful functioning in everyday life, researchers have suggested that an improved focus be placed on women struggling with menopausal symptoms. Centering attention on this particular population, future studies can work to identify competent strategies that can ease

problematic symptoms or assist women in managing strenuous effects (Vaze & Joshi, 2010). Yoga, a potential alternative to hormone therapy, is currently being assessed for its therapeutic value in decreasing stress and other symptoms associated with menopause. An ancient Indian practice, yoga facilitates sustainable relaxation and equilibrium of the mind and body through the purposeful use of breathing, meditation and physical postures (Collins, 1998; Granath, Ingvarsson, Von Thiele, & Lundberg, 2006; Turnbull, 2010; West, Otte, Geher, Johnson, & Mohr, 2004).

Purpose of the Study

To extend the body of research associated with the therapeutic effects of yoga on diminishing symptoms related to menopause, the purpose of this study was to determine (a) the effects of participation in a 10-week yoga program on the physiological symptoms experienced by women during menopause; and (b) the extent to which the change in symptoms could be attributed to yoga, as opposed to any other form of physical activity. Moreover, results of the study will potentially assist in providing further justification and evidence-based support for yoga being implemented in collaboration with or in place of hormone therapy as it is potentially a more safe, healthy, affordable and non-invasive approach that decreases reliance on medication while enhancing one's ability to cope and manage stressors specific to menopause.

Research Questions

The study aimed to answer the following mixed method research question: what are the effects of yoga participation on symptoms associated with menopause? In addition, the following sub-questions will be addressed by the study:

1. To what extent is the severity of physiological symptoms associated with menopause altered as a result of participation in yoga (QUAN);
 - a. If it is determined that there are improvements regarding menopausal symptoms, the researcher will work to address what, if any, improvements can be attributed to participation in yoga (QUAL(quant)).
 - b. If it is determined that the change in symptoms can be attributed to yoga, the researcher will work to identify why, or what about participation in yoga holds benefit for producing positive outcomes (QUAL(quant)).
2. How is one's overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms (QUAL(quant)); and
3. To what extent do participants find yoga to be beneficial, enjoyable, feasible and accessible (QUAL)?

Theoretical Framework

Transactional Theory of Stress and Coping. Stress is defined as “responses an organism makes to stimulus events that disturb its equilibrium and tax or exceed its ability to cope” (Gerrig & Zimbardo, 2002, p.405). Correspondingly, Lazarus (1993b) defined stress as being a “hardship or adversity...an external load or demand on a biological, social or psychological system” (p. 2). Based on these notions, as a consequence of stress, an individual may perceive a disruption in their sense of normalcy,

and the likelihood of the stressor negatively impacting the inception or continuation of a primary or secondary illness greatly increases (Iwasaki & Mannell, 2000; Lazarus, 1993b). With this in mind, it can be reasoned that an individual experiencing stress, will have to identify ways to deal with, adjust to, or work through the internal or external distress for the purpose of reestablishing equilibrium and ultimately, their well-being. This response and effort to manage or contend with a given stressor is a process referred to as coping (McCrae, 1984).

Aldwin and Revenson (1987) identified that various elements including personality traits, personal beliefs, cultural and social practices, and an individual's cognitive assessment of a situation can hugely impact how an individual evaluates, reacts and copes with a stressful condition. Similarly, Lazarus and Folkman (1984) explained that in relation to life experiences, individuals vary in their emotions, susceptibilities and perspectives. Thus, they suggested that in order to grasp the variations displayed among individuals facing a similar circumstance, we must consider the individual's cognitive state of mind as well as their methods for deciphering a situation. With so many contextual factors playing a role in how an individual interprets what is or is not a stressful event, which in turn then influences their decision-making regarding how to deal with the stressor, it is reasonable to describe coping as an individual and complex process; a cyclical movement rather than a linear progression (Lazarus, 1993a; Persson & Ryden, 2006).

Working under the assumption that coping is a process, Lazarus and Folkman (1984) developed and introduced the transactional theory of stress and coping which is

comprised of three central elements: stress, appraisal and coping. The theory is deemed transactional due to the interaction that takes place between an individual and their environment during the occurrence of stress, appraisal and coping. Both the individual and their environment must be considered when analyzing how and to what degree an individual successfully survives or thrives in the midst of stress. Lazarus and Folkman's stress and coping theory (1984) is based on the idea that as interface between an individual and their environment transpires; the individual appraises the level and depth of any potentially distressing threats and then reconciles the stress by implementing a coping mechanism (Folkman, Lazarus, Gruen, & DeLongis, 1986; Lazarus, 1999). Recognizing the reciprocal and inter-reliant relationship between stress, appraisal and coping, the purpose of Lazarus and Folkman's theory of stress and coping (1984) was to delineate how individuals deal with and adjust to life experiences in which perceived stress is apparent and an individual feels overpowered by the external and/or internal demands existing within the experience (Groomes & Leahy, 2002).

Stress. The first element of the stress and coping theory is the concept of stress and the disturbing interchange it creates between an individual and their environment, consequently threatening or weakening an individual's health and well-being (Pakenham, 1999). Knowing that stress can be detrimental to an individual's physical and psychological health, it is critical to understand how an individual gauges whether or not and to what extent stress is occurring. Quine and Pahl (1991) explained that stress is deduced when "an individual perceives a discrepancy between the demands of a situation and their ability to cope with those demands" (p. 57). Yet at its core, stress is not a

solitary incident and cannot be interpreted or dealt with without taking into account an individual's personal characteristics and the surrounding context of environmental conditions of which the strain is taking place (Iwasaki, MacKay, MacTavish, Ristock, & Bartlett, 2006; Lazarus & Folkman, 1984).

Lazarus (1993b) introduced four main components that must be taken into account when working to understand stress. The first element identifies the cause or source of the stress. Is it an internal or external force? The second component considers how an individual delineates and evaluates what is stress as opposed to what is non-stress. If the individual deems a situation to be a stressor, is it because it poses unalterable harm, an impending threat, or demanding challenge (Lazarus, 1993b; Lazarus & Folkman, 1984; McCrae, 1984)? The third factor involves the individual deciding on and implementing a coping strategy to aid them in dealing with or overcoming the taxing demands positioned within the stressor. The fourth and final element addresses the individual's reaction to the stressor. This component evaluates the stress response(s) employed by individuals, identifying which reactions were effective strategies in comparison to those that were non-productive or destructive. In addressing this fourth component, Lazarus and Folkman (1984) explained that the quality and overall effect of an individual's stress reaction will be largely determined by the type of adjustment required of the individual, the perceived level of control the individual feels they have in predicting or overcoming the stressor, and the degree of impact the stressor creates within the individual.

Aware that different origins of stress create varied levels of analysis and therefore diverse responses within individuals, Lazarus (1993b) suggested that in order to understand how a person interprets and responds to stress we must understand the magnitude of personal meaning the individual attaches to divergent stressors. Recognizing the fluctuation in how an individual assesses a stressor, evaluates the relational meaning that links them to the situation, and then formulates a decision regarding what can be done about the situation based on their assessment, is a process known as cognitive appraisal (Lazarus & Folkman, 1984; Nilsson, 2007). The second segment of Lazarus and Folkman's theory of stress and coping (1984) articulates the importance of understanding how an individual assesses a situation. Without considering an individual's appraisal process, including the influence of contextual factors and/or past life experiences, an individual's appraisal "may not make sense without an appreciation for their motivational underpinning" (Nilsson, 2007, p. 15). Groomes and Leahy (2002) followed the notion that with regards to cognitive appraisal, identifying the origin and depth of an individual's appraisal is directly correlated to "how they assign meanings" based on the characteristics of their internal selves and external environment (p.16). Nilsson (2007) finalized this point by recognizing that these individual differences of value and meaning influenced by an individual's contextual circumstances "explain why an encounter may be appraised as a threat by one person and as neutral by another" (p.10; Kelso, French, & Fernandez, 2005).

Appraisal. Cognitive appraisal, or the method in which an individual categorizes a life experience, is presented in one of two formats: primary appraisal or secondary

appraisal. Primary appraisal is concerned with an individual evaluating a situation and ascertaining what, if anything, is at risk or in jeopardy (Carver, Weintraub, & Scheier, 1989; Lazarus & Folkman, 1984). It is the process of identifying the level of hazard presented within a situation and the degree to which the perceived threat affects oneself both now and in the future (Lazarus, 1993a; Nilsson, 2007). It is critical to be mindful of factors that influence an individual's audit of what is or is not posing imminent danger. These factors typically include: an individual's previous life experiences, personal resources, beliefs, values, commitments, physical and mental health, social support, social and cultural norms (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman, Lazarus, Gruen, & DeLongis, 1986; Nilsson, 2007).

Denial, or the state in which an individual rejects the reality of a stressful situation, can emerge during the primary phase of appraisal and at times, delay the coping process. Some scholars consider denial to be a practical short-term solution for dealing with stress at the onset of the situation. By denying the stressor when it initially occurs, the level of distress perceived and experienced by the individual is minimized or temporarily eradicated. Regarding an individual's health, this can be considered favorable in that the stressor becomes distant and "blocked from consciousness" (Lazarus, 1993a, p. 238), allowing an individual "to appraise an encounter as more benign" (Lazarus, 1993b, p.8) creating a mediation between the individual and their perceived environment. However, scholars have acknowledged that denial can quickly become counterproductive and impede an individual's progress of coping and seeking help in the long-term as the

individual has not yet worked towards acknowledging that the stressful situation exists (Carver, Weintraub, & Scheier, 1989; Lazarus, 1993a).

Hutchinson, Loy, Kleiber and Dattilo (2003) described stress as being a cognitive translation of a menacing condition, and coping as being an individual's exertion towards resolving the stressor. Based on these two distinctions, it can be inferred that "if an event is perceived as stressful, individuals begin a secondary appraisal of what can be done to alleviate the stress" (p.144). Secondary appraisal, concerned with identifying and employing accessible solutions for dealing with the stressor, is greatly affected by the individual and the extent to which they believe they can constructively control or modify the given situation (Nilsson, 2007). It is during this stage that the individual asks, what, if anything can be implemented to prevent, eliminate or improve the distress (Folkman, Lazarus, Gruen, & DeLongis, 1986). In the same way, Lazarus and Folkman (1984) described the secondary phase of appraisal to revolve around an individual deciding what action can be taken to manage the situation based on the choice options available, while also taking into account the likelihood of the strategy being advantageous in comparison to the impending consequences of utilizing an unsuccessful coping tactic.

While cognitive appraisal is explained as a two-step, seemingly linear process, the two phases do not occur as an uninterrupted flow. Often, individuals will appraise a situation, conclude that it poses harm and execute a strategy that they feel is the most appropriate response to the perceived scenario. However, during or after executing the formulated response, an individual may find that their primary appraisal was inaccurate and perhaps the situation is more or less threatening than it was originally thought to be.

In the same way, during or after acting on one's coping strategy, they realize that the strategy employed is not beneficial in solving or adjusting to the situation. Finding oneself in either of these circumstances could cause them to reappraise or revert back to either the primary or secondary phase of appraisal for the purpose of revising their coping strategy or to reevaluate and confirm the presence of stress. Thus, as the appraisal process relies on an individual and their interpretations of a situation, in order to account for multiple realities, both primary and secondary cognitive appraisals are recurring maneuvers (Carver, Weintraub, & Scheier, 1989; Lazarus, 1993b).

Coping. The third component encompassing Lazarus and Folkman's transactional stress and coping theory is coping. In its simplest form, coping refers to an individual's aptitude to handle stress (Persson & Ryden, 2006). Coping is delineated as the effort an individual exerts behaviorally or attitudinally in an attempt to diminish, regulate, endure or resolve "the internal or external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources" (Lazarus & Folkman, 1984, p. 19). It is important to note that coping is defined only as an individual's effort to work through or regulate the strain or stressor; it is not based on whether or not the exertion or eventual outcome of the exertion is successful or not (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Coping is complicated in that it is responsive and swayed by both the nature and psychological processes of the individual as well as the multifaceted stipulations tied to the contextual environment (Folkman & Moskowitz, 2004). It is the individual and the circumstantial components that construct an individual's appraisal of a situation, and as a result, ultimately their response to the

perceived pressure or demand (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Based on this framework, it is reasonable to encapsulate that coping in “its essence is process and change rather than structure or stasis”, as an individual’s method of coping is invariably being shuffled and rerouted due to altered internal and external conditions (Lazarus, 1993b, p.8).

With regards to the role of one’s individual personality, Carver, Weintraub and Scheier (1989) identified two central roles that a person’s internal traits play in prompting their choosing how to proceed and cope with a stressful configuration. The first coincides with the idea that individuals never confront a stressor and implement a coping strategy blindly or from the ground up. Instead, they reflect on and utilize a preferred coping strategy that they are personally familiar. Based on past experiences, individuals employ a coping tactic they believe to be a timeless and efficient method that allows for forward progress or some measure of success in their coping, no matter the circumstance. The second function that characterizes an individual’s coping process is based on an individual’s natural-born personality and state of internal well-being; the traits that make a person an individual and different from all others. Along with past experiences, a person possesses a set of internal attributes that play a role in how and in what ways they respond to an adverse situation (Carver, Weintraub, & Scheier, 1989).

Coping strategy. Operating under the notion that coping involves both cognitive and behavioral aspects, based on Lazarus and Folkman’s theory of stress and coping, there are two avenues of coping in which an individual can engage: problem-focused coping and emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused

coping equips an individual to concentrate on how they might repair the person-environment interaction by modifying either the definitive obstacle or the environment in which the stressor exists (Lazarus, 1993a). This form of coping is often called active, or stimulus-directed coping, as it involves an individual assertively working to alleviate the initial origin of the tension, problem solving through the stressor, while also striving to diminish the level of burdensome impact enforced by the stressor on the individual internal and external capacities (Carver, Weintraub, & Scheier, 1989; Paterson & Nuefeld, 1989; Persson & Ryden, 2006). Problem-focused coping is primarily implemented “in situations perceived as amenable to change” (Hutchinson, Loy, Kleiber, & Dattilo, 2003, p.144) and “people feel that something constructive can be done” (Folkman & Lazarus, 1980, p.219).

Emotion-focused coping converges on the idea that an individual can modify their assessed meaning or interpretation of a situation by better governing their emotions, attitudes or behaviors in response to stress. It is focused on “cognitive efforts that change the meanings of a situation...cognitive reframing, social comparisons....looking on the bright side of things” (Folkman, Chesney, McKusick, Ironson, Johnson, & Coates, 1991, p.243) Accordingly, while neither the actual stressor nor the tangible conditions in which the stressor is occurring have been alleviated, the level of strain felt by the individual has been significantly deflated due to an adjustment in perception and emotional response to the situation (Lazarus, 1993a; Lazarus, 1993b; Nilsson, 2007). Emotion-focused coping is a prevalent form of coping when an individual believes there is nothing that can be done to diminish or obliterate the stressor and as a result deems “that the stressor is

something that must be endured” (Carver, Weintraub, & Scheier, 1989, p.267; Folkman & Lazarus, 1980). Overall, in comparing problem-focused and emotion-focused coping, both are inter-reliant and equally crucial to an individual’s coping process (Kleiber, Hutchinson, & Williams, 2002).

Universally, there is not one form or method of coping that is more superior than another. In fact, one style of coping that achieves large volumes of successful adjustment in one scenario may be equally as unproductive and inept in the next encountered situation. It comes back to the fact that coping is vigorously complex and contextually based. Thus, just as one strategy proves successful in one circumstance but does not in another, correspondingly a strategy that seems appropriate at the start of a situation may quickly unfold and prove to be an erroneous attempt for managing the stressful situation. Coping requires flexibility. How an individual copes will continuously evolve as their appraisal of the stressor as well as the environment in which the stressor is present is revised (Folkman & Moskowitz, 2004).

Leisure-Coping Theory. Leisure coping, a coping strategy based solely on the purposeful use of leisure, is positively correlated with both short- and long-term coping processes as leisure has been shown to aid in lessening stress while concurrently restoring, and building up sustainable mental and physical capacities within an individual (Iwasaki & Mannell, 2000; Iwasaki, Mannell, Smale, & Butcher, 2002). Similarly, Trendberth and Dewe (2005) recognized leisure to be an effective form of stress management and coping in that it facilitates distraction, respite and renewal, all of which

assist in condensing the interruption experienced as a result of an intrusive stressful encounter.

Active or passive, a particular time, place or activity, work-related or non-work related, what is indicative of leisure for one person is interpreted as the exact opposite for another. Thus, Parr (2006) identified that leisure “if nothing else is contextual...its meanings, values and forms vary” (p.447). Still, there are some vital components that researchers have conveyed as being vital components to leisure, namely: intrinsic motivation, personal choice, self-determination, reflection and growth (Austin, 1998; Carruthers & Hood, 2007; Cooper, 1999, Dattilo, Kleiber & Williams, 1998; Hood & Carruthers, 2007; Stumbo & Peterson, 1998; Van Andel, 1998).

Within the model of leisure coping, Iwasaki and Mannell (2000) differentiated between leisure coping beliefs and leisure coping strategies. Leisure coping beliefs signify the extent to which an individual believes that leisure can assist in the coping process and produce a sense of strength and purpose (Hutchinson, Bland, & Kleiber, 2008; Iwasaki & Mannell, 2000). In contrast, leisure coping strategies signify “actual situational grounded behaviors or cognitions available through involvements in leisure” (Iwasaki & Mannell, 2000, p.167) In other words, individuals consciously select a specific type of leisure as a tactic for coping, acknowledging leisure as a support and approach for their dealing with stress, both in the realm of behavioral and emotional processes (Iwasaki & Mannell, 2000). Thus, in thinking of leisure coping, the focus should not be placed on the activity itself; rather the value is in the individual’s confidence and belief regarding the meaning and experience of leisure that most notably

buffers and guards against the destructive effects of the stressor. Accordingly, individuals perceive themselves as having increased access to internal and external resources that will aid in coping, and as a result appraise an apprehensive scenario as being “more manageable and in turn engage in more active coping” (Hutchinson, Bland, & Kleiber, 2008, p.11). Iwasaki and Mannell (2000) summarize it best by conclusively stating that leisure coping “mediates the effect of stress on health” (p.167).

Leisure palliative coping. Iwasaki and Mannell (2000) identified three types of leisure coping strategies. The first is called leisure palliative coping in which an individual experiences a momentary break that allows for a brief escape or distraction from the tense and demanding situation supplemented by a period of restoration and recuperation in preparation for re-entering the stressful circumstance with focus and renewed strength (Iwasaki, Mannell, Smale, & Butcher, 2002; Kleiber, Hutchinson, & Williams, 2002). Specifically, in thinking of an individual experiencing a traumatic life event, leisure does not seem like the obvious solution. However, leisure’s role within coping and the buffering of stress is “self-preservation and self-restoration, which parallel concepts of coping and adjustment” (Hutchinson, Bland, & Kleiber, 2008, p.13). Leisure permits an individual to defend their sense of self by disengaging from their distressing state, displacing the negative with “neutral or positive feelings, which may, in time, stimulate reinterpretation of the situation in question” and give the individual causation for motivation and hope (Kleiber, Hutchinson, & Williams, 2002, p. 225; Houston, 1987; Hutchinson, Loy, Kleiber, & Dattilo, 2003). Kleiber, Hutchinson, and Williams (2002) advocated that diversionary activities providing momentary “denial, distraction

and...avoidance” are correlated with emerging hope, just as enjoyable activities are considered “sustainers and restorers” when it comes to re-establishing and cultivating an individual’s belief that a setback or traumatic crisis can be endured and outlasted (p.226; Hutchinson, Bland & Kleiber, 2008).

Leisure mood enhancement. The second strategy is called leisure mood enhancement, in which leisure plays a vital role in an individual demoting negative perspectives while advancing towards establishing and maintaining optimistic attitudes and upbeat emotions when dealing with strain or tension (Kleiber, Hutchinson, & Williams, 2002). This strategy is most clearly reflected when working with an individual who has accrued loss or permanent change or immobilization as a result of trauma or distressing experience. Some stress or disturbance in life can be anticipated, however, often, disturbing life events occur without any indication or warning. In these instances, the use of leisure can be beneficial in providing individuals an opportunity to connect with their past and preserve their sense of normalcy (Hutchinson, Loy, Kleiber, & Dattilo, 2003). Leisure mood enhancement is focused on the active and instrumental use of meaningful leisure for the purpose of motivating and “reconstructing a life”, which may contribute to an individual regaining or successfully coping with “what was lost” while potentially identifying “new roads to happiness and well-being” (Kleiber, Hutchinson, & Williams, 2002, p.225). If there is a prolonged absence of opportunities for coping through leisure, some individuals are more likely to encounter devastating thoughts of desolation and hopelessness (Hutchinson, Loy, Kleiber, & Dattilo, 2003).

Leisure companionship. The third type of leisure coping strategy is leisure companionship, which refers to the idea that through leisure, an individual can take part in a shared experience with individuals similar to themselves or individuals going through or having already successfully navigated through a comparable stressful situation. It is based on the idea that a network of support and social contact with others is imperative to an individual's overall well-being and quality of life, particularly when coping with and working through a difficult life experience (Iwasaki, Mannell, Smale, & Butcher, 2002). Leisure companionship focuses on actively utilizing leisure as a vehicle for facilitating a resounding sense of belonging within the individual so that they can sequentially revive their self-worth and sense of relevancy, recognizing their own competence and vigor (Iwasaki, Mackay, MacTavish, Ristock, & Bartlett, 2006). However, regardless of the activity and the nature of the trauma, "time spent with supportive others and in personally meaningful forms of leisure helps promote coping and resilience in the face of chronic stress" (Hutchinson, Bland, & Kleiber, 2008, p.13).

No matter the origin of the activity, nor the kind of activity participated in, individuals who took part in Hutchinson, Loy, Kleiber and Dattilo's study on coping with traumatic injury "reported that they used leisure instrumentally to help themselves cope with the challenges they encountered" (2003, p.148). Overall, participation in leisure aids an individual in their developing sustainable coping processes in that it creates an accepting atmosphere that is infused with feelings of community, hope, meaning and purpose (Hutchinson, Loy, Kleiber, & Dattilo, 2003). As a result, an individual cannot escape the opportunity to experience at least a moment of refreshing optimism, if not also

a temporary getaway or psychological detachment from the stressor (Kleiber, Hutchinson, & Williams, 2002). Finally, leisure offers an opportunity for personal transformation and identity formation or renovation. This aspect of leisure often is overlooked in the coping and rehabilitation process, as the attention usually falls on an individual exerting every effort to restore or regain what was permanently lost as a result of the stressful and perhaps traumatic life event. While leisure can assist in this recovery process, it can also lend a hand in helping an individual face and accept their new reality following a drastically unsettling occurrence by producing an avenue for redefining and reorganizing themselves and their perspective (Kleiber, Hutchinson, & Williams, 2002).

CHAPTER TWO

LITERATURE REVIEW

Menopausal Transition

Perimenopause. Beginning in their late 30s and early 40s, women start to encounter perimenopause, the initial phase of menopause that, on average, persists over four to five years (Mayo Clinic, 2013b; Northrup, 2006; Randolph Jr., & James, 2009; Wingert & Kantrowitz, 2009). During perimenopause, various symptoms associated with menopause can develop or become heightened including hot flashes, fluctuation of hormones, abdominal weight gain, interrupted sleep patterns, anxiety, physical and emotional stress, vaginal dryness, depleted libido, declining bone density, headaches, urinary tract infections, breast tenderness, memory trouble, and inconsistent mood, all of which can have a detrimental effect on one's overall health and well-being (Booth-LaForce, Thurston, & Taylor, 2007; Manocha, Semmar, & Black, 2007; Turnbull, 2010; Vaze & Joshi, 2010; Wingert & Kantrowitz, 2009). Research has indicated that 70% of women encounter perimenopausal symptoms, with hot flashes and night sweats identified as the most frequently occurring (Daley, MacArthur, McManus, Stokes-Lampard, Wilson, Roalfe, & Mutrie, 2006; McKinlay & Jefferys, 1974; Turnbull, 2010). Physiologically, during this stage, estrogen levels fluctuate and ovulation may become variable (although conception is still viable). Testosterone is also minimized, which can affect "sex drive, energy level, muscle tone, and vaginal wall thickness" and cause vaginal dryness and/or pain during intercourse (Randolph, Jr., & James, 2009, p.57).

Menopause. The second phase of the transition is called menopause, the time when a woman has experienced “12 consecutive months of amenorrhea for which no other obvious pathological or physiological cause is present” (Rees & Purdie, 2006 p.4; Randolph, Jr., & James, 2009; Mayo Clinic, 2013a; Wingert & Kantrowitz, 2009). This phase is marked by continued encounters with vasomotor symptoms, such as hot flashes and night sweats, that can lead to secondary physical and/or psychological interferences including “fatigue, nervousness, irritability, depression, mood changes, headaches, and an inability to concentrate” (Schnatz, Banever, Greene, & O’Sullivan, 2005, p.624; Utian, 2005). It is also during this time that a woman is at greater risk of acquiring osteoporosis and coronary heart disease (Boughton & Halliday, 2008).

Postmenopause. The third and final phase of the menopausal transition is postmenopause. There are two sectors within postmenopause; the first five years postmenopause are considered the first sector or “early postmenopause”, the second sector or “late menopause” consists of postmenopausal years 6-10 (Thacker, 2009, p.24). Symptoms resulting from oscillating hormones continue during this phase; while estrogen may have significantly halted due to ovulation being terminated, progesterone can also descend to an obsolete level. Also, while the ovaries are not producing exceeding levels of estrogen, the adrenal glands continue to do so – so much so, that some postmenopausal women are considered to be “estrogen dominant” (Randolph, Jr., & James, 2009, p.60-61). Indicators of estrogen dominance during postmenopause include “higher risk for breast or uterine cancer, hair loss, postmenopausal weight gain, wrinkly skin, incontinence, low sex drive, cardiovascular disease and osteoporosis” (Randolph, Jr., &

James, 2009, p.60-61). In total, the full transition from perimenopause to postmenopause can last between 5-10 years (Northrup, 2006).

Premature menopause. In some cases, women may experience premature menopause, which transpires when the natural progression of menopause (and its associated phases/symptoms) occurs before the age of 40 (Northrup, 2006; Roush, 2011; Rees & Purdie, 2006; Wingert & Kantrowitz, 2009). Accompanying premature menopause, a woman will be faced with the difficulty of having to accept infertility; this can be an exceptionally devastating realization for women who have planned and/or waited to have children later in life (Roush, 2011). Often the underlying cause of premature menopause is unknown; in other instances early-onset has been connected to a previously existing or secondary health-related conditions, chronic stress that intruded on or suspended the reproductive tract, autoimmune disorders and/or genetic aberrations (Dorman, Steenkiste, Foley, Strotmeyer, Burke, Kuller, & Kwoh, 2001; Laml, Preyer, Umek, Hengstschlager, & Hanzal, 2002, Nippita & Baber, 2007; Northrup, 2006; Schwartz, Dean, & Howard-Peebles, Bugge, Mikkelsen, Tommerup, Hull, Hagerman, Holden, & Stevenson, 1994; Turner, Robinson, Wake, & Martin, 1994).

Induced menopause. There are several instances in which induced menopause, an immediate and rapid decline in hormone levels, may result at “any time after puberty...due to an outside intervention” (Wingert & Kantrowitz, 2009, p.4-5; Roush, 2011). Chemotherapy, radiation, surgical removal of the ovaries (i.e., complete hysterectomy), dislocated blood flow to the ovaries (i.e., partial hysterectomy), and/or the use of prescription drugs for adjunct medical purposes are the universal antecedents

causing menopause to occur (regardless of a woman's age) (Northrup, 2006; Randolph, Jr., & James, 2009; Roush, 2011; Wingert & Kantrowitz, 2009). An estimated "one in every four American women will enter an abrupt, artificial menopause" of which symptoms can be quite "severe and debilitating...because there is not opportunity for gradual adjustment to the hormonal drop-off" (Randolph, Jr., & James, 2009, p. 59-60).

Cause of Menopause

There is no exact cause that triggers the onset of menopause, or a precise method for testing to confirm whether or not a woman has entered into the menopausal transition; however, some scholars have hypothesized a potential link between follicle-stimulating hormone (FSH) levels and the inception of menopause. More specifically, the commencement of menopause "...could relate to the significant reduction in the number of follicles in the ovaries" (Wingert & Kantrowitz, 2009, p.13). According to Roush (2011), as menopause progresses "fewer follicles mature, resulting in less estrogen"; lower estrogen levels are thought to be the first signal of perimenopause, leading some to theorize a connection between FSH, the growth of follicles and the onset of menopause (p.16). The most accurate method for confirming climacteric change is via measures of estrogen levels and/or tracking symptoms that are affiliated with an insufficient supply of estrogen. The most accurate examinations that obtain this information include "assessment of vaginal tissues, measuring bone density and bone tissue" (Thacker, 2009, p.32-33). Less reliable analyses include blood tests, saliva and/or urinary samples, FSH and/or pH level labs (Thacker, 2009).

Physical Implications

As previously mentioned, there are a variety of physical symptoms a woman may or may not experience throughout the transition of menopause. The following, while not an all-inclusive list of symptoms reported by menopausal women, are the most common physical and/or vasomotor symptoms acknowledged during menopause: hot flashes, night sweats, disrupted sleep patterns, headache, muscle/joint pain, vaginal atrophy, vaginal dryness and low libido.

Hot flashes. A hot flash is defined as a sudden occurrence in which an individual experiences “a sensation of heat” usually stemming from the torso and face; “elevated skin and perceived body temperature...can be accompanied by palpitations and anxiety” (Wingert & Kantrowitz, 2009, p.60; Freedman, 2002, p.705). As the body’s core works to cool down, an individual will often sweat as the hot flash dissolves (Wingert & Kantrowitz, 2009). This event, experienced by “70-85% of all perimenopausal women”, on average carries on “between 30 seconds and 5 minutes” (Northrup, 2006, p.127-128; Wingert & Kantrowitz, 2009, p.62).

While there is no clear and exact cause, a hot flash frequently occurs as a result of disparity or extraction of estrogen levels (Mayo Clinic, 2011b; Wingert & Kantrowitz, 2009). Alongside surges of high or low estrogen, certain environmental factors are considered to also affect the frequency and/or severity of hot flashes, including cigarette smoking, stress, and consumption of caffeine, alcohol and/or spicy food (Thacker, 2009; Wingert & Kantrowitz, 2009). Other scholars have attributed hot flashes to changes within the brain, and the inner-workings of the hypothalamus (Roush, 2011; Wingert &

Kantrowitz, 2009). The hypothalamus is responsible for stabilizing body temperature. When a hot flash takes place, it is theorized that the hypothalamus receives an erroneous signal signifying that the body's temperature is too high, causing the hypothalamus to react by attempting to cool the body. During this process, the hypothalamus "dilates blood vessels near the skin's surface to send more blood where it can dissipate body heat....It triggers perspiration so the body can cool....It may also increase...heart rate, circulating the blood more rapidly to the surface to be cooled" (Roush, 2011, p.27-28).

Numerous treatments have been put on trial and tested for effectiveness with regards to reducing the frequency, severity and/or duration of hot flashes. Consistently proven the most efficient is estrogen-based hormone therapy, however, due to apprehension regarding long-term implications of participating in hormone therapy, women have (and continue to) search for alternatives (Roush, 2011). There are mixed reviews related to whether or not exercise could assist in decreasing hot flashes; however, it is important to note that exercise reduces stress – which is known to elicit hot flashes (Wingert & Kantrowitz, 2009).

Another common solution is the use of prescription anti-depressant medication (i.e., Paxil, Prozac, Celexa, Effexor, Lexapro). A helpful alternative for women undergoing treatment for various cancers or other pre-existing medical conditions, anti-depressants "act on chemicals in the brain"; this in reference to the theory concerning the brain, hypothalamus and hot flashes, there is a clear connection as to how medication equalizing chemical activity in the brain could aid in relieving hot flashes (Roush, 2011, p.32). An added plus involves the fact that anti-depressants can assist with bouts of

depression and/or anxiety – two common psychological symptoms experienced during menopause. Like most all medications, there are secondary conditions or undesired side effects that can arise when taking anti-depressants, including: sexual difficulties, inability to sleep or marked sleepiness, changes in weight, and potential interactions with other medications being taken (Roush, 2011; Wingert & Kantrowitz, 2009).

Night sweats. Night sweats are defined as nocturnal occurrences in which an individual profusely sweats, sometimes so severely, that clothes and/or bedding are saturated (Mayo Clinic, 2011a). Often confused with, or considered to be interchangeable/equivalent to a hot flash, a night sweat is technically a separate entity from a hot flash; the two events are “on a continuum” (Northrup, 2006, p.129). Thus, while night sweats may often be the result of a hot flash that occurs during sleep and/or wakes an individual from their sleep, night sweats may also transpire due to prescribed medications or fluctuations in levels of hormone production (Mayo Clinic, 2011a; Thacker, 2009). Night sweats occur when a woman’s body temperature drops (which typically occurs when sleeping); this change in temperature can be exasperated if a woman is simultaneously experiencing lowered estrogen levels. On account of lower body temp, the brain reacts by working to heat the body up (because it has become too cold); “the result is a hot flash which becomes a night sweat when your “cooling system” triggers the sweat glands into action” (Thacker, 2009, p.125).

Sleep disorders. A sleep disorder is considered a disturbance in sleep pattern due to “insomnia, sleep apnea or an increased number of nocturnal awakenings...often accompanied by reports of fatigue and loss of concentration during the day” (Freedman,

2002, p.705). Due to alterations in levels of estrogen and progesterone in the body, these hormones have been found to influence stress responses, breathing, body temperature and mood. Also, some studies involving research with animals demonstrated a correlation between estrogen, progesterone and the sleep cycle. Understanding the importance of each of the factors relative to sleep quality, it is easily realized that a woman's sleep could be frequently disrupted during menopause (Wingert & Kantrowitz, 2009).

Inadequate sleep can create secondary complications, and greatly interfere with an individual's everyday functional well-being. Roush (2011) identifies that insufficient sleep can lead to "reduced productivity and irritability...it can have serious health consequences including depression, increased susceptibility to illness, [and] increased risk of heart disease" (p.39-40). Wingert & Kantrowitz (2009) corroborate Roush's (2011) claim, stating that individuals who fail to get satisfactory sleep could be at a higher risk for "cardiovascular disease, obesity, depression, and viral illnesses"; they continue by explaining that poor sleep could also create prospective "moodiness, as well as memory, concentration, and relationship problems...not to mention loss of productivity and alertness both at work and at home" (p.78).

Regular treatments utilized or recommended for sleep disturbances associated with menopause include the use of prescription sleep aids (i.e., Lunesta, Ambien, Sonata), the use of organic supplements (i.e., melatonin, chamomile, kava), and/or the use of alternative treatments (i.e., acupuncture, progressive-relaxation therapy, meditation, guided imagery) (Wingert & Kantrowitz, 2009). It is imperative to realize when using any prescription and/or organic supplement, how critical it is to communicate

with a primary physician to ensure that the proper dosage and duration of use is of benefit – as opposed to it manufacturing harm and/or long-term health risk.

Sexual difficulties. “Estrogen and testosterone are the two primary hormones involved in women’s sexuality” (Roush, 2011, p.63-65). Estrogen is strongly linked to the reproductive tract, while testosterone is associated strongly with sexual arousal and libido. The two are interrelated by the circulation of blood; “estrogen maintains normal blood flow to the genitalia....Blood flow to genitalia increases during sexual response, lubricating the vagina” (Roush, 2011, p.63-65). This indicates that if estrogen is low, vaginal atrophy – when vaginal walls become dry and thin, and more inclined to infection – can occur, and interfere with sexual encounters. Also, estrogen aids in elasticity within the vagina; if elasticity is lacking, sexual intercourse can be painful (Roush, 2011; Wingert & Kantrowitz, 2009).

The most reliable and least invasive treatment for sexual issues specific to climacteric change is topical estrogen creams; these are preferred over oral estrogen because topical creams can be directly applied (and remedy faster) than an oral medication, which has to be process through the body’s system before taking effect. Often, topical creams contain a higher dosage of estrogen than what is permitted in tablet form – once again, providing relief more rapidly (Roush, 2011). Women have also inquired about testosterone-based therapy for the purpose of increasing sexual health, however, at present the only FDA approved testosterone interventions available on the market are those designed for men (Wingert & Kantrowitz, 2009).

Psychological Implications

In addition to physical symptoms experienced, there are several psychological factors that can infrequently (or incessantly) haunt women during menopause. Ojeda (2003) summarizes this notion, articulating that –

“The accepted view of menopause is that it is a major cultural, psychological, and physiological milestone for women. Its definition is now broader in scope, with symptoms linked to consequences of aging as well as hormonal imbalance. The implication still exist, however, that menopause is predominantly a negative event, like divorce or loss of a job. Many experts agree that menopause is a biological marker for aging; it signifies the end of reproduction in a culture where sexuality and childbearing are equated with female fulfillment, and it signifies the beginning of old age in a culture that extols youthfulness” (p.11).

Lock and Kaufert (2001) make an interesting point as well, commenting on the absurd idea of menopause being defined simply as “a woman’s last menses” (p.495). Rather, they propose it is a “prolonged process rather than a singular event...the changes attributed to variations in psychological, social and cultural factors, layered over an invariant biological base” (Lock & Kaufert, 2001, p.494-495). Menopause is much more than a physical happening. It creates within women an awareness of their entering into middle-age adulthood (within a modern society that is obsessed with anti-aging, youthfulness) (Chrisler, 2011; Ojeda, 2003; Roush, 2011; Wingert & Kantrowitz, 2009).

And still,

“For some women it is a non-event, for others it disrupts their lives...a chronological event, reminding us that we are growing older. It is a physiological event, a herald of all kinds of age-related changes in our bodies. It is psychological, an indication of shifts in our roles as intimate partners and as mothers...we begin to face the reality of our own mortality...” (Roush, 2011, p.2).

Fundamentally, coupled with the physiological aspects of menopause, a woman's perception of, reaction to, and subsequent ability to manage menopause (positively and/or negatively) is based on "psychosocial and cultural factors" impacting their lives at that time (i.e., teenagers/empty nest, marriage troubles, caregiver roles, serious illness within family, job stress, financial problems, attitudes of acceptance re: aging) (Pimenta, Leal, Maroco, & Ramos, 2011, p.1122; Cowan, Warren, & Young, 1985; Randolph, Jr., & James, 2009; Wingert & Kantrowitz, 2009).

Stress. Stress levels inherently are provoked and inflamed amongst the series of physical, hormonal, social, and emotional deviations that take place either in direct or indirect association with menopause. Taxing to one's "biological, social, or psychological system", stress has potential to create an influx in hot flashes and sleep disruptions in menopausal women (Lazarus, 1993b, p.2; Freeman, Sammel, Lin, Gracia, Pien, Nelson, & Sheng, 2007). Stress, in addition to the variability in psychological well-being menopausal women often exhibit, including "mood disturbances... depression... irritability, anxiety and poor concentration", can inhibit sleep patterns, interfere with activities of daily living and critically injure one's emotional well-being and quality of life (Freedman, 2002, p.707; Northrup, 2006; Wingert & Kantrowitz, 2009).

Moreover, if stress levels become too elevated and/or continue for a prolonged period of time, cortisol (a stress hormone) levels increase and lead to a state of depressed mood. As previously mentioned, depression and anxiety are common in menopause women; added stress will only encumber the situation further. Anti-depressants (discussed under hot flashes) can be prescribed, however, the side effects that accompany

them are often just as debilitating for some women as the state of depression itself (Wingert & Kantrowtiz, 2009).

Summary. Indisputably, it is difficult to clearly articulate the specifics of menopause, as it is an individual-specific process that “ranges from a smooth and non-problematic transition to a long period of imbalances and disruptions” (Fallahzadeh, 2010, p.813). Symptoms may “be barely noticeable....Others will qualify as annoying, and still others may interfere with...ability to function” (Wingert & Kantrowtiz, 2009, p.8-9). Similarly, in working to delineate and characterize quality of life, it is pivotal to acknowledge that individuals “living in different situations see different things as essential to a meaningful existence” (Shin & Rutkowski, 2003, p.511). Thus, accepting that a majority of women who experience menopause will encounter some level of interference due to physical and/or psychosocial symptoms indicative of climacteric changes, it would seem illogical to omit considering how an individual’s quality of life might digress in response to circumstances or sentiments associated with menopause (Arigo, Kloss, Kniele, & Gilrain, 2007; Chen, Lin, Wei, Gao, & Wu, 2007; Jafary, Farahbakhsh, Shafiabadi, & Delavar, 2011).

Conventional/Traditional Hormone Therapy

Data shows that “75% of perimenopausal women have symptoms of menopause that are uncomfortable enough to cause them to seek relief, whether through supplemental hormones, dietary change, exercise or alternative therapies” (Northrup, 2006, p.112). In an attempt to counteract menopausal symptoms experienced as a result of these biologically induced changes, women have and continue to participate in

hormone therapy, a widely used approach in which supplemental hormones are provided via pharmaceutical medication to build up hormone levels that the body is less frequently (or no longer) naturally producing (Mayo Clinic, 2012).

Delivered in various forms (i.e., oral tablet, patch, injection, topical creams), hormone therapy is typically provided to women in one of three ways: an estrogen compound, a blend of estrogen and progesterone, or a combination of estrogen and testosterone. In all three variations of hormone therapy, multiple amalgamations are used involving different dosages and forms of estrogen-based products based on individual-specific client needs, their menopausal symptoms, and any related or un-related medical risks or present conditions (Roush, 2011; Thacker, 2009). In addition to hormone therapy's ability to successfully treat and alleviate menopausal symptoms, additional benefits including a decreased risk of osteoporosis, diabetes and colon cancer are associated with hormone therapy (Burke, Legault, Anthony, Bland, Morgan, Naughton, Leggett, Washburn, & Vitolins, 2003; Thacker, 2009).

Estrogen. Estrogen, a hormone that aids in the development and maintenance of the female reproductive systems, is naturally produced within a woman's body in one of three formats: estradiol, estrone, or estriol. Estradiol is produced by the ovaries, and key to successful reproductive functioning; estrone and estriol are produced in the adrenal glands, and exist in smaller portions excluding pregnancy. Prescribed to menopausal

women who have had a hysterectomy¹, estrogen therapy may be prescribed as a “pill, cream, gel, patch or vaginal ring” arrangement (Wingert & Kantrowitz, 2009, p.27).

Estrogen is vital to a woman’s body for several reasons; it is a contributing factor in the growth of breast and uterus tissues, it generates collagen (decreases wrinkles), protects bone (decreases likelihood of osteoporosis), and can positively influence mood and/or sexual health (Northrup, 2006; Randolph, Jr., & James, 2009; Roush, 2011). On the contrary, a lack of estrogen can be detrimental in that a woman may experience an increase in hot flashes, night sweats, vaginal atrophy, irregular moods, deflated sexual desire, and an increased risk of blood clots, stroke, coronary heart disease, and breast cancer (Northrup, 2006; Wingert & Kantrowitz, 2009).

Progesterone. A natural hormone produced in the ovaries, brain and peripheral nerves, is mainly utilized to “prepare the uterus for implantation of a fertilized egg...helps to maintain pregnancy” (Wingert & Kantrowitz, 2009, p.28). In addition to its uses specific to pregnancy, progesterone is also beneficial in decreasing nervousness and worry, while supporting a sense of calm and quality sleep patterns. A decrease in progesterone is often one of the first indicators of menopause, as a lack of progesterone results in discontinued menstrual cycles.

Prescribed in a pill, gel, or uterine device, progesterone is recommended for treatment of menopausal symptoms related to depression, irregular sleep, osteoporosis, bloating, and stress. Menopausal women who still have their uterus are prescribed progesterone in combination with estrogen, to ensure that there is not spontaneous growth

¹ Women who have their uterus, but have had their ovaries removed are prescribed an estrogen and progesterone combination.

in the uterine lining (increasing risk of endometrial cancer) (Northrup, 2006; Randolph, Jr., & James, 2009).

Testosterone. Produced naturally in women by the adrenal glands and ovaries, testosterone is best known for its role in amplifying sexual desires, but can also heighten general energy levels, and strengthen bones (Northrup, 2006; Randolph, Jr., & James, 2009; Roush, 2011). The onset of menopause (natural or induced) creates a noticeable drop in testosterone levels, resulting in decreased sexual functioning and libido (Northrup, 2006; Wingert & Kantrowitz, 2009). Unfortunately, at present, due to its capacity to increase risks of breast cancer, heart and/or liver disease, unless taken in conjunction with estrogen for the sole purpose of increasing sexual health, testosterone is not approved for use in managing any other menopausal symptoms (e.g., depleted energy/fatigue, osteoporosis, hot flashes, depression) (Roush, 2011).

Bioidenticals. Hormone therapy is presented to women using either “synthetic” hormones, or “bioidentical” hormones. The term “bioidentical” indicates that the “chemical structure is identical to that of the hormones produced by your ovaries”; it also conveys that the hormones used are “made-to-order...treatments” based on the specific needs and symptoms of the client (Wingert & Kantrowitz, 2009, p.28-29; 40; Randolph, Jr., & James, 2009; Roush, 2011). Northrup (2006) advocates for the use of bioidentical hormone therapy treatments asserting that because it aligns with a woman’s indigenous body chemistry, it is physiologically more effective because its contents are “just like the hormones that our bodies are designed to recognize and utilize” (p.142). In contrast, synthetic hormones are approached as a universal, one-size-fits-all prescription;

regardless of your age, symptoms, or hormonal profile, all women are given synonymous treatments (Randolph, Jr., & James, 2009). As synthetic hormones are not suitably matched with a woman's internal workings, it is more prone to create obtrusive side effects due to incongruent correspondence within the body.

Recognizing the differences in these two approaches (synthetic vs. bioidentical), it seems illogical that anyone would choose synthetic over bioidentical hormone therapy – because bioidentical is “natural”, and therefore must be a safe resolve (Wingert & Kantrowitz, 2009). However, this highlights the omnipresent need to fully educate individuals on the benefits and risks associated with their healthcare (so that informed decisions can be made). Regardless of whether a woman selects synthetic or bioidentical therapy, it is important to keep in mind that both therapies involve substances that are external to what is produced internally within the body. Additionally, not all bioidentical treatments are sanctioned or monitored by the FDA, implying that constituents within the treatment may not be safe, efficacious, or of dependable dose (Northrup, 2006; Roush, 2011; Wingert & Kantrowitz, 2009)

Women's Health Initiative. In addition to having to decipher between synthetic and bioidentical hormone therapies, results of a massive research study surfaced several years ago that further complicated the issue. The Women's Health Initiative was a series of long-term studies conducted by the National Institutes of Health (NIH) beginning in 1993. At random, half of the participants in the study were placed in an intervention group (i.e., the group that received hormone therapy); the remaining participants were placed in a comparison group (i.e., individuals who received a placebo). The purpose of

the research was to determine the long-term effect of estrogen and progesterone hormone therapy on health of menopausal women, ages 50 to 79. More precisely, the study aimed to determine whether or not hormone therapy (in addition to acting as treatment for menopausal symptoms) served as a preventative measure against osteoporosis and heart disease (Randolph, Jr., & James, 2009; Thacker, 2009; Theroux, 2010). Unbeknownst (or misunderstood) by most, the study never intended to evaluate the short-term effects of hormone therapy on symptoms associated with menopause.

The study fell short of its originally designed 15-year longitudinal timeline, when in 2002 the study was terminated as researchers discovered an increased risk of breast cancer, blood clot, stroke and heart disease in participants receiving hormone therapy (Northrup, 2006; Randolph, Jr., & James, 2009; Roush, 2011; Thacker, 2009; Wingert & Kantrowitz, 2009). As a result of the reported findings, the abrupt expiration of the study, and media reports regarding the study – panic emerged. A multitude of women immediately withdrew from their use of hormone therapy out of fear and confusion regarding its effects on the body's health and well-being. What was not clearly communicated was that a majority of the participants in the NIH study were postmenopausal, older-aged women. This contextual factor alone is significant; how would the results have differed if participants had been premenopausal? Also, it is important to recall the purpose of the study – to determine whether or not hormone therapy was a preventative treatment for chronic health conditions – the study was not about determining whether or not hormone therapy was an effective menopausal treatment (Thacker, 2009).

While the NIH study concluded prior to what was originally intended, several realizations were formulated based on the study's ending: (a) perimenopausal and postmenopausal women fit within two separate age brackets, and are experiencing two separate stages along the menopausal transition; (b) there is no blanket solution, or one-size-fits-all approach to hormone therapy – instead, treatment should be individually tailored specific for each woman based on their symptoms, age, and/or supplemental health concerns; (c) there is sincere need for communication among women and their physicians – so that education and informed decisions regarding hormone therapy can accurately occur; and (d) women should receive the lowest dose of hormone therapy possible for managing their symptoms; remaining on hormone therapy for the shortest period of time possible to reduce long-term health risks (Northrup, 2006; Thacker, 2009; Theroux, 2010; Wingert & Kantrowtiz, 2009).

On the whole, hormone therapy is still considered the most effective treatment for treating symptoms associated with menopause. However, as a result of the unexpected and immediate conclusion of the NIH study, many women as well as practitioners within the medical community were instilled with a detrimental sense of alarm, uneasiness and trust with regards to the treatment method. There is value in using hormone therapy as a treatment for menopausal symptoms, but also as preventative protection of certain chronic diseases and/or cancers in older women. Yet, due to the avenue for which the results of the NIH study were revealed and communicated, this was not taken into consideration; instead, multitudes of women that were taking hormone therapy ceased to continue. In addition, practitioners as well as women just now entering menopause (10

years after the results of NIH study were revealed) have a skewed perspective of hormone therapy, its benefits and its risks. It can be concluded that while we did learn several lessons/implications from the data collected within the NIH study, the results of the study (and the way in which they were presented to the public) have had a long-term, unfavorable influence on both women, and the professionals responsible for treating menopausal women.

Complementary and Alternative Medicine

While it is considered to be the most effective and most commonly prescribed form of treatment for dealing with menopause, in recent years, women have become increasingly hesitant towards involvement in hormone therapy fearing the treatment could potentially (a) cause adverse side effects if the body does not tolerate treatment well; or (b) increase the development of serious illnesses including, breast cancer, cardiovascular disease, stroke, embolism related issues, and uterine cancer (Booth-LaForce, Thurston, & Taylor, 2007; Burke, Legault, Anthony, Bland, Morgan, Naughton, Leggett, Washburn, & Vitolins, 2003; De Valois, Young, Robinson, McCourt, & Maher, 2010; Hendrix, 1997; Lai, Hwang, Chen, & Wang, 2002; Vaze & Joshi, 2010; Vincent, Barton, Mandrekar, Cha, Zais, Wahner-Roedler, Keppler, Kreitzer, & Loprinzi, 2007).

Dailey, Neal, Northrup, West and Schwartz (2003) indicated in their research that of the 20% of women administered hormone therapy, nearly 50% of those women will “discontinue treatment within 1 year” (p.634) due to the uncertainty and apprehension of potential risks or unwanted side effects that may ensue. As a result, many women are actively seeking alternative or complementary methods that are effective and can assist in

managing symptoms of menopause, without it posing a threat to their overall health or any pre-existing medical conditions (Booth-LaForce, Thurston, & Taylor, 2007; Daley, MacArthur, McManus, Stokes-Lampard, Wilson, Roalfe, & Mutrie, 2006; De Valois, Young, Robinson, McCourt, & Maher, 2010; Palacio, Masri, & Mooradian, 2009; Sandberg, Wijma, Wyon, Nedstrand, & Hammar, 2002).

Complementary and alternative medicine(s) are non-medicinal based interventions that traditionally are “not taught widely at U.S. medical schools or generally available at U.S. hospitals” (Eisenberg, Kessler, Foster, Norlock, Calkins, & Delbanco, 1993, p.246). Parallel to hormone therapy or pharmaceutical based treatments, complementary and alternative treatments, including acupuncture, aromatherapy, massage therapy, yoga, meditation, guided imagery, exercise, self-help/support groups, herbal/dietary supplements, biofeedback, cognitive-behavioral therapy, and relaxation programs, are increasingly being sought by women experiencing climacteric symptoms (Dailey, Neal, Northrup, West, & Schwartz, 2003; De Valois, Young, Robinson, McCourt, & Maher, 2010; Richter, Corwin, Rheaume, & McKeown, 2001; Shin, 2010; Taylor, 2012; Tiran, 2006).

These types of treatments are complementary in that a woman may still require or choose to participate in hormone therapy; however, in finding an effective complementary treatment, they are able to maintain a lower dosage of hormone therapy in conjunction with the use of a non-medicinal remedy. Concurrently, these types of treatments may also be deemed as alternatives to hormone therapy due to the fact that several women find that one or more of these treatments are sufficient in dealing with

menopausal symptoms (e.g., hot flashes, petulant mood, depression, sleep disorders), allowing the individual to opt out of or wean off of hormone therapy programs (Murakami, Shirota, Hayashi, & Ishizuika, 2005; Richter, Corwin, Rheaume, & McKeown, 2001; Taylor, 2012). Accordingly, these types of intercessions are beneficial in that they can be customized and tailored specific to each individual, their interests, their needs and their symptoms. Additionally, in most cases, these types of interventions hold aptitude for being more cost-effective, less intrusive and imply less risk for unwarranted side effects and/or threat to one's overall health and well-being.

Acupuncture. Believed to have taken origin 3,500 years ago, acupuncture is classified as a traditional Chinese medicine in which small needles are inserted into one of 12 meridians identified on the body, and used to stimulate various points on the body for the purpose of arousing and creating harmony within certain organ systems. Understood as a holistic concept, acupuncture operates from the viewpoint that no one part of the body can function effectively if another area of the body is disturbed or unbalanced; all systems within the body are interrelated, interdependent and affected by both internal and external factors. In total, there are 365 acupuncture points identified within the 12 meridians of the body. Each meridian is considered to be a path that is connected to specific organs or functioning systems within the body. Based on Chinese philosophy, meridians (also called "Qi", pronounced "chee") are representative of energy flow within an individual; each meridian flows to and from other meridians, creating and maintaining an individual's equilibrium. However, it is believed that if and when a blockage or disrupted flow occurs in a meridian and/or energy stream, illness, pain and

disease can result (Alfhaily & Ewies, 2007; Lee, Shin, & Ernst, 2009). Acupuncture is utilized as preventative care as well as treatment for ailments and/or pain associated with an illness or stressor (Northrup, 2006; Taylor, 2012).

Specific to menopause, acupuncture “works to normalize the flow of life energy or “Qi” in the body...effective for relieving hot flashes, night sweats, anxiety, restlessness, emotional instability, moodiness, menstrual cramps, and excess bleeding...”(Northrup, 2006, p.199). Important to note is the potential that the benefits of acupuncture will maintain stability over time, even after acupuncture treatment sessions have concluded; Roush (2011) cites a study in which “women continued to benefit for 6-12 months afterward” (p.33-34). Acupuncture is most commonly used for the purpose of diminishing hot flashes. Roush (2011) indicates that studies focusing on acupuncture as an antidote to hot flashes have produced mixed results, stating that “some studies showed acupuncture decreased hot flash frequency and severity, whereas others found no difference...”(p.33-34). For example, Alraek and Malterud (2009) completed a qualitative study with 112 postmenopausal women to identify and describe the effect of acupuncture participation on hot flashes experienced during the menopausal transition. Following completion of 10 acupuncture sessions, participants were asked to free-write about any changes (real or perceived) that they believed were a direct result of their participation in acupuncture. Following analysis of each statement, it was determined that 83 of the 112 participants expressed positive changes in relation to hot flashes during and or following their acupuncture sessions. Additionally, 16 participants described enhanced sleep, and 37 participants depicted the occurrence of assorted changes, including

heightened energy levels, increased sense of relaxation, and diminished encounters with headaches, pain, hypertension, digestive issues, and/or emotional volatility. However, 12 participants acknowledged that they were undecided as to whether or not they had experienced change, or if any change had occurred, they were not confident that it was the result of acupuncture. Conversely, 15 participants articulated that they had experienced zero change as a result of participation in acupuncture, and two participants explained that they felt worse as a result of participation in acupuncture (Alraek & Malterud, 2009).

Aromatherapy. Implemented as a therapeutic intervention, aromatherapy involves the use of oils, and plant-based properties extorted from “flowers, leaves, fruits, barks or roots” (Murakami, Shirota, Hayashi, & Ishizuka, 2005, p.491). Commonly used oils including jasmine, rose, geranium, and lavender can be used to rouse olfactory senses, or used during aromatherapy massage in which the oils are both absorbed directly into the skin and inhaled through the olfactory senses (Hur, Oh, Lee, Kim, & Choi, 2007; Hur, Yang, & Lee, 2008; Murakami, Shirota, Hayashi, & Ishizuika, 2005). Hur, Oh, Lee, Kim, and Choi (2007) cite multiple studies in which alterations in healthy physiological changes transpire including “blood pressure, muscle tension...skin temperature, skin blood flow...pulse rate, and brain activity”, as a result of aromatherapy (p.1283). Additionally, aromatherapy has been attributed to creating psychological improvements in symptoms related to depression, anxiety and mood instability (Hur, Yang, & Lee, 2008).

Soy supplements. Intriguingly, the occurrence of hot flashes in women from Asian countries has been found to be significantly lower than of women living in Western countries. Welty, Lee, Lew, Nasca and Zhou (2007) report that “10%-15% of Chinese women and 10%-20% of Indonesian women have hot flashes compared with 58%-93% of western women” (p.362). Of noticeable interest within these two groups of women, is the difference in soy-product and/or soy-phytoestrogen dietary intake. On average, women in Indonesia, Japan, Korea, and Taiwan daily consume between 17-36 grams of soy, in contrast to women in the United States who consume approximately four grams of soy daily (p.362). Based on this staggering information, it is possible that the difference in soy intake between the two groups of women could account for some of the variability in the number of hot flashes experienced during menopause. Northrup (2006) avows that research corroborates that “soy protein, as a regular component of the diet, can lessen both the frequency and intensity of hot flashes and other perimenopausal symptoms....mood swings, migraine headaches, irregular periods and weight gain” (p.188). As a result, an increasing number of studies have and continue to be facilitated for the purpose of identifying the effects of dietary soy supplements on menopausal symptoms, namely hot flashes (Welty, Lee, Lew, Nasca, & Zhou, 2007).

Herbal supplements. Various herbal and botanical supplements (i.e., vitamins, minerals, evening primrose, flaxseed, black cohosh, red clover, ginseng, St. John’s wort, phytoestrogens, and ginkgo biloba) are increasingly used by menopausal women in an effort to subside climacteric symptoms (Dailey, Neale, Northrup, West, & Schwartz, 2003; Geller & Studee, 2005; Randolph, Jr., & James, 2009; Roush, 2011; Tiran, 2006;

Wingert & Kantrowitz, 2009). Most commonly, black cohosh is taken to diminish emotional instabilities, difficulties sleeping, and vasomotor symptoms including hot flashes; red clover is engaged in to reduce hot flashes and breast tenderness; ginseng is used to reduce hot flashes, sleep disturbances and fatigue; St. Johns wort is employed to eliminate feelings of anxiety and/or depression; and ginkgo biloba is taken to aid in cognitive functioning and memory (Dailey, Neale, Northrup, West, & Schwartz, 2003; Geller & Studee, 2005; Northrup, 2006; Tiran, 2006).

In addition to women choosing this alternative intervention as opposed to hormone therapy treatments, it is also feasible to assume that many women choose herbal and botanical supplements instead of hormone therapy because they consider it to a “natural” remedy that potentially aligns with their beliefs and lifestyle than does the traditional, prescriptive medicine option associated with hormone therapy. Unfortunately, one misconception that might exist involves the idea that because women consider herbal supplements to be “natural”, they also assume that it is safe, which is not always the case (Geller & Studee, 2005). Each supplement carries the risk for potential side effects that may include gastrointestinal issues, liver damage, cardiac arrhythmias, depression, disrupted sleep, nausea, vaginal bleeding, and headaches (Tiran, 2006; Wingert & Kantrowitz, 2009). Yet, many herbal and dietary supplements are not endorsed, controlled and monitored by the Federal Drug Administration (FDA). As a result, those not under FDA regulations are not required to abide by any policies or requirements associated with labeling contents, standards of quality regarding the contents of make-up

of a supplement, and/or consistent dosage recommendations (Roush, 2011; Wingert & Kantrowitz, 2009).

Randolph, Jr. and James (2009) contributed an interesting view, proposing that “Biochemically...herbal remedies do not work that well....The body is not set up to convert plant hormones into bio-identical human molecular structures” (p.24-25). Moreover, a recent study completed with perimenopausal and postmenopausal women by researchers at the University of Illinois Medical Center supports this potential fallacy; researchers found that “70% of women between the ages of 40 and 60 reported using botanical and dietary supplements to treat symptoms or disease...fewer than 10% of users could actually verbalize the health benefits of these supplements” (Geller & Studee, 2005, p.635).

Although complementary and alternative medicines have proved, and continue to hold great promise regarding the treatment and management of symptoms associated with menopause, it would be imperceptive to disregard acknowledging that complementary and alternative treatments can have unsolicited or even detrimental effects on an individual’s health (Roush, 2011). Tiran (2006) prompts us to realize and continuously be aware that “anything with the potential to benefit patients may also, if misused or abused, be harmful” (p.645). As an example, consider consumption of herbal supplements; depending on the dosage taken, the frequency in which each dose is taken, the active ingredients that make up the dosage, and any other prescription or over-the-counter medications being taken for related or un-related health conditions, an inappropriate mixing of these items could easily create an unintended, adverse interactions and

outcomes (Greenburger, 1998). Richter, Corwin, Rheume and McKeown (2001) echo this point, warning that viable “contraindications and chemical interactions between certain herbal preparations, vitamins, and naturally occurring hormones and conventionally prescribed treatments may be cause for concern” (p.34).

Keeping this in mind, consider that two-thirds of healthcare patrons are women; it is estimated that one in every three persons (two-thirds being women) self-select and utilize organic remedies or autonomously obtain advice from unconventional, non-traditional practitioners; however, a projected 70% of these patrons neglect to notify their primary doctors of their choosing to do so (Greenberger, 1998; Taylor, 2012; Tiran, 2006). Interestingly, Seidl and Stewart (1998b) conducted a qualitative study for the purpose of inquiring about 13 Canadian women’s reasoning for selecting complementary and alternative interventions over traditional hormone therapy in an effort to remedy menopausal symptoms. The women alluded to the following rationales: their desire to gain personal control over their own health; their perceiving their physician’s negativity and disapproval of alternative treatments; and their feeling “pressured by their physicians to use hormone replacement therapy” (Seidl & Stewart, 1998b, p.1275).

Conclusively, there are both mixed and irresolute results among scientific research studies and medical experts regarding the assurances of complementary and alternative methods being advantageous, durable, and hazard free (Hendrix, 1997; Seidl & Stewart, 1998a). As an example to extend this viewpoint, Richter, Corwin, Rheume, and McKeown (2001) conveyed one potential downfall to complementary and alternatives in treatment as being the loss of the “long-term, protective effects against

coronary heart disease and osteoporosis that conventional medicine...is now known to offer” (p.24; Hendrix, 1997). Based on these varying perspectives, it becomes vital that women are thoroughly educated on the formats, benefits and risks associated with using both traditional hormone therapy, as well as complementary and alternative treatments to ensure the safe and effective use of either, or both, of these therapeutic avenues (Richter, Corwin, Rheume, & McKeown, 2001, p.24).

Treatment Modality: Yoga

Yoga, a potential alternative to hormone therapy, is currently being assessed for its therapeutic value in decreasing stress and other symptoms associated with menopause. An ancient Indian practice, yoga facilitates sustainable relaxation and equilibrium of the mind and body through the purposeful use of breathing, meditation and physical postures to “bring balance and health to the physical, mental, emotional, and spiritual dimensions of an individual” (Ross & Thomas, 210, p.9; Collins, 1998; Granath, Ingvarsson, Von Thiele, & Lundberg, 2006; Ross & Thomas, 2010; Turnbull, 2010; West, Otte, Geher, Johnson, & Mohr, 2004).

B.K.S. Iyengar (2008), the founder of Iyengar yoga, states that the “primary aim of yoga is to restore the mind to simplicity and peace, to free it from confusion and distress...Unlike other forms of exercise which strain muscles and bones, yoga gently rejuvenates the body” (p.35). Yoga is as much about an individual’s internal state, as it is about their external, physical state; this “frees participants from distractions and mental stresses and provides a respite from life’s responsibilities” (Meckley, Dattilo, & Malley, 2011, p.250). It is an all-inclusive, holistic practice, focused on achieving balance,

restoration, rejuvenation, and strength for the body, mind and spirit; it addresses “every aspect of health and well-being from the periphery to the core” (Iyengar, 2008, p.32; Forbes, 2011).

Hatha yoga, a subcategory of Iyengar yoga, is the most common form of yoga practiced in the modern Western world and therefore is presumed to be the most widely available. Additionally, Hatha yoga engages a comprehensive, holistic approach that focuses on breathing techniques, physical postures that involve stretching and balance, and relaxation (Kiecolt-Glaser, Christian, Preston, Houts, Malarkey, Emery, & Glaser, 2010). Raub (2006) designates Hatha yoga as being “psychophysical yoga” as the overall focus is to achieve balance in “the knowledge, development and balance of psychophysical energies” as it relates to the body and mind (p.797). Based on this foundation, Iyengar encompasses those three areas (breathing, poses and relaxation) for therapeutic purposes depending on an individual’s health status (Shapiro & Cline, 2004).

Notably appropriate for women who are middle-aged and transitioning through the menopause experience, yoga involves steady, repeated movements that are performed in a continuous flow that is calm and composed - unlike traditional form of physical exercise that can be very strained or forceful, often demands a certain stamina or aspect of physical strength, and habitually leads to overexertion or injury (Iyengar, 2008). Known to aid in preventing and/or dealing with stress, bouts of illness, and secondary conditions related to chronic conditions, yoga is unique in that it is welcoming and inclusive of all persons of all backgrounds, ages, genders, physical and mental capacities, and life circumstance. Rather than the participant having to fit within a standardized form

of treatment, yoga can be tailored to the needs, interests and abilities of the participant (Iyengar, 2008). The potential benefits of yoga specific to menopause are extensive:

- Decreased anxiety and depression (Forbes, 2011; Gupta, Shveta, Vempati, Sharma, & Bijlani, 2006; Meckley, Dattilo, & Malley, 2011; Michaelsen, Grossman, Acil, Langhorst, Ludtke, Esch, Stefano & Dobos, 2005; West, Otte, Geher, Johnson, & Mohr, 2004)
- Improved sense of awareness and self-confidence (Iyengar, 2008)
- Increased feelings of physical, emotional, social and spiritual well-being (Iyengar, 2008; Moadel, Shah, Wylie-Rosett, Harris, Patel, Hall, & Sparano, 2007)
- Advanced ability to cope with stress (Iyengar, 2008)
- More consistent state of hormonal equilibrium (Iyengar, 2008)
- Improved digestive functioning (Iyengar, 2008)
- Enhanced aptitude for effective weight management (Iyengar, 2008)
- Increased strength and flexibility (Meckley, Dattilo, & Malley, 2011)
- Improved mobility, range of motion and joint lubrication (Iyengar, 2008)

Yoga and stress management. To assess effects of a mindfulness-based stress-reduction program on levels of stress hormones and physiological performance, Robert-McComb, Tacon, Randolph and Caldera (2004) completed a study with 18 female participants with heart disease. Nine individuals participated in eight, once-a-week, two-

hour interventions that consisted of meditation, body scans and Hatha yoga, with the remaining nine women serving as a control group. Prior to and after intervention, participants provided resting heart rate, cortisol and blood pressure measurements, as well as completed standardized questionnaires related to anxiety and overall health. While researchers identified an improved trend in changing levels of cortisol and physical function, overall the study did not find any significant results with regards to reduction in stress hormones or improvements in physiological performance. Researchers attribute having a small sample size and short length of study as being two main limitations to the study. As a result, the authors suggested that future studies increase sample size numbers, enhance the demographic diversity of participants, and extend the duration of the intervention to allow for physiological levels to adjust and consistently reflect any changes that may occur as a result of the intervention.

Operating on the theory that yoga can positively shape an individual's psychological well-being, West, Otte, Geher, Johnson and Mohr (2004) completed a study with the purpose of identifying the effects of Hatha yoga and African dance on physiological and psychosomatic health. Sixty-nine participants were placed within one of three 90-minute sessions: Hatha yoga, African dance, or the control group. Salivary cortisol levels and evaluations measuring participants' perceived stress and mood were obtained before and after the intervention. As a result of the study, researchers found that both Hatha yoga and African dance significantly decreased negative emotions and feelings of stress. The researchers concluded that while both yoga and dance can positively influence a participant's psychological well-being, effects on physiological

health can vary and therefore requires further study. In addition, the two interventions are different in their level of physical involvement, yoga being a non-aerobic activity and dance an aerobic activity. One limitation was not having a follow-up phase as part of this intervention.

Looking to determine the differences between cognitive behavioral therapy and yoga on an individual's physical and psychological stress, Granath, Ingvarsson, Von Thiele and Lundberg (2006) implemented a study in which 33 individuals who self-reported having complications due to stress, were split into two equal groups and participated in 10 sessions of either cognitive behavior therapy or Kundalini yoga over a period of 16 weeks. Prior to participation, participants completed questionnaires related to perceived stress and quality of life, in addition to submitting physiological measurements including saliva cortisol samples, blood pressure and heart rate. The cognitive behavior therapy program was initially provided on a weekly basis, however, after four consecutive weeks, the program was offered every other week for the duration of the study. The cognitive behavior program was structured into five segments: relaxation, discussion related to practice of techniques at home, psycho-education, stress management techniques, and introduction of new techniques to practice at home before the next program meeting. The yoga intervention was held weekly with a one-week intermission due to a holiday. The primary focus of the yoga intervention was placed on physical exercise in that the first three sessions concentrated on movements that relieved tensions or pains in the back, sessions four through six addressed basic Kundalini yoga movements, and the final three sessions worked on balancing the energies of the mind

and body. Overall, while the primary focus of the cognitive behavior therapy program was mental rest, with the yoga program centering on physical rejuvenation, researchers found that there was no noticeable difference in the benefits of either program with regards to one program being more beneficial than the other. Participants in both groups demonstrated statistically significant progress in their responses to the post-questionnaires inquiring about their level of perceived stress and quality of life. While there were also improved physical measurements related to blood pressure and heart rate, they were not of great statistical significance. Researchers concluded that both cognitive behavior therapy and yoga hold potential as effective treatments for managing stress. Also, as researchers could not demonstrate with absolute certainty that the results of the study were solely due to the intervention, the researchers recommended in future studies that, in addition to a larger sample size, a control group be included. Additionally, the researchers identify the major limitation to the study as being the absence of follow-up data post intervention to assess whether or not participants maintained the changes in levels of perceived stress that were accomplished during the intervention period.

To evaluate the influence of yoga on an individual's mood, Shapiro and Cline (2004) implemented a study aimed at examining the differences in an individual's emotional disposition before and after participation in a yoga class. Additionally, specific yoga poses were assessed for their ability to affect participant moods. The study sought to determine if changes in mood were a result of the yoga intervention, or a result of both yoga and the individual's innate personality traits. Eleven individuals, age 23-59, participated in nine, 90-minute sessions of yoga in which three yoga poses (forward bend,

back bend and standing pose) were introduced. Prior to the start of and following the intervention, participants reported their positive and/or negative feelings in 15 areas, including perceived levels of anxiety, depression, frustration, stress, confidence, optimism, and fatigue. Researchers found that negative feelings declined, positive feelings improved and energy-related feelings were heightened post intervention in comparison to energy levels pre-intervention. In addition, specific yoga poses were found to have varying impacts on participant moods, therefore researchers recommended that future studies focus on the effects of unique yoga postures and movements on participant's psychological health.

Yoga and menopause. In addition to yoga serving as a de-stressor (which indirectly results in a decrease in menopausal symptoms), it is also an intervention that directly improves physiological systems which in turn improve symptoms associated with menopause.

In a study related to the role of meditative forms of yoga and treatment of symptoms associated with menopause, Manocha, Semmar and Black (2007) implemented a study using an AB case design with follow-up phase to assess whether meditation practices held potential benefit for women experiencing menopausal symptoms (e.g., hot flashes, anxiety, vasomotor symptoms). Fourteen women, ages 40-60, participated in 90-minute Sahaja yoga meditation sessions that occurred twice per week over the course of eight weeks. Prior to beginning the intervention, and again at weeks 4, 8 and 16, participants provided information related to frequency of hot flashes, occurrence of menopausal symptoms, quality of life and anxiety. As a result of the intervention,

improvements were demonstrated within all dependent variables. Of greatest statistical significance, was the decrease in occurrence of hot flashes experienced by participants each week. Perhaps of greater statistical significance, is that this improvement was maintained at week 16 (8-weeks post intervention) indicating that meditation may aid in both acute and long-term relief of menopause symptoms. Researchers identified one limitation as the study was completed with a relatively small sample, and also lacked a control group. Additionally, researchers were unsure of how consistent participants had been in their compliance with the follow-up phase.

To examine the effects of Hatha yoga on symptoms associated with menopause, Booth-LaForce, Thurston, and Taylor (2007) examined the effects of a 10-week (75 minute session per week), Hatha yoga program on 11 women experiencing menopausal symptoms, including a minimum of four hot flashes per day, a minimum of four days per week. The yoga program focused on breathing and poses associated with relaxation. In addition to the yoga classes, participants were asked to implement learned yoga postures and techniques daily for 15 minutes. Prior to the intervention, participants completed questionnaires related to menopause symptoms including sleep quality, frequency and intensity of hot flashes. Questionnaires were again administered at the end of the program. In addition, throughout the duration of the intervention, participants wore 24-hour monitors that recorded occurrences of hot flashes, and were also asked to log an entry in a diary each time they experienced a hot flash. As a result of the study, it was determined that neither the 24-hour monitor nor the hot flash diary generated noteworthy information in reference to the change in number of hot flashes that occurred. However, it

was concluded based on pre-and-post assessments that participation in Hatha yoga lessened the severity of symptoms associated with menopause, including disturbances (e.g., sweats, dizziness, joint pain) due to hot flashes and quality of sleep. Based on these findings and improvement of symptoms, researchers acknowledged there is reason to extend studies that involve the use of yoga in relieving menopause symptoms. It is recommended that a large sample size be established, so that a control group can be included as part of the study.

As one conceptualizes future studies that analyze the benefits of yoga on symptoms related to the physiological and psychological stress of menopause, it is critical to take note of various findings from previous studies. It is important for the intervention be developed as a long-term study to ensure effects of the intervention can be transformative within a participant's physiological and psychological functioning. Additionally, studies can incorporate a follow-up phase with participants to determine whether symptom improvements that occur as a result of the intervention are sustained.

While it is difficult to understand the internal, biological processes that take place during the yoga experience that results in physiological improvements, several researchers have begun to identify specific changes that occur as a result of yoga participation. Bosch, Traustadottir, Howard and Matt (2009) identified that participation in yoga can lead to a decrease in disease susceptibility, improved balance, and a diminished sense of pain and depression. Similarly, due to the stretching, and fixed postures implemented, pain management is cited as a benefit of yoga as the completion of poses builds musculoskeletal strength and flexibility (Hudson, 1998; Luskin, Newell,

Griffith, Holmes, Telles, DiNucci, Marvasti, Hill, Pelletier, & Haskell, 2000; Tran, Holly, Lashbrook, & Amsterdam, 2001).

Murugesan, Govindarajulu, and Bera (2000) found that the utilization of yoga exercises was linked to the management of hypertension. Researchers have concluded that due to the breathing exercises, such as those implemented in yoga practice, diastolic and systolic blood pressures become stabilized at an appropriate level (Bernardi, Porta, Spicuzza, Bellwon, Spadacini, Frey, Yeung, Sanderson, Pedretti, & Tramarin, 2002; Harinath, Malhotra, Pal, Prasad, Kumar, Kain, Rai, & Sawhney, 2004). Researchers believe that balance achieved with blood pressure during yoga participation is indicative of change “of autonomic equilibrium toward relative parasympathodominance because of the reduction of sympathetic activity”; in other words, the body is able to maintain or return to a state of balance more efficiently as a result of yoga (Harinath, Malhotra, Pal, Prasad, Kumar, Kain, Rai, & Sawhney, 2004, p.266).

Specific to sleep disturbances (i.e., a common symptom reported by women experiencing menopause), Harinath, Malhotra, Pal, Prasad, Kumar, Kain, Rai & Sawhney (2004) reported that as a result of yoga participation, circulation improves allowing for an increase in serotonin, “which in turn might be acting as a precursor for increasing melatonin synthesis” (p.267). Tooley, Armstrong, Norman, and Sali (2000) reported similar results, finding that participation in meditation led to increased melatonin levels within the body. Melatonin is associated with sleep patterns and one’s circadian rhythm; an increase in melatonin may improve an individual’s potential for sleeping more soundly, with fewer disturbances during the sleep pattern (Turek & Gillette, 2004).

Additionally, it has been suggested that stretching, a component of yoga, has the capacity to improve lung aptitudes, and as a result, enhance the flow and delivery of oxygen to the body (Raub, 2002). In particular, marked and beneficial shifts in alkaline phosphatase, erythrocytes and hematocrit were discovered (Ross & Thomas, 2010). Alkaline phosphatase is a type of protein found in various body tissues, but mostly concentrated in the liver, bile and bone (Dugdale, 2011). An improvement in alkaline phosphatase with regards to menopause may involve its relation to overall health, decrease in susceptibility to secondary conditions, and bone health (osteoporosis is a risk factor for menopausal women). Erythrocytes are red blood cells, and are responsible for carrying oxygen throughout the body's biological system; while returning carbon dioxide and waste to the lungs for expulsion from the body (American Red Cross, 2001). If an individual has a healthy red blood cell count, their immunity levels are maintained (if not increased), and burden placed on the functioning of the cardiovascular system is decreased. On the contrary, a lack of oxygen to the blood and body, results in decreased functioning among the body's various systems (American Red Cross, 2001). Interrelated, hematocrit levels verify the amount of red blood cells within the blood. If hematocrit levels are low, this could be an indication of an increased number in white blood cells; an increased number of white blood cells are often linked to deficiency or infection within the body (Mayo Clinic, 2013c).

While many studies seem to have written about the improvement of physiological, vasomotor symptoms related to menopause (i.e., decrease in hot flashes, night sweats, sleep disturbances), very few seem to address the exact biology of what occurs internally

(i.e., chemical and/or hormonal interactions) that causes the improvement in symptoms. It seems that the first step in research regarding the use of yoga as therapeutic intervention for relieving symptoms associated with menopause has been established. What seems to be lacking in the research process specific to yoga as a therapeutic intervention, is the investigation regarding the exact physiological shift that takes place during, or as a result of participation in yoga over a period of time. So many studies that are currently available with regards to the study of yoga as a therapeutic intervention with various populations are based on self-report qualitative and/or quantitative measures. Chattha, Nagarathna, Padmalatha and Nagendra (2008) acknowledge this, and have suggested that future research evaluate the neuro-hormonal changes that occur physiologically as a result of participation in yoga. Now that we have several studies supporting the notion of using yoga as an alternative/complementary intervention for managing symptoms associated with menopause, it is imperative that we “connect the dots” by confirming the idea via concrete physiological measures that better clarify that internal processes that lead to an improvement in menopausal symptoms.

CHAPTER THREE

METHODS

The following chapter outlines the mixed methods research design utilized in the completion of the study. First, an overview of the pilot study that was completed one year prior to, and informed the development of the dissertation research study is provided. Second, an overview of the treatment intervention and details specific to the intervention curriculum, instructor and setting are provided. A description of the mixed methods research design, including participant recruitment, data collection procedures, and data analysis processes specific to the experimental (quantitative) and phenomenological (qualitative) phases that were implemented are also included.

Methods, Findings, and Implications of the Pilot Study

This mixed methods study was developed based on the results of a pilot study conducted during Spring, 2012. Using a mixed methods triangulation design, the purpose of the pilot study was to (a) determine the effects of participation in a six-week yoga intervention (one, 60-minute session each week) on the physiological and psychosomatic symptoms experienced by women during menopause; and (b) to address whether participation in yoga acted as a coping mechanism for women in their managing stressors directly and indirectly associated with menopause. The implementation of the study, as well as the data obtained from participants (N=5) provided valuable lessons regarding logistics and research design that influenced the design of this dissertation.

Yoga and menopausal symptoms. Contradictory to previous literature, participants reported that they did not find there to be any change in the severity,

frequency or duration of the menopausal symptoms experienced as a result of their involvement in yoga. Manocha, Semmar and Black (2007) determined as a result of their study (eight-week duration, 90-minute yoga sessions offered twice per week) that participants experienced a decrease in the frequency of hot flashes encountered each week. Similarly, Booth-LaForce, Thurston, and Taylor (2007) determined that participation in Hatha yoga (75 minutes per week, for 10-weeks) led to a decrease in hot flashes and sleep disturbances. When asked to comment on their participation in yoga and its influence on their menopausal symptoms, participants who took part in the six-week yoga study (once-a-week sessions) reported the following:

...I didn't really experience any change in the menopause symptoms [as a result of yoga participation]....I would imagine we would get a much better picture of the effect of the yoga on the symptoms if we were doing it like, for four months, twice a week, you know, or for six months, three times a week...or something.
– Betty

...I couldn't tell that it [yoga] made any difference with menopause type symptoms...I didn't see any correlation. However, if I had spent more time with it [yoga], if I had done more of it each day, it might have.
– Bonnie

Based on these findings, it was concluded that once-a-week participation in a six-week restorative yoga program was not beneficial with regards to decreasing menopausal symptoms. However, two limitations that potentially influenced this finding involve (a) the length of the study (i.e., once-a-week sessions for six weeks); and (b) participant attendance rates. All of participants in the study missed at least one of the weekly yoga sessions. This factor coupled with the restricted six-week timeline created a small window for physiological change to occur, thus limiting the likelihood of any noticeable

improvement taking place with regards to hot flashes, night sweats or fluctuation in emotions – as they are related to internal hormone and biological systems.

Limitations of the pilot study. While the program duration and infrequent attendance prevented the researcher from being able to make a conclusive hypothesis about whether or not yoga is an effective complementary intervention for treating menopausal symptoms, an additional limitation of the study was the omission of a control group. An ideal scenario would have encompassed two groups; one group of individuals receiving the yoga intervention, and a second group of individuals not partaking in yoga or any other related relaxation-stress management related intervention.

Additionally, the research neglected to collect a potential vital segment of data from participants. During baseline, the researcher failed to ask participants about other natural (e.g., herbal supplements, acupuncture) and/or medical-based treatments (e.g., hormone therapy) they were currently receiving to aid in their managing menopausal symptoms. This information would have been pertinent in identifying whether yoga was effective as a stand-alone intervention, or if yoga proved to be more effective in combination with another intervention or external factors (i.e., lifestyle behaviors). It would have also been beneficial for there to have been at least one physiological measure (e.g., cortisol sample, blood pressure/heart rate) obtained from participants during the baseline and intervention phases of the study.

Recommendations that influenced the structure of the dissertation research. Although there were limited findings to support participation in yoga being an effective intervention for decreasing symptoms associated with menopause, much information was

gleaned to develop a stronger, more rigorous dissertation study. The following changes were recommended and incorporated into the development of the dissertation: (a) frequency and duration of participation in the yoga intervention should be at least two times per week over a 10-12 week period; (b) an incentive should be offered to participants to encourage consistent attendance; (c) a control group should be included to allow for comparison between groups; and (d) data collected should include objective, physiological measures in addition to self-report measures.

Following close analysis of the pilot study, the researcher's dissertation committee recommended the following changes be incorporated in to the dissertation study: (a) frequency and duration of participation in yoga was increased to two times per week for 10 weeks; (b) a monetary incentive (e.g., \$75 Visa gift card) was given to participants following their successful completion of the yoga intervention and follow-up interview; (c) baseline data included a demographic questionnaire related to participants' physical activity, and use of alternative medications and/or treatment interventions; and (d) objective physiological measures (blood pressure, heart rate, and body temperature) were collected three days a week for the duration of the study. One change did not occur; a control group was not included due to logistical constraints, namely: (a) the research study timeline did not allow for an additional 10-week program (following the first 10-week intervention); (b) facility and instructor availability beyond the 10-week intervention; and (c) the onset of summer season; because many individuals travel and have inconsistent schedules during the summer season, the research was concerned participant attrition would occur. However, each participant served as their own control

group throughout the study by providing ongoing quantitative and qualitative data that could be compared over the course of the intervention.

Research Questions

Through the “mixing” of qualitative and quantitative processes, pre- and post-assessments, participant journals, physiological measures and semi-structured interviews the researcher attempted to answer the following research question: *what are the effects of yoga participation on symptoms associated with menopause?* In addition, the study addressed the following sub-questions:

1. To what extent is the severity of physiological symptoms associated with menopause altered as a result of participation in yoga (QUAN);
 - a. If it is determined that there are improvements regarding menopausal symptoms, the researcher will work to address what, if any, improvements can be attributed to participation in yoga (QUAL(quant)).
 - b. If it is determined that the change in symptoms can be attributed to yoga, the researcher will work to identify why, or what about participation in yoga holds benefit for producing positive outcomes (QUAL(quant)).
2. How is one’s overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms (QUAL(quant)); and

3. To what extent do participants find yoga to be beneficial, enjoyable, feasible and accessible (QUAL)?

Quantitative and qualitative data were collected concurrently throughout the study, and each type of data was analyzed to determine the effects of the yoga intervention.

Treatment Intervention

Hatha yoga, a form of Iyengar yoga, was the intervention within this study. Hatha yoga is the most common form of yoga practiced in the modern Western world and is presumed to be the most widely available. Hatha yoga provides a comprehensive, holistic approach that focuses on breathing techniques, physical postures that involve stretching and balance, and relaxation (Kiecolt-Glaser, Christian, Preston, Houts, Malarkey, Emery, & Glaser, 2010). Based on this foundation, Iyengar includes breathing, poses and relaxation for therapeutic purposes (Shapiro, Cook, Davydov, Ottaviani, Leuchter, & Abrams, 2007).

During the intervention, Iyengar yoga, instruction was provided by a certified instructor who was the only instructor for each session throughout the course of the intervention, so consistency in instruction occurred and rapport could be established between the instructor and participants. The instructor provided verbal instruction accompanied by visible pose demonstration to participants for the duration of each 60-minute session. Prior to the intervention, the researcher collaborated with the yoga instructor to formulate a program outline for the ten-week intervention. Developed by the interventionist, based on her knowledge and expertise specific to yoga, the purpose of the outline was to develop program content and process, to ensure that each session was

facilitated in a consistent manner. Physical postures and poses chosen as part of the session intervention were specifically chosen to address symptoms associated with menopause (Booth-LaForce, Thurston, & Taylor, 2007). The curriculum was based on content addressed in the book *Yoga and the Wisdom of Menopause: A guide to physical, emotional and spiritual health at midlife and beyond*; a copy of the book was provided to each participant (Francina, 2003). Figure 3.1 provides a curriculum outline highlighting the specific menopausal symptoms addressed during each yoga session over the course of the 10 week intervention:

Figure 3.1
Curriculum outline

Week 1	Session 1	Hot Flashes	Week 6	Session 11	Pelvic Health
	Session 2	Hot Flashes		Session 12	Bone Health
Week 2	Session 3	Hot Flashes	Week 7	Session 13	Bone Health
	Session 4	Fatigue		Session 14	Bone Health
Week 3	Session 5	Fatigue	Week 8	Session 15	Heart Health
	Session 6	Hormone		Session 16	Heart Health
Week 4	Session 7	Hormone	Week 9	Session 17	Guided Relaxation
	Session 8	Insomnia		Session 18	Guided Relaxation
Week 5	Session 9	Insomnia	Week 10	Session 19	Emotions
	Session 10	Menstruation		Session 20	Emotions

*See Appendix C for a detailed outline of the yoga poses and breathing exercises utilized in sessions each week.

At the start of the intervention, participants were given a CD with six audio recordings (three breathing exercises; three guided imagery exercises). In addition, the recordings were emailed to the participants. The recordings were intended to provide participants with simple, effective strategies that could be used at home or elsewhere if needed or desired based on degree of stress or intensity of menopausal symptoms experienced. Participants were not required to utilize any of the recordings as part of the

study. Rather, they were encouraged to use the various techniques as needed, be it at work, at home or during leisure. Participants were asked to document in their weekly journals whether they utilized the recordings; more specifically, they were asked to comment on whether they found the recorded exercises practical and effective.

Participant awareness of appropriate physical movement of muscles and joints in conjunction with relaxed and rhythmic breathing was a focal point of the yoga intervention, as it maximized potential for participants to achieve safe and comfortable yoga postures, poses and breathing techniques, which could result in their experiencing optimal benefit as a result of participating in the intervention (Kiecolt-Glaser, Christian, Preston, Houts, Malarkey, Emery, & Glaser, 2010; Robert-McComb, Tacon, Randolph, & Caldera, 2004; Shapiro, Cook, Davydov, Ottaviani, Leuchter, & Abrams, 2007). The overall format of the class was tailored for women, ages 40-65, that emphasized beginner-level yoga postures and poses based on the assumption that most if not all had not participated in yoga (Booth-LaForce, Thurston, & Taylor, 2007). An example of how each single 60-minute session was outlined is provided below:

15 minutes	Warm-up. Breathing exercises and stretching.
30 minutes	Yoga poses and stretching.
15 minutes	Relaxation. Stress management techniques. Exercises related to quieting the mind.

**Based on example provided in Booth-LaForce, Thurston, & Taylor (2007).*

Participants. Prior to the intervention, participants (N=12) were advised of their role in the intervention. Participants provided written informed consent to participate in the intervention, verifying they had been informed and understood the purpose, potential risks and benefits associated with participation in the study (see Appendix B). The

researcher communicated that participation in the study was voluntary, and participants could withdraw from the study at any point, for any reason, without consequence.

Response rate. Initially, 85 mailed invitations were sent out to women who either had or were currently participating in a local hormone therapy program. Twenty individuals responded that they were interested in receiving additional information about participation in the study. Three participants (one of whom was placed on the wait list) were not able to participate in the study due to (a) their not meeting participant criteria; and/or (b) scheduling conflicts specific to Tuesday/Thursday evenings or the 10-week commitment. Two participants who originally intended to participate in the study withdrew due to (a) family emergency/family responsibilities; and (b) planning to start participation in a yoga class at her local fitness facility. One participant was originally placed on a wait list, but the researcher was unable to establish contact with the participant once space became available for her to join the study. As a result, 14 individuals were signed up to participate in the study; 11 were recruited via mailed invite, and three recruited via snowball sampling. By the end of week one of the intervention, two participants withdrew from the study; 12 participants remained for the duration of the study.

Setting. The intervention took place at a public botanical garden facility located at a University in the rural Southeast. The yoga intervention was implemented in a large, spacious room with carpeted flooring that contained a minimal amount of furniture, artwork and equipment. Overhead fluorescent lights were not turned on; instead indirect lighting or natural light (i.e., windows) were utilized to aid in creating a calm, relaxed

environment. To avoid participants' being self-conscious, distracted, or disrupted by outside noise or facility patrons walking by to observe, the room's entrance/exit point had door(s) that were closed; additionally, there was not be a visible wall clock within the room. The room's thermostat was set and adjusted by the yoga instructor to ensure a comfortable room temperature during the intervention (Keach, 2003).

The yoga instructor was positioned at the front of the room, with participants facing the instructor. Participants' yoga mats were placed on the floor in a staggered pattern throughout the room so the instructor could see and be seen by participants. Participants also placed their mats in a formation that prevented them interfering or distracting one another when completing the various poses. The instructor had a small laptop computer next to her yoga mat so that an awareness of session time could be maintained, and relaxing music could be played during the session (Keach, 2003). Participants wore loose fitting clothes in which they could easily move. Participants removed their shoes during yoga sessions. Each participant had access to a blanket, a bolster, a block, a strap, and a non-skid yoga mat throughout the 10 week intervention.

Interventionist. Each yoga session was facilitated by a certified yoga instructor who met the Experienced Registered Yoga Teacher (E-RYT) 200 standards (Booth-LaForce, Thurston, & Taylor, 2007). An E-RYT 200 certification indicates that an instructor has been practicing yoga a minimum of two years and has accrued at least 1,000 hours of teaching experience. As a result of training, the instructor is eligible to provide continuing education classes, and can act as a primary instructor for a 200 hour yoga teacher training program (Yoga Alliance, 2010).

Role of the researcher. Data collection, including semi-structured interviews, pre-, mid-, and post-intervention assessments, was collected by the researcher, a graduate student pursuing a doctoral degree in therapeutic recreation. To ensure that participants were able to fully engage in the intervention without being self-conscious of the researcher's presence and/or observation, and attempt to control for the Hawthorne Effect, the researcher did not attend the yoga intervention (Jones, 1992).

The researcher conversed with the interventionist before and after each individual yoga session. Physiological measures were measured and recorded on log sheets by participants; participants submitted their physiological records to the researcher via weekly email and/or hard copy log sheets.

Mixed Methods Research Design

Mixed methods research can be defined as the integration, and convergence of both qualitative (QUAL) and quantitative (QUAN) research methodologies; to produce a subsequent method used to best answer or investigate a research phenomenon or question (Creswell & Plano Clark, 2007; Denscombe, 2008). Mixed methods research is unique in that it allows the researcher to tailor the research approach and design specific to the research question or phenomenon being explored (Bryman, 2006; Creswell & Plano Clark, 2007; Denscombe, 2008; Leech & Onwuegbuzie, 2009).

Each of the three research movements: quantitative, qualitative, and mixed methods are traditionally linked with a specific paradigm; quantitative research is typically structured in the postpositivist lens, qualitative research is associated with interpretivist/constructivist perspectives, and mixed methods research is deemed by most

as pragmatism. Consistently, scholars speak of the distinct differences between quantitative and qualitative research's ontological, epistemological, axiological and methodological assumptions. Typically, quantitative research is associated with objectivity and there being one "truth"; context-free, top-down/deductive approaches intended to test or confirm theories and hypothesis using large sample sizes that allow for generalizations. In contrast, qualitative research is most often associated with subjectivity and there being multiple truths that are constructed by individuals, time and context; a bottom-up/inductive approach using small samples for the purpose of discovering patterns. Yet, researchers point out that there are several foundational similarities between quantitative and qualitative research; both work to answer how and why questions, both seek out knowledge that is representative of reality or the "truth", and both involve collection, analysis and interpretation of data (Dellinger & Leech, 2007; Feilzer, 2010; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1998; Tashakkori & Teddlie, 2003; Tashakkori & Teddlie, 2010; Teddlie & Tashakkori, 2009).

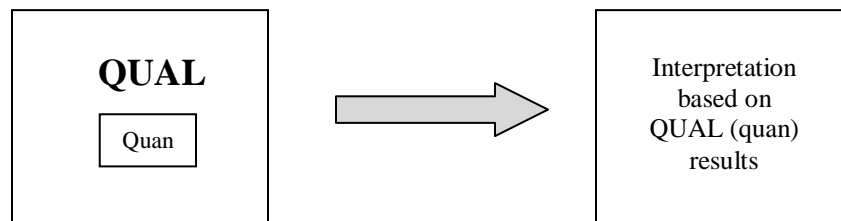
Based on the stark variances between research movements, researchers are often asked to choose "either-or" with regard to quantitative or qualitative processes. Mixed methods research encourages a pragmatic worldview in which researchers override the "either-or" approach and adopt a view from which quantitative and qualitative are considered to be on a continuum. Based on the research question, a study may fall more toward either end of the continuum, or it may fall in the middle. Mixed methods research is an iterative, cyclical approach whereby the researcher moves between induction and deduction to find the most accurate explanation of the phenomenon or research question

being examined. Mixed methods research embraces a strengths-based practice that minimizes weaknesses of stand-alone quantitative and qualitative processes, while emphasizing the strengths of both quantitative and qualitative processes to produce a higher-quality study (Dellinger & Leech, 2007; Feilzer, 2010; Hanson, 2008; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 1998; Tashakkori & Teddlie, 2003; Tashakkori & Teddlie, 2010; Teddlie & Tashakkori, 2009).

Mixed methods embedded research design. After receiving approval to proceed from Clemson University’s Institutional Review Board, the dissertation research study was implemented using a concurrent, single-phase, mixed methods embedded research design. Within the embedded research design, quantitative data (secondary, supportive role) was nested within a qualitative study (primary, superior role); denoting that qualitative data carried greater weight than quantitative data in answering the overarching research question (see Figure 3.2).

Mixing two data strands. The “mixing” of the two data strands occurred in two ways: (a) the quantitative data strand was nested within the qualitative strand (QUAL); and (b) the quantitative data (Quan) informed the qualitative strand (Creswell & Plano Clark, 2007).

Figure 3.2
Mixed methods embedded research design



While the research study was primarily qualitative, and based on self-report, weekly journals, and interviews, it was imperative to collect objective, quantitative data so that a numerical representation of participant's physiological responses to the yoga intervention could be obtained. For this reason, mixed methods research was selected as the study's design. The quantitative data collected informed the qualitative data, in that questions asked in qualitative phases of data collection were formulated based on patterns revealed in the quantitative data (i.e., whether or not physiological measures and menopausal symptoms improved, remain unchanged, or digressed).

Analysis of quantitative data was the starting point to answer the overarching question – is participation in yoga an effective intervention for treating menopausal symptoms? If quantitative data revealed no change following participation, or that symptoms were exacerbated, then it would be clear that within the context of this study, participation in yoga was not an effective intervention. At that point, qualitative data should aim to gather information to determine why it was not effective. In contrast, if the quantitative data revealed positive physiological change and a decrease in reported menopausal symptoms, qualitative data would seek to obtain information regarding what aspects of the intervention, specific to participation in yoga, produced the positive change(s). Once the “what changed” aspect (e.g., quantitative findings) following participation in yoga has been identified, further probes via qualitative processes will get at “why did it change?” This study sought to determine what aspect of participation in yoga was beneficial; in addition, what aspect was *unique* to participation in yoga compared with any other form of physical activity or medical treatment.

Analysis of qualitative data was designated as the primary, superior source of data for the study. Qualitative data was specific to each individual participant and reflected first-hand experiences through their own words. In addition, qualitative data was collected throughout the course of the intervention so that qualitative and quantitative data could be compared at specific temporal points. In this study, quantitative data was not compatible for statistical analysis between individuals (N=12). Rather, descriptive statistics, and comparison of each individual's pre- and post-data were analyzed.

Overall, it was anticipated that quantitative data would measure the effectiveness of the yoga intervention on physiological menopausal symptoms; and qualitative data would inform the research by answering: (a) to what extent is participation in yoga an effective intervention?; and (b) if it is determined an effective intervention, why, or what about yoga may be associated with change(s) in menopausal symptoms? Without both types of research processes (QUAN and QUAL), only a portion of the overarching question can be addressed. A mono-method study had the potential to answer either the "what" or the "why" question, but not both. By using mixed methods, the researcher aimed to provide a rich-in-depth examination of the overarching research question that may not have been achieved from a mono-method study.

Experimental Design

The study was comprised of three phases: (1) baseline; (2) intervention; and (3) post-intervention, with both quantitative and qualitative data concurrently being collected independent of one another. Since each participant served as their own control group, baseline data (i.e., demographics, physiological measures, standardized assessments

specific to menopausal symptoms, perceived stress, and quality of life) were collected prior to the start of the intervention. Baseline data served as the starting point for each participant; once the intervention started, the researcher compared data for each variable to evaluate to what extent (if any) changes could be attributed to participation in the yoga intervention. Following collection of baseline data, participants began the yoga intervention. The intervention phase was implemented for 10 weeks (two, 60-minute sessions per week). Two weeks post-intervention, participants answered questions during a semi-structured interview with the researcher. In addition, participants provided follow-up physiological measures and completed post-intervention assessments.

Sub-question #1. Sub-question #1, related to whether physiological menopausal symptoms were altered as a result of participation in yoga, was assessed through measures of participants' physiological measures (i.e., blood pressure, heart rate and body temperature) and the following pre-, mid-, and post-intervention assessments: (a) the Menopause Rating Scale; (b) the Perceived Stress Scale; and (c) the World Health Organization Quality of Life – BREF. Depending on the trends in responses provided by participants specific to physiological symptoms, additional questions were incorporated into the electronic journals and semi-structured interviews to further probe potential explanations regarding changes in physiological symptoms, stress and/or quality of life. Additionally, quantitative data (physiological measures) were compared to qualitative, self-report data to evaluate whether participant's perception of occurrences (QUAL) aligned with what was physically occurring (QUAN).

Sampling. Using a purposeful, homogenous, criterion-based sampling procedure, participants for this study were women, between the ages of 40 and 65, currently experiencing symptoms related to menopause (Creswell & Plano Clark, 2007; Onwuegbuzie & Collins, 2007). Participants for the study were recruited through mailed invite and informational postings provide during individual consultations at Clemson University's Joseph F. Sullivan Center, a community health clinic offering various treatment interventions for women progressing through the stages of menopause (see Appendix A). Snowball sampling was used when initial participants knew of another individual that was interested in participating in the study, and met the study's criteria.

To participate in the intervention, individuals were required to meet the following criteria: (a) self-reported experiencing menopausal symptoms a minimum of four days per week throughout the previous three months; (b) were naturally experiencing menopause² (as opposed to surgically or chemically induced menopause); and (c) had not participated in any type of yoga in the previous five years (Manocha, Semmar, & Black, 2007; Michalsen, Grossman, Acil, Langhorst, Ludtke, Esch, Stefano, & Dobos, 2005; Netz, Lidor & Faculty of Education at University of Haifa, 2003).

Originally, 14 participants were recruited and met the criteria for participation in the study. Twelve participants completed the 10-week study, as two participants dropped out of the study prior to pre-intervention data being collected and/or the conclusion of the first week of the study. Due to limited facility space and financial constraints, participant

² Participants who had a hysterectomy were permitted to enroll in the study as long as the hysterectomy occurred at least 24 months prior to the start of the study.

recruitment concluded after 12 participants confirmed their participation in the intervention.

Prior to the start of the study, participants were given a demographic questionnaire, three pre-intervention assessments related to aspects of their lives (e.g., menopausal symptoms, perceived stress, and quality of life), a blood pressure cuff and an infrared ear thermometer. Participants completed quantitative measures (i.e., pre-, mid- and post-intervention assessments and physiological measures) and qualitative information (i.e., electronic journal entries, and semi-structured interviews). To protect participants' identities, data were coded so that participants were anonymous and their information unidentifiable. Identifying information was secured; only investigators identified on the Institutional Review Board application had access to the identifiable data. Any participant data included in document summaries and/or future publications was assigned a pseudonym.

Quantitative data collection. Quantitative data collected throughout the duration of the study involved three standardized pre-, mid- and post-intervention assessments, and three physiological measures. Baseline data collected beginning one-week prior to the start of the intervention, including physiological measure (i.e., blood pressure, heart rate, and body temperature). In addition, data was collected throughout the 10-week intervention, and one-week post-intervention. Pre-, mid- and post-intervention assessments were completed one week prior to the start of the intervention, at the halfway mark of the intervention (the end of week 5/beginning of week 6), and again at the conclusion of the 10-week intervention.

Baseline phase. During baseline, participants completed a questionnaire related to demographic information and general history (i.e. age, marital status, employment status, pre-existing health conditions) (see Appendix D and E). Pre-intervention assessments were completed by participants; these included the Menopause Rating Scale, the Perceived Stress Scale, and the World Health Organization Quality of Life-BREF scale (Berlin Center for Epidemiology and Health Research, 2008; Cohen, Kamarck, & Mermelstein, 1983; World Health Organization, 2004). The purpose of the pre-intervention assessment data was to acquire as much information as possible about the intensity of menopausal symptoms experienced by the participant life, absent of any intervention. Pre-intervention assessment data served as foundational data and provided a reference for comparison once all data was collected.

Post-intervention follow-up phase. Two-weeks post-intervention, participants continued documenting blood pressure, body temperature and heart rate measures to determine if physiological change occurred or if any physiological changes that did occur were sustained at the two-week follow-up. Participants completed each of the quantitative standardized assessments, so that pre- and post-intervention data could be compared.

Stress levels and quality of life. As a result of stress, an influx of hot flashes or interrupted sleep patterns can occur; in addition, women transitioning through menopause can experience variability in their psychological well-being, marked by “mood disturbances...depression...irritability, anxiety and poor concentration” (Freedman, 2002, p.707). Correspondingly, symptoms associated with menopause can cause women to become more susceptible to stressors, which can interfere with or diminish their

quality of life. The World Health Organization defines quality of life as being “an individual’s perceptions of their position in the context of the culture and value system...in relation to their goals, expectations, standards and concerns” (1998, p.27). It is a subjective acuity that is heavily impacted by the interrelatedness of one’s “physical health, psychological state, level of independence, social relationships, and personal beliefs” (World Health Organization, 1998, p.27). In an effort to evaluate the effects of participants’ physical and psychological symptoms on their overall quality of life, the Menopause Rating Scale, the Perceived Stress Scale, and the World Health Organization Quality of Life – BREF were collected as a pre-, mid- and post-intervention data.

Menopause Rating Scale (MRS). Developed in the late 1990s, the Menopause Rating Scale (MRS) is a standardized assessment that gauges the severity of menopausal symptoms. This assessment was administered pre-, mid-, and post-intervention, to determine if there was change in the severity of menopausal symptoms during the 10-week yoga intervention (sub-question #1). The MRS is an 11-item questionnaire that has a 5-point Likert scale answer option; ranking an item as zero indicates that no symptom is present, ranking an item as a four indicates that the symptom experienced is extremely severe. The 11 items are representative of three symptom categories: psychological symptoms (depression, irritability, anxiety, exhaustion), somatic symptoms (sweats, sleep disturbances, joint pain, cardiac issues), and urogenital symptoms (sexual troubles, urinary complications, vaginal dryness) (Berlin Center for Epidemiology and Health Research, 2003; Zollner, Acquadro, & Schaefer, 2005). The following are examples of items on the MRS:

<i>Menopause Symptom</i>	<i>0 none</i>	<i>1 mild</i>	<i>2 moderate</i>	<i>3 severe</i>	<i>4 very severe</i>
a. Sleep problems (difficulty in falling asleep, difficulty sleeping through, waking up early)					
b. Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)					

* See Appendix F for a comprehensive list of items on the MRS assessment.

When calculating a total MRS score, a participant may score between zero and 44; the higher the total score indicates more severe symptoms. Reliability for the MRS has been established using test-retest method and Cronbach's alpha coefficient. Test-retest correlations were as follows: psychological score (.80), somatic score (.90), and the urogenital score (.90). Additionally, Cronbach's alpha correlations were comprised of psychological score (.90), somatic score (.70) and urogenital score (.70). Validity of the MRS was established by comparison to the Kupperman Index and the SF-36 health survey. The Pearson correlation coefficient specific to the Kupperman Index =.091, and the SF-36 correlation coefficient for the somatic domain =0.48 and =.73 for the psychological domain. This indicates that the total score correlations had high coefficients (0.7-0.9), and the sub-domains within the scales had lower coefficients (0.5-0.7); this suggests that the sub-domains are not completely autonomous of one another (Heinemann, Reubig, Potthoff, Schneider, Strelow, Heinemann, & Thai, 2004). It was concluded that the MRS was rigorous and dependable, with a scoring system that is easily interpreted, and provides analogous scores across diverse cultures and countries (Berlin Center for Epidemiology and Health Research, 2003; Heinemann, Potthoff, &

Schneider, 2003; Heinemann, Reubig, Potthoff, Schneider, Strelow, Heinemann, & Thai, 2004; Zollner, Acquadro, & Schaefer, 2005).

Perceived Stress Scale (PSS). Introduced in 1983, Cohen’s Perceived Stress Scale (PSS) is a 14-item Likert scale questionnaire that evaluates the degree to which an individual perceives life occurrences to be unmanageable, erratic and/or overbearing (Cohen, Karmarck, & Mermelstein, 1983). Scores on the PSS may range between 0 (=little to no stress) and 56 (=high stress); the higher the score the greater the level of perceived stress. The following are examples of items on the PSS:

<i>PSS Questions</i>	<i>0 never</i>	<i>1 almost never</i>	<i>2 sometimes</i>	<i>3 fairly often</i>	<i>4 very often</i>
a. In the last month, how often have you felt nervous and “stressed”?					
b. In the last month, how often have you felt that things were going your way?					

* See Appendix G for a comprehensive list of items on the PSS assessment.

The PSS was pilot tested with three different sample populations; alpha coefficients representative of reliability were .84, .85 and .86. Validity criteria was compared among male and female populations; z-scores did not significantly differ from zero at the $p < .05$ point indicating that assessment scores are not dependent on, or different based on gender (Cohen, Kamarck, & Mermelstein, 1983). To further validate the PSS scale, correlations specific to the PSS, physical symptomatology, and the number and impact of major life events. Correlations indicated that the PSS scale more accurately predicted “health outcomes than would stressful life-event scores” (Cohen, Kamarck, & Mermelstein, 1983; p.391). Items on the PSS assess respondents’ perceived stressors

and/or ability to deal with stressors based on their life experiences in the previous month. Cohen, Kamarck and Mermelstein (1983) recommended that the questionnaire be administered once per month, or once every two months. The researchers cautioned that test-retest reliability and predictive validity of the scale would be significantly reduced if too much time passed between administering the PSS as a pre/post-intervention assessment (Cohen, Kamarck, & Mermelstein, 1983). The PSS examines stressors associated with daily living and accessibility of coping resources; both stressors and resources are contextual factors that can become altered in a matter of days. For this reason, the PSS was used in this study as a pre-, mid-, and post-intervention assessment to evaluate if any changes in perceived stress occurred following participation in yoga, and/or if a decrease in perceived stress was related to a decrease in menopausal symptoms (sub-question #1) (Cohen, Kamarck, & Mermelstein, 1983).

World Health Organization Quality of Life – BREF (WHOQOL-BREF). The World Health Organization Quality of Life-BREF is a shortened 26-item, four scale assessment based on the original World Health Organization Quality of Life-100 questionnaire³. A 5-item Likert scale answer option is available for each of the 26-items included in the short-form questionnaire. While Likert-scale answer options vary depending on the item or quality of life domain being addressed, the higher the overall numerical score tallied upon completion of the assessment, the higher (improved) an individual's quality of life. Focusing on physical, psychological, social and

³ Validity and reliability results presented in the following paragraph are based on an international field trial, and are specific to the WHOQOL-BREF scale. Refer to Bonomi, Patrick, Bushnell and Martin (2000) for validity and reliability specific to the WHOQOL-100 scale (United States version).

environmental contexts, the WHOQOL-BREF is intended to evaluate how satisfied an individual is with their life circumstances, and how often they have encountered positive and negative events or emotions in the previous two-weeks (World Health Organization, 2004; The WHOQOL Group, 1994a/1994b). Based on the results of an international field trial, Skevington, Lofty, and O'Connell (2004) identified appropriate Cronbach's alpha values for each of the WHOQOL-BREF domains, physical ($\alpha=0.82$), psychological ($\alpha=0.81$) and environmental ($\alpha=0.80$); the social domain ($\alpha=0.68$) did not meet the suggested value ($\alpha=0.70$ or higher). To test discriminant validity, results from 14 of 24 centers (original sample was 24 centers representative of 23 countries) with populations representing (a) individuals who were in good health; and (b) individuals who were ill were assessed. It was determined that discriminant validity was "best demonstrated in the physical domain, followed by the psychological, social and environmental domains" (Skevington, Lofty, & O'Connell, 2004, p.303). Gender and age were evaluated within both sub-samples (those in good and ill-health), and identified as accounting for only 2.7% of the total variance (Skevington, Lofty, & O'Connell, 2004). Specific to construct validity, seven of the 26 items that make-up the assessment demonstrated significant ($>.50$) with sub-domains other than the domain they were purposefully grouped in (Skevington, Lofty, & O'Connell, 2004). The following are examples of items on the WHOQOL-BREF:

WHOQOL-BREF Questions	<i>1 very dis- satisfied</i>	<i>2 dis- satisfied</i>	<i>3 neither satisfied nor dis- satisfied</i>	<i>4 satisfied</i>	<i>5 very satisfied</i>
a. How satisfied are you with the support you get from your friends?					
b. How satisfied are you with your ability to perform your daily living activities?					

* See Appendix H for a comprehensive list of items on the WHOQOL-BREF assessment.

When scoring the WHOQOL-BREF, items and their associated scales are accumulated and multiplied by four (to make scores comparable to WHOQOL-100).

Based on an individual's final score, a profile indicative of an individual's quality of life in each of the four scales can be developed. The WHOQOL-BREF was administered as a pre-, mid-, and post-intervention assessment to determine if any change in quality of life occurred over the 10-week yoga intervention; and whether a change in perceived quality of life is related to perceived stress levels and/or the severity of menopausal symptoms (sub-question #1) (World Health Organization, 1994a; World Health Organization, 1994b; World Health Organization Geneva, 1996; World Health Organization, 2004).

Physiological measures. To obtain objective data indicative of biological processes, participants provided blood pressure, heart rate and body temperature measurements throughout the duration of the study. Physiological assessments were self-administered each week; participants were asked to document each measurement on Monday mornings (upon waking), and before and after each in-person yoga session. To decrease the likelihood of participant error when measuring their physiological status,

each participant was provided an electronic blood pressure cuff (that also measures heart rate), and an infrared ear thermometer.

Monday mornings were purposefully selected as a data collection point since research suggests that blood pressure surges to its highest peak on Monday mornings, in comparison to all other days of the week (Kario, 2005; Kario, Pickering, Umeda, Hoshide, Hoshide, Morinari, Murata, Kuroda, Schwartz, & Shimada, 2003; Murakami, Otsuka, Kubo, Shinagawa, Yamanaka, Ohkawa & Kitaura, 2004). Researchers suggest that the “Monday surge” may be due to the transition in physical and psychological demand that occurs between a leisurely weekend, and the work week (Murakami, Otsuka, Kubo, Shinagawa, Yamanaka, Ohkawa & Kitaura, 2004, p.1182). Collecting participants’ physiological data immediately before and after each yoga session was purposefully selected as a standard procedure so that participants’ data represented their physiological state at a specific point in time and served as a measure for immediate, short-term effects of participation in yoga. Monday measures were also obtained and considered indicative of the long-term, carryover effect of participation in yoga.

Blood pressure. Blood pressure refers to the level of power and momentum distributed as blood is pumped from the heart through the body. Generally, a blood pressure of 120/80 is considered healthy. However, high blood pressure can be indicative of ill-health or an increased susceptibility for disease (such as cardiovascular disease, stroke), as it can place excessive strain on the body’s organs, including the heart, kidneys and blood vessels. Blood pressure measure pinpoints (a) systolic pressure – an individual’s blood velocity when the heart is resting (i.e., heart is between beats); and (b)

diastolic pressure – when the heart pumps blood (i.e., when heart beats). Systolic pressures between 120 and 139 represent a pre-hypertensive state; a reading of 140 or higher denotes hypertension. Diastolic pressures between 80 and 89 suggest pre-hypertension; readings of 90 or higher imply hypertension (National Heart Lung and Blood Institute, 2012).

Blood pressures fluctuate, depending on time of day. For example, a person's blood pressure is typically lower during sleep than other times of day. Blood pressure increases upon waking, and can become heightened during periods of stress, excitement or vigorous physical activity (National Heart Lung and Blood Institute, 2012).

Specific to menopause, women typically experience an increase in their average blood pressure during the transition through menopause due to hormonal fluctuations, altered age and weight. Sodium-rich diets and hormone therapy are also associated with increased blood pressure rates in menopausal women (Maas & Franke, 2009; Pruthi, 2010). As a result of these confounding factors, it is recommended that women who are hypertensive not participate in pro-longed hormone therapy treatments (Lokkegaard, Jovanovic, Heitmann, Keiding, Ottesen, Hundrup, Obel, & Pedersen, 2003).

Participants in the study provided a blood pressure reading one-week prior to the start of the intervention, throughout the 10-week intervention, and one-week post-intervention; blood pressure measures were taken by participants each Monday (upon waking), and just prior to and immediately following each yoga session. The purpose of collecting this data was to determine to what extent blood pressure changes following participation in yoga, and to determine if there is any relationship between blood pressure

rates, stress and the frequency of vasomotor symptoms associated with menopause. To reduce error, participants were provided identical blood pressure monitors (Omron 3 Series automatic blood pressure monitor), and provided written instructions to aid in consistent and appropriate use (see Appendix I; Omron Healthcare, Inc., 2010).

Using systolic and diastolic pressures, participants' pulse pressure and mean arterial pressure were calculated and visually analyzed. *Pulse pressure* is calculated by subtracting diastolic pressure from systolic pressure. The difference between the two numbers is representative of the status of one's heart function. A pulse pressure of 40 is ideal, and considered an indicator of healthy heart status. An elevated pulse pressure suggests that there may be rigidity in the aorta or a partial blockage in the arteries. A low pulse pressure can suggest ill-health or malfunction within one's cardiovascular system (Mohrman & Heller, 2010; Sheps, 2010). *Mean arterial pressure* is calculated by (a) multiply diastolic pressure x2; (b) take the sum of the diastolic x2 and systolic pressure; and (c) divide by three (Bonsall, 2011). Mean arterial pressure represents the typical pressure in one's arteries throughout a single cardiac rotation; it represents the amount of blood volume reaching vital organs (Bonsall, 2011; Mohrman & Heller, 2010). To maintain active blood flow to the organs, a mean arterial pressure is considered healthy if it falls between 70 and 110; with an absolute minimum falling between 60 and 65 (Aubuchon, 2013; Bonsall, 2011; Nakate, 2011).

Heart rate. Heart rate refers to the frequency of heart beats per minute (bpm). An average adult's (over the age of 18) heart rate typically falls between 60 and 100 bpm. Individuals with a below-average heart rate are generally healthier and/or physically fit

individuals (e.g., an athlete) than individuals with an above-average heart rate. However, a significantly less than, or greater than average heart rate can imply poor health, or increase the likelihood of myocardial infarction, cardiac arrest, fatigue, shortness of breath, headache or light headedness (American Heart Association, 2012; Hammill, 2011; Heart Rhythm Society, 2012; Laskowski, 2012).

Hot flashes, one of the most commonly reported menopausal symptoms, are typically marked by visible perspiration, flushed skin-tone and increased heart rate (Harvard Medical School, 2005/2012). Acute stressors can also cause an influx in heart rate and/or irregularly heart rhythms (Cleveland Clinic, 2012). For the purpose of this study, prior to the intervention, throughout the 10-week study, and two-weeks post-intervention, participants were asked to document their heart rate on Monday mornings (upon waking); heart rate measures were also collected directly before and after each in-person yoga session. Data was analyzed to determine if changes in average heart rate were associated with changes in the frequency or duration of hot flashes.

Body temperature. Body temperature measurements are considered to be long-standing indicators of good health or indicators of the presence of illness (Giuliano, Giuliano, Scott, MacLachlan, Pysznik, Elliot, & Woytowicz, 2000; Sund-Levander, Forsberg, & Wahren, 2002). Specific to menopause, when core body temperature increases, the likelihood for experiencing a hot flash increases (Freedman, 2005). For the purpose of this study, body temperature was measured via tympanic measure (the ear canal) can be obtained via non-invasive, safe and time-efficient avenues. Changes in body temperature throughout the study were recorded and analyzed as related to the

severity of menopausal symptoms (Childs, Harrison, & Hodkinson, 1999; Giuliano, Giuliano, Scott, MacLachlan, Pysznik, Elliot, & Woytowicz, 2000).

In an adult, body temperature is considered healthy if it falls between 97.8°F and 99°F (Ohio State Wexner Medical Center, 2012). However, an individual's core body temperature may vary depending on time of day. Body temperature is often one to two degrees lower than the average 98.6°F (37°C) just before waking, and one-two degrees higher in the evening (Official Health, 2012). Body temperature can be obtained in a number of ways; these include through oral, rectal, armpit, forehead and tympanic (ear) measurements. Readings taken from the forehead or armpit are representative of the body's surface temperature; readings taken from the ear canal, oral cavity or rectum indicate core body temperature (Department of Health Medical Device Control Office, n.d.).

Tympanic measures assess core body temperature (as opposed to superficial temperature) since the ear canal contains blood vessels that provide closest access to tympanic membrane. The tympanic membrane is linked to the hypothalamus, and using it as an assessment of core body temperature suggests "an indirect measure of brain temperature" (Childs, Harrison, & Hodkinson, 1999, p.265; Giuliano, Giuliano, Scott, MacLachlan, Pysznik, Elliot, & Woytowicz, 2000). Researchers emphasized that tympanic temperatures vary between men and women; and that inconsistencies occur in measurements taken from different ears (left or right side) (Childs, Harrison, & Hodkinson, 1999; Sund-Levander, Forsberg, & Wahren, 2002; Sund-Levander, Grodzinsky, Loyd, & Wahren, 2004). Typically, women have a higher body temperature

than men; this has been explained as being related to a woman's ovulation, progesterone levels, and the notion that women have a more concentrated fat layer that shields the body from heat loss (Sund-Levander, Grodzinsky, Loyd, & Wahren, 2004). As a result, norms for tympanic temperatures in women range between 35.4°C and 37.8°C, with a mean value of 36.5 °C (between 95.72°F and 100.04°F) (Sund-Levander, Forsberg, & Wahren, 2002; Sund-Levander, Grodzinsky, Loyd, & Wahren, 2004).

Discrepancies in tympanic measurements taken from the left and right ears could potentially influence data collection. Thus, participants took tympanic measurements from either the right or left ear each time. Participants used identical thermometers (Braun ThermoScan 3 compact ear thermometer) to control for variations in types of equipment used (Kaz USA, Inc. 2012). Data was collected by participants; they were provided with the following written instructions on how to position the thermometer and obtain an accurate reading (see Appendix J).

Data analysis. All quantitative, standardized assessments were scored using the protocols that accompanied each of them. Quantitative physiological measures were plotted on a graph, for visual analysis of slope changes and trends in blood pressure, heart rate and body temperature.

Reliability and validity of quantitative data analysis and interpretation. To ensure accuracy in scoring and interpretation of the Menopause Rating Scale, the Perceived Stress Scale, and the World Health Organization Quality of Life-BREF Scale (i.e., pre-, mid-, and post-intervention assessments), the researcher followed the standardized scoring protocols that accompanied each assessment. Physiological

measures (i.e., blood pressure, heart rate, body temperature) were graphed and visually analyzed for trends and changes in slope. Pulse pressure and mean arterial pressure were mathematical calculated in an effort to further corroborate changes in physiological measures identified during visual analysis.

Phenomenological Design

From a phenomenological lens, each participant’s first-hand experience with menopause in association with their participation in yoga was examined and interpreted on an individual, case-by-case basis (Creswell, 2007; Kockelmans, 1967). In addition, cross-comparison between each individual case occurred to identify whether there was “literal replication” or “similar results” among the “lived experience” of menopausal women participating in a yoga intervention (see Figure 3.3) (Creswell, 2007, p.57; Yin, 2009, p.46; 54). Each participant’s individual experience specific to menopause and participation in yoga was analyzed; a composite describing their overall experience is provided in Table 4.11. The “lived experience” across participants was also analyzed; the composite of the overall group experience that resulted informed the development of themes and research findings presented in Chapter Four.

Figure 3.3
Research Lens



Researcher subjectivity. The researcher has not ever actively participated in yoga, nor has she experienced menopause. Thus, subjectivity was naturally reduced in that the researcher did not have shared experiences with the participants of the study. Additional efforts implemented throughout the study in an effort to decrease the researcher's subjectivity included: (a) the researcher purposefully not attending the weekly yoga sessions; eliminating direct contact with participants throughout the intervention phase of the study; (b) the researcher remaining self-aware of personal assumptions regarding yoga and/or menopause that could have skewed the analysis or interpretation of data; (c) the researcher strived to develop open-ended questions in both journal and semi-structured interview questions that were neutral in wording to prevent participants being led or guided towards a specific perspective or answer; and (d) participants were aware of the overarching research question (purpose of the study), but were not made aware of the sub-questions so as to prevent their being biased or guided in their responses to the experience and/or qualitative and quantitative assessments.

Sampling. Recall that while the experimental (quantitative) and phenomenological (qualitative) phases occurred concurrently. Thus, identical sampling procedures (previously outlined on pg.75) and the same participants (N=12) utilized in the experimental phase of the study were also implemented in the phenomenological phase of the study.

Qualitative data collection. Qualitative data collected for this study included once per week electronic journal entries (throughout the 10-week intervention), and one-on-one semi-structured interviews two-weeks post intervention. Much of the content

included in both forms of qualitative data was informed by findings from quantitative data analyses that occurred concurrently with the intervention.

Sub-question #2. To address sub-question #2, and whether participation in yoga influences participants' quality of life, results from the quantitative data analyses informed the development of content for questions posed in the qualitative electronic journals and semi-structured interviews. For example, if data collected via the World Health Organization Quality of Life – BREF assessment indicated an improvement in participants' quality of life, questions in the weekly electronic journals and the semi-structured interview probed into “why” that improvement occurred.

Sub-question #3. Sub-question #3, which focuses on whether participants found yoga to be enjoyable, beneficial, feasible and accessible, was answered through open-ended questions in the electronic journals and semi-structured interviews. Since participants had either not participated in yoga before, or had not participated in yoga in the previous five years, it was important that the research explore whether participants enjoyed yoga and/or found it beneficial. If participation in the yoga intervention was effective in managing or decreasing menopausal symptoms but was not considered to be worthwhile or of interest to participants, then participation in yoga as an ongoing intervention would become irrelevant.

Electronic journal entries. Electronic journals were used to obtain participants' self-reported perspective related to menopausal symptoms, stress, and participation in yoga. Over the course of the 10-week intervention, participants were sent an e-mail message each Friday with five to six prompts or specific questions that asked each

individual to comment on their menopausal symptoms, coping strategies and stress levels encountered during the previous week. For the duration of the intervention, the first three questions in each email were the same; questions four through six changed in content from week to week based on the previous week’s journal responses, quantitative data, participant and/or interventionist feedback (see Appendix K for a full list of journal questions). Journal questions were sent each Friday over the course of the intervention, and participants submitted their responses via email to the researcher by 8:00am the following Monday. Participants completed journal entries over each weekend of the 10-week intervention, so that participants’ responses were solely representative of the previous week’s yoga sessions, and to ensure that self-report documentation of their weekly experiences was maintained throughout the 10-weeks. The following chart outlines participant rates specific to the completion of each week’s journal entry:

	Blythe	Darby	Evelyn	Geraldine*	Grace**	Harriet	Hollis	Jacqueline	Jorja	Laine	Reese	Trudie
# of Journal Entries Completed	7	10	10	3	0	6	10	10	9	10	9	9

*Geraldine did not join the study until the beginning of week 3; thus, she did not complete the first two journal entries involved in the study.

**Grace did not have internet access. She received each of the emails, but could not respond to them. In her follow-up interview, in addition to the semi-structured interview questions, I asked her the summary questions that were asked as part of Week #10 journal entry.

Semi-structured interviews. Two-weeks post-intervention, participants participated in one-on-one, semi-structured interviews. Facilitated by the researcher,

individual interviews took place at a location convenient for the participant (e.g., researcher's office; participant's place of employment). The purpose was to gather in-depth information about each participant's experience with yoga, as well as their perception of yoga. In addition, participants were asked if they believed the intervention was effective, beneficial and/or feasible for ongoing and future participation. Questions formulated for the semi-structured interviews were informed by qualitative and quantitative data obtained over the course of the intervention phase (see Appendix L for a complete list of interview questions).

Qualitative data analysis. Semi-structured interviews were audio recorded, and transcribed verbatim. Interview data, as well as electronic journal entry transcripts were analyzed and open coded by the researcher. Based on "significant statements", meaning units were condensed into "clusters of meaning" and concentrated themes that surface from within participant data (Creswell, 2007, p.61). Once themes were classified, data was summarized based on participants' perspectives of their subjective experiences of yoga participation during the menopausal transition (Creswell, 2007).

Trustworthiness of qualitative data analysis and interpretation. Prior to the research assistant examining the qualitative data, the researcher independently analyzed and open-coded journal entries and semi-structured interview transcripts. Following completion of initial data analysis, a research assistant analyzed and open-coded 25% of the qualitative data; this enabled the researcher and research assistant to compare their findings and establish an estimate of inter-rater reliability. The research assistant was asked to analyze journal and interview transcripts of three participants, representative of

the participant who experienced (a) the most positive change (improved menopausal symptoms, stress and/or quality of life); (b) the least change (neither positive or negative); and (c) the most negative change (worsened menopausal symptoms, stress and/or quality of life).

Member checking. Member checking occurred to triangulate and confirm accurate interpretation of qualitative data. Rather than providing verbatim interview transcripts or copies of raw quantitative data, the researcher asked participants to complete a matrix that indicated their agreement or disagreement with the researcher's findings. Seven participants indicated their concurrence or dissent with the researcher's findings (see Appendix M for member checking protocol). This process contributed to triangulation of data and further confirmed (or refuted) the researcher's accuracy in interpretation of overall data (Creswell, 2007; Miles & Huberman, 1994).

Mixing the Data

Quantitative and qualitative data was "mixed" in two phases of the study: (a) during data collection; and (b) during data analysis (Creswell & Plano Clark, 2007). This study was conducted using a mixed methods embedded design, indicating that quantitative data was embedded within a primarily qualitative study. Quantitative data (pre-intervention assessments and physiological measures) were collected first, prior to the start of the intervention. Once the intervention began, physiological measures were obtained three days a week (i.e., Monday mornings, pre- and post-intervention on Tuesday/Thursday) throughout the 10-week study; additionally, mid-intervention assessments were administered at the end of week five. Each week, as data was received,

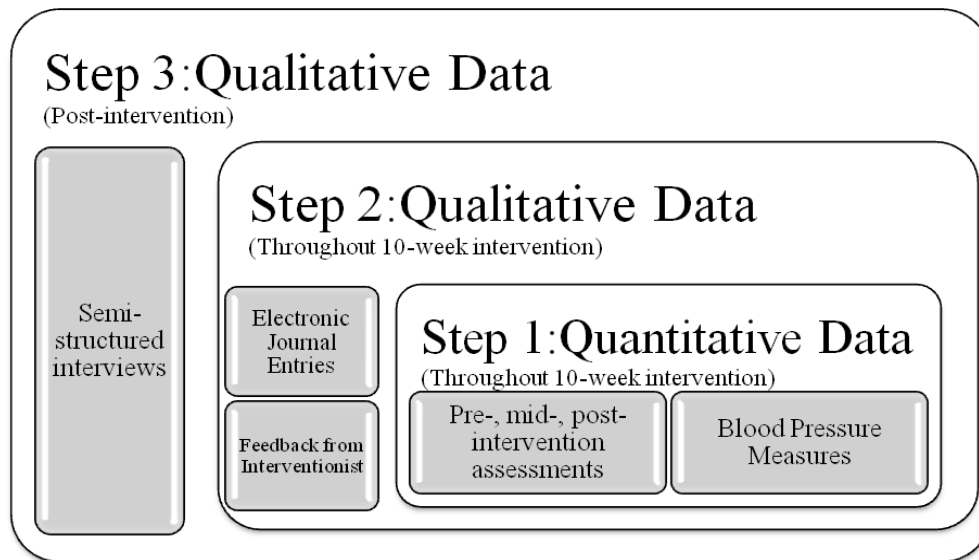
the researcher would log intervention assessment scores, and log physiological measure in an Excel spreadsheet so that visual analysis (via line graphs) could be completed. Concurrently, throughout the 10-week intervention, participants submitted qualitative data by submitting electronic journal entries. Participants were sent five to six questions or prompts each Friday over the 10-week period; participants were asked to submit their responses by the following Monday (before the start of the next week's yoga sessions).

While quantitative and qualitative data were being collected simultaneously, the researcher completed the first phase of "mixing" each week, by analyzing quantitative data for the purpose of informing the qualitative journal questions formulated. For example, when quantitative blood pressure measures indicated an increase across several participants, the researcher included a qualitative question into that week's journal entry: "In the past week or two, have you experienced any unanticipated stressors/stressful event? If yes, and you feel comfortable doing so, please describe". In reviewing participants' mid-intervention assessment scores, the researcher realized that the study was operating under the assumption that menopause was a stressor for women, without ever having asked the women who were directly experiencing the transition truly felt that way. As a result of this awareness, a journal question: "Based on your experience, if you were asked whether or not menopause was a stressor in and of itself, how would you respond? Please explain" was included in that week's journal entry.

The embedded quantitative data informed the qualitative data, and provided the researcher an avenue for further probing potential reasons why participant blood pressures might have spiked that week. Thus, in looking at Figure 3.4, see that steps one

and two were an iterative process that took place concurrently throughout the 10-week intervention:

Figure 3.4
“Mixing” qualitative and quantitative data



In addition to the “mixing” of data that took place throughout the 10-week intervention, quantitative and qualitative data (steps one and two in Figure 3.4) were integrated once more at the conclusion of the 10-week intervention for the purpose of informing the development of questions (step three in Figure 3.4) asked in the post-intervention semi-structured interviews. The researcher took pre-, mid-, and post-intervention assessment scores, blood pressure measures, journal entry submissions, and feedback from the yoga instructor into account when formulating final interview questions. The researcher did not want to be duplicative of information already obtained, but did want to (a) be sure to confirm that interpretation of data collected during the 10-weeks was accurate; and (b) further probe into trends and patterns that had presented themselves in the quantitative and qualitative data.

Lastly, “mixing” of quantitative and qualitative data occurred post-data collection, after the conclusion of the study, during the analysis phase of the research. Qualitative data and quantitative data were first analyzed independently for each participant. Afterwards, a cross-comparison (“mixing”) of each participants’ qualitative and quantitative data took place to facilitate the researcher triangulating the data, and identifying to what extent participants data and suggested results were aligned or incongruent with one another.

CHAPTER FOUR

RESULTS

The following chapter presents findings of the mixed methods research including (a) participant perceptions of menopause, and its influence on their quality of life; (b) major life events that occurred during the intervention that may have impacted data; (c) qualitative findings; (d) quantitative results; and (e) mixed results based on concurrence and/or conflicting qualitative and quantitative data.

Phenomenological perspective

Profiles of each participant in the study (N=12) were developed based on a demographic questionnaire participants completed pre-intervention, and information shared in qualitative journal-entries or semi-structured interviews.

Table 4.1
Participant Profiles

Blythe	Darby
<ul style="list-style-type: none">• 56 y/o• Transition through menopause 0-4 yrs• Retired• Married• Six children (age 21+)• Currently taking HT, herbal supplements and massage• Major life events during study:<ul style="list-style-type: none">○ Started chemo treatments○ Son deployed overseas○ Caregiver to family member who fell and broke pelvis○ Another family member started chemo for 3rd time	<ul style="list-style-type: none">• 59 y/o• Transition through menopause 5-9 yrs• Works part-time• Married• Two children (age 25+)• Not taking any form of medication or supplement specific to menopause• Major life events during study:<ul style="list-style-type: none">○ None

Evelyn

- 54 y/o
- Transition through menopause 0-4 yrs
- Works part-time
- Married
- Three children (age 16+)
- Currently taking pharmaceutical medication for symptoms
- Major life events during study:
 - None

Geraldine

- 63 y/o
- Transition through menopause 16-20 yrs
- Works full-time
- Married
- One child (age 25+)
- Currently taking HT
- Major life events during study:
 - Selling/sold house
 - Preparing to move out of state
 - Preparing to retire in the summer

Grace

- 52 y/o
- Transition through menopause 5-9 yrs
- Works part-time
- Married
- Four children (age 16+)
- Currently taking pharmaceutical medication for symptoms
- Major life events during study:
 - None

Harriet

- 43 y/o
- Transition through menopause 0-4 yrs
- Works full-time
- Married
- No children
- Currently taking herbal supplements and soy products for symptoms
- Major life events during study:
 - Surgery
 - Considering job change

Hollis

- 61 y/o
- Transition through menopause 16-20 yrs
- Works full-time
- Married
- No children
- Currently taking HT
- Major life events during study:
 - Misunderstanding with family members that created stress
 - Unexpected issues at work (participant owns their own business)

Jacqueline

- 42 y/o
- Transition through menopause 5-9 yrs
- Works full-time
- Married
- Children (age 10+)
- Currently taking HT and pharmaceutical medication for symptoms
- Major life events during study:
 - Caregiver to parent

Jorja	Laine
<ul style="list-style-type: none"> • 54 y/o • Transition through menopause 0-4 yrs • Works full-time • Divorced • Four children (ages 21+) • Not taking any form of medication or supplement specific to menopause • Major life events during study: <ul style="list-style-type: none"> ○ Helping one of her children work through marital issues 	<ul style="list-style-type: none"> • 56 y/o • Transition through menopause 5-9 yrs • Works full-time • Married • Two children (age 25+) • Currently taking HT and pharmaceutical medication for symptoms • Major life events during study: <ul style="list-style-type: none"> ○ Caregiver to parent ○ Diagnosed with degenerative disk disease
Reese	Trudie
<ul style="list-style-type: none"> • 53 y/o • Transition through menopause 10-15 yrs • Works full-time • In relationship; not married • Three children (ages 25+) • Currently taking herbal supplements and soy products for symptoms • Major life events during study: <ul style="list-style-type: none"> ○ None 	<ul style="list-style-type: none"> • 63 y/o • Transition through menopause 10-15 yrs • Stay at home spouse/parent • Married • One child (age 21+) • Not taking any form of medication or supplement specific to menopause • Major life events during study: <ul style="list-style-type: none"> ○ Husband left for a job out-of-state ○ Health issue that led to participant going to ER ○ Death in the family

Menopause: a glimpse of the lived experience. Prior to answering research questions it was necessary to ask participants about their experience with menopause, as well as their involvement in and impression of yoga (while transitioning through menopause) from a phenomenological perspective. Without being aware of participants' first-hand encounter with, and attitudes towards menopause, it would have been difficult for the researcher to identify what, why and how participation in yoga might transmute that experience.

Specific to this study, Hegel's definition of phenomenology: "the science of describing what one perceives, senses, and knows in one's immediate awareness and experience" provided the foundation for analysis and understanding of each participant's lived experience with menopause and yoga (Moustakas, 1994, p.26).

Menopausal symptoms. In congruence with existing research (Daley, MacArthur, McManus, Stokes-Lampard, Wilson, Roalfe, & Mutrie, 2006; McKinlay & Jefferys, 1974; Turnbull, 2010), the most common menopausal symptoms reported by participants were hot flashes, night sweats, and disruptions in sleep. As described by the participants in their own words:

Infernal combustion is what I call hot flashes, because they have been bad...I was actually having panic attacks sometimes with the hot flashes....and I was not sleeping...that was another thing I was having 'em at night so my sleep was disrupted... –Blythe (Interview)

*Menopause is miserable....hot flashes and sleep disturbance is awful.
–Darby (Journal Week 5)*

The biggest thing for me is night sweats...which of course, disrupt my sleep...so most of the time I feel tired. –Hollis (Journal Week 1)

...it [menopause] is very unpredictable one minute hot next cold, one night you sleep and you may not again for a couple more nites. –Reese (Journal Week 5)

Other symptoms reported by participants, and commonly associated with symptoms of menopause, included a lack of energy, forgetfulness, and fluctuations in mood (Boughton & Halliday, 2008; Utian, 2005). For example:

...I need to go get tested for memory loss because something's going on, 'cause...this is not normal for me... –Blythe (Interview)

...the main thing that shocked me...the panic attacks...no one told me about that...when I started having that problem I didn't know what was going on. And then I am just really a laid back easy going person it takes a whole lot to get me

upset...I was not ready for...just all of a sudden...being angry. 'Cause I don't get angry.....—Jorja (Interview)

The other symptoms I didn't anticipate are the mood swings...

—Trudie (Journal Week 4)

Menopause lessens quality of life. In summarizing their overall outlook regarding menopause and its imprint on their life, the women affirmed their experiences (thus far) to constitute the following:

I first thought, okay this is gonna be a breeze...4 years later it hits me... and it hadn't let up since. So I really thought, 'alright, this is not gonna be bad'. And then...yes it is... —Darby (Interview)

It is aggravating....I can live with it, but I can't enjoy life with it.

—Evelyn (Journal Week 5)

...it's a transition...that is uncomfortable...it's a learning experience...like you're in somebody else's body...you think you know your body until this starts and then it's...unpredictable and not always welcome —Grace (Interview)

It [menopause] definitely gives you a sense that you just don't have control over your body...and your attitude —Harriet (Interview)

Not feeling quite as "full of life" as before.... —Hollis (Journal Week 5)

...it's [menopause] just not cool....it sucks and it's unpredictable....there's no rhyme or reason to it....it's just frustrating. —Jacqueline (Journal Week 4)

Menopause: a counterpart to stress? Wanting to gain greater insight into participants' viewpoint of menopause, the researcher asked participants to comment on whether they considered menopause to be a stressor in and of itself, as opposed to it being an indirect context that holds potential for creating secondary stressors. Several of the women stated that menopause was a direct stressor:

Yes! The night sweats and insomnia and resulting foggy thinking and lack of energy are controlling my life....It is very difficult to deal with everyday life without good sleep. —Evelyn (Journal Week 9)

It [menopause] has been stressful in several ways: Not sleeping...leads to less energy at times. The mental stress that I was entering a new phase of life. Not having the sexual desire I once had is stressful and it can if not handled well – [can] be a strain on a marriage at times. –Hollis (Journal Week 9)

I believe that menopause is a stressor by default...the difficulty it brings causes the ability to handle stress to be compromised due to the hormonal imbalances, lack of feeling rested, mental fog, etc. –Jacqueline (Journal Week 9)

Yes it [menopause] is stressful...hot flashes were scary for me at first, lack of sleep also adds to how I cope with things. –Laine (Journal Week 9)

When asked the question “if menopause was a stressor in and of itself”, other participants indicated their menopause experience was a (a) non-stressful occurrence; or (b) situation that indirectly created stress.

I would say yes...get frustrated with the hot flashes, I get frustrated that I fall asleep for 1-2 hrs and then wake up and can't fall back to sleep, and knowing I do physical work in the mornings will add to my frustration, then lack of sleep will cause me to feel less energetic for me to get my work done, so then I don't feel like I do a good job. I also get frustrated because all these add up to me not being my friendly self, so then I feel down, having the blues. I just want it to stop! So then now I'm stressed. –Jorja (Journal Week 9)

Not sure, I'm somewhat more irritable, and that may have menopausal causes. –Harriet (Journal Week 9)

Menopause itself has not been a stressor for me. –Trudie (Journal Week 9)

Some participants commented on the notion that there was a potential correlation between their stress level and the frequency and/or severity of their symptoms:

I think that the more stressed I am, the worse my symptoms are at night...my night sweats are worse... –Grace (Interview)

I find my insomnia is much worse when I'm stressed. –Harriet (Journal Week 1)

...I do wake up very hot during the night at times, not quite in a full sweat, but close....It seems to correspond directly with my stress level the preceding day. –Jacqueline (Journal Week 1)

...the less stress the less symptoms I experience. –Laine (Interview)

...it's dealing with the stress, less stress less hot flashes –Reese (Interview)

Menopause: a bewildering phenomenon. Intriguingly, several participants spoke of feeling abruptly ambushed by menopause; both in its startling onset and extent of symptoms. While some participants realized that the events occurring were most likely menopause, they questioned its arrival because of its seemingly premature onset and/or because of the ambiguity that defines menopause.

Oh it was like pregnancy, I had no clue what it was gonna be like... I mean, it was such a shock. –Geraldine (Interview)

...it came on as quite a surprise....you know it just came out of nowhere. So I caught on pretty fast that...that this was probably what was happening. But at 43? I thought you know I'm too young to be starting menopause... –Hollis (Interview)

I wish I would have known that symptoms can hit all of a sudden....now that I'm having symptoms hit all of a sudden, they are more difficult to manage. It's like fighting an army instead of just a few. –Jacqueline (Journal Week 4)

...it [menopause] sucks...I didn't know all of the...symptoms that would come along with [it]. How long it would last....the hot flashes and the insomnia...I just want it to go away. –Reese (Interview)

Other participants did not recognize symptoms as being associated with menopause and, found themselves feeling uncertain about their health status. They began to wonder if something medically relevant, if not life-threatening, was escalating.

...I seriously thought I had Alzheimer's...I seriously thought, you know I need to go get tested....–Blythe (Interview)

I thought something more serious was wrong with me cause I was experiencing insomnia, falling asleep with waking 1-2 hrs later and being wide awake for 3-4 hrs, also having a few spells of anxiety...not being [able] to focus...I was wondering if I had had a stroke. Feeling of "the blues", never seeming happy,

which is very odd for me....I've always been the smiley, friendly person, and that seemed gone...—Jorja (Journal Week 5)

Life stress amidst menopausal transition. Parallel to experiencing menopause, several participants were contending with major life events over the course of the intervention. Holmes and Rahe (1967) define 'life stress' as being "events requiring change in ongoing life adjustment"; such an occurrence transpires in addition to the common daily hassles or minor stressors that manifest in everyday life (p.213). While the current research does not purport to be representative or generalizable of all women experiencing menopause, participants in the study were viewed as a sub-sample of the population. Adopting this notion, it was imperative that participants' major life events were evaluated in conjunction with their menopause transition. Through this inclusive perspective, a view of the depth and breadth of the participant's lives was closely examined to better understand the realities of their lives. Based on this notion, the researcher asked participants periodically over the course of the intervention if they had any stress that had occurred unexpectedly. Few participants escaped the 10-weeks without any unanticipated stress; several of the participants faced more capacious life events:

I had surgery on Wednesday... —Harriet (Week 5)

Blythe

Week 1 *It was the deadliest week in Afghanistan and for awhile we weren't sure if it was his [her son's] team that was attacked.*

Week 2 *...I started infusions and chemo for rheumatoid arthritis*

Week 4 *I had a bad reaction to my infusion Monday night....I thought I was having a heart attack."*

Week 5 *Mother in law going thro[ugh] chemo for 3rd time. Disabled*

brother in law we care for fell and broke pelvis in hospital last week

Geraldine

Week 6 *I'm trying to sell my house...*

Week 9 *...sold my house and the events involved with negotiating the price, the inspection and anticipation of huge change in my life has been VERY stressful. I've been planning to retire.... we have already purchased our new home in [out of state location] but will entail an hour commute for me until I retire.*

Laine

Week 5 *Being her [participant's mom] full-time caregiver plus teaching full time is difficult.*

Week 7 *I was diagnosed with degenerative disk disease this week in my neck and lower back.*

Trudie

Week 4 *...abdominal pain which necessitated an ER visit...my husband left for a job in [out of state location]...I will join him...in [summer; 4 months from now]*

Week 9 *My stepmother passed away...last week*

Through this “whole life” perspective toward the participants and having gained greater insight into the current state of participants’ lives, the researcher gained a more accurate representation of who and what these women are about (external to menopause), and the roles they inhabited as wives, mothers, daughters, sisters, caregivers, retirees, part and/or full time employees, business-owners, supervisors, and teachers.

As a result of the researcher’s insight, a greater awareness of participants’ lives was considered during research analysis related to participants’ involvement in yoga.

This awareness piqued the researcher's curiosity about the *meaning* of the yoga participation experience to the participants. In addition, if yoga involvement held meaning to the participants, the researcher wanted to learn about the aspect(s) of participants' lives that may have been affected. To that end, in the following section, the researcher reports results of the close analysis of *pieces* of the yoga experience in an effort to isolate potential answers to the following research questions: (a) To what extent is the severity of physiological symptoms associated with menopause altered as a result of participation in yoga?; (b) How is one's overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms?; and (c) To what extent do participants find yoga to be beneficial, enjoyable, feasible and accessible?

However, caution is advised when reading so that the *whole* of each participant is not ignored or discounted; examining each of the *pieces* helps provide a more precise view of the reality of the experience of an individual, middle-aged woman's participation in a yoga intervention during the occurrence of menopause (Sokolowksi, 2000, p.22-23).

Quantitative Results

The following section outlines findings and results specific to quantitative data collected (a) prior to the start of the intervention; (b) throughout the 10-week intervention; and (c) following participants completion of the intervention.

Pre-, mid-, and post-intervention assessment results. Quantitative data was collected from participants (N=12) in two formats; the first format involved using three standardized questionnaires as pre-, mid-, and post-intervention assessments. Scores from

the assessments were analyzed on a case-by-case basis; in addition, group means were calculated for each of the assessments. As shown in Table 4.2, group means indicated participants experienced decreased menopausal symptoms, decreased perceived stress, and increased quality of life.

Table 4.2
Overall Group Means for Pre-, Mid-, Post-intervention Assessments

Group Means (N=10)*	Pre-	Mid-	Post-	Trend
MRS	19.35	12.8	10.95	▼
Hot flash/Sweating	1.9	1.5	1.2	▼
Heart discomfort	1.1	.40	.70	▼
Sleep problems	2.7	2.1	1.8	▼
Depressive mood	1.6	.90	.65	▼
Irritability	1.4	.90	.75	▼
Anxiety	1.3	.70	.40	▼
Physical/mental exhaustion	1.7	1.3	1.05	▼
Sexual problems	2.04	1.8	1.55	▼
Bladder problems	1.3	.70	.40	▼
Vaginal dryness	1.9	1.1	1.15	▼
Joint/muscle discomfort	2.1	1.7	1.30	▼
PSS**	25.3	18.2	15.05	▼
WHOQOL-BREF	92.3	98.4	104.4	▲
Physical QOL	22.5	24.2	26.9	▲
Psychological QOL	20.1	22.2	23.7	▲
Social QOL	9.3	10.7	10.8	▲
Environment QOL	34.3	34.1	35.7	▲

MRS=Menopausal Rating Scale (severity of symptoms; a lower score is desired);
PSS=Perceived Stress Scale (perceived stress; a lower score is desired);
WHOQOL-BREF=World Health Organization Quality of Life Short Form (perceived quality of life; a higher score is desired).

*Number of participants for group means is 10 instead of 12, because two participants did not complete post-intervention assessments.

**Number is partially incomplete. Three of ten participants omitted the back page of the survey (4 questions). Therefore, the mid-mean score could potentially be lower and/or higher on the PSS.

To further delineate whether increases, decreases or no change in symptoms was experienced by each participant within the group, pre-, mid-, and post-intervention assessment scores were evaluated to determine the overall trend in scores. Overall, scores on the Menopause Rating Scale (MRS) indicated that 100% of participants experienced improvement in menopausal symptoms. However, for each specific menopausal symptom, several participants experienced no change, and in some cases decreases in scores that indicated an increase in severity of that symptom. A majority of participants (90%) experienced decreased perceived stress; one participant experienced increased perceived stress. Similarly, 90% of participants experienced improved quality of life, with one participant self-reporting a lowered quality of life. However, it is important to note a number of participants experienced no change, related to their physical (N=1), psychological (N=1), social (N=3) and environmental (N=1) domains specific to quality of life. See Table 4.3 for additional details; the highest percentages for each variable are in indicated in bolded font.

Table 4.3
Overall Changes in Symptoms, Stress and Quality of Life

Overall Change (N=11)			
Assessment	Decrease in Symptoms	No Change	Increase in Symptoms
MRS	100% (N=11)	0% (N=0)	0% (N=0)
Hot flash/Sweating	54.6% (N=6)	36.4% (N=4)	9.1% (N=1)
Heart discomfort	36.4% (N=4)	54.6% (N=6)	9.1% (N=1)
Sleep problems	63.6% (N=7)	18.1% (N=2)	18.2% (N=2)
Depressive mood	72.7% (N=8)	18.2% (N=2)	9.1% (N=1)
Irritability	63.6% (N=7)	36.4% (N=4)	0% (N=0)
Anxiety	54.6% (N=6)	45.5% (N=5)	0% (N=0)
Physical/mental exhaustion	54.6% (N=6)	36.4% (N=4)	9.1% (N=1)
Sexual problems	45.5% (N=5)	27.3% (N=3)	27.3% (N=3)
Bladder problems	54.6% (N=6)	36.4% (N=4)	9.1% (N=1)

Vaginal dryness	63.6% (N=7)	36.4% (N=4)	0% (N=0)
Joint/muscle discomfort	63.6% (N=7)	18.2% (N=2)	18.2% (N=2)
PSS (N=10)*	90% (N=9)	0% (N=0)	10% (N=1)
WHOQOL-BREF**	90.9% (N=10)	0% (N=0)	9.1% (N=1)
Physical QOL	72.7% (N=8)	9.1% (N=1)	18.2% (N=2)
Psychological QOL	72.7% (N=8)	9.1% (N=1)	18.2% (N=2)
Social QOL	54.6% (N=6)	27.3% (N=3)	18.2% (N=2)
Environment QOL	63.6% (N=7)	9.1% (N=1)	27.3% (N=3)

MRS=Menopausal Rating Scale (severity of symptoms; a lower score is desired); PSS=Perceived Stress Scale (perceived stress; a lower score is desired); WHOQOL-BREF=World Health Organization Quality of Life Short Form (perceived quality of life; a higher score is desired).

*The overall PSS scores include only 10 participants; two participants did not complete the post-intervention assessment.

**The table is representative only 11 participants; one participant only completed mid- and post- intervention assessments. Of the 11 participants' scores included in the overall WHOQOL-BREF report, one participant did not complete the post-intervention assessment. Thus, their overall scores are representative only of any change that occurred between their pre- to mid-intervention assessment scores.

Life experiences, including menopause, are perceived and encountered on an individual basis. These experiences are specific to each individual as well as a number of contextual factors. This notion was revealed in the analyses of each participants' data in pre-, mid-, and post-intervention assessment scores; some participants experienced decreases in symptoms or improved perceptions of quality of life in a certain domain, while other participants experienced little or no change in symptoms or reports related to quality of life in that domain. Thus, a pattern did not occur that was generalizable across all participants specific to menopausal symptoms, stress and quality of life. The aspects of participants' lives indicating greatest and least change across pre-, mid-, and post-intervention assessments is represented in Tables 4.4, 4.5 and 4.6. Results suggest that no two participants experienced identical changes in menopausal symptoms, stress and

quality of life as a result of participation in the intervention. For example, in comparing changes in heart discomfort among the three participants below, Laine experienced no change in heart discomfort, Reese experienced an increase in severity of heart discomfort, and Darby experienced a decrease in severity. This is one example of many that could be provided during cross-comparison of results among the 12 participants.

Table 4.4
Participant with the Most Positive Change

Laine				
	Pre-	Mid-	Post-	Trend
MRS	36	17	11	▼
Hot flash/Sweating	3	1	1	▼
Heart discomfort	INC	1	1	■
Sleep problems	4	1	1	▼
Depressive mood	3	1	1	▼
Irritability	3	1	1	▼
Anxiety	4	2	1	▼
Physical/mental exhaustion	4	2	1	▼
Sexual problems	4	2	1	▼
Bladder problems	3	2	0	▼
Vaginal dryness	4	2	2	▼
Joint/muscle discomfort	4	2	1	▼
PSS	49	29	12	▼
WHOQOL-BREF	76	93	109.5	▲
Physical QOL	19	23	29	▲
Psychological QOL	18	21	24.5	▲
Social QOL	6	10	12	▲
Environment QOL	41	38	46	▲

MRS=Menopausal Rating Scale (severity of symptoms; a lower score is desired);
PSS=Perceived Stress Scale (perceived stress; a lower score is desired);
WHOQOL-BREF=World Health Organization Quality of Life Short Form (perceived quality of life; a higher score is desired).

Table 4.5
Participant with the Most Negative Change

Reese				
	Pre-	Mid-	Post-	Trend

MRS	21	13	18.5	▼
Hot flash/Sweating	2	2	1	▼
Heart discomfort	1	0	2	▲
Sleep problems	2	2	2	■
Depressive mood	1	1	1.5	▲
Irritability	2	1	1.5	▼
Anxiety	1	1	1	■
Physical/mental exhaustion	1	1	1.5	▲
Sexual problems	4	2	2.5	▼
Bladder problems	3	0	0	▼
Vaginal dryness	3	2	2.5	▼
Joint/muscle discomfort	1	1	3	▲
PSS	29	18	22.5	▼
WHOQOL-BREF	87	90.5	93.5	▲
Physical QOL	22	21	25	▲
Psychological QOL	18	19.5	16.5	▼
Social QOL	9	11	12	▲
Environment QOL	31	31	32	▲

MRS=Menopausal Rating Scale (severity of symptoms; a lower score is desired);
PSS=Perceived Stress Scale (perceived stress; a lower score is desired);
WHOQOL-BREF=World Health Organization Quality of Life Short Form
(perceived quality of life; a higher score is desired).

Table 4.6
Participant with the Least Change

Darby*	Pre-	Mid-	Post-	Trend
MRS	13	7	12	■
Hot flash/Sweating	2	2	3	▲
Heart discomfort	4	0	2	▼
Sleep problems	4	3	4	■
Depressive mood	0	0	0	■
Irritability	0	0	0	■
Anxiety	0	0	0	■
Physical/mental exhaustion	1	0	1	■
Sexual problems	0	0	0	■
Bladder problems	0	1	1	▲
Vaginal dryness	0	0	0	■
Joint/muscle discomfort	2	1	1	▼
PSS	2	4	7	▲
WHOQOL-BREF	111	105	113	▲
Physical QOL	21	22	25	▲

Psychological QOL	30	25	28	▼
Social QOL	14	14	14	■
Environment QOL	37	35	38	▲

MRS=Menopausal Rating Scale (severity of symptoms; a lower score is desired);
PSS=Perceived Stress Scale (perceived stress; a lower score is desired);
WHOQOL-BREF=World Health Organization Quality of Life Short Form
(perceived quality of life; a higher score is desired).

*Darby began the study at the beginning of week 4; so rather than participating in 20 yoga sessions, she participated in 14.

Physiological measures. A second quantitative format for the study involved participants (N=12) documenting three physiological measures (blood pressure, heart rate, and body temperature) throughout the course of the 10-week intervention. Across participants, changes in heart rate and body temperature were minimal and little analyses were needed. Across participants there were numerous variations in blood pressure during the intervention that promoted a close examination of the variations. Systolic measures, diastolic measures, pulse pressures, and mean arterial pressures were graphed and visually analyzed for each participant. Trends for all four measures fell within one of four categories:

1. Visual analyses of graphed data revealed no major changes in slope; neither increases nor decrease appeared. There were occasional one-time, sporadic spikes (up or down) in physiological data, but overall the data indicated no specific pattern over the 10-week intervention.
2. Visual analyses of graphed data indicated a gradual decrease in slope over the first half of the study (week one through beginning of week six). At the end of week six, and throughout the second half of the study (week six/seven through

week ten), data trends began a gradual increase in slope back toward week one numbers.

3. Visual analyses of graphed data indicated gradual decrease in slope over the first half of the study (week one through beginning of week six). At the end of week six, visual analyses indicated a level trend in slope through the remainder of the study (end of week six through the end of week ten).
4. Visual analyses of graphed data indicated a level trend with no changes in slope during the first half of the study (week one through beginning of week six). Beginning during week six, through week ten, there was a gradual decrease in slope of graphed data.

Table 4.7
Trends in Blood Pressure Measures

Trend Based on Visual Analysis (N=12)	Systolic BP	Diastolic BP	Pulse Pressure	Mean Arterial Pressure
No major change in slope	8.3% N=1	42% N=5	50% N=6	25% N=3
Decrease in slope during first half of study; gradual increase in slope during second half of study	42% N=5	42% N=5	0.8% N=1	42% N=5
Continual decrease in slope, or decrease in slope during first half of study with level slope during second half of study (with decreased measures maintained)	50% N=6	16% N=2	42% N=5	16% N=2
No change in slope during the first half of study; decrease in slope during second half of study	0.0% N=0	0.0% N=0	0.0% N=0	8.3% N=1

Throughout the ten-week intervention, participants' blood pressure measures were documented before and after each yoga session. Data were analyzed to determine if there was any decrease in systolic and diastolic blood pressures between the start and

conclusion of each individual 60-minute session. Interestingly, a majority of participants experienced little or no decrease in blood pressure pre- and post- yoga session. For example, Grace experienced a decrease in systolic and diastolic blood pressure pre- and post-yoga in only one yoga session out of 20. In contrast, Jorja’s systolic blood pressure decreased pre- and post-yoga session in 12 of 20 sessions; her diastolic blood pressure decreased in 13 yoga sessions.

Table 4.8
Decreases in Blood Pressure Measures Pre- and Post- Yoga Sessions

(N=12)	Systolic BP	Diastolic BP	Pulse Pressure	Mean Arterial Pressure
Blythe	25% 5 sessions	45% 9 sessions	45% 9 sessions	30% 6 sessions
Darby*	36% 5 sessions	64% 9 sessions	21% 3 sessions	50% 7 sessions
Evelyn	35% 7 sessions	10% 2 sessions	60% 12 sessions	15% 3 sessions
Geraldine**	18.8% 3 sessions	31.3% 5 sessions	25% 4 sessions	31.3% 5 sessions
Grace	5% 1 session	5% 1 session	0% 0 sessions	35% 7 sessions
Harriet	10% 2 sessions	15% 3 sessions	10% 2 sessions	10% 2 sessions
Hollis	35% 7 sessions	35% 7 sessions	55% 11 sessions	25% 5 sessions
Jacqueline	40% 8 sessions	35% 7 sessions	40% 8 sessions	55% 11 sessions
Jorja	60% 12 sessions	65% 13 sessions	35% 7 sessions	75% 15 sessions
Laine	60% 12 sessions	55% 11 sessions	50% 10 sessions	55% 11 sessions
Reese	40% 8 sessions	55% 11 sessions	25% 5 sessions	40% 8 sessions
Trudie	25% 5 sessions	5% 1 session	40% 8 sessions	5% 1 session

*Darby started the study in week 4; instead of 20 sessions, she participated in 14 sessions.

**Geraldine started the study in week 3; instead of 20 sessions, she participated in 16 sessions.

Qualitative Results

Each participant was experiencing an array of menopausal symptoms with varying degrees of severity and frequency. Generally, not specific to this study, physiological symptoms are the most commonly reported hindrances associated with menopause. Therefore, the primary purpose of the study was to determine whether participation in a yoga intervention was effective in changing symptoms associated with menopause.

Physiological symptoms associated with menopause. Based on perspectives shared via electronic journal entry and semi-structured interview, it was revealed that most participants experienced decrease in physiological symptoms such as, hot flashes, emotional oscillation, sleep disturbances, joint pain and increases in lucidity/attentiveness. Participants reported:

... have less mood swings....—Blythe (Week 3)

...as far as joints, that was a tremendous help... —Darby (Interview)

Hot flashes are occurring with less frequency and heat...—Geraldine (Week 7)

I had less 'bouts of insomnia...I typically fall asleep but wake up an hour or two later and then just have real fitful sleep for the rest of the night, and I did noticeably better...I think it started maybe about 4 or 5 weeks in.
—Harriet (Interview)

... about 3 or 4 weeks into this program, I noticed I wasn't having night sweats....and I'm still continuing to not have night sweats...so I don't know if it's

just the relaxation, or if it's just the deep breathing...but I am cautiously optimistic....—Hollis (Interview)

...I think probably the biggest thing that I noticed was clarity of mind...much clearer mind...—Jacqueline (Interview)

Most improvement is that I am sleeping better! I now can stay asleep 5 to 7 hours without waking up...Hot flashes are much better...not as frequent or as intense.
—Laine (Week 10)

Physiological symptoms immune to yoga participation. While several participants expressed having felt a difference or relief in symptoms, others experienced no change with specific symptoms and/or found it difficult to conclusively say whether any change had occurred:

I don't feel that my hot flashes have changed. I do not notice them as much during the day but they hit me hard at night while sleeping....—Darby (Week 7)

Well I would think...that I was getting more days without the hot flashes...and then I'd have several days with them again like normal...But...I would have...more symptom-free days probably....but...it didn't get rid of them.
—Evelyn (Interview)

Hot flashes – I'm trying the 3 breaths technique, but need more time to see if it's working.—Harriet (Week 1)

I'm still not satisfied with my sleep but am noticing "some" change towards the better.—Jorja (Week 5)

Yoga potentially lessens stress, and indirectly decreases menopausal symptoms.

Two participants stated that yoga served as an indirect solution to menopausal symptoms, due to its ability to decrease stress levels. This decrease in stress created an increased capacity for participants to navigate, cope and manage the menopausal transition:

I really don't know that there was any change [in symptoms] necessarily...I think I just dealt with them better....if you had asked me that [whether she would recommend yoga for menopause] before I had done this I probably would have said it wouldn't matter but, I really think it did. I think it made a big difference.

–Grace (Interview)

I believe that yoga has lessened my symptoms, inasmuch as it has reduced my stress level. Less cortisol=better progesterone function, better progesterone function = fewer symptoms –Jacqueline (Week 7)

Attributes of yoga that accelerate improvement in menopausal symptoms.

Aims of the study included examining what (if any) component(s) exclusive to yoga could account for producing direct change in menopausal symptoms and/or did participation in yoga as a coping mechanism indirectly create change specific to menopause. Analysis of qualitative data from participants indicated the following features as being significant to their experience: (a) yoga assumes a holistic body/mind/spirit approach that other forms of exercise and activities do not; (b) the art of breathing and breath-work, often neglected in other activities and daily life, is powerful; (c) quiet moments, when captured, are invaluable to one's overall well-being; (d) individual's and their appraisal of life situations are swiftly buoyed by encouragement, empathy, and support from others; and (e) the environment and guidance provided in a structured scenario have a bearing on the outcome of one's experience.

Yoga: a holistic intervention divergent from traditional forms of activity. In seeking to learn whether or not yoga involved any unique aspects that traditional forms of exercise or physical activity did not, several participants indicated that the holistic nature (body/mind/spirit) of yoga was both beneficial, and something that they have not previously encountered in other forms of activity. For example:

I have been working out with a trainer doing weights and cardio for the last two years. I always felt drained afterward, but yoga makes me feel good and energized. –Blythe (Week 5)

Increases mindfulness and breath awareness. No other exercise I've tried does this for me... –Hollis (Week 5)

I know that [physical] exercises help with circulation, which is a key to our being and sound mind, but I actually don't feel that exercises give you the calmness, the peacefulness, that yoga provides. I feel yoga helps you quiet yourself, and I'm NOW realizing just how important that is to my sanity! –Jorja (Week 5)

Exercises seem to engage the body but yoga engages the body, mind and spirit....I think yoga restores/refreshes/relaxes the body, mind and spirit. It is the total package. –Laine (Week 5)

If I walk, go to the gym, spin, work in the yard, etc. I am actively moving, getting my heart rate up, thinking about how much more I have to do before I can quit....I am doing these physical activities that do not always involve any real mental effort. Yoga involves focusing my mind along with exercise in a slow, quiet, relaxing environment. –Trudie (Week 6)

The simplicity of breathing is noticeably important. Participants identified breathing exercises (particularly the 3-part breath exercise) as beneficial in working through or diminishing menopausal symptoms:

I have used the 3-part breathing for hot flashes on several occasions and I think it helps to shorten them. – Evelyn (Week 3)

I have successfully used the breathing techniques in the middle of the night to help get myself back to sleep or to overcome a night sweat. –Jacqueline (Week 7)

...the 3 part breathing and also the deep breathing. They helped me with relaxing and hot flashes...I actually avoided 2 full blown hot flashes by going into the breathing... –Laine (Week 8)

Additionally, participants identified the breathing exercises as a prerequisite for achieving relaxation:

I seem to like the deep breathing.... as of right now I'm not able to get my mind completely cleared or get myself to completely relax unless I listen to them. –Jorja (Week 9)

I do like the 3 part breathing just because it makes me just sit still for a little while and just work on it. It calms me and makes me just feel better. –Reese (Week 9)

I like the rhythm of this exercise [audio recorded breathing exercise]. Listening to my breath in this exercise reminds me of snorkeling when the only sound is my breath sound.....Doing each one of them was relaxing in that I concentrated on Cate's [yoga instructor] voice directing me...and my breathing so my mind wasn't cluttered with anything else at the time...–Trudie (Week 3)

Yoga institutes an intermission and moment for “pause.” Participants cited changes in attitude, introspective reflection, and a chance to “slow down” and/or feel “centered” as being advantageous to their yoga experience and ability to handle stress and menopausal symptoms:

This exercise [yoga] Makes you slow down...to concentrate on your internal self. –Darby (Week 9)

*...for me I'd say the biggest benefits were, were sort of mental, attitudinal, just...having better awareness of and control over breath...it's a great, um, way to...just calm down and be introspective...and just focus on yourself ...
–Harriet (Interview)*

For me...being centered is to have more mind/body awareness. This awareness helps me put "distance" between me and the life's dramas and stressors. It gives me a healthier perspective and gives me "permission" to take care of myself mentally and spiritually. –Hollis (Week 6)

*It has increased my awareness of my own need for time....Filling my "tank" for myself enables me to be what I need to be for my family. Carving out mandatory time for yoga is great for me, and the yoga is relaxing and very centering ...
–Jacqueline (Week 4)*

Yoga is a way to connect to yourself. It helps you slow down and just be. It has allowed me to just breathe for a little while. –Laine (Week 5)

...learning the breathing techniques, really helps you to de-stress...I know it is good to sweat as well but this exercise leaves me feeling less stressed....you learn to just slow down and take time for just yourself. –Reese (Week 5)

Yoga: a constitution for communal interactions and support. The relevance of social support serving as a foundational pillar for participants striving to thrive during

trying, unpredictable and/or burdensome times of life, such as menopause, was explicitly communicated by participants in the study:

I enjoyed the camaraderie of the class as well and the fact that we were all menopausal women and we could kind of share like you know 'this has worked for me', and 'have you tried this yet?' ...got to know each other...and shared things, so I think it definitely helped my stress level –Blythe (Interview)

...it was also nice to be with the group of women...that were all dealing with a lot of the same things...we had a lot of dialogue before class and after class...and it was helpful...we were all there for the same reason...it was a nice support group...–Grace (Interview)

...just knowing that that these people are experiencing the same things but not only just that change that's taking place hormonally in my body but also the chaos that I'm living...it ain't just me... it's not just me, and just that camaraderie...it was really good –Jacqueline (Interview)

...it made me feel like I'm normal...There are other people having this...so I'm not the only one...that's the part that helped a lot... –Jorja (Interview)

...it made me realize that I am not in this by myself...and maybe it's not impossible to get through...that was huge for me...I am in a house full of men... the social component was huge...that did more for me...more or as much good for me as the yoga did –Laine (Interview)

...the camaraderie between the people...it felt like friends, family. –Reese (Interview)

Arrangement and delivery of program carries weight. Participants emphasized how influential the instructor, the instructor's style of teaching, her willingness to adapt and modify material, as well as the curriculum was during their yoga experience:

... it's [yoga] something you can adapt, we found out with Cate [yoga instructor], that if you can't do this, we can do this...and kind of get the same benefit, but in a different position...I really liked knowing that we could...modify it –Darby (Interview)

...the only other piece that I noticed was...that it was in the garden itself...it was beautiful there...she [yoga instructor] even occasionally would open the windows...you could hear the birds instead of traffic... –Geraldine (Interview)

Cate [yoga instructor] was great....she was very accommodating...probably I of everybody in the class was on, as unable to do some of the things...she never made me feel like I was a bother...when she had to do something different...I enjoyed every time I came...I missed it when I didn't come –Grace (Interview)

...the learning from someone who has practiced yoga rather than me just trying to read a book and do it on my own kept me coming back....she was really good at being...sensitive to what we could and couldn't do ...so you never felt discouraged... –Hollis (Interview)

...Cate [yoga instructor] has made me feel that it is OK if I can't quite get there, that it is all about feeling better and relaxing.....I like the soft music and her directions on how to relax.... –Laine (Week 2)

Participation in yoga improves quality of life. A second objective of the study was to determine whether participation in yoga influenced one's quality of life, and if so, in what way or why. For the purpose of this study, quality of life was defined as: a "person's physical health, psychological state, level of independence, social relationships, personal beliefs, and relationship to salient features of the environment" (World Health Organization, 2007, p.1). Data indicated that a positive shift in quality of life occurred based on (a) the yoga experience overall; (b) yoga's aptitude for teaching stress management; and (c) the accessibility and transference of yoga techniques afforded in everyday life. Participants reported the following related to quality of life:

Yoga has been the most wonderful, "structured", carved out space of my time that allows me to focus on me, offering a centered-ness that I would not otherwise be afforded. –Jacqueline (Week 5)

...I was kind of feeling uh, blue...I noticed while I was doing yoga that that's kind of, it's really gone now...I'm walking into work and I'm, I'm back to my happy self.... I'm always the friendly one...that got lost, and so, to me...because of who I am that's really important to me, so the over[all] wellbeing of who I am...the yoga...brought that back –Jorja (Interview)

...this [participation in yoga]...contributed to being a little bit more calm or trying to be more calm...not flying off the handle, or just feeling more of an internal calmness. –Trudie (Interview)

Yoga may potentially mediate stress.

...yoga really helped me....I felt more balanced or centered or.... able to deal with what was coming my way. –Blythe (Interview)

...my stress level...that's where I saw, I felt the change...I have a tool that transitions me from instead of going from zero to 100...I can shift off to 25 for a little while and maybe only make it to 50 instead...–Grace (Interview)

I think it [stress] decreased. I think definitely the difference between...going from work to yoga to home, and going from work to home much calmer...just more relaxed after...a [yoga] class –Harriet (Interview)

Scale of 1-10, when I came into the program, probably about a 9 [stress level], and now I'm down to about a 2...just the fact that...I'm more relaxed...I'm not as irritable. I'm not as cranky. I'm rested....before...I was just on a rollercoaster...all the time. And now I'm kind of taking this smooth sailboat ride. –Laine (Interview)

Yoga competencies are transferable, and easily utilized in everyday life. Several participants shared their being able to utilize the various breathing exercises and yoga techniques learned in class in life scenarios external to the yoga context (i.e., work, home, car):

...the yoga I think helped the stress and anxiety part that I was having trouble with and with what was going on in my life...the relaxation and the fact that I could do it at home....I've felt anxious at home and I just pull my little blankets out, lay on the floor, put my feet on the couch and you know just chill....I did the breathing CD exercises....the good part is you can do it wherever you are pretty much...you don't really need a lot of anything to do it. –Blythe (Interview)

I've enjoyed the...the learning about the breathing, I've enjoyed the stretching exercises...when I've had a bad day and feel stressed at the end of the day, then I'll just throw a blanket on the floor and get down there and sprawl out and do the stretches and start breathing... just clear my mind, let everything relax...you know I've just continued with it just kind of on my own... –Evelyn (Interview)

I would stop in my office now and, and go okay turn off the light, close the door, 5 minutes, just give me 5 minutes and use the breathing and, and calm down... during the study and after the study –Geraldine (Interview)

...at work...I find going outside and doing some deep breathing helps me orient myself and decide how to move forward....I feel calmer and more patient. This is great at work.... –Harriet (Week 4)

...the 3 part breathing I really like it have found myself doing this at work or even driving in the car. –Reese (Week 2)

I had to have a CAT scan...and was laying on the cold hard CAT scan table waiting for the test to start. I was cold, anxious and shivering so I tried to calm myself with the breathing exercises we have learned in the yoga class. By focusing on my breathing....I was able to stop shivering and calm myself down. These exercises are great tools to have. –Trudie (Week 4)

Yoga perceived to be efficacious and gratifying. The third and final aim of the study was to identify whether or not participants enjoyed yoga, and categorized it as an activity that they deemed valuable. Participant responses denoted their discovering yoga to be a practical tool for improving physical health and emotional well-being.

Yoga: an enthusiast for ameliorated physical health.

...this [yoga] is really a good way I think to build without getting hurt....at the end I was so much more flexible –Geraldine (Interview)

I found the bone health session very helpful in learning about weight bearing exercises. I also liked child's pose because I can now actually do it! At first I couldn't even get down and I am LOTS MORE FLEXIBLE! –Laine (Week 10)

it's [yoga] much easier to do than doing some weight lifting...cardiac [cardio] class... –Reese (Interview)

Yoga provides tranquility and stress-free state of mind.

It's relaxing, decompressing, helps with internal focus –Evelyn (Week 5)

...the feeling that I got after the sessions...being able to take that home...and continue it there...it just it helped me I think balance a lot of the stress...it gave me an opportunity to feel more calm... –Grace (Interview)

I think yoga is a more beneficial experience in terms of mental relaxation. I value the opportunity to clear my mind... –Harriet (Week 5)

...yoga once you get accustomed to it, and you're not having to think about what you do, it's almost like a moving meditation... –Hollis (Interview)

I felt so much better when I left. My mind was much clearer, and my mood was better....–Jacqueline (Week 1)

Yoga deemed a worthwhile pursuit. As a result of their experience and the positive gain perceived, during follow-up interventions, participants unanimously discussed their desire to continue participating in yoga and their concrete plans for future participant; others shared about their current active engagement in structured classes or via DVD at home:

I do plan on it, I actually did 3 days this week....so, yeah I plan on continuing [yoga].... –Darby (Interview)

I really feel like it's [yoga] something I'd like to continue because I felt a difference, my family saw a difference... –Grace (Interview)

I came in...I guess kind of highly skeptic...just really didn't know it would really really work...so as I saw that I was having less of the hot flashes...then I thought maybe there is something, you know to this... when I finally decided...I'm gonna discipline myself and...do it at home...I saw even more benefit...so it's something that I think now I'm gonna continue... –Jorja (Interview)

I'm anxious to sign up for a summer class somewhere, I've got to get back into it. Because it's hard when you're at home to try and find an hour...uninterrupted. So, I've got to go somewhere away from my house –Laine (Interview)

Exercise habits and the use of instructional yoga audio recordings. As part of each week's journal entry, participants were asked to report whether they had exercised or been physically active outside of the yoga sessions and/or used the instructional yoga audio recordings during the previous week. Findings indicated that participants were almost evenly distributed across four categories: (a) those who did not use the

instructional audio recordings, nor exercised outside of the yoga sessions (N=2; 17%); (b) those who exercised, but did not use the instructional audio recordings (N=3; 25%); (c) those who used the instructional audio recordings but did not exercise (N=4; 33%); and (d) those who both exercised and used the instructional audio recordings (N=3; 25%) (see Table 4.9).

Table 4.9
*Use of audio recordings and exercise outside of yoga sessions**

<i>Did not use instructional audio recordings, or exercise outside of yoga**</i>	<i>Exercised outside of yoga, but did not use instructional audio recordings</i>	<i>Used instructional audio recordings, but did not exercise outside of yoga</i>	<i>Used instructional audio recordings, and exercised outside of yoga</i>
-Blythe -Grace	-Darby -Geraldine -Hollis	-Evelyn -Jacqueline -Jorja -Reese	-Harriet *** -Laine -Trudie

*Instructional audio recordings involved the yoga instructor working through three breathing exercises and three guided imagery exercise provided to participants via CD and electronic link at the start of the study.

**Participants designated as not exercising outside of yoga were those who reported (via journal) that they had not participated in any exercise/physical activity, or those who were irregular in their exercise (less than 50%) over the course of the study. In contrast, participants were designated as exercising outside of yoga, if they did so more consistently (more than 50%) over the course of the study. Exercise/physical activity was defined by participants themselves; the following activities were reported: walking/running/hiking, walking dog(s), cleaning house, yard work/gardening, dance class, yoga via at-home DVD, babysitting grandchildren, and biking/spinning)

***Harriet regularly exercised outside of yoga up until she had surgery during week 5 of the study.

Mixed methods results

Corresponding similarities. As a group, based on pre-, mid- and post-intervention assessment scores, 100% of participants experienced improvement in menopausal symptoms (less severe), and 90% of participant scores (all but one participant) indicated decreased levels of perceived stress. In parallel, collectively, participants' qualitative data mirrored and confirmed these results; that stress levels declined as a result of participation in the yoga intervention, that capabilities for stress management had been boosted, and that menopausal symptoms had diminished. It is important to note that each participant experienced a decline in different symptoms, and for some it may have been the severity of symptoms that had been reduced, and for others it was the frequency of their occurrence.

Evaluating these similarities on an individual basis, it is clear that for many participants, their qualitative and quantitative data were parallel and complementary of one another. For example, Evelyn's pre-, mid-, post-intervention assessment scores indicated she experienced no improvement in hot flashes or physical/mental exhaustion, and encountered increased joint pain and sleep difficulty. Her qualitative journal entry echoes the exact same result:

Maybe I am more relaxed....I think I am experiencing less frequent hot flashes....I can't tell that my symptoms have improved. It seems that I still experience the hot flashes and my insomnia is still as severe. My joints still hurt most of the time.
–Evelyn (Week 10)

Likewise, Reese's quantitative scores imply that she had no change, good or bad, in sleep. In her journal, Reese affirms the same conclusion:

... still need to work on sleep! –Reese (Week 3)

Similar affirmations of duplicative, corresponding qualitative and quantitative results were present by varying degree as related to different symptoms and for a number of participants.

Discrepant and conflicting outcomes. In contrast to the qualitative and quantitative data that were complementary to one another, there was a compelling amount of qualitative and quantitative data that was incongruent with one another. For instance, Blythe's quantitative data reflected she had not experienced change related to hot flashes, and had a decreased overall quality of life score, including decreased item scores related to physical and psychological domains of quality of life. Yet, in the last week of the study, Blythe submitted the following journal entry:

I had less hot flashes, less anxiety, less stressed out feelings and more energy. I slept better too. –Blythe (Week 10)

Interestingly, Darby's quantitative data illustrates she had no change in quality of life in the social domain, coupled with no change in her quality of life in the psychological domain; however, qualitative journal entries reflect the opposite experience:

Love ...the fellowship with the other ladies. Great to talk with others about how we all feel the same way at times –Darby (Week 7)

Correspondingly, Evelyn's quantitative information attests that her quality of life in the social domain deteriorated, yet qualitative data provided in the post-study interview reveals a converse outcome:

I did enjoy doing it with the group of ladies that are at the same point of life that I am...I didn't feel like I was out of my element, and we're all kind of in this together...experiencing the same symptoms –Evelyn (Interview)

Geraldine's quantitative results showed that she had had no change in depressive mood or physical/mental exhaustion. However, post-study, Geraldine shared information inconsistent with those data:

...overall I felt better and...calmer... –Geraldine (Interview)

Almost identical to Darby and Evelyn, quantitative findings indicate that Hollis had no change related to quality of life in the social domain. Yet, in post-study interview, Hollis stated that the social aspect of the intervention was exceptionally meaningful:

...and you know just meeting the ladies and, and talking and hearing what menopause was like for them....so you know the camaraderie –Hollis (Interview)

Jacqueline's quantitative results demonstrated lessened quality of life, specific to the psychological domain. In her post-study interview, Jacqueline explicitly stated that psychologically, her participation in yoga had been beneficial because it allowed her the opportunity to concentrate on herself:

...it [quality of life] improved because it allowed me time to focus on myself...which I don't know of many...a woman going through menopause who has time to focus on herself...it just doesn't happen...and I think that women as a whole are not really good about taking time for themselves because there's that whole nurturing component...where you're always doing for somebody else...and you almost feel guilty taking time to do something for yourself...but psychologically it, it's exceptionally important....and I came home happier, so they [her family] were happy for me to do it... 'cause I came home like you know all zen...and sometimes I would walk into chaos and I was better able to handle it... –Jacqueline (Interview)

Comparison of Jorja's cumulative quantitative scores indicated no positive changes in depressive mood or irritability, yet her quality of life in the social domain decreased.

Jorja's qualitative data did not address directly the aspect of socialization that increased

or decreased as a result of her participation in yoga. However, in her journal and follow-up interview she conveyed information that discounted quantitative findings:

I have noticed a more happier and cheerful "me" –Jorja (Week 5)

...yoga helped with the mentality...and you know when you can get your mental section of your brain working, I think the rest of it will fall into place...

–Jorja (Interview)

Reese's quantitative measures demonstrate an increase in depressive mood and physical/mental exhaustion, and lessened quality of life in the psychological domain.

Contrarily, Reese reports having felt better equipped to regulate stress, which may have potentially led to enhanced psychological wellbeing and waning bouts of exhaustion.

I loved it [yoga]...it helped me to learn how to de-stress....I learned how to just take time for myself...just to slow down and just...breathe through it and go one

–Reese (Interview)

Unanticipated Findings

In addition to findings supportive of the study's original research questions, two additional trends surfaced during data analysis specific to (a) participant's feeling a sense of control (or lack of); and (b) participant's motivation in maintaining their yoga participation over the 10-weeks.

Sense of control. Interestingly, several participants in the current study identified their feeling a lack of control, or as a result of their participation in yoga – discovering a renewed sense of control.

Geraldine

Week 4 *... yoga gives me a sense of both peace and a feeling of more control over my life...*

Week 5 *The hormones take charge and you lose control. You're in a*

fight to regain control.

Week 6 *If I could achieve "centered", to me it would be enhancing my ability to control my reactions to outside forces....The yoga is helping me with "centering" and I now can believe that it's possible for me but I'm far from attaining it. Hopefully I'll continue using yoga in many ways to move in the direction of "centering" myself...*

Week 7 *...it's [yoga] helping me consciously get control of myself...*

Interview *...she [yoga instructor] would say 'so think about what is it that you want to get from today.' And it was always 'I need to control something' ...I can control if I use my mind to do it.*

Jorja

Week 4 *I feel like I have better knowledge and tools to help me through the symptoms, and I don't feel like there's something wrong with me and I'm able to have more control and be more tolerant of people...*

Interview *I have the tools now to help me through, and I don't have to feel frustrated....knowing that it's something that comes on to me without my control...I know now that I can control it.*

Laine

Week 4 *Knowing that there are things I can do is comforting....I am learning and using the strategies that help me de-stress, relax, and sleep better and for longer periods of time. I am finally beginning to feel better*

Week 7 *I feel like I am in better control of my health! I am feeling more rested, taking better care of myself, happier! Feeling more empowered to do something for me!*

Sources of motivation. Generally, motivation is what drives an individual to act; motivation energizes and individual to progress in a focused direction (Deci & Ryan, 1990; Sheldon, Ryan, Deci, & Kasser, 2004). In thinking of motivation as a continuum, Ryan and Deci (2000b) propose that intrinsic motivation lies on one end of the spectrum,

and extrinsic motivation lies on the opposite end. One of the questions asked of participants during the follow-up semi-structured interviews was related to motivation, and the factor(s) that kept them coming throughout the 10-weeks. Responses were reflective of the self-determination theory, and its concept of motivation existing as a continuum.

Intrinsic motivation. Intrinsic motivation is considered the highest level of self-determination, and indicates that a person's three psychological needs have been met, and provided them the freedom to pursue and enjoy activities or life involvements that are truly satisfying to their true self (Ryan & Deci, 2000b; Watts & Caldwell, 2008). Several participants indicated they were intrinsically motivated to continue participating in yoga over the course of 10 weeks:

...it was just the relaxation drove me to want to come...and the fact that I felt better after...that drove me to come even when I had to drag my butt out of bed
–Blythe (Interview)

...what kept me coming....just learning more about the yoga....trying to...get more comfortable with it so hopefully I can make a lifelong commitment to it
–Hollis (Interview)

...because I didn't want to miss anything...and because I had learned so much already...I didn't want to miss anything...–Jorja (Interview)

...because I knew...I was gonna be able to calm down...hectic days were the days that I really looked forward to the most... the benefits of yoga far outweigh the inconvenience of driving over there and coming to the class –Laine (Interview)

Extrinsic motivation. Extrinsic motivation indicates that an individual acts on and engages in activities on the basis of some external reward, or external pressure. They pursue and demonstrate the behavior for a reason that lies beyond themselves and their own satisfaction (Ryan & Deci, 2000b). A few participants revealed their continued

participation in the yoga study was due to accountability to the researcher, or their feeling a responsibility to their other participants – knowing that others would notice their absence if they skipped a session:

I enjoy the group sessions....some people are not disciplined to do exercise on their own, group settings are great for accountability. –Darby (Week 8)

...the commitment, because I knew that you [researcher] were counting on us to be there... –Evelyn (Interview)

Both intrinsic and extrinsic motivation. It is important to note that extrinsic motivations can become internalized, and become intrinsic motivations (Ryan & Deci, 2000b). Some participants indicated that their attending the yoga sessions originated as extrinsic, due to their accountability to the researcher and the study; but then attributed their continued attendance was linked to internal motives including accountability to oneself, and/or their realizing how much they enjoyed yoga.

'Cause I had accountability to somebody...knowing that I was doing this for you [researcher], and that I wanted to be accountable to you...and I'll say that would make me promise myself that I got to do it –Darby (Interview)

... I mean it was just like me taking a course...I had accountability and this is where I need to be... it's where I have to be, and there's accountability for that but also...making me accountable to myselfselfishness...and accountability. I mean, you know both of them because I know you know I'm responsible for being there so that you can have the data that you need...but also because I know if I don't go I'm not gonna get my moment –Jacqueline (Interview)

...because I committed to do this....I committed to...to be a participant in a study so I've got a responsibility...for your study....So that was primary #1...the commitment to participate. And #2...I really enjoyed it....it was just taking that hour and...you know, focusing on relaxing....Which is good for me 'cause I don't do that...–Trudie (Interview)

Women need more information regarding menopause. Based on feedback provided from participants in the current study, it is imperative that more education and

tangible resources specific to menopause be provided to women – those not yet experiencing menopause as well as those who are living it first-hand, day in and day out. Seventy-five percent of participants in the current study spoke of their having wished to have known more regarding menopause, what it involves, what to expect, and how to manage it without losing one's identity and/or their sense of well-being:

I think there need to be more studies done for um, menopause. I think that there's so many myths like it's all in your head...and there's stuff that's not talked about...I think it's been made fun of so much...it's not treated seriously by some doctors....it changes you....I think a lot more needs to be done to help women. I wish somebody had sat me down and said 'okay [inaudible] this is what's going to happen....And this is what you can do about it....so that you can cope and you won't think you're going crazy and you won't think you have Alzheimer's...and you won't really worry about yourself, you know I was worried....experiencing the panic attacks with the hot flashes and the lack of sleep...really for a while there I was worried like...am I totally gonna lose it....nobody told me that this was going to happen....the connotation that most people have is so negative....I really am going to talk to my daughters...I'm gonna talk to them ahead of time and let 'em know now when this stuff starts happening...it's gonna be alright.....you're gonna live through it and then here [is] some stuff that you could do that might help you....–Blythe (Interview)

I'm encouraged...it's nice to know that there's some alternative ways to manage the symptoms...–Harriet (Interview)

...so I went...on just pharmaceutical hormone replacement...which I was really opposed to. I didn't want to do that...but you know I was told again and again and again and again there was no alternative to it... –Hollis (Interview)

...not one doctor or healthcare professional suggested yoga. I am certain it would have helped because of the way my body is responding now. –Laine (Week 4)

Learn about it [menopause], become informed so you can understand what is happening, what is normal, what you can do to ease symptoms, and when to seek help....Talk about it with friends & family it is not something that should be in the closet, it is another chapter in life. –Trudie (Week 5)

Yoga: misperceptions can be intimidating. When asked how or if their perception of yoga changed between the start and conclusion of the study, several

participants spoke of their expectation of yoga prior to participation in the study involving (a) the idea that yoga was solely a physical exercise offering only physical benefit; or (b) the idea that yoga was difficult, physically taxing, and demanding agility for completing acrobatic-like movements. Post-study, after having engaged in the yoga intervention, participants identified their having appreciated components of the activity that they previously did not know existed, including the relaxation components and health benefits related to enhanced emotional well-being.

I expected...what my mind thought of as yoga...the getting into the pretzel kind of...I loved the restorative part of it...the breathing...I found something I really like... –Grace (Interview)

I'm pleasantly surprised by how mentally soothing it is. –Harriet (Week 1)

...what was really nice...there was no gymnastics involved...having to have super balance...–Hollis (Interview)

I did not realize there would be as much as much guided relaxation involved that was a pleasant surprise...for that to be considered part of yoga...sort of re-defined it for me... –Jacqueline (Interview)

I thought it was kind of an out there type...program. I didn't really know much about it, didn't know the health benefits of it. I just thought it was some kind of...I don't know almost a cultish type group...and all I could think of was the people sitting there going 'ohmmmmm' with their fingers in the air...–Laine (Interview)

...you know I always thought yoga was...put your head on the floor and your feet on the wall...like stand on your head. I mean I've seen Madonna's pictures...and it's like, my God she's a contortionist, that's yoga?...–Trudie (Interview)

Member Checking Results

Four months post-intervention, participants were asked to participate in member checking, to allow the researcher to gauge her level of accuracy in interpreting participant data, and to determine to what degree participants agreed with preliminary findings

specific to their participation in yoga and experience with menopause. The member checking process was voluntary; nine of 12 participants responded.

Indicators provided by participants specific to research question #1 align very closely with quantitative and qualitative data collected during the study. Each individual experienced improvement in menopausal symptoms, but 100% of the group did not experience relief in or the elimination of any one, specific symptom. However, 100% of participants that participated in member checking did indicate that they experienced less stress as a result of yoga participation, further supporting the possibility of yoga indirectly addressing menopausal symptoms due to its ability to decrease stress; and, potentially less stress results in less menopausal symptoms. In congruence with this data, 100% of member checking participants indicated that they enjoyed yoga because of its (a) holistic body/mind/spirit approach; (b) relaxation-focus; and (c) providing an opportunity to “slow down”. All of these factors relate back to stress management, and again, further support the idea that yoga decreases stress, resulting in decreased menopausal symptoms.

Table 4.10
Member checking results

Perspectives regarding menopause experience:			
Result/Finding (N=9)	I agree and/or this is true for me	I disagree and/or this is not true for me	I do not know and/or am not sure
Menopause can diminish quality of life	100% N=9	--	--
Menopause is a stressor, in and of itself	100% N=9	--	--
Menopause is a situation that indirectly creates stress	78%	11%	11%

	N=7	N=1	N=1
Menopause is a non-stressful occurrence*	--	78% N=7	22% N=2
Increased stress levels cause me to experience greater frequency and/or severity of menopausal symptoms	78% N=7	11% N=1	11% N=1
I was surprised to learn I was experiencing menopause because of its premature arrival	22% N=2	78% N=7	--
I was surprised to learn I was experiencing menopause because of its range of ambiguous symptoms	44.4% N=4	44.4% N=4	11.1% N=1

*See pg.103-104 for supporting quotes from participants.

Question #1 (Part A):

To what extent is the severity of physiological symptoms (e.g., hot flashes, night sweats) associated with menopause altered as a result of participation in yoga?

Result/Finding (N=9)	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I had less fluctuation in mood as a result of yoga participation	56% N=5	22% N=2	22% N=2
I had less hot flashes as a result of participation in yoga	67% N=6	33% N=3	--
I had fewer night sweats as a result of yoga participation	67% N=6	33% N=3	--
I experienced greater clarity of mind as a result of yoga participation	78% N=7	11% N=1	11% N=1
I experienced higher quality sleep as a result of yoga participation	56% N=5	44% N=4	--
I experienced decreased stress as a result of yoga participation	100% N=9	--	--

Question #1 (Part B):

If it is determined that the change in symptoms can be attributed to yoga, why, or what about participation in yoga holds benefit for producing positive outcomes?

Result/Finding (N=9)	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I found yoga beneficial because it addresses body, mind and spirit	100% N=9	--	--
I found yoga beneficial because of the breathing exercises	89% N=8	--	11% N=1

I found yoga beneficial because it was relaxation-focused	100% N=9	--	--
I found yoga beneficial because it allowed me time to slow down	100% N=9	--	--
I found yoga beneficial because of the camaraderie I felt with other participants	67% N=6	11% N=1	22% N=2
I found yoga beneficial because of the instructor, physical setting and/or program curriculum	89% N=8	--	11% N=1

Question #2:

How is one's overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms?

Result/Finding (N=9)	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
Participation in yoga helped me manage stress	78% N=7	11% N=1	11% N=1
Participation in yoga provided me with tools for managing stress or menopausal symptoms that could be utilized at home/work, etc.	100% N=9	--	--

Question #3:

To what extent do participants find yoga to be beneficial, enjoyable, feasible and accessible?

Result/Finding (N=9)**	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I enjoyed yoga because I felt it improved my physical health (e.g., flexibility, bone health)	89% N=8	11% N=1	--
I enjoyed yoga because I felt it improved my emotional well-being (e.g., clear my mind, relax, feel calm)	89% N=8	11% N=1	--
I enjoyed yoga and found it beneficial, so much so that I have continued participating in yoga	44% N=4	56% N=5	--
I enjoyed yoga and found it beneficial, so much so that I have planned and/or would like to participate in yoga again	100% N=8**	--	--
I enjoyed yoga and found it beneficial because it allowed me to feel "centered" and/or gave me a greater sense of control	89% N=8	--	11% N=1

**One participant skipped this item; as a result instead of nine potential responses, there are only eight participant responses.

Other:			
Result/Finding (N=9)	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
Women need more information/resources regarding menopause (what it is, what to expect, and available strategies for managing symptoms)	100% N=9	--	--
Prior to the study, I thought yoga was solely a physical exercise that did not take into account emotional health.	78% N=7	22% N=2	--
Prior to the study, I was hesitant to participate in yoga because I thought it was going to be physical taxing, and involve contortionist-like movements	44.4% N=4	33.3% N=3	22.2% N=2

Table 4.11 provides an overall summary of participant findings, including individual’s qualitative data, quantitative data, and cross-comparison summaries of both qualitative and quantitative data:

Table 4.11
Summary of findings

Participant (N=11)	Quantitative summary	Qualitative summary	Cross-comparison of data
Blythe Missed 20% of yoga sessions (4 of 20)	-Decrease in severity of sleep problems, depressive mood, irritability, anxiety, physical/mental exhaustion, bladder problems and vaginal dryness -Decrease in overall QOL, including physical and environmental QOL domains	-Minimal exercise (outside of yoga) throughout the 10-weeks -Did not use audio recordings -Less mood swings, anxiety and fatigue -Improvements in hot flashes and energy level -Enjoyed camaraderie of the class -Decreased stress level	-Overall QOL decreased, yet Quan and Qual data indicates decrease in sleep disruptions, mood swings, stress, anxiety and fatigue; as well as improved energy level
Darby* Missed 0% of yoga sessions	-Decrease in severity of heart discomfort and joint/muscle discomfort -Increase in perceived stress	-Regular exercise (outside of yoga) throughout the 10-weeks -Did not use audio	-Increase in perceived stress and decrease in psychological

(out of 14)	-Increase in overall QOL; decrease in psychological QOL domain; no change in social QOL domain	recordings -No improvement in hot flashes or sleep disruption -Improvements re: joint pain -Enjoyed fellowship with other participants -Found yoga relaxing; able to focus on internal self	QOL, yet Qual data indicates relaxation and social companionship components
Evelyn Missed 10% of yoga sessions (2 of 20)	-Decrease in severity of heart discomfort, depressive mood, irritability, and anxiety -Decrease in perceived stress -Increase in overall QOL; decrease in physical and social QOL domains	-Minimal exercise (outside of yoga) throughout the 10-weeks -Used audio recordings -Improvements in hot flashes and anxiety -No change in sleep disruptions or joint pain -More relaxed; feel renewed after yoga -Enjoyed the group, and hearing other's experiences	-Quan data indicates decrease in social QOL, yet Qual data indicates participant enjoying social interactions with group members
Geraldine Missed 20% of yoga sessions (4 of 20)	-Decrease in severity of hot flashes, sleep problems, depressive mood, and bladder problems -Decrease in perceived stress -Increase in overall QOL	-Regular exercise (outside of yoga) throughout the 10-weeks -Did not regularly use audio recordings -Improvements in sleep, hot flashes and anxiety -Yoga gave sense of peace and control -Breathing exercises assisted w/ stress management -Improved flexibility	-Overall, qual and quan data aligned and confirmed one another
Grace Missed 10% of yoga sessions (2 of 20)	-Decrease in severity of sleep problems, depressive mood, physical/mental exhaustion, sexual problems, vaginal dryness, and joint/muscle discomfort -Decrease in perceived stress -Increased in overall QOL; decrease in environmental QOL domain	-Minimal exercise (outside of yoga) throughout the 10-weeks -Did not use audio recordings -Decrease stress and/or ability to manage stress, but no change in symptoms -Feel calm after yoga; ability to focus -Enjoyed group of women; found it a nice support group	-Qual data indicates no change in menopausal symptoms, yet quan data indicates some improvements regarding severity of specific symptoms
Hollis	-Decrease in severity of hot flashes, sleep problems,	-Regular exercise (outside of yoga) throughout the 10-	-With a few exceptions, qual

Missed 10% of yoga sessions (2 of 20)	depressive mood, irritability, physical/mental exhaustion, vaginal dryness, and joint/muscle exhaustion -Decrease in perceived stress -Increased in overall QOL; decrease in environmental QOL domain	weeks -Did not use audio recordings -Less night sweats and hot flashes -Improved sleep -Improved flexibility -Able to bring attention inward; allows distance from stressors	and quan data aligned and confirmed one another
Jacqueline Missed 25% of yoga sessions (5 of 20)	-Decrease in severity of heart discomfort, depressive mood, irritability, anxiety, sexual problems, vaginal dryness, and joint/muscle discomfort -Decrease in perceived stress -Increase in overall QOL; decrease in psychological QOL domain	-Minimal exercise (outside of yoga) throughout the 10-weeks -Used audio recordings -Less night sweats and irritability -Improved sleep and clarity of mind -Enjoyed group setting and camaraderie -Improved energy level; sense of relaxation	-Decrease in psychological QOL domain, yet qual data indicates improved clarity of mind, sense of relaxation, and energy level w/ less irritability
Jorja Missed 0% of yoga sessions (out of 20)	-Decrease in severity of hot flashes, sleep problems, anxiety, physical/mental exhaustion, sexual problems, bladder problems, vaginal dryness, and joint/muscle discomfort -Decrease in perceived stress -Increase in overall QOL; decrease in social QOL of domain	-Minimal exercise (outside of yoga) throughout the 10-weeks -Used audio recordings in 2 nd half of study -Less hot flashes and depressive mood -Improved mood -Improved clarity of mind and ability manage stress	-With a few exceptions, qual and quan data aligned and confirmed one another
Laine Missed 5% of yoga sessions (1 of 20)	-Decrease in severity of menopausal symptoms except heart discomfort -Decrease in perceived stress -Increased overall QOL	-Regular exercise (outside of yoga) throughout the 10-weeks -Used audio recordings -Improved sleep and mood -Decrease in severity of hot flashes -Enjoyed social component and hearing other's experiences helped a lot	-Overall, qual and quan data aligned and confirmed one another
Reese Missed 10% of yoga sessions (2 of 20)	-Decrease in severity of hot flashes, irritability, sexual problems, bladder problems, and vaginal dryness -Decrease in perceived stress -Increase in overall QOL;	-Minimal exercise (outside of yoga) throughout the 10-weeks -Used audio recordings -No change in sleep -Less hot flashes	-Quan data indicates decrease in psychological QOL, yet qual data indicate improved ability

	decrease in psychological QOL domain	-Increased relaxation and sense of calm -Improved ability to manage stress	to manage stress, increase sense of calm and relaxation
Trudie Missed 10% of yoga sessions (2 of 20)	-Decrease in severity of menopausal symptoms except sexual problems and vaginal dryness -Decrease in perceived stress -Decrease in overall QOL; no change in environmental QOL domain	-Regular exercise (outside of yoga) throughout the 10-weeks -Used audio recordings -Decrease in night sweats -Improved sleep -Improved relaxation, and ability to manage stress -Improved clarity of mind -Enjoyed camaraderie of the group	-Decrease in overall QOL, yet Qual data indicates improved relaxation, stress management, and clarity of mind; as well as the participant enjoying social interactions with group members

*Participant joined the study at the beginning of week 4. Instead of having an opportunity to participate in 20 yoga sessions, she has opportunity to participate in 14 yoga sessions.

CHAPTER FIVE

DISCUSSION

The purpose of this mixed methods study was to determine the effects of yoga participation on symptoms associated with menopause. More specifically, the study aimed to address (a) what (if any) specific menopausal symptoms were effected as a result of participation in yoga; and (b) what (if anything) unique to yoga contributed to those effects. Additionally, the study aimed to identify what influence yoga participation had on participants' quality of life, and to determine whether participants found participation in yoga to be enjoyable and beneficial. A mixing of quantitative and qualitative data was used during data collection and analyses to address these questions. This chapter provides an overview of findings that (a) extends existing research and theory; (b) provides support for implications for recreational therapy practice; (c) indicates limitations of the study; and (d) suggests directions for future research.

Findings that Extend Existing Research

Several of the research findings extend existing research specifically those findings that reflect a potential relationship between (a) yoga and decreased physiological menopausal symptoms (hot flashes, night sweats, sleep disturbance); and (b) the influence of program setting, curriculum and instruction on a participant's perception and experience.

Yoga decreases the severity of hot flashes, night sweats and sleep disturbances. Congruent with existing research, this study suggested that participation in yoga resulted in decreased physiological, menopausal symptoms, primarily: hot flashes,

night sweats and sleep disturbances (Booth-LaForce, Thurston, & Taylor, 2007; Manocha, Semmar, & Black, 2007). While it is encouraging to see that there are potential effects on physiological menopausal symptoms through yoga participation, further research is needed to examine the effects of yoga participation on physiological symptoms, including the severity, duration and frequency of symptoms experienced.

Findings Compatible with Theoretical Framework

Findings within this study supported existing theoretical frameworks and conceptual foundations related to stress, coping, as well as the potential role that leisure plays within stress and coping processes.

Transactional stress & coping theory/Leisure-coping theory. Sapolsky (2004) identified stress as being “anything in the outside world that knocks you out of homeostatic balance, and the stress-response is what your body does to reestablish homeostasis” (p.6). Lazarus and Folkman (1984) purported that once a stressor presents itself, an individual appraises the level of threat that exists within the stressor, and responds by employing one of two coping strategies; either emotion-focused coping, or problem-focused coping. For this study, while participants’ perceptions regarding menopause as a direct or indirect stressor differed, several indicated they experienced diminished stress levels following their participation in yoga. Qualitative data analyses indicated that participants considered yoga as a potential method for coping that was emotion-focused (attitudinal change) and problem-focused (behavioral change). Results of this study support Iwasaki and Mannell’s (2000) notion of leisure functioning as a

coping mechanism via mood enhancement, social companionship and/or palliative escape and restoration.

Taking time to “pause” provides a gateway for leisure-palliative coping.

Goodale and Godbey (1988) acknowledged Pieper’s (1963) idea of leisure as being a mind-set, the state of one’s inner being...a state of quiet calm (p.60). Kleiber (2000) identified it as being a “pause”, explaining that the “pause” is critical to our being grateful, our encountering wonder and our understanding the meaning and possibility available within life experiences (p.84). Ivanhoe and Van Norden (2001) explained Chinese philosophy and it’s recognition of the relevance of upholding quiet truth and simplicity (p.170). The key word being “quiet” as it seems closely related to the notion of the “pause”. The “pause” is important because of the necessity of internal contemplation and resulting personal growth. Through self-reflection, an individual can find themselves evaluating the status of their foundational core. This evaluation was identified by Ivanhoe and Van Norden (2001) who recognized it as being a crucial form of “stillness” (p.170). Through the act of internal stillness, there is learning, and enriched perspective to be found (Ivanhoe & Norden, 2001).

Lazarus and Folkman’s transactional theory of stress and coping implied that emotion-focused coping, and the “cognitive reframing” of a stressor is critical for an individual to avoid or withstand stress (Folkman, Chesney, McKusick, Ironson, Johnson, & Coates, 1991, p.243; Lazarus & Folkman, 1984). Similarly, Iwasaki and Mannell’s leisure-coping theory (2000) maintained that participation in leisure facilitates the

opportunity for an individual to take a time-out from the busy-ness of mundane schedules and demanding, often exhausting and anxiety-producing, life routines.

Participants in this study noted through journals and during interviews that the “pause” that occurred during their yoga participation, permitted them time and space to take a step back “mentally” and consider a re-appraisal of attitude as well as the potential for a reframed outlook related to the contexts and situations of their own lives. Through the “pause” participants reported they were empowered to embrace an optimistic outlook and could step back into their everyday lives with a clearer focus and sense of competence when addressing stressful occurrences. These findings extend existing research and are closely aligned with the seemingly “spiritual” nature of the “pause” addressed by leisure scholars and social psychologists (Hutchinson, Bland, & Kleiber, 2008; Iwasaki, Mannell, Smale, & Butcher, 2002; Kleiber, Hutchinson, & Williams, 2002). Participants’ identified participation in yoga as an opportunity to detach from hectic day in-day out schedules:

Yoga: a vehicle for leisure-companionship. Iwasaki and Mannell’s leisure-coping theory (2000) indicated that in addition to palliative-coping, leisure and social involvement that naturally evolves during leisure participation promotes an enhanced ability regulate the experience of stress. Participating in leisure with individuals similar to oneself and having similar life experiences can create a sense of support and encouragement during times of stress (Hutchinson, Bland, & Kleiber, 2008; Iwasaki, Mannell, Smale, & Butcher, 2002). Correspondingly, Deci and Ryan’s self-determination theory (1985) highlights relatedness, and an individual feeling that each person belongs

and is part of something. Having a sense of relatedness is a critical component of accomplishing self-determined behavior; behavior which is necessary for positive mental health (Deci & Vansteenkiste, 2004; Ryan & Deci, 2000b; Ryan & Deci, 2002; Wilson, Longley, Muon, Rodgers, & Murray, 2006). Findings from the current study strongly supported the concept of relatedness and its importance in their coping with stress as evidenced by the following statements:

Social comparison. Opposite from the concept of social companionship is the theory of social comparison (Festinger, 1954). Social comparison theory suggests that individuals gain insight in to their own life circumstance, by comparing themselves with others in a similar life stage. As a result of this enhanced awareness of others' circumstances, individuals often revise their attitudes about their own life situations (Festinger, 1954). In this study, several participants commented that they felt better about their own status after learning about and witnessing other participants' encounters with their menopausal transition.

...there are some people that are far worse than I am, so it's like, 'oh, okay, alright, maybe this isn't so bad' ...–Laine (Interview)

...you know it was really good to hear other people talk...about their symptoms....it kind of made me realize, 'okay well, I don't have it so bad'. You know, because there's a lot of people with a lot of symptoms....it gave me a perspective um, on...what other people are dealing with. –Trudie (Interview)

Yoga: a necessity for emotional well-being. Well-being and leisure mood enhancement are additional components of leisure coping theory. For this study, well-being was defined as “a state of successful, satisfying, and productive engagement with one's life” (Carruthers & Hood, 2007, p.280; Pollard & Rosenberg, 2003). Leisure mood

enhancement focuses on the role of leisure as a vehicle for decreasing negative mood and increasing positive mood (Iwasaki & Mannell, 2000; Kleiber, Hutchinson, & Williams, 2002). In this study, participants confirmed that participation in yoga improved their feelings of well-being, and contributed to positive mood.

Self-determination theory. This study extended existing research specific to yoga and menopause in that the current study identified findings related to the presence or lack of presence of internal locus of control, as well as the existence or non-existence of intrinsic motivation in their lives.

Internal locus of control. An individual who feels confident and believes they are effective through their behaviors considers themselves to be “competent”, furthering their achievement of self-determined behavior (Deci & Ryan, 1987; Deci & Ryan, 2000; Ryan, Patrick, Deci, & Williams, 2008). Individuals can recognize that their choices and behaviors do matter, and play a significant role in achieving their goals and reaching pre-determined objectives. Competence provides individuals an opportunity to understand their skills and capabilities, and feel confident in their ability to grow, develop and use those capabilities when making decisions and/or initiating action (Deci & Ryan, 1985; Ryan & Deci, 2002; White, 1959; Wilson, Longley, Muon, Rodgers & Murray, 2006).

For this study, several participants shared that their participation in yoga gave them a renewed sense of control, which resulted in their experiencing increased confidence and competence in their abilities to use their newly acquired knowledge and skills (e.g., breathing exercises, yoga poses/stretch) to assist in their managing stress and menopausal symptoms.

Motivation: a continuum. Deci and Ryan (2000) asserted that it is necessary for individuals to experience autonomy, relatedness and competence to achieve self-determination. It is these three psychological competencies that precede an individual advancing toward self-regulated, intrinsically motivated behaviors, allowing their pursuit of optimal physical, social, cognitive and psychological functioning (Deci & Ryan, 2000; Deci & Ryan, 2008; Watts & Caldwell, 2008). If individuals are not experiencing self-determination, it is because they are feeling controlled by external pressures; in other words, rather than acting on their own decisions, they are acting based on external influences rather than their own choices (Deci & Ryan, 1985; Ryan & Deci, 2000b). This is one of the main premises of self-determination theory: If one is self-determined, then one's behaviors can be attributed to intrinsic motivation rather than extrinsic motivation or other external influences (Ryan & Deci, 2000a). In this study, findings indicated that participants' maintained involvement in the yoga intervention for a variety reasons along a continuum of motivation ranging from extrinsic to intrinsic. For example, some participants claimed their ongoing participation in the yoga intervention was due to intrinsic reasons, and others stated their ongoing participation was due solely to their having made a commitment to the researcher and the research study (extrinsic motivation). However, several participants personified the concept of self-determination. Restated, the path of self-determination is that as an individual gains competence, relatedness and autonomy, the likelihood of their becoming intrinsically motivated to complete tasks increases (Ryan & Deci, 2000a). Several participants in the study expressed that their participation in the yoga intervention began as extrinsic; however,

over the course of the intervention, they began to become (or had completely transitioned) intrinsically motivated to participate.

Discussion Related to Unanticipated Findings

Yoga promotes successful aging. Existing research supports that women in the United States will live one-third of their lives transitioning through the menopausal phases (Ojeda, 2003; Wingert & Kantrowitz, 2009). Thus, it is imperative that women progress from middle-adulthood to older-adulthood in a successful manner, with menopause causing limited disruption to everyday life. Successful aging has been defined in several ways that include descriptions of older adults such as those who maintain: (a) a “low risk of disease and disease-related disability” (health status component); (b) a high level of “mental and physical function” (functional component); and (c) an “active engagement with life” (social or life satisfaction component)” (Rowe & Kahn, 1998, p.38; Herzog, Ofstedal & Wheeler, 2002).

Research supports the achievement of successful aging if older adults engage in regular physical activity, are provided access to modern medicine, are offered opportunity to connect and engage in community-based programs, and are educated on subjects and/or events specific to aging (Mehr & Tatum, 2002; Messinger-Rapport & Sprecher, 2002; Palmore 1985; Sandhu & Barlow, 2002; Vaillant & Mukamal, 2001). Rowe and Kahn (1998) endorsed this notion and purports that three key elements are required successful aging: (a) high-quality functioning capacities; (b) superior health status; and (c) social relationships. Howe (1987) and Kleiber alongside other researchers support the ability to age successfully, identifying leisure as a vehicle to assist individuals

navigating the lifespan continuum (Howe, 1987; Janke, Davey, & Kleiber, 2006; Kleiber & Thompson, 1980; Nimrod & Kleiber, 2007).

Results of this study indicated that yoga addressed components of successful aging since it was an intervention that improved both physical and emotional health of the yoga participants. In addition, due to the gentle, restorative-nature of Hatha yoga, it is an intervention that can be engaged in regardless of age and physical fitness level. The poses can be modified based on an individual's functional need and/or comfort level. These foundations (e.g., restorative approach, personally designed modifications) specific to yoga allow for maintenance of health and decreases in risk-factors associated with ill-health. Results of this study supported yoga as an opportunity for social support and sense of relatedness among participants due to common life experiences; therefore, one other aspect of successful aging associated with this study was active engagement due to positive social interactions.

Programming matters. Employers, developers of instructional materials and academicians have based their livelihoods on the strengths of instructional curriculum, skills of instructors, instructors' teaching/leadership styles, the instructors' knowledge of content as well as the physical environment in which information is delivered. Rossman and Schlatter (2011) classified important elements of program design to be (a) participants; (b) physical setting; (c) program structure; and (d) instructor-participant and participant-participant relationships. Jordan, DeGraaf and DeGraaf (2005) concurred and further identified (a) modified levels of difficulty; (b) readiness/preparedness of instructors; and (c) equipment availability as being imperative to the facilitation of a

positive experience for participants. Kunstler and Daly (2010) confirmed the importance of similar program mechanisms as those outlined above, but also emphasized the need to consider participants' learning styles when planning and implementing a program. The research cited related to program design was supported by findings from this study through participants' reports of the effectiveness of the yoga instructor (e.g., her instructional style and knowledge), the program location, and modified yoga poses made available through the instructor's expertise.

Implications for Recreational Therapy Practice

This study revealed strategies that can be considered by practitioners working with women experiencing menopause, or practitioners who want more information about ways to incorporate yoga as a therapeutic intervention.

Menopause as a mystery: lack of information, misinformation and inaccurate information. Chapter Four revealed that several participants felt blindsided by menopause and the symptoms that accompanied it. This feeling was due to receiving limited to no information, and if they were provided information, often it was inaccurate. Several participants shared that they had not received a comprehensive explanation of what menopause was, what it involved, when it would occur, and practical resources about to manage it. Participants shared that it was difficult to know and confirm whether they were experiencing menopause. Participants in this study indicated that at times, since they did not have full knowledge and awareness of menopause and its symptoms, they experienced an elevated level of concern regarding their health status, and wondered

whether they had a serious health condition when they began to notice physiological and emotional changes.

Yoga: an intervention for all age groups and ability levels. Based on results of the current study, yoga may be considered a therapeutic intervention for individuals of all ages who may or may not have a diagnosed health condition and want to improve their health. The Hatha yoga curriculum used in this intervention was inclusive of participants of varying ages, health conditions, and ability levels. Hatha yoga incorporates poses and stretches that are easily modified based on participant need or comfort level.

Additionally, Hatha yoga can be considered an intervention for individuals across the lifespan since it is a gentle, restorative and relaxation-focused activity. Lastly, Hatha yoga can be considered a therapeutic intervention since it originates from a holistic perspective with practice focused on the fusion of body, mind and spirit.

The practice of yoga is misunderstood. Although yoga is an ancient practice, western practice of yoga and its various forms used for physical activity and therapeutic intervention are relatively recent concepts (Khalsa, 2007). Many individuals, particularly older adults who are not familiar with various restorative, meditative, eastern practices of yoga may not receive accurate information about it due to media and entertainment sources that focus on physically strenuous poses and difficult postures (Taylor, 2003).

Allied health professionals who intend to use yoga as a therapeutic intervention can dispel these myths about yoga through education and information resources that are simple to understand. For example, there are many types and subtypes of yoga; in addition, the goals and objectives associated with the various types are potentially infinite

(Taylor, 2003). Due to the great number of variations in yoga practice that can be tailored to suit the needs of people of all ages and abilities, many individuals can benefit from yoga practice. However, some do not consider it to be a viable consideration as a holistic form of physical and/or restorative activity. People may quickly decline an opportunity to participate due to a number of potential factors including fear of practice that may have been misrepresented in a number of ways (Quilty, Saper, Goldstein, & Khalsa, 2013).

It would be helpful for accurate, easily understood information about various forms and practices of yoga be made available to people across the lifespan and in numerous life contexts (e.g., recreation and leisure settings, health and wellness agencies, rehabilitation facilities, long-term care settings, educational settings, behavioral health settings, and palliative and/or hospice settings). Yoga has been strongly supported as a beneficial complementary and alternative health practice along with meditation and mindfulness-based practices; however, many benefits are not well known or researched and traditional physicians may not be trained in the use of complementary and alternative medicine, and therefore may not be well-accepted as a western health practice or health support (Berman, Singh, Hartnoll, Singh, & Reilly, 1998; Frenkel & Arye, 2001). Perhaps if more individuals were aware of the potential for yoga to improve health conditions more people would consider introductory and ongoing participation.

Study findings supported yoga as an effective intervention for women transitioning through menopause. The following statements provide a summary of study findings, as well as provide support for yoga as an effective intervention for women experiencing menopause:

- Participation in at least 10 weeks of yoga can lead to improved blood pressure measures which can suggest improved heart health.
- Yoga offers a unique benefit that other forms of physical activity or therapeutic intervention may not offer. Rather than solely focusing on a single area of functioning (i.e., physical, social, psychological, emotional, cognitive), yoga is a holistic approach that intentionally seeks fusion of body and mind. Some individuals who participate in yoga practice or a yoga intervention may experience health benefits.
- Aspects of yoga (e.g., poses, stretching, breathing exercises, guided imagery) are conducive to stress management for women transitioning through menopause. To promote relaxation, decrease stress and/or anxiety, participation in the yoga intervention provided participants with “tools” that can be used in various settings (e.g., work, home) at various times, with minimal (or no) equipment.
- Women transitioning through menopause gave and received encouragement and support from one another during group yoga sessions; this group participation among individuals experiencing similar life circumstances led to a sense of camaraderie and community for most of the participants. Although yoga can be practiced while alone, in various settings using various forms of instruction (e.g., DVD, instructional audio recording), when engaged in as a structured program, yoga offers opportunity for social interaction and social support.

Limitations

The following section outlines limitations identified within the current study, including the (a) duration of the study; (b) sample size; (c) absence of a control group; (d) participants and/or equipment error; (e) lack of field notes and participant observation; (f) use only one yoga instructors; and (g) influence of contextual factors on blood pressure measures. The researcher recommends that future researchers be mindful of the identified limitations, as the presence (or absence) of any one of them could have influenced research findings.

Duration of research study. Existing literature indicates that the duration of yoga interventions specific to menopause have ranged from single 90-minute sessions, to weekly sessions occurring over the course of 10-weeks. The current study involved sessions twice per week for 10-weeks. Based on the results of the study, it is difficult to generalize findings related to treating menopausal symptoms across all women experiencing menopause. A longer duration of the intervention may have potentially provided additional information about the effectiveness of yoga as an intervention for women transitions through menopause.

Sample size. From a qualitative standpoint, a sample size of 12 participants was appropriate. However, from a quantitative perspective, the small sample size was a limitation in that the researcher was not able to (a) complete any significant statistical analyses; or (b) suggest any generalizable conclusions. Additionally, the current sample may be representative of women of higher socio-economic status, as the primary form of recruitment for the study occurred via a hormone therapy program client list. Potentially, women who have access and can afford hormone therapy are of higher socioeconomic status than the general population of women experiencing menopause.

Control group. Participants served as their own individual control during pre-, mid-, and post-intervention. Over the course of the 10-week intervention, quantitative, physiological data were collected and analyzed concurrently with qualitative, phenomenological data and analyses per mixed methods research procedures. In addition, quantitative data were collected and analyzed to assess individual physiological changes and inform emergent phenomenological themes related to changes in menopausal

symptoms during the yoga intervention. As the study was primarily qualitative in nature, with quantitative data serving as a secondary support, a control group was not required. While the use of a formal control group would have increased the rigor of the study and furthered the credibility of results, financial constraints and the study's timeline prevented the researcher from incorporating it into the current study.

Participant error and/or equipment malfunction. Participants in the study self-administered and recorded their physiological measures throughout the 10-week intervention without supervision by a trained medical professional. Thus, it is possible that measures were inconsistently or incorrectly obtained; however, written instructions accompanied each device provided to participants.

In addition, because physiological measures were manually recorded, rather than electronically recorded, it is possible that measures were incorrectly written by participants when recording their electronic measurement to a hard-copy document.

Participants were provided automatic devices for simplicity of use incorporating one-touch operation to measure blood pressure, heart rate, and body temperature. However, none of the devices were calibrated with a standardized, manual device, nor were the devices calibrated with one another and could have been incorrectly measuring physiological data unbeknownst to the participant or the researcher.

There were also other variables associated with the equipment. It is unknown where the devices were stored in participants' homes, whether other individuals either living in or visiting the residence had access to the devices, and whether the devices were damaged in some way over the course of the intervention due to falling to the floor from

a surface such as a table top or desk; falling into water such as a sink or bathtub, or having liquid spilled on or near them. The devices may have been damaged or recalibrated in some manner unbeknownst to the participants or the researcher due to having them outside of a controlled environment.

Intentional absence of researcher at yoga intervention sessions. The researcher intentionally did not attend any of the yoga intervention sessions to lessen participants' inhibitions that may have arisen due to their perceptions about participation in a research study. Although field notes may have been helpful, the researcher carefully considered that full, uninhibited participation by the participants was weighted more strongly than the collection of field notes, especially in light of the weekly qualitative data collected via electronic journals. Although there were no in vivo field notes collected, the researcher collected and analyzed participant journal entries weekly to ascertain if there were issues she needed to address with participants. In addition, as secondary data collection, the researcher spoke with the yoga instructor before and after each session to determine if there were any participant-related issues, deviations from the planned curriculum, facility-based conflicts or other observable changes related to participants.

Sessions conducted by one individual yoga instructor for the course of the intervention. One yoga instructor led the yoga intervention for the duration of the 10-week study. This may or may not have been a limitation; however, employing one instructor was intended to strengthen the research because it was anticipated that participants would develop a trusting rapport with the instructor, as well as ensure that each session was facilitated in a consistent manner. However, although having one yoga

instructor was intended to strengthen the study, it is important to mention that without having multiple instructors interact with participants, there is potential that the participants reported positive experiences during the yoga intervention due to the effect of the instructor, her style of teaching, her personality, the tone she established within the program environment, the way she explained each pose or posture, and her own level of experience and expertise regarding yoga, menopause and women at mid-life.

Discrepant findings. When comparing participants' qualitative and quantitative data, there were discrepancies discovered. As identified in Chapter Four (see pp.129-131), several participants' quantitative data indicated no change (positive or negative) or decreased improvement in menopausal symptoms, perceived stress and/or quality of life, yet their qualitative data indicated that there had been positive improvements in one or more of these three areas. One potential explanation for these conflicting results is that specific items or questions asked within the standardized assessments were not relevant to the scope of the study. For example, the WHOQOL-BREF scale (see Appendix H) assessed social quality of life. The following three items included in the questionnaire measured participants' quality of life: (Item 1) How satisfied are you with your personal relationships?; (Item 2) How satisfied are you with your sex life?; and (Item 3) How satisfied are you with the support you get from your friends?

After reviewing these three items, while participants' qualitative data indicated the social aspect of the yoga intervention being important aspect of their overall experience, the social relationships developed during the intervention are necessary indicative of "personal relationships" (Item 1). Item 2 is irrelevant to the study as one's

“sexual relationships” were not addressed. Lastly, in interpreting Item 3, participants may consider “support from friends” to represent long-standing friends, rather than the new acquaintances/friendships developing over the course of the intervention.

Controlling for potential threats to internal validity. While participants in the study were not ever provided the specific research questions associated with the study (until post-study member checking), participants knew that they were participating in a research study aimed at learning more about the effect of yoga participation on symptoms associated with menopause. As a result, it is possible that participants provided answers in quantitative and qualitative data that were not accurately representative of themselves, due to the participant providing an answer they interpreted as being more socially desirable within the context of the research study. The researcher attempted to prevent participant’s feeling pressured to provide socially desirable answers by (a) not attending the individual yoga sessions (in an effort to remove the “research” atmosphere from the intervention), and (b) by developing open-ended journal and interview questions that were neutral in wording, and did not lead participants towards a specific perspective or response.

Physiological measures are difficult to navigate. In visually analyzing the physiological measures collected, there were inconsistent trends and fluctuations specific to each individual, making it difficult to establish a rigorous method for analysis. As important as blood pressure is in reflecting an individual’s health status, it is challenging to get an accurate measure due to the number of personal and environmental factors that

can influence blood pressure. The following factors were not controlled for in the study, but could play a significant role in individuals' blood pressure measures:

Level of fitness. An individual's level of fitness in conjunction with their age is an important factor to consider when evaluating blood pressures. Depending on one's health status, their potential for changes in blood pressure measures will be individual-specific, and potentially vary greatly when compared to their equivalent cohort (Mohrman & Heller, 2010). Specific to this study, a level of fitness (i.e., BMI index, height, weight) was not obtained from participants. Therefore, the researcher was not aware of each participant's baseline level of fitness. Having knowledge of this information would have been helpful to the researcher so that she may have determined any changes through comparison of fitness levels prior to initiation of the intervention with fitness levels following the end of the intervention.

Hormone levels. The amount and distribution of hormones, including "noradrenalin...adrenalin...and cortisol" can influence blood pressure measures due to hormones affecting an intricate system of internal proactive and reactive responses (Larkin, 2005, p.13). Hormone panels via participants' saliva or blood collection were not assessed in the current study; however, with the knowledge that participants were transitioning through menopause during the time of the intervention, participants' hormone levels most likely were in fluctuation as evidenced by their experiencing continued menopausal symptoms.

Emotions. Any type of emotion, whether it involves exhilaration, apprehension or perceived stress can elicit changes in blood pressure as the central nervous system is

stimulated and triggers parasympathetic reactions (Larkin, 2005; Mohrman & Heller, 2010). Anxiety and mood irritability are both emotionally-related menopausal symptoms. Additionally, depending on what life experiences participants were encountering and/or their state-of-mind regarding the yoga program, emotional changes were likely evolving continuously throughout the study; again, potentially influencing blood pressures without the researcher being able to pinpoint that emotions were the cause for the increased or decreased measure. With the exception of the MRS assessment items asking participants to indicate the severity of “mood irritability”, “depressive mood” and “anxiety”, the current study did not assess participants’ emotional states specific to menopause, and/or their current life stage.

Physiological pain. While shallow and/or short-lived pain occurring on the exterior of the body is associated with increased blood pressure, chronic and/or deep-seated, internal pain within the body has been linked to decreased blood pressure (Mohrman & Heller, 2010). Joint pain is a menopausal symptom for which several participants in the current study reported experiencing. Depending on the severity of their pain, blood pressures could have been affected.

“White coat effect”. The ‘white coat’ effect is the idea that individuals’ exhibit nervousness, which in turn increases blood pressure, due to an overt awareness that their blood pressure is being obtained in a structured environment (usually by a medical professional) for a specific purpose (Larkin, 2005, p.52). While physiological measures were logged by the participants themselves, it is possible that one or more experienced

(knowingly or unknowingly) the ‘white coat’ effect as a result of their knowing that the measure was being evaluated and used for research purposes.

Food intake. Blood pressure measures can diverge because of (a) the type of sustenance within an individual’s system (e.g., salt, calcium, potassium, caffeine); and (b) how closely food consumption took place in relation to the physiological measure being acquired (Larkin, 2005). Participants in this study were not asked to submit information specific to their daily dietary habits, nor were they required to refrain from consuming food or drink after a designated time on the days the intervention occurred. Participants could have ingested healthy or less-healthy options in the hour or two before the yoga intervention took place, therefore influencing their physiological data.

Smoking. Smoking is classified as a risk factor for increased blood pressure (Larkin, 2005). As previously mentioned, participants were not asked to disclose their medical history and/or everyday lifestyle habits. Thus, it is unknown as to whether or not participants in the study were smokers. However, it must be recognized as an uncontrolled factor in the current study as it is a contextual factor that could have played a role in an individual’s blood pressure levels.

Stationary vs. active exercise. Blood pressure is likely to increase during stationary activity due to concentrated efforts occurring within targeted muscle groups (Larkin, 2005; Mohrman & Heller, 2010). Depending on the week, curriculum for the yoga intervention included various poses, postures and stretching exercises that included primarily stationary activity. Thus, participant blood pressures could have increased due

to the sequence of yoga poses and/or level of involvement required within each individual yoga session.

Body position. An individual's blood pressure reading differs dependent on the position of their body. For example, an individual's blood pressure would measure higher when they are standing in comparison to a lower measure that would result if the individual were lying down. Similarly, if an individual were to change from lying down to standing up just before submitting a blood pressure measure, mean arterial pressure would likely escalate (Mohrman & Heller, 2010). The yoga intervention was comprised of diverse yoga postures, several of which involved standing, and others that involved sitting or lying down. Additionally, each yoga session concluded with participants spending several minutes in corpse pose (e.g., lying down), after which many participants stood up afterwards to retrieve their blood pressure cuffs and log their measures. Between the variation in poses and the abrupt transition from lying down to standing at the end of each intervention session, it is likely that a majority of participants' blood pressures were amplified.

Breathing pattern. Slow, rhythmic breathing is related to decreased blood pressure, however quick and rapid breaths lead to increased blood pressure (Mohrman & Heller, 2010). Operating from a comprehensive, holistic perspective, the yoga intervention targeted deep breathing and incorporated different types of breathing exercises and/or guided imagery exercises that involved breathing patterns. Also, participants were provided an audio CD with six breathing exercises on it that they could use during the week, outside of the yoga intervention. Depending on one's consistency in

utilizing those breathing exercises, an individual's breath-work significantly changed when comparing pre-study breathing patterns to post-study patterns. While it is a program component that is hard to measure, or calculate, the Mohrman and Heller (2010) identify it as an influential factor that must be considered when evaluating blood pressures.

It is these diverse personal and environmental factors that could account for the oscillation that occurred with participants' physiological data set; and also explicate why blood pressures within a single yoga session increased pre- to post- intervention, as opposed to their having been reduced.

Recommendations for Future Research

Based on results of the current study, the follow section outlines conceptual ideas for future research related to yoga and women experiencing menopause, as well as considerations for the implementation of research and data collection procedures.

Yoga: a direct or indirect mediator of menopausal symptoms? Findings from the current study do not permit the researcher to conclusively say whether yoga was a direct or indirect influence on menopausal symptoms. In an effort to differentiate between the two possible interactions, future studies should identify methods for obtaining more thorough information regarding the frequency, intensity and duration of physiological symptoms associated with menopause. During this study, the researcher asked participants if they perceived there to be any change in their menopausal symptoms, but no concrete evidence specific to the number of hot flashes, night sweats, or periods of being awake during the night were calculated; nor were the severity or

duration of each. Future research may be able to better pinpoint which component(s) (i.e., duration, severity, frequency) are influenced as a result of the intervention. Similarly, it would be helpful for future research to measure hormone levels. If obtained using a non-invasive, cost-effective method (e.g., saliva swab), hormone levels could more accurately demonstrate the relationship – be it direct or indirect – between stress (cortisol) and menopausal symptoms experienced than the physiological measures (e.g., blood pressure, heart rate) did.

Yoga: an effective intervention in all phases of the menopausal transition?

Participants in the current study were within different stages of menopause: perimenopause, menopause, and postmenopause. Future research should consider studying an intervention between three independent treatment groups, with each group representing the three stages of menopause. This would allow for the researcher to compare and contrast the effectiveness of an intervention specific to women of different age categories, in different stages of menopause. For example: women are typically in their 40s during perimenopause; 50s during menopause; and 60+ during postmenopause. It might also be of interest to add a fourth treatment group, and include women who are experiencing premature menopause (in their 20s or 30s).

Middle-aged/older-adult women: how to turn “want to” into “doing”.

Participants in the current study indicated how much they enjoyed the yoga sessions because of the physical, psychological and/or social benefit; subsequently many said they would *like to* or *hoped* they would be able to continue yoga on their own post-study. However, while the women recognized yoga to be beneficial to their wellbeing and

verbalized that they would like to continue, many seemed hesitant with regards to whether or not they believed it could be actualized.

Future studies could delve further into sources of motivation for this age group of women. Based on their personal and professional roles, women tend to feel guilty if they take time for themselves, which could potentially hinder their choosing to continue participation in an activity they find enjoyable and/or beneficial for their wellbeing. Further research looking at what facilitators could be put in place to more strongly link their desire to continue participation with it becoming a reality could be beneficial for both the women themselves, and the practitioners that provide services to them to know.

Participation in physical activity and/or additional yoga exercises outside of the structured treatment intervention: Does it matter? Findings reported in Chapter Four indicated that (see Tables 4.4, 4.5, and 4.6), participants demonstrated varying changes related to their menopausal symptoms, perceived stress and quality of life. Laine, the participant who experienced the greatest symptom relief, decreased perceived stress, and increase in quality of life as a result of yoga participation, exercised outside of yoga and used the provided instructional audio recordings (see Table 4.9). In contrast, Reese (who experienced the most increase in severity of symptoms, perceived stress and decreased quality of life) used the instructional audio recordings but did not exercise outside of the yoga sessions twice per week (see Table 4.9). Darby (who experienced the least change in symptoms, perceived stress and quality of life) did not utilize the instructional audio recordings but exercised outside of the yoga sessions (see Table 4.9). These findings suggest that there was an added effect on menopausal symptoms,

perceived stress and quality of life potentially associated with increased physical activity including participants participation in yoga (via instructional audio recordings).

It may be that participation in yoga twice per week is not be enough to decrease menopausal symptoms; rather, decreases in menopausal symptoms may involve (a) a combination of activities (e.g., traditional exercise and restorative yoga); (b) greater frequency of participation in yoga or restorative practices provided through instructional audio recordings per week; or (c) greater frequency of participation in both traditional exercise as well as yoga per week. Future research is needed to better understand the potential influence of exercise, physical activity and/or additional yoga sessions external to the twice per week yoga sessions on symptoms associated with menopause, perceived stress and quality of life.

Identify more rigorous measure and analysis of physiological measures. If physiological measures (e.g., blood pressure, heart rate) are obtained in future studies, researchers should consider having a trained professional complete and log the measure. If this is not feasible, researchers should calibrate all electronic devices that participants will use with a manual device to ensure that the device is accurately logging data. Additionally, data specific to the contextual influences on physiological measures (e.g., smoking, dietary habits, exercise patterns, medications, etc.) should be collected.

Also, while it was interesting to evaluate changes in physiological measures related to blood pressure, future research should identify a more rigorous process for analyzing the data. In the present study, it was only realistic to identify general trends in increase, decrease or plateau of measures. Researchers with a stronger background in

medicine may be better trained in measuring and interpreting fluctuations in physiological data.

Researching yoga and/or women experiencing menopause. Future studies involving yoga and women experiencing menopause should extend the length of the study beyond twice-a-week sessions over 10-weeks. Ideally, it is recommended that the intervention be provided to participants over several months, with individual sessions taking place 2-3 times per week. Also, future studies should incorporate a larger sample size to ensure greater diversity among participant demographics, and to ensure that statistical analysis can occur. And, if timeline permits future studies should be organized as either a single-subject design in which participants are formally structured to act as their own control group; if this is not possible, a traditional control group should be incorporated into study and compared to the intervention group.

APPENDICES

Appendix A

Participant Invite Letter/Informational Recruitment Flyer



JOSEPH F.
SULLIVAN
CENTER

January 1, 2013

Clemson University
101 Edwards Hall
Clemson, SC
29634-0742

Name
Address
City, State, Zip

P (864) 656-3076
F (864) 656-7694

Dear XYZ,

The Joseph F. Sullivan Center and the Department of Parks, Recreation and Tourism Management at Clemson University, are completing a research study to evaluate the effects of yoga participation on symptoms associated with menopause, and would like to invite **YOU** to participate.

Department of
PARKS,
RECREATION
and TOURISM
MANAGEMENT

The study will involve the implementation of a yoga program, specifically tailored for women between the ages of 40 and 65 who are experiencing menopausal symptoms including: hot flashes, night sweats and sleep disturbances.

263 Lehotsky Hall
128 McGinty Court
Clemson, SC
29634-0735

Your participation in the study, projected to begin in mid-February 2013, would involve a yoga session, twice a week for twelve weeks. Additionally, you will be asked to complete pre- and post- questionnaires, submit physiological measurements (i.e., blood pressure, heart rate and body temperature), maintain a weekly journal throughout the program, and participate in a brief one-on-one interview at the conclusion of the program.

P (864) 656-3400
F (864) 656-2226

If you are interested in participating in the study and/or would like more information about the study, please contact doctoral student Brandi Crowe via email at bmcrowe@g.clemson.edu.

Sincerely,

Paula J. Watt, PhD, FNP-C
M.S., CTRS
Director, Joseph F. Sullivan Center
PRTM

Brandi M. Crowe,
Doctoral Student, Department of

Appendix B

Informed Consent

The Effects of Yoga Participation on Symptoms Associated with Menopause Informed Consent Form

Brandi Crowe, under the direction of Dr. Paula Watt would like to you invite you to participate in a research study. Dr. Paula Watt is the Director of the Joseph F. Sullivan Center at Clemson University. Brandi Crowe is a third-year graduate student pursuing a doctoral degree in Therapeutic Recreation at Clemson University. The purpose of this study is to determine the effects of yoga participation on symptoms associated with menopause.

Participants for this study will be women, between the ages of 40 and 65, currently experiencing symptoms related to menopause. To participate in the intervention, individuals who voluntarily enroll must meet the following criteria: a) self-report having experienced menopausal symptoms a minimum of four days a week throughout the previous three months; b) are naturally experiencing menopause⁴, as opposed to surgically or chemically induced menopause; and c) have not participated in any type of yoga in the previous five years.

Overall, the study aims to answer the following questions:

1. To what extent is the severity of physiological symptoms associated with menopause altered as a result of participation in yoga?
2. To what extent do participants find the yoga intervention to be beneficial, enjoyable, feasible and accessible?
3. How is one's overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms?

If you choose to take part in the study, you will be asked to complete a series of questionnaires before and after the yoga intervention. Completion of pre and post assessments should take no longer than 20 minutes. Also, you will be asked to be an active participant in a twelve-week yoga program (bi-weekly, 60 minute sessions). During the course of the twelve-week intervention, it will also be requested that you complete a weekly journal entry specific to your menopausal symptoms and stress levels. Weekly journal entries should take no longer than 10 minutes to complete. Throughout the duration of the study, you will be asked to contribute physiological measures, including blood pressure, heart rate and body temperature. At the conclusion of the twelve-week yoga program, you will be asked to answer a few questions regarding the enjoyment, effectiveness and feasibility of yoga in a one-on-one, audio recorded interview. Semi-structured interviews will last approximately 30-45 minutes.

⁴ Participants who have had a hysterectomy will be permitted to enroll in the study as long as the hysterectomy occurred at least 24 months prior to the start of the study.

At present, the only known risk associated with participation in the study has to do with the potential for physical injury due to participation in yoga. If practiced incorrectly, it is possible that participation in yoga can result in strained muscles, damaged ligaments, or even an injury of greater severity. However, in its basic form, the primary goal of yoga is to rejuvenate an individual's physical and emotional well-being through gentle movements and breathing exercises (Iyengar, 2008). To address this concern, the content of the yoga program (e.g., postures, stretches and relaxation techniques) will be specifically tailored towards women, age 40-65, experiencing menopausal symptoms. Each yoga session will begin with a 15-minute warm-up period to ensure that participants have ample time to stretch and prepare before beginning a series of yoga movements. Additionally, each session will be led by a certified yoga instructor, who will verbally and visibly demonstrate each yoga movement so that participants have a clear understanding of the movement. Continuously, throughout each intervention, the instructor will verbally communicate to participants that they should not physically push themselves past their point of comfort; if at any time participants feel pain or discomfort, they will be encouraged to stop the movement or maintain a more simplified pose.

You should immediately notify the Principle Investigator if injured. In the event you are injured while participating in a research project sponsored by Clemson University, the University will provide stabilizing treatment within its resources and also provide transportation to the nearest emergency medical facility, if necessary. The University does not assume financial responsibility for any medical care other than stabilizing treatment and emergency care.

It is anticipated that participants will receive benefit as a result of participation in the study. In addition to a shared sense of community with other women experiencing menopause, potential benefits could involve a decrease in severity of menopausal symptoms, as well as an increased knowledge of efficient coping strategies that assist an individual in dealing with stressors directly and indirectly associated with menopausal symptoms. Also, participants who attend and complete a minimum 22 yoga sessions out of the 24 offered, and complete the semi-structured interview will be given a \$75 gift card incentive for their consistent participation.

In order to protect the identity of each individual, participant data, including pre and post assessments, journal entries, physiological measures and transcribed interviews will be coded so that the data cannot be linked to the participant. Audio recordings of the interviews will be destroyed no later than December 2014. Identifying information will be kept secured and confidential; only investigators identified on the Institutional Review Board application will have access to this knowledge. Any participant data included in document summaries and/or publications will be assigned pseudonyms.

We might be required to share the information we collect from you with the Clemson University Office of Research Compliance and the federal Office for Human Research Protections. If this happens, the information would only be used to find out if we ran this study properly and protected your rights in the study.

Participation in the study is entirely voluntary, and you may withdraw from participation at any time, for any reason, without consequence. If you were to withdraw from the study, we would not collect any additional information from you. However, we would keep and use any information we had already collected from you.

If you have any questions or concerns about the research study, you can contact Dr. Paula Watt at Clemson University at (864) 656-5520 or via email at pwatt@clemson.edu. For questions or concerns about participant rights and welfare, please contact the Clemson University Office of Research Compliance (ORC) at (864) 656-6460 or via email irb@clemson.edu.

If you are interested and willing to participate in the study, please provide written consent acknowledging that you understand the components of the study, including potential risks and benefits.

I have read this form and have been allowed to ask any questions I might have. I agree to take part in this study.

Participant's signature: _____

Date: _____

*A copy of this form will be given to you.

Appendix C

Yoga Intervention: Curriculum

Week One –Session 1: Hot Flashes	
Equipment needed for this session: Chairs, bolsters, blocks, straps, blankets, yoga mats	
Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Deep relaxation w/ ha breath and 3-part breathing	10 minutes
Apanasana	1 minute
Forward bend wide angle standing w/ head supported	5 minutes
Forward bend wide angle standing / twisting	3 minutes
Cat cow	1 minute
Bound angle – seated	1 minute
Forward bend wide angle – seated	1 minute
Bound angle supported – reclining	10 minutes
Supine leg lifts	5 minutes
Fish	1 minute
3-part breath	5 minutes
Bridge supported – lying on bolsters with shoulders on floor w/ baby arms	5-10 minutes
Week One –Session 2: Hot Flashes	
Equipment needed for this session: Chairs, bolsters, blocks, straps, blankets, yoga mats	
Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Deep relaxation w/ ha breath and 3-part breathing	10 minutes
Apanasana	1 minute
Forward bend wide angle standing w/ head supported	5 minutes
Forward bend wide angle standing / twisting	3 minutes
Cat cow	1 minute
Bound angle – seated	1 minute
Forward bend wide angle – seated	1 minute
Bound angle supported – reclining	10 minutes
Supine leg lifts	5 minutes
Fish	1 minute
3-part breath	5 minutes

Bridge supported – lying on bolsters with shoulders on floor w/ baby arms	5-10 minutes
---	--------------

Week Two –Session 3: Hot Flashes

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Deep relaxation w/ ha breath, seated3-part breathing, and straw breath	10 minutes
Apanasana	1 minute
Forward bend wide angle standing w/ head supported	5 minutes
Forward bend wide angle standing / twisting	3 minutes
Cat cow	1 minute
Bound angle – seated	1 minute
Forward bend wide angle – seated	1 minute
Bound angle supported – reclining	10 minutes
Supine leg lifts	5 minutes
Fish	1 minute
3-part breath	5 minutes
Bridge supported – lying on bolsters with shoulders on floor w/ baby arms	5-10 minutes
Happy baby	1 minute
Child’s pose	1 minute
Fish	1 minute
Forward bend standing w/ head supported	1 minute
Down dog	1 minute
Legs up the wall w/ bolster and strap option	10 minutes
Legs up the wall – wide angle	
Other possibilities (if time permits):	
– Locust	
– Locust lifts	

Week Two –Session 4: Fatigue

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Deep relaxation w/ Ujayyi , and alternating nostril breathing	5 minutes
Spinal flex in easy pose (including hip lifts)	3 minutes
Supine leg stretches	5 minutes
Bound angle supported – reclining	10 minutes
Crocodile pose	3 minutes
Cat cow and half down dog shoulder opening	3 minutes
Alternate nostril breath	7 minutes
Wall hang w/ chair	5 minutes
Spread leg w/ chair	7 minutes
Legs up the wall w/ bolster and strap option	10 minutes
Deep relaxation w/ bolster under legs and sandbag on abdomen	5-10 minutes

Week Three –Session 5: Fatigue

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats, exercise/stability ball

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Legs in chair	5 minutes
Spinal flex in easy post (including hip lifts)	3 minutes
Supine leg stretches	5 minutes
Bound angle supported – reclining	5 minutes
Crocodile pose	3 minutes
Cat cow and half down dog shoulder opening	3 minutes
Alternate nostril breath	7 minutes
Wall hang w/ chair	5 minutes
Spread leg w/ chair	7 minutes
Inverted poses w/ ball	Optional
Legs up the wall w/ bolster and strap option	5 minutes
Deep relaxation w/ bolster under legs and sandbag on abdomen	5-10 minutes
Deep relaxation reclining on bolster or Mountain brook	
Bridge supported lying on bolsters / shoulders on floor w/ baby arms	

Week Three –Session 6: Hormone Balance

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported – reclining	5 minutes
Cat cow	3 minutes
Supported half down down/full down dog	1 minute
Alternating nostril breath	
Forward bend wide angle standing w/ head supported	1 minute
Forward bend standing w/ head supported	1 minute
Bow on the belly/bow hip openers	3 minutes
Super twist	3 minutes
Supported child’s pose	3 minutes
Supine leg stretches	5 minutes
Legs up the wall w/ bolster and strap option Legs up the wall wide angle	10 minutes
Supine cow face/hip opening sequence	5 minutes
Bridge supported lying on bolsters w/ shoulders on floor w/ baby arms Deep relaxation w/ bolster under legs and sandbag on abdomen	10 minutes

Week Four –Session 7: Hormone Balance

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported – reclining	5 minutes
Cat cow	3 minutes
Supported half down dog/full down dog	1 minute
Alternating nostril breath	
Forward bend wide angle standing w/ head supported	1 minute
Forward bend standing w/ head supported	1 minute
Bow on the belly Bow hip openers	3 minutes
Super twist or seal	3 minutes
Supported child’s pose	3 minutes
Supine leg stretches	5 minutes
Legs up the wall w/ bolster and strap option Legs up the wall – wide angle	10 minutes

Supine cow face/hip opening sequence w/ seal	5 minutes
Bridge supported lying on bolster w/ shoulders on floor w/ baby arms Deep relaxation w/ bolster under legs and sandbag on abdomen	10 minutes
Other possibilities (if time permits): <ul style="list-style-type: none"> – Backbends – Down dog – Headstand – Single leg forward fold – Plow – Seated forward fold – Seated cross-legged poses – Seated twists – Shoulderstand – Standing forward fold 	

Week Four –Session 8: Insomnia

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Supported reclining pose	10 minutes
Cat cow	3 minutes
Supported half down dog/full down dog	1 minute
Bound angle supported – reclining	5 minutes
3-part breathing	5 minutes
Super twist	3 minutes
Supported seated spread leg	3 minutes
Supine leg stretches	10 minutes
Legs up the wall w/ bolster and strap option Legs up the wall – wide angle	10 minutes
Supine cow face/hip opening sequence	5 minutes
Mountain brook Deep relaxation w/ bolster under legs and sandbag on abdomen	10 minutes

Week Five –Session 9: Insomnia

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Supported reclining pose	10 minutes
Cat cow	3 minutes
Supported half down dog/full down dog	1 minute
Bound angle supported – reclining	5 minutes
3-part breathing	5 minutes
Super twist	3 minutes
Supported seated spread leg	3 minutes
Supine leg stretches	10 minutes
Legs up the wall w/ bolster and strap option	10 minutes
Legs up the wall – wide angle	
Supine cow face/hip opening sequence	5 minutes
Mountain brook	10 minutes
Deep relaxation w/ bolster under legs and sandbag on abdomen	

Week Five –Session 10: Menstruation

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Reclining supported bridge	5 minutes
Spinal flex in easy pose including hip lifts	10 minutes
Locust	
Locust leg lifts	
6-part breath	7 minutes
Supine leg stretches	5 minutes
Spinal flex in easy pose including hip lifts	10 minutes
Bow on the belly	
Bow hip openers	
Hip sequence	5 minutes
Legs up the wall	3 minutes
Deep relaxation w/ bolster under legs and sandbag on abdomen	10 minutes
System body scan or body of the world	
Other possibilities (if time permits):	
– Intention, Ujjayi, Aum breathing exercises	
– Supta baddha konasana propped as needed (5-10 minutes)	

- Reclining twist/seal pose/swastika legs w/ arms extended behind to open chest
- Cat cow (5 times)
- Down dow (1-2 minutes)
- Child's pose (5-10 breaths)
- Triangle (5-10 breaths)
- Twisting prasarita (5-10 breaths)
- Squat (1 minute)
- Tree (1 minute)
- Surya namskara (1 minutes and lay on belly)
- Full locust (3 times for 1, 3, then 5 breaths)
- Dhanurasana on the belly (5-10 breaths 2-3 times)
- Dandasana (1 minute)
- Fish (5 breaths)
- Forward fold (1-2 minutes)
- Shoulderstand (2-3 minutes)
- Savasana (5-10 minutes)

Week Six –Session 11: Pelvic Health

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported reclining	5 minutes
Spinal flex in easy pose including hip lifts Bridge on block Supine twist	7 minutes
Spread leg w/ chair Spread leg twist	5 minutes
Locust Locust leg lifts Bow on the belly Super twist	7 minutes
Side lying stretch	7 minutes
Alternating nostril breath	7 minutes
Forward bend wide angle seated Bound angle seated	5 minutes
Big toe pose – reclining w/ leg to the side, supported by block or bolster	5 minutes
Legs up the wall w/ bolster or strap option Legs up the wall – wide angle	5 minutes
Supported bridge Guided relaxation: body of the world	12 minutes

Week Six –Session 12: Bone Health

Equipment needed for this session:
Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle – supported reclining Ha breath Ujjayi breathing	10 minutes
Qi Gong breath and movement Half sun salutes Down dog Cat cow w/ leg lifts Cat cow opposite arm and leg	10 minutes
Triangle arm sweeps Spread leg w/ chair Tree	10 minutes
Camel Twist	5 minutes
Big toe pose – reclining w/ leg to the side supported by block or bolster Happy baby Hip sequence	7 minutes
6-part breathing	7 minutes
Deep relaxation Guided Into the layers	8 minutes
Other possibilities (if time permits): <ul style="list-style-type: none"> – Plank (5-10 breaths) – Child’s pose (5 breaths) – Down dog (10 breaths) – Pike position (5 breaths) – Forward fold (5 breaths) – Mountain (10 breaths) – Warrior II from prasarita (10 breaths) – Side angle (1 minute) – Triangle (1 minute) – Prasarita (1 minute) – Tree (1 minute) – Eagle down dog in between (1 minute) – Locust shoulders and legs up (5 breaths, 3 times) – Bridge (5 breaths, 2-3 times) – Backbend (5 breaths, 1-3 times) – Reclining twist (5 breaths) 	

<ul style="list-style-type: none"> - Reclining leg stretches (10 breaths) - Happy baby (5 breaths) - Apanasana (5 breaths) - Dandasana (5 breaths) - Seated spread leg (10 breaths) - Baddha konasana (10 breaths) - Forward fold (2 minutes) - Legs up the wall (5 minutes) - Savasana (5-10 minutes) - Up dog (1 minute) - Forearm balance (30+seconds) - Forearm plank (30+seconds) 	
--	--

Week Seven –Session 13: Bone Health

Equipment needed for this session:
Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle – supported reclining Ha breath Ujjayi breathing	10 minutes
Qi Gong breath and movement Half sun salutes Down dog Cat cow w/ leg lifts Cat cow opposite arm and leg	10 minutes
Triangle arm sweeps Spread leg w/ chair Tree	10 minutes
Camel Twist	5 minutes
Big toe pose – reclining w/ leg to the side supported by block or bolster Happy baby Hip sequence	7 minutes
6-part breathing	7 minutes
Deep relaxation Guided relaxation: Into the layers	8 minutes

Week Seven–Session 14: Bone Health

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle – supported reclining Ha breath Ujjayi breathing	10 minutes
Qi Gong breath and movement Half sun salutes Down dog Cat cow w/ leg lifts Cat cow opposite arm and leg	10 minutes
Triangle arm sweeps Spread leg w/ chair Tree	10 minutes
Camel Twist	5 minutes
Big toe pose – reclining w/ leg to the side supported by block or bolster Happy baby Hip sequence	7 minutes
6-part breathing	7 minutes
Guided relaxation: Into the layers	8 minutes

Week Eight –Session 15: Heart Health

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported – reclining	5 minutes
Cat cow Kneeling lunges	5 minutes
Spread leg at chair Spread leg twist Forward fold at chair Standing backbend and yoga mudra	10 minutes
Supported down dog	1 minute
Lion’s breath	3 minutes
Side lying stretch	7 minutes
Bound angle seated	5 minutes

Super twist	
Lion's breath	5 minutes
Big toe pose reclining w/ leg to the side supported by block or bolster	5 minutes
Legs up the wall w/ bolster and strap option	5 minutes
Legs up the wall wide angle	
Supported bridge	12 minutes
Guided: loving kindness	
Other possibilities (if time permits):	
– Forward bend wide angle standing w/ head supported (1-5 minutes)	
– Forward bend standing w/ head supported (1-5 minutes)	
– Down dog supported (1-5 minutes)	
– Down dog hanging (1-5 minutes)	
– Hero supported reclining (5 minutes)	
– Bound angle supported reclining (5 minutes)	
– Bound angle seated (5 minutes)	
– Backbend over chair, bolster, ball or backbender (1-5 minutes)	
– Deep relaxation w/ bolster under legs and sandbag on abdomen	
– Deep relaxation reclining on bolster (10 minutes)	
– Supine leg lifts	
– Standing yoga mudra w/ standing backbend to forward fold	

Week Eight –Session 16: Heart Health

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported – reclining	5 minutes
Cat cow	5 minutes
Kneeling lunges	
Spread leg at chair	10 minutes
Spread leg twist	
Forward fold at chair	
Standing backbend and yoga mudra	
Supported down dog	1 minute
Lion's breath	3 minutes
Side lying stretch	7 minutes
Bound angle seated	5 minutes
Super twist	
Lion's breath	5 minutes
Big toe pose reclining w/ leg to the side supported by block or bolster	5 minutes

Legs up the wall w/ bolster and strap option Legs up the wall wide angle	5 minutes
Supported bridge Guided relaxation: loving kindness	12 minutes

Week Nine –Session 17: Guided Relaxation

Equipment needed for this session:
Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported reclining 3-part breathing	5 minutes
Cat cow Kneeling lunges	5 minutes
Follow breath Dandelion breath	5 minutes
Spread leg at chair Spread leg twist Forward fold at chair Standing backbend and yoga mudra	10 minutes
Supported down dog	1 minute
Side lying stretch	7 minutes
Lion’s breath	5 minutes
Big toe pose reclining w/ leg to the side supported by bolster or block	5 minutes
Supported bridge Guided relaxation: loving kindness	12 minutes

Week Nine –Session 18: Guided Relaxation

Equipment needed for this session:
Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported reclining Growing heavy, cover eyes Blanket on abdomen	5 minutes
Spinal flex Bridge on block Supine twist	7 minutes
Seated camel Seated spread leg	7 minutes

Seated twist	
Alternating nostril breath	7 minutes
Hip sequence	5 minutes
Bridge on block Supported bridge	7 minutes
Supine leg stretch twist	5 minutes
Legs up the wall	7 minutes
Final relaxation Guided relaxation: Growing heavy	10 minutes
Other possibilities (if time permits): – Locust – Dandelion breath	

Week Ten –Session 19: Emotions

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported reclining 3-part breath	5 minutes
Spinal flex Bridge on block Easy twist	10 minutes
Seated camel	3 minutes
Seated bound angle Seated spread leg	5 minutes
Side lying stretch	7 minutes
Alternating nostril breath	7 minutes
Leg stretches with a strap	5 minutes
Bridge on block Twist Legs up the wall	10 minutes
Supported bridge Guided relaxation: Loving kindness	10 minutes

Week Ten –Session 20: Emotions

Equipment needed for this session:

Chairs, bolsters, blocks, straps, blankets, yoga mats

Pose/Breathing Exercise	Suggested time for maintaining pose and/or breathing exercise :
Bound angle supported reclining Growing heavy, cover eyes Blanket on abdomen	5 minutes
Spinal flex Bridge on block Supine twist	7 minutes
Seated camel Seated spread leg Seated twist	7 minutes
Alternating nostril breath	7 minutes
Hip sequence	5 minutes
Bridge on block Supported bridge	7 minutes
Twist	5 minutes
Legs up wall	7 minutes
Guided relaxation: Growing heavy	10 minutes

Appendix D

Demographic Questionnaire

Name: _____ Age: _____

1. How long would you say you have been transitioning through menopause?

- _____ 0-4 Years
- _____ 5-9 Years
- _____ 10-15 Years
- _____ 16-20 Years
- _____ 20+ Years

2. Please indicate your current employment status:

- _____ Working full-time (40+ hours a week)
- _____ Working part-time (less than 40 hours a week)
- _____ Unemployed (but looking for part/full-time work)
- _____ Retired
- _____ Regularly volunteer with an organization
- _____ Stay at home spouse/parent

3. Please indicate your marriage or relationship status:

- _____ Single
- _____ Married
- _____ Separated
- _____ Divorced
- _____ Widowed
- _____ Currently in a relationship (but not married)

4a. Do you have any children? Yes No **If yes, how many?** _____

4b. If yes, please indicate your children's ages (check all that apply):

- Age 0-4
- Age 5-9
- Age 10-15
- Age 16-20
- Age 21-25
- Age 25+

5. Which of the following have you previously utilized to assist in managing symptoms associated with menopause (e.g., hot flashes, night sweats, difficulty sleeping, anxiety, depression, joint pain, headaches, low sex drive, etc.). Please indicate all that apply.

- Hormone therapy (e.g., topical cream, oral tablet, patch)
- Prescription medication (e.g., antidepressant, sleeping aid)
- Herbal supplements (e.g., St. John's Wort, Black Cohosh, Ginkgo Biloba)
- Soy products
- Acupuncture
- Aromatherapy
- Other (please describe):

6. Which of the following do you currently utilize to assist in managing symptoms associated with menopause (e.g., hot flashes, night sweats, difficulty sleeping, anxiety, depression, joint pain, headaches, low sex drive, etc.). Please indicate all that apply.

- Hormone therapy (e.g., topical cream, oral tablet, patch)
- Prescription medication (e.g., antidepressant, sleeping aid)
- Herbal supplements (e.g., St. John's Wort, Black Cohosh, Ginkgo Biloba)
- Soy products
- Acupuncture
- Aromatherapy
- Other (please describe):

7a. Is this your first time participating in yoga? Yes No

7b. If no, what type of yoga have you participated in before? Please indicate all that apply.

_____ Gentle/restorative yoga

_____ Power yoga

_____ Yoga on DVD

_____ Yoga class

_____ Other (please describe):

8. Do you have any pre-existing medical conditions (e.g., hypertension, diabetes, arthritis, physical impairment, etc.)? If yes, please describe:

9. During a typical week (excluding holidays), how often do you exercise?

_____ 0 days a week

_____ 1-2 days a week

_____ 3-4 days a week

_____ 5-6 days a week

_____ 7 days a week

Appendix E

Yoga for Menopause Questionnaire

**Yoga for Menopause
Participant Information Sheet
March 2013**

Name: _____ Date: _____

Phone: _____ Email: _____

What is your yoga background and how long? _____

What symptoms of menopause do you hope a yoga practice can help? _____

What other benefits would you like to receive from your yoga practice? _____

Do you participate in other physical activities and if so, which? _____

Please tell us of any medical history, physical conditions, and/or injuries of which we should be aware: _____

Do you have dizziness or headaches? _____

STUDENT PROMISE:

As a student of Yoga for Menopause, I will give my highest attention to the maintenance of a non-competitive, non-aggressive practice reflecting compassion and love for self and others. I will work with patience and an open mind in this self-discovery process. If I move with care, intelligence, courage, and applied safety and self-ownership, injury is unlikely. I am fully responsible for the outcome of my Yoga practice and hereby commit to educating myself to the best of my ability.

STUDENT SIGNATURE

DATE

Appendix F

Menopause Rating Scale

MENOPAUSE RATING SCALE

Instructions:

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'.

	Symptoms	None	Mild	Moderate	Severe	Very Severe
1.	Hot flushes, sweating (episodes of sweating)					
2.	Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)					
3.	Sleep problems (difficulty in falling sleep, difficulty in sleeping through, waking up early)					
4.	Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)					
5.	Irritability (feeling nervous, inner tension, feeling aggressive)					
6.	Anxiety (inner restlessness, feeling panicky)					
7.	Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)					
8.	Sexual problems (change in sexual desire, in sexual activity and satisfaction)					
9.	Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)					
10.	Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)					
11.	Joint and muscular discomfort (pain in the joints, rheumatoid complaints)					

Reference:

Berlin Center for Epidemiology and Health Research. (2008). *The Menopause Rating Scale*. Retrieved from <http://www.menopause-rating-scale.info/>.

Appendix G

Perceived Stress Scale

PERCEIVED STRESS SCALE

Instructions:

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling **how often** you felt or thought a certain way.

- 1. In the last month, how often have you been upset because of something that happened unexpectedly?**

Never Almost never Sometimes Fairly often Very often

- 2. In the last month, how often have you felt you were unable to control the important things in your life?**

Never Almost never Sometimes Fairly often Very often

- 3. In the last month, how often have you felt nervous and “stressed”?**

Never Almost never Sometimes Fairly often Very often

- 4. In the last month, how often have you dealt successfully with irritating life hassles?**

Never Almost never Sometimes Fairly often Very often

- 5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life?**

Never Almost never Sometimes Fairly often Very often

- 6. In the last month, how often have you felt confident about your ability to handle your personal problems?**

Never Almost never Sometimes Fairly often Very often

- 7. In the last month, how often have you felt that things were going your way?**

Never Almost never Sometimes Fairly often Very often

8. In the last month, how often have you found that you could not cope with all the things that you had to do?

Never Almost never Sometimes Fairly often Very often

9. In the last month, how often have you been able to control irritations in your life?

Never Almost never Sometimes Fairly often Very often

10. In the last month, how often have you felt that you were on top of things?

Never Almost never Sometimes Fairly often Very often

11. In the last month, how often have you been angered because of things that happened that were outside of your control?

Never Almost never Sometimes Fairly often Very often

12. In the last month, how often have you found yourself thinking about things that you have to accomplish?

Never Almost never Sometimes Fairly often Very often

13. In the last month, how often have you been able to control the way you spend your time?

Never Almost never Sometimes Fairly often Very often

14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Never Almost never Sometimes Fairly often Very often

Reference:

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.

Appendix H

World Health Organization Quality of Life –BREF Assessment

WHO QUALITY OF LIFE - BREF

Instructions:

The following questions ask about how you feel about your quality of life, health, or other areas of your life. Please choose the answer that is most representative of you in the **last four weeks**.

	Very Poor	Poor	Neither good nor poor	Good	Very Good
1. How would you rate your quality of life?	1	2	3	4	5

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2. How satisfied are you with your health?	1	2	3	4	5

The following questions ask about how much you have experienced certain things in the last four weeks.

	Not at all	A little	A moderate amount	Very much	An extreme amount
3. To what extent do you feel that physical pain prevents you from doing what you need to do?	5	4	3	2	1
4. How much do you need any medical treatment to function in your daily life?	5	4	3	2	1

5. How much do you enjoy life?	1	2	3	4	5
6. To what extent do you feel your life to be meaningful?	1	2	3	4	5
7. How well are you able to concentrate?	1	2	3	4	5
8. How safe do you feel in your daily life?	1	2	3	4	5
9. How healthy is your physical environment?	1	2	3	4	5

The following questions ask about how completely you experience or were able to do certain things in the last four weeks.

	Not at all	A little	Moderately	Mostly	Completely
10. Do you have enough energy for everyday life?	1	2	3	4	5
11. Are you able to accept your bodily appearance?	1	2	3	4	5
12. Have you enough money to meet your needs?	1	2	3	4	5
13. How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14. To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

	Very Poor	Poor	Neither good nor poor	Good	Very Good
15. How well are you able to get around?	1	2	3	4	5

	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16. How satisfied are you with your sleep?	1	2	3	4	5
17. How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18. How satisfied are you with your capacity for work?	1	2	3	4	5
19. How satisfied are you with yourself?	1	2	3	4	5
20. How satisfied are you with your personal relationships?	1	2	3	4	5
21. How satisfied are you with your sex life?	1	2	3	4	5
22. How satisfied are you with the support you get from your friends?	1	2	3	4	5
23. How satisfied are you with the conditions of your living space?	1	2	3	4	5
24. How satisfied are you with your access to health services?	1	2	3	4	5
25. How satisfied are you with your transport?	1	2	3	4	5

The following question refers to how often you have felt or experienced certain things in the last four weeks.

	Never	Seldom	Quite often	Very often	Always
26. How often do you have negative feelings such as blue mood, despair, anxiety, depression?	5	4	3	2	1

References:


World Health Organization. (2004). The World Health Organization Quality of Life (WHOQOL)-BREF. Retrieved as a pdf from http://www.who.int/substance_abuse/research_tools/en/english_whoqol.pdf.

The WHOQOL Group. (1994a). Development of the WHOQOL: Rationale and current status. *International Journal of Mental Health*, 23 (3), 24-56.

The WHOQOL Group. (1994b). The development of the World Health Organization quality of life assessment instrument (the WHOQOL). In J. Orley and W. Kuyken (Eds.). *Quality of Life Assessment: International Perspectives*. Heidelberg: Springer Verlag.

Appendix I

Participant Instructions for Measuring Blood Pressure

1. Sit with your feet on the floor and your upper arm exposed.
2. Place cuff directly on bare skin of **upper left arm**, with cuff edge ½ inch above the elbow.
3. Align cuff so the arrow  is centered on the inside of your arm with the tubing pointing down toward your hand.
4. Wrap cuff snugly around upper arm and rest arm on table so cuff is level with your heart.
5. Turn the unit on by pressing the start/stop button once.
6. Press start. The cuff will inflate automatically. Hold still until cuff deflates and results are displayed.
7. Review your results in about 30 seconds.
8. Log your results.

(Omron Healthcare, Inc., 2010)

Appendix J

Participant Instructions for Measuring Body Temperature

1. Place a disposable lens filter over the probe (protective cover that maintains hygiene)
2. To turn the thermometer on, press the start button.
3. The thermometer is ready to use after two beeps are sounded and a display appears on the monitor.
4. Perform an ear tug to straighten the ear canal. This gives the thermometer a clear view of the eardrum.
 - a. An ear tug is best performed by using your free hand to grasp the outer edge of the top half of your ear. To take your town temperature, wrap your free hand around the back of your head and tug your ear from behind (see p.6 in ThermoScan manual for visual picture).
5. While tugging the ear, fit the probe snugly into the ear canal, then push the start button.
6. After one second a beep will signal the end of the measuring process, the result is show on the display screen.
7. Log your results.

Please note:

A measurement taken in the right ear may differ from the measurement taken in the left ear. Therefore, always take the temperature in the same ear.

External factors may influence ear temperatures, including when an individual has:

- Been lying on one ear or the other
- Had their ears covered
- Been exposed to very hot or very cold temperatures
- Been recently swimming or bathing

In these cases, remove the individual from the situation and wait 20 minutes prior to take a temperature.

(Kaz USA, Inc. 2012)

Appendix K

Electronic Journal Entry Questions

I. Questions that were consistently asked every week:

- Other than yoga, did you participate in any other type of exercise or physical activity this week? If yes, please describe what activities you participated in, and for how long.
- Did you utilize any of the audio recorded breathing exercises this week? If yes, which ones? Did you find them to be effective?
- If you did not log your physiological measures on-site before and after the yoga session, please provide your blood pressure/heart rate/temperature measures for the following dates:

II. Questions that were asked week to week:

- | | |
|--------|--|
| Week 1 | <ul style="list-style-type: none">• How would you describe your first week of participation in yoga? Was it what you expected (please explain why or why not)?• What menopausal symptom(s) did you most frequently encounter this week? Did your experiencing these symptoms disrupt your participation in everyday life activities in any way? If yes, please describe.• Do you find your menopausal symptoms change depending on your stress levels? For example, if you are less stressed, do you notice any change in menopausal symptoms experienced? |
| Week 2 | <ul style="list-style-type: none">• How was your experience in the yoga sessions this week? Did you feel more/less comfortable this week in comparison to last week; why do you think that might be?• Thus far, is there any one particular yoga pose, stretch or breathing exercise that you have found you really enjoy and/or find to be beneficial to you? If yes, please describe.• In contrast, is there any one yoga pose, stretch or breathing exercise you have found that you do not enjoy and/or find ineffective? If yes, please describe. |
| Week 3 | <ul style="list-style-type: none">• Having completed the third week of yoga, what are your thoughts regarding the format and/or content of the class? Do you feel there is a nice progression from week to week (would you like more repetition of poses, or would you like to see more new material introduced each class)?• What do you think of the <i>Yoga and the Wisdom of Menopause</i> book? Would you prefer we incorporate it more into each week's session (e.g., letting you know which chapter from the book this week's session is focusing on), or do you enjoy having it as a reference?• Do you feel that your participation in yoga thus far has created any change in the frequency and/or severity of menopausal symptoms you typically experience? If yes, please describe. |

Week 4	<ul style="list-style-type: none"> • Is there anything you wish someone had told you about menopause that you did not know (or expect) prior to your experiencing it first-hand? If so, please describe. • In the last week or two, have you experienced any unanticipated stressors/stressful event? If yes, and you feel comfortable doing so, please describe. • Do you think your participation in yoga in the last few weeks has had any effect on your overall quality of life? If yes, please describe how or in what way(s).
Week 5	<ul style="list-style-type: none"> • What would you tell a friend about menopause? How would you describe it? • What would you tell a friend about yoga? How would you describe it? • Based on your experience with yoga, in comparison to other activities/exercises you have experience with – do you think there is any benefit/positive aspect specific to yoga that other activities/exercises do not provide? Please explain.
Week 6	<ul style="list-style-type: none"> • In the last week or two, have you experienced any unanticipated stressors/stressful event? If yes, and you feel comfortable doing so, please describe. • In the last journal entry, several of you mentioned the idea of being and/or feeling “centered”. What does it mean to you to be “centered”? Why is being “centered” important to you, and your quality of life? • Thus far, is there anything that you would like/wish we would address in the yoga sessions that we have not? Is there anything that we have done, that you would like/wish we could spend more time on?
Week 7	<ul style="list-style-type: none"> • Do you feel that your participation in yoga thus far has created any change in the frequency and/or severity of menopausal symptoms you typically experience? Please describe. • Do you think your participation in yoga in the last few weeks has had any effect on your overall quality of life? Please describe.
Week 8	<ul style="list-style-type: none"> • Do you notice there to be more or less benefit and/or enjoyment when comparing the breathing exercises, stretching exercises and yoga poses utilized during the yoga sessions? Please describe. • Do you enjoy or find more/less benefit in programs that are individual-based, or those that are group-oriented? For example, our yoga class is group-oriented. Do you prefer that set-up, or wish it was more individualized and one-on-one instruction? Please explain your response.
Week 9	<ul style="list-style-type: none"> • In the last week or two, have you experienced any unanticipated stressors/stressful event? If yes, and you feel comfortable doing so, please describe. • Based on your experience, if you were asked whether or not menopause was a stressor in and of itself, how would you respond? Please explain.

-
- Several of you have indicated in previous journal entries that your favorite breathing exercise, and/or the breathing exercise you find to be most effective is the 3-part breathing. In your opinion, is there anything in particular that makes this exercise different than the others, and therefore more enjoyable or effective? Please describe.
-

Week 10

- Overall, is there any one particular yoga pose, stretch or breathing exercise that you found you really enjoy and/or find to be beneficial to you? If yes, please describe. In contrast, is there any one yoga pose, stretch or breathing exercise you found that you do not enjoy and/or find ineffective? If yes, please describe.
 - Overall, is there anything that you identify as being positive about your experience with yoga? If yes, please describe. In contrast, is there anything that you identify as being negative and/or something you wish had been different about your experience with yoga? If yes, please describe.
 - Over the course of the 10-week yoga sessions, what (if any) menopausal symptom have you experienced the most improvement in? Please describe. What (if any) menopausal symptoms have you experienced the least improvement in? Please describe.
-

Appendix L

Semi-Structured Interview Protocol

Thank you again for participating in the 10-week yoga study, as well as your willingness to complete the follow-up interview. The purpose of the interview is to provide you an opportunity to share your thoughts and experience specific to menopause and participation in the yoga program. The interview should take approximately 30 minutes.

Participation in the interview is entirely voluntary. You can withdraw at any time without consequence; if at any time there is a question you do not wish to answer, you may choose to skip that question without consequence.

To protect the identity of each individual, participant data (including transcribed interviews) will be coded so that the data cannot be linked to the participant. Any participant data included in document summaries and/or publications will be assigned pseudonyms.

1. Tell me about your experience with menopause.
 - a. Did your perspective of menopause change over the course of the 10-week study? If yes, please explain.
2. Tell me about your experience with yoga.
 - a. Did your expectation and/or perspective of yoga change over the course of the 10-week study? If yes, please explain.
3. Was yoga the only “new” introduction in your life in the last 10 weeks? (Trying to get at whether or not yoga is effective, or yoga in conjunction with something else is effective)
4. Knowing how busy everyone’s schedules are in present day – with both personal and professional responsibilities – what motivated you to continue participation in the 10-week program (2x/week)?
5. Based on your experience, did you find your practice/participation in yoga decreased and/or eliminated symptoms associated with menopause?
 - a. Would you recommend yoga as a complementary and/or alternative treatment for menopause?
6. Did you notice any change in your stress level (good or bad) during participation in yoga?
 - a. If yes, did you notice any change (good or bad) in your menopausal symptoms based on your stress levels?

7. Do you feel you handle and/or perceive stress any differently now (post-yoga), in comparison to how you previously dealt with and/or perceived stress prior to participating in yoga? If yes, please describe.
8. Overall, did your participation in yoga change (good/bad/no change) your overall quality of life or well-being?
9. Will you continue participation in yoga?
 - a. If yes, do you intend to continue in a similar, restorative type of yoga; or pursue a more progressive, physically engaging type of yoga?

Appendix M

Member Checking Protocol

Hi Everyone,

I hope you are doing well, and that you had an enjoyable summer!

As you might remember, at the end of your interviews I mentioned “member checking” which is a research technique used to verify how accurate a researcher’s interpretation of participant data is.

Below are several tables indicating my research questions, and preliminary findings related to each of those questions – based on my interpretation of your journal entries, interview responses, pre/post questionnaires and physiological measures.

If you have time and are willing, would you mind reading through each statement and place an “X” in the column that you feel most accurately represents you, and how you felt during or as a result of your participation in the yoga study?

Please note: this process is entirely voluntary, so you do not have to complete it.

If you choose to complete it, know that your input is very much appreciated as it helps in making sure I interpret your perspectives and experiences accurately. Also, you can select to *forward the email* back to me at bmcrowe@g.clemson.edu so that you can place an “X” in the table columns in the email without having to copy or paste anything.

Please let me know if you have any questions and/or any additional comments/thoughts regarding the study.

Thank you in advance for your time. I look forward to hearing from you.

Best regards,

Brandi

Instructions: Please read through the following statements, and place an “X” in the column that you feel most accurately represents you, and how you felt during or as a result of your participation in the yoga study.

Perspectives regarding menopause experience:			
Result/Finding	I agree and/or this is true for me	I disagree and/or this is not true for me	I do not know and/or am not sure
Menopause can diminish quality of life			
Menopause is a stressor, in and of itself			
Menopause is a situation that indirectly creates stress			
Menopause is a non-stressful occurrence			
Increased stress levels cause me to experience greater frequency and/or severity of menopausal symptoms			
I was surprised to learn I was experiencing menopause because of its premature arrival			
I was surprised to learn I was experiencing menopause because of its range of ambiguous symptoms			

Question #1 (Part A): To what extent is the severity of physiological symptoms (e.g., hot flashes, night sweats) associated with menopause altered as a result of participation in yoga?			
Result/Finding	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I had less fluctuation in mood as a result of yoga participation			
I had less hot flashes as a result of participation in yoga			
I had fewer night sweats as a result of yoga participation			
I experienced greater clarity of mind as a result of yoga participation			
I experienced higher quality sleep as a result of yoga participation			

I experienced decreased stress as a result of yoga participation			
--	--	--	--

Question #1 (Part B):
If it is determined that the change in symptoms can be attributed to yoga, why, or what about participation in yoga holds benefit for producing positive outcomes?

Result/Finding	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I found yoga beneficial because it addresses body, mind and spirit			
I found yoga beneficial because of the breathing exercises			
I found yoga beneficial because it was relaxation-focused			
I found yoga beneficial because it allowed me time to slow down			
I found yoga beneficial because of the comradery I felt with other participants			
I found yoga beneficial because of the instructor, physical setting and/or program curriculum			

Question #2:
How is one's overall quality of life impacted as a result of participation in a yoga intervention explicitly customized for women experiencing menopausal symptoms?

Result/Finding	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
Participation in yoga helped me manage stress			
Participation in yoga provided me with tools for managing stress or menopausal symptoms that could be utilized at home/work, etc.			

Question #3:
To what extent do participants find yoga to be beneficial, enjoyable, feasible and accessible?

Result/Finding	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
I enjoyed yoga because I felt it improved my physical health (e.g., flexibility, bone health)			
I enjoyed yoga because I felt it improved my emotional well-being (e.g., clear my mind, relax, feel calm)			
I enjoyed yoga and found it beneficial, so much so that I have continued participating in yoga			
I enjoyed yoga and found it beneficial, so much so that I have planned and/or would like to participate in yoga again			
I enjoyed yoga and found it beneficial because it allowed me to feel “centered” and/or gave me a greater sense of control			

Other:

Result/Finding	I agree and/or this was true for me	I disagree and/or this was not true for me	I do not know and/or am not sure
Women need more information/resources regarding menopause (what it is, what to expect, and available strategies for managing symptoms)			
Prior to the study, I thought yoga was solely a physical exercise that did not take into account emotional health.			
Prior to the study, I was hesitant to participate in yoga because I thought it was going to be physical taxing, and involve contortionist-like movements			

REFERENCES

- Aldwin, C.M., & Revenson, T.A. (1987). Does coping help? A reexamination of the relation between coping and mental health. *Journal of Personality and Social Psychology, 53*(2), 337-348.
- Alhaily, F., & Ewies, A.A.A. (2007). Acupuncture in managing menopausal symptoms: hope or mirage? *Climacteric, 10*, 371-380.
- Alraek, T., & Malterud, K. (2009). Acupuncture for menopausal hot flashes: A qualitative study about patient experiences. *The Journal of Alternative and Complementary Medicine, 15*(2), 153-158.
- American Heart Association (2012). *All about heart rate*. Retrieved from www.heart.org/HEARTORG/Conditions/MORE/MyHeartandStrokeNews/All-About-Heart-Rate-Pulse_UCM_438850_Article.jsp.
- American Red Cross. (2001). *Red blood cells*. Retrieved from www.newenglandblood.org/helping/redcells.htm.
- Anderson, L.A., Goodman, R.A., Holtzman, D., Posner, S.F., & Northridge, M.E. (2012). Aging in the United States: Opportunities and challenges for public health. *American Journal of Public Health, 102*(3), 393-395.
- Arigo, D., Kloss, J.D., Kniele, K., and Gilrain, K. (2007). Beliefs about sleep and perceived sleep are associated with quality of life among perimenopausal women. *Behavioral Sleep Medicine, 5*, 241-255.
- Aubuchon, V. (2013). *Blood pressure chart: Normal blood pressure range*. Retrieved from: <http://www.vaughns-1-pagers.com/medicine/blood-pressure.htm>.

- Austin, D. R. (1998). The health protection/health promotion model. *Therapeutic Recreation Journal*, 32(2), 109-117.
- Berlin Center for Epidemiology and Health Research. (2008). *The menopause rating scale*. Retrieved from www.menopause-rating-scale.info/.
- Berman, B.M., Singh, B.B., Hartnoll, S.M., Singh, B.K., & Reilly, D. (1998). Primary care physicians and complementary-alternative medicine: Training, attitudes and practice patterns. *The Journal of the American Board of Family Practice*, 11(4), 272-281.
- Bernardi, L., Porta, C., Spicuzza, L., Bellwon, J., Spadacini, G., Frey, A.W., Yeung, L.T.C., Sanderson, J.E., Pedretti, R., & Tramarin, R. (2002). Slow breathing increase arterial baroflex sensitivity in patients with chronic heart failure. *Circulation*, 105(2), 143-145.
- Bonomi, A.E., Patrick, D.L., Bushnell, D.M., & Martin, M. (2000). Validation of the United States' version of the World Health Organization quality of life (WHOQOL) instrument. *Journal of Clinical Epidemiology*, 53(1), 1-12.
- Bonsall, L. (2011). *Calculating the MAP*. Retrieved from Nursing Center: <http://www.nursingcenter.com/Blog/post/2011/12/08/Calculating-the-MAP.aspx>.
- Booth-LaForce, C., Thurston, R.C., & Taylor, M.R. (2007). A pilot study of Hatha yoga treatment for menopausal symptoms. *Maturitas*, 57, 286-29.
- Bosch, P.R., Traustadottir, T., Howard, P., & Matt, K.S. (2009). Functional and physiological effects of yoga in women with rheumatoid arthritis: A pilot study. *Alternative Therapies*, 15(4), 24-31.

- Boughton, M., & Halliday, L. (2008). A challenge to the menopause stereotype: Young Australian women's reflections of 'being diagnosed' as menopausal. *Health and Social Care in the Community*, 16(6), 565-572.
- Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6(1), 97-113.
- Burke, G.L., Legault, C., Anthony, M., Bland, D.R., Morgan, T.M. Naughton, M.J., Leggett, K., Washburn, S.A., & Vitolins, M.Z. (2003). Soy protein and isoflavone effects on vasomotor symptoms in peri- and postmenopausal women: The soy estrogen alternative study. *Menopause: The Journal of the North American Menopause Society*, 10(2), 147-153.
- Carruthers, C., & Hood, C.D. (2007). Building a life of meaning through therapeutic recreation: The leisure and well-being model, part I. *Therapeutic Recreation Journal*, 41(4), 276-297.
- Carver, C.S., Weintraub, J.D., & Scheier, M.F. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.
- Chattha, R., Nagarathna, R., Padmalatha, V., and Nagendra, H.R. (2008). Effect of yoga on cognitive functions in climacteric syndrome: A randomized control study. *International Journal of Obstetrics and Gynecology*, 991-1000.
- Chen, Y., Lin, S.Q., Wei, Y., Gao, H.L., and Wu, Z.L. (2007). Menopause-specific quality of life satisfaction in community-dwelling menopausal women in China. *Gynecological Endocrinology*, 23(3), 166-172.

- Childs, C., Harrison, R., & Hodkinson, C. (1999). Tympanic membrane temperature as a measure of core temperature. *Archives of Disease in Childhood*, 80, 262-266.
- Chrisler, J.C. (2011). Leaks, lumps, and lines: Stigma and women's bodies. *Psychology of women quarterly*, 35(2), 202-214.
- Cleveland Clinic. (2012). Heart and vascular health and prevention: Stress management and your heart. Retrieved from <http://my.clevelandclinic.org/heart/prevention/stress/stressheart.aspx>.
- Cohen, S., Kamarck, T. & Mermelstein, R., A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4), 385-396.
- Collins, C. (1998). Yoga: Intuition, preventative medicine, and treatment. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 27, 563-568.
- Cooper, W. (1999). Some philosophical aspects of leisure theory. In E. Jackson & T. Burton (Eds.) *Leisure studies: Prospects for the 21st Century*. State College, PA: Venture Publishing, Inc.
- Cowan, G., Warren, L.W., & Young, J.L. (1985). Medical perceptions of menopausal symptoms. *Psychology of Women Quarterly*, 9(1), 3-14.
- Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, California: Sage Publishing, Inc.
- Creswell, J.W., & Plano Clark, V.L. (2007). *Designing and conducting mixed methods research*. Thousand Oaks, California: Sage Publishing, Inc.

- Dailey, R.K., Neal, A.V., Northrup, J., West, P., & Schwartz, K.L. (2003). Herbal product use and menopause symptoms relief in primary care patients: A metronet study. *Journal of Women's Health, 12*(7), 633-641.
- Daley, A., MacArthur, C., McManus, R., Stokes-Lampard, H., Wilson, S., Roalfe, A., & Mutrie, N. (2006). Factors associated with the use of complementary medicine and non-pharmacological interventions in symptomatic menopausal women. *Climacteric, 9*, 336-346.
- Dattilo, J., Kleiber, D., & Williams, R. (1998). Self-determination and enjoyment enhancement: A psychologically-based service delivery model for therapeutic recreation. *Therapeutic Recreation Journal, 32*(4), 258-271.
- Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.
- Deci, E.L., & Ryan, R.M. (1987). The support of autonomy and the control of behavior. *Journal of Personality and Social Psychology, 53*(6), 1024-1037.
- Deci, E.L., & Ryan, R.M. (1990). A motivational approach to self: Integration in personality. In R. Dienstbeir (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp.237-288). Lincoln: University of Nebraska Press.
- Deci, E.L., & Ryan, R.M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227-268.
- Deci, E.L. & Ryan, R.M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology, 49*(3), 182-185.

- Deci, E.L., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia*, 27(1), 23-40.
- Dellinger, A.B., & Leech, N.L. (2007). Toward a unified validation framework in mixed methods research. *Journal of Mixed Methods Research*, 1(4), 309-332.
- Denscombe, M. (2008). Communities of practice: A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2(3), 270-283.
- Department of Health Medical Device Control Office. (n.d.). Proper use of thermometers to measure body temperature. Retrieved as a pdf from www.mdco.gov/kh/englis/emp/emp_gp/files/thermometer_eng.pdf.
- De Valois, B.A., Young, T.E., Robinson, N., McCourt, C., & Maher, E.J. (2010). Using traditional acupuncture for breast cancer-related hot flashes and night sweats. *The Journal of Alternative and Complementary Medicine*, 10(16), 1047-1057.
- Dorman, J.S., Steenkiste, A.R., Foley, T.P., Strotmeyer, E.S., Burke, J.P., Kuller, L.H., & Kwoh, C.K. (2001). Menopause in type 1 diabetic women: Is it premature? *Diabetes*, 50, 1857-1862.
- Dugdale, D.C. (2011, May 30). *Alkaline phosphatase (ALP) – blood test*. Retrieved from MedlinePlus at www.nlm.nih.gov/medlineplus/ency/article/003470.htm.
- Eisenberg, D.M., Kessler, R.C., Foster, C., Norlock, F.E., Calkins, D.R., & Delbanco, T.L. (1993). Unconventional medicine in the United States: Prevalence, costs, and patterns of use. *The New England Journal of Medicine*, 328(4), 246-252.

- Fallahzadeh, H. (2010). Quality of life after the menopause in Iran: A population study. *Quality Life Research, 19*, 813-819.
- Feilzer, M.Y. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research, 4*(1), 6-16.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117-140.
- Folkman, S., Chesney, M., McKusick, L., Ironson, G., Johnson, D.S., & Coates, T.J. (1991). Translating coping theory into an intervention. In J. Eckenrode (Ed.). *The social context of coping*, (pp.239-260). New York: Plenum Press.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*, 219-239.
- Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R.J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50*(5), 992-1003.
- Folkman, S., Lazarus, R.S., Gruen, R.J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology, 50*(3), 571-579.
- Folkman, S., & Moskowitz, J.T. (2004). Coping: Pitfalls and promise. *Annual Review Psychology, 55*, 745-774.
- Forbes, B. (2011). *Yoga for emotional balance: Simple practices to help relieve anxiety and depression*. Boston, Massachusetts: Shambhala.

- Francina, S. (2003). *Yoga and the wisdom of menopause: A guide to physical, emotional and spiritual health at midlife and beyond*. Deerfield Beach, Florida: Health Communications, Inc.
- Freedman, M.A. (2002). Quality of life and menopause: The role of estrogen. *Journal of Women's Health, 11*(8), 703-718.
- Freedman, R.R. (2005). Pathophysiology and treatment of menopausal hot flashes. *Seminars in Reproductive Medicine, 23*(2), 117-125.
- Freeman, E.W., Sammel, M.D., Lin, H., Gracia, C.R., Pien, G.W., Nelson, D.B., & Sheng, L. (2007). Symptoms associated with menopausal transition and reproductive hormones in midlife women. *Obstetrics and Gynecology, 110*(2), 230-240).
- Frenkel, M., & Arye, E.B. (2001). The growing need to teach about complementary and alternative medicine: Questions and challenges. *Academic Medicine, 76*(3), 251-254.
- Geller, S.E., & Studee, L. (2005). Botanical and dietary supplements for menopausal symptoms: What works, what doesn't. *Journal of Women's Health, 14*(7), 634-649.
- Gerrig, R.J., & Zimbardo, P.G. (2002). *Psychology and life* (16th ed.). Boston, Massachusetts: Allyn and Bacon.
- Giuliano, K.K., Giuliano, A.J., Scott, S.S., MacLacklan, E., Pysznik, E., Elliot, S., & Wotowicz, D. (2009). Temperature measurement in critically ill adults: A

- comparison of tympanic and oral methods. *American Journal of Critical Care*, 9, 254-261.
- Goodale, T.L. and Godbey, G.C. (1988). *The evolution of leisure: Historical and philosophical perspectives*. State College, PA: Venture Publishing, Inc.
- Granath, J., Ingvarsson, S., Von Thiele, U., & Lundberg, U. (2006). Stress management: A randomized study of cognitive behavioural therapy and yoga. *Cognitive Behaviour Therapy*, 35(1), 3-10.
- Greenberger, P. (1998). News from the society for the advancement of women's health research. *Journal of Women's Health*, 7(9), 1077-1079.
- Groomes, D.A.G., & Leahy, M.J. (2002). The relationships among the stress appraisal process, coping disposition, and level of acceptance of disability. *Rehabilitation Counseling Bulletin*, 46(1), 15-24.
- Gupta, N., Khera, S., Vempati, R.P., Sharma, R., & Bijlani, R.L. (2006). Effect of yoga based lifestyle intervention on state and trait anxiety. *Indian Journal of Physiology and Pharmacology*, 50(1), 41-47.
- Gutheil, I.A. (1996). Introduction: The many faces of aging: Challenges for the future. *The Gerontologist*, 36(1), 13-14.
- Hammill, S. (2011). *Elevated heart rate most likely caused by medical condition*. Retrieved from the Mayo Clinic at www.mayoclinic.org/medical-edge-newspaper-2011/may-06b.html.
- Harinath, K., Malhotra, A.S., Pal, K., Prasad, R., Kumar, R., Kain, T.C., Rai, L., & Sawhney, R.C. (2004). Effects of hatha yoga and omkar meditation on

- cardiorespiratory performance, psychologic profile, and melatonin secretion. *The Journal of Alternative and Complementary Medicine*, 20(2), 261-268.
- Harvard Medical School (2005). *Perimenopause: Rocky road to menopause*. Retrieved from www.health.harvard.edu/newsweek/Perimenopause_Rocky_road_to_menopause.htm.
- Harvard Medical School. (2012). *Dealing with the symptoms of menopause*. Retrieved from www.health.harvard.edu/newsweek/Dealing_with_the_symptoms_of_menopause.htm.
- Heart Rhythm Society (2012). *Heart disease and disorders*. Retrieved from www.hrsonline.org/Patient-Resources/Heart-Diseases-Disorders.
- Heinemann, L.A., Potthoff, P., and Schneider, H.P. (2003). International versions of the Menopause Rating Scale (MRS). *Health and Quality of Life Outcomes*, 1, 28-31.
- Heinemann, K., Reubig, A., Potthoff, P., Schneider, H.P.G., Strelow, F., Heinemann, L.A.J., & Thai, D.M. (2004). The menopause rating scale: A methodological review. *Health and Quality of Life Outcomes*, 2, 45-52.
- Hendrix, S.L. (1997). Nonestrogen management of menopausal symptoms. *Endocrinology and Metabolism Clinics of North America*, 26(2), 379-390.
- Herzog, A.R., Ofstedal, M.B., & Wheeler, L.M. (2002). Social engagement and its relationship to health. *Clinics in Geriatric Medicine*, 18, 593-609.

- Holmes, T.H. & Rahe, R.H. (1967). The social readjustment rating scale. *Journal of Psychomatic Research* 11, 213-218.
- Hood, C.D., & Carruthers, C. (2007). Enhancing leisure experience and developing resources: The leisure and well-being model, Part II. *Therapeutic Recreation Journal*, 41(4), 298-325.
- Houston, B.K. (1987). Stress and coping. In C.R. Snyder & C.E. Ford (Eds.). *Coping with negative life events: Clinical and social psychological perspectives*, (pp.373-400). New York: Plenum Press.
- Howe, C.Z. (1987). Selected social gerontology theories and older adult leisure involvement: A review of the literature. *Journal of Applied Gerontology*, 4(6), 448-463.
- Hudson, S. (1998). Yoga aids in back pain. *Australian Nursing Journal*, 5(9), 27.
- Hur, M.H., Oh, H., Lee, M.S., Kim, C., & Choi, A.N. (2007). Effects of aromatherapy massage on blood pressure and lipid profile in Korean climacteric women. *International Journal of Neuroscience*, 117, 1281-1287.
- Hur, M.H., Yang, Y.S., & Lee, M.S. (2008). Aromatherapy massage affects menopausal symptoms in Korean women: A pilot-controlled clinical trial. *Evidence-based Complementary and Alternative Medicine*, 5(3), 325-328.
- Hutchinson, S.L., Bland, A.D., & Kleiber, D.A. (2008). Leisure and stress-coping: Implications for therapeutic recreation practice. *Therapeutic Recreation Journal*, 42(1), 9-23.

- Hutchinson, S.L., Loy, D.P., Kleiber, D.A., & Dattilo, J. (2003). Leisure as a coping resource: Variations in coping with traumatic injury and illness. *Leisure Sciences*, 25, 143-161.
- Ivanhoe, P.J. & Van Norden, B.W. (2001). *Readings in Classical Chinese Philosophy*. New York: Seven Bridges Press, LLC.
- Iwasaki, Y., MacKay, K., MacTavish, J.B., Ristock, J., & Bartlett, J. (2006). Voices from the margins: Stress, active living, and leisure as a contributor to coping with stress. *Leisure Sciences*, 28, 163-180.
- Iwasaki, Y., & Mannell, R.C. (2000). Hierarchical dimensions of leisure stress coping. *Leisure Sciences*, 22, 163-181.
- Iwasaki, Y., Mannell, R.C., Smale, B.J.A., & Butcher, J. (2002). A short-term longitudinal analysis of leisure coping used by police and emergency response services workers. *Journal of Leisure Research*, 34(3), 311-339.
- Iyengar, B.K.S. (2008). *Yoga: The path to holistic health*. New York, NY: DK Publishing.
- Jafary, F., Farahbakhsh, K., Shafiabadi, A., and Delavar, A. (2011). Quality of life and menopause: Developing a theoretical model based on meaning in life, self-efficacy beliefs, and body image. *Aging and Mental Health*, 15(5), 630-637.
- Janke, M., Davey, A., & Kleiber, D. (2006) Modeling change in older adults' leisure activities. *Leisure Sciences*, 28, 285-303
- Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 33(7), 14-26.

- Jones, S.R.G. (1992). Was there a Hawthorne effect? *American Journal of Sociology*, 98(3), 451-468.
- Jordan, D.J., DeGraaf, D.G., & DeGraaf, K.H. (2005). *Programming for parks, recreation, and leisure services: A servant leadership approach* (2nd ed.). State College, Pennsylvania: Venture Publishing, Inc.
- Karel, M.J., Gatz, M., & Smyer, M.A. (2012). Aging and mental health in the decade ahead: What psychologists need to know. *American Psychologist*, 67(3), 184-198.
- Kario, K. (2005). Time for focus on morning hypertension: Pitfall of current antihypertensive medication. *American Journal of Hypertension*, (18)2, 149-151.
- Kario, K., Pickering, T.G., Umeda, Y., Hoshide, S., Hoshide, Y., Morinari, M., Murata, M., Kuroda, T., Schwartz, J.E., & Shimada, K. (2003). Morning surge in blood pressure as a predictor of silent and clinical cerebrovascular disease in elderly hypertensives: A prospective study. *Circulation*, 1401-1406.
- Kaz USA, Incorporated. (2012). *Braun thermoscan 3 compact ear thermometer*.
Distributed by: Southborough, Massachusetts.
- Keach, S. (2003). *The Yoga Handbook: An Inspirational Reference for Teaching and Home Practice*. Asheville, NC: Stephanie and Sunny Keach.
- Kelso, T., French, D., & Fernandez, M. (2005). Stress and coping in primary caregivers of children with a disability: A quality study using the Lazarus and Folkman process model of coping. *Journal of Research in Special Educational Needs*, 5(1), 3-10.

- Khalsa, S.B. (2007). Yoga as a therapeutic intervention. In P.M. Lehrer, R.L. Woolfolk, & W.E. Sime (Eds.). *Principles and practice of stress management* (3rd ed.). (pp.449-462). New York: The Guilford Press.
- Kiecolt-Glaser, J.K., Christian, L., Preston, H., Houts, C.R., Malarkey, W.B., Emery, C.F., and Glaser, R. (2010). Stress, inflammation, and yoga practice. *Psychosomatic Medicine*, 72, 1-9.
- Kleiber, D.A. (2000). The neglect of relaxation. *Journal of Leisure Research*, 32(1), 82-86.
- Kleiber, D.A., Hutchinson, S.L., & Williams, R. (2002). Leisure as a resource in transcending negative life events: Self-protection, self-restoration and personal transformation. *Leisure Sciences*, 24, 219-235.
- Kleiber, D., & Thompson, S. (1980). Adjustment to retirement: Implications for pre-retirement education. *Therapeutic Recreation Journal*, 14(2), 5-17.
- Kockelmans, J.J. (1967). Life world and world-experiencing life: Introduction. In J.J. Kockelmans (Ed.). *Phenomenology: The philosophy of Edmund Husserl and its interpretation* (pp.194-196). Garden City, New York: Anchor Books/Doubleday & Company, Inc.
- Kunstler, R., & Daly, F.S. (2010). *Therapeutic recreation leadership and programming*. Champaign, Illinois: Human Kinetics.
- Lai, J.N., Hwang, J.S., Chen, H.J., & Wang, J.D. (2005). Finished herbal product as an alternative treatment for menopausal symptoms in climacteric women. *The Journal of Alternative and Complementary Medicine*, 11(6), 1075-1084.

- Laskowski, E.R. (2012). *Heart rate: what's normal? What's a normal resting heart rate.*
Retrieved from the Mayo Clinic at www.mayoclinic.com/health/heart-rate/AN01906.
- Laml, T., Preyer, O., Umek, W., Hengstschlager, M., & Hanzal, E. (2002). Genetic disorders in premature ovarian failure. *Human Reproduction Update*, 8(4), 483-491.
- Larkin, K.T. (2005). *Stress and hypertension: Examining the relations between psychological stress and high blood pressure.* New Haven: Yale Press.
- Lazarus, R.S. (1993a). Coping theory and research: Past, present, and future. *Psychosomatic Medicine*, 55, 234-247.
- Lazarus, R.S. (1993b). From psychological stress to the emotions: A history of changing outlooks. *Annual Review Psychology*, 44, 1-21.
- Lazarus, R.S. (1999). *Stress and emotion: A new synthesis.* New York, NY: Springer Publishing Company.
- Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York, NY: Springer Publishing Company.
- Leech, N.L., & Onwuegbuzie, A.J. (2009). A typology of mixed methods research designs. *Quality and Quantity*, 43, 265-275.
- Lee, M.S., Shin, B.C., & Ernst, E. (2009). Acupuncture for treating menopausal hot flushes: A systematic review. *Climacteric*, 12, 16-25.
- Lock, M., & Kaufert, P. (2001). Menopause, local biologies, and cultures of aging. *American Journal of Human Biology*, 13, 494-504.

- Lokkegaard, E., Jovanovic, Z., Heitmann, B.L., Keiding, N., Ottesen, B., Hundrup, Y.A., Obel, E.B., & Pedersen, A.T. (2003). Increase risk of stroke in hypertensive women using hormone therapy: analyses based on the Danish nurse study. *Archives of Neurology*, 60(10), 1379-1384.
- Luskin, F.M., Newell, K.A., Griffith, M., Holmes, M., Telles, S., DiNucci, E., Marvasti, F.F., Hills, M., Pelletier, K.R., & Haskell, W.L. (2000). A review of mind/body therapies in the treatment of musculoskeletal disorders with implications for the elderly. *Alternative Therapies in Health and Medicine*, 6(2), 46-56.
- McCrae, R.R. (1984). Situational determinants of coping responses: Loss, threat, and challenge. *Journal of Personality and Social Psychology*, 46(4), 919-928.
- McKinlay, S.M., & Jefferys, M. (1974). The menopausal syndrome. *British Journal of Preventive and Social Medicine*, 28(2), 108-115.
- Manocha, R., Semmar, B., & Black, D. (2007). A pilot study of a mental silence form of meditation for women in perimenopause. *Journal of Clinical Psychology in Medical Settings*, 14, 266-273.
- Maas, A.H.E.M., & Franke, H.R. (2009). Women's health in menopause with a focus on hypertension. *Netherlands Heart Journal*, 17(2), 68-72.
- Mayo Clinic. (2011a, March 22). *Night Sweats*. Retrieved from www.mayoclinic.com/health/night-sweats/MY00576.
- Mayo Clinic. (2011b, June 11). *Hot Flashes*. Retrieved from www.mayoclinic.com/health/hot-flashes/DS01143/DSECTION=causes.

- Mayo Clinic. (2012, October 25). *Hormone therapy*. Retrieved from www.mayoclinic.com/health/hormone-therapy/WO00046.
- Mayo Clinic. (2013a, January 24). *Menopause*. Retrieved from www.mayoclinic.com/health/perimenopause/DS00119.
- Mayo Clinic. (2013b, April 20). *Perimenopause*. Retrieved from www.mayoclinic.com/health/perimenopause/DS00554.
- Mayo Clinic. (2013c, July 10). *Hematocrit test*. Retrieved from www.mayoclinic.com/health/hematocrit/MY00381.
- Meckley, T., Dattilo, J., & Malley, S. (2011). Stress management. In J. Dattilo & A. McKenney (Eds.), *Facilitation techniques in therapeutic recreation* (2nd ed.). (pp.247-281). State College, Pennsylvania: Venture Publishing, Inc.
- Mehr, D.R., & Tatum, P.E. (2002). Primary prevention of diseases of old age. *Clinics in Geriatric Medicine*, 18, 407-430.
- Messinger-Rapport, B.J., & Sprecher, D. (2002). Prevention of cardiovascular diseases coronary artery disease, congestive heart failure, and stroke. *Clinics in Geriatric Medicine*, 18, 463-483.
- Michalsen, A., Grossman, P., Acil, A., Langhorst, J., Ludtke, R., Esch, T., Stefano, G.B., & Dobos, G.J. (2005). Rapid stress reduction and anxiolysis among distressed women as a consequence of a three-month intensive yoga program. *Medical Science Monitor*, 11(12), 555-561.
- Miles, M.B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Thousand Oaks, California: Sage Publishing, Inc.

- Moadel, A.B., Shah, C., Wylie-Rosett, J., Harris, M.S., Patel, S.R., Hall, C.B., & Sparano, J.A. (2007). Randomized controlled trial of yoga among a multiethnic sample of breast cancer patients: Effects on quality of life. *Journal of Clinical Oncology*, 25(28), 4387-4395.
- Mohrman, D.E. & Heller, L.J. (2010). *Cardiovascular physiology* (7th ed.). New York, NY: McGraw Hill Companies.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, California: Sage Publications.
- Murakami, S., Otsuka, K., Kubo, Y., Shinagawa, M., Yamanaka, T., Ohkawa, S., & Kitaura, Y. (2004). Repeated ambulatory monitoring reveals a Monday morning surge in blood pressure in a community-dwelling population. *American Journal of Hypertension*, 17(12), 1179-1183.
- Murakami, S., Shiota, T., Hayashi, S., & Ishizuika, B. (2005). Aromatherapy for outpatients with menopausal symptoms in obstetrics and gynecology. *The Journal of Alternative and Complementary Medicine*, 11(3), 491-494.
- Murugesan, R., Govindarajulu, N., & Bera, T.K. (2000). Effect of selected yogic practices on the management of hypertension. *Indian Journal of Physiology and Pharmacology*, 44(2), 207-210.
- Nakate, S. (2011). *Mean arterial pressure*. Retrieved from: <http://www.buzzle.com/articles/mean-arterial-pressure.html>.
- National Heart Lung and Blood Institute. (2012). *What is high blood pressure?* Retrieved from www.nhlbi.nih.gov/health/health-topics/topics/hbp/.

- Netz, Y., Lido, R., and the Faculty of Education at University of Haifa, Israel (2003).
Mood alterations in mindful versus aerobic exercise modes. *The Journal of Psychology, 137*(5), 405-419.
- Northrup, C. (2006). *The wisdom of menopause: Creating physical and emotional health during the change* (2nd ed.). New York, NY: Bantam Books.
- Nilsson, D. (2007). Adapting coping theory to explain the concept of adjustment. *Social Work in Health Care, 45*(2), 1-20.
- Nimrod, G. & Kleiber, D. (2007). Reconsidering change and continuity in later life: Toward an innovation theory of successful aging. *International Journal of Aging and Human Development, 65*, 1-22.
- Nippita, T.A., & Baber, R.J. (2007). Premature ovarian failure: A review. *Climacteric, 10*, 11-22.
- North American Menopause Society. (2010). *Menopause practice: A clinician's guide* (4th ed.). Mayfield Heights, Ohio: The North American Menopause Society.
Retrieved from: www.menopause.org/docs/2012/cg_a.pdf?sfvrsn=2.
- Northrup, C. (2006). *The wisdom of menopause: Creating physical and emotional health during the change* (2nd ed.). New York, NY: Bantam Books.
- Ohio State Wexner Medical Center (2012). *Vital signs (body temperature, pulse rate, respiration rate, blood pressure)*. Retrieved from
http://medicalcenter.osu.edu/patientcare/healthcare_services/emergency_services/non_traumatic_emergencies/vita_signs/pages/index.aspx.

- Official Health. (2012). *Normal body temperature*. Retrieved from www.officialhealth.org/Normal-Body-Temperature.html.
- Ojeda, L. (2003). *Menopause without medicine* (5th ed.). Alameda, California: Hunter House Inc.
- Omron Healthcare, Incorporated. (2012). *3 series automatic blood pressure monitor*.
Distributed by: Bannockburn, Illinois.
- Onwuegbuzie, A.J., & Collins, K.M.T. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report*, 12(2), 281-316.
- Pakenham, K.I. (1999). Adjustment to multiple sclerosis: Application of a stress and coping model. *Health Psychology*, 18(4), 383-392.
- Palacio, C., Masri, G., & Mooradian, A.D. (2009). Black cohosh for the management of menopausal symptoms: A systematic review of clinical trials. *Drugs and Aging*, 26(1), 23-36.
- Palmore, E. B. (1985). Predictors of successful aging. In E. Palmore, E.W. Busse, G.L. Maddox, J.B. Nowlin, & I.C. Siegler (Eds.). *Normal Aging III*, (pp.29-35).
Durham: Duke University Press.
- Parr, M.G. (2006). Shaking up the bag: A response to Fox and Klaiber. *Leisure Sciences*, 28, 447-450.
- Paterson, R.J., & Neufeld, R.W.J. (1989). The stress response and parameters of stressful situations. In R.W.J. Neufeld (Ed.), *Advances in the investigation of psychological stress* (pp.7-42). New York: John Wiley & Sons, Inc.

- Persson, L.O. & Ryden, A. (2006). Themes of effective coping in physical disability: An interview study of 26 persons who have learnt to live with their disability. *Scandinavian Journal of Caring Sciences*, 20, 355-363.
- Pimenta, F., Leal, I., Maroco, J., & Ramos, C. (2011). Representations and perceived consequences of menopause by peri- and post-menopausal Portuguese women: A qualitative research. *Health Care for Women International*, 32(12), 1111-1125.
- Pollard, E.L., & Rosenberg, M.L. (2003). The strength-based approach to child well-being: Let's begin with the end in mind. In M.H. Bornstein, L. Davidson, C.L.M. Keyes, K.A. Moore, & The Center for Child Well-being (Eds.). *Well-being: Positive development across the life course* (pp.13-22). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.
- Pruthi, S. (2010). *High blood pressure (hypertension). Is there a connection between menopause and high blood pressure?* Retrieved from the Mayo Clinic at www.mayoclinic.com/health/menopause-and-high-blood-pressure/AN01463.
- Quilty, M.T., Saper, R.B., Goldstein, R., & Khalsa, S.B.S. (2013). Yoga in the real world: Perceptions, motivators, barriers and patterns of use. *Global Advances in Health and Medicine*, 2(1), 44-49.
- Quine, L., & Pahl, J. (1991). Stress and coping in mothers caring for a child with severe learning difficulties: A test of Lazarus' transactional model of coping. *Journal of Community and Applied Social Psychology*, 1, 57-70.

- Raub, J.A. (2002). Psychophysiologic effects of Hatha yoga on musculoskeletal and cardiopulmonary function: A literature review. *The Journal of Alternative and Complementary Medicine*, 8(6), 797-812.
- Randolph, Jr., C.W., & James, G. (2009). *From hormone hell to hormone well*. Deerfield Beach, Florida: Health Communications, Inc.
- Rees, M. & Purdie, D.W. (Eds.). (2006). *Management of the menopause: The handbook* (4th ed.). London: The Royal Society of Medicine Press.
- Rice, D.P., & Fineman, N. (2004). Economic implications of increased longevity in the United States. *Annual Review of Public Health*, 25, 03.1-03.17.
- Richter, D.L., Corwin, S.J., Rheume, C.E., & McKeown, R.E. (2001). Perceptions of alternative therapies available for women facing hysterectomy or menopause. *Journal of Women & Aging*, 13(4), 21-37.
- Robert-McComb, J.J., Tacon, A., Randolph, P. & Caldera, Y. (2004). A pilot study to examine the effects of a mindfulness-based stress-reduction and relaxation program on levels of stress hormones, physical functioning, submaximal exercise responses. *The Journal of Alternative and Complementary Medicine*, 10(5), 819-827.
- Ross, A., & Thomas, S. (2010). The health benefits of yoga and exercise: A review of comparison studies. *The Journal of Alternative and Complementary Medicine*, 16(1), 3-12.
- Rossman, J.R., & Schlatter, B.E. (2011). *Recreation programming: Designing and staging leisure experiences* (6th ed.). Urbana, Illinois: Sagamore Publishing.

- Roush, K. (2011). *What Nurses Know...Menopause*. New York, NY: Demos Health.
- Rowe, J.W., & Kahn, R.L. (1998). *Successful aging*. New York: Pantheon Books.
- Ryan, R.M., & Deci, E.L. (2000a). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry*, *11*(4), 319-338.
- Ryan, R.M., & Deci, E.L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78.
- Ryan, R.M., & Deci, E.L. (2002). An overview of self-determination theory: An organismic-dialectical perspective. In E.L. Deci & R.M. Ryan (Eds.). *Handbook of self-determination research* (pp.3-36). Rochester, NY: The University of Rochester Press.
- Ryan, R.M., Patrick, H., Deci, E.L., & Williams, G.C. (2008). Facilitating health behavior change and its maintenance: Interventions based on self-determination theory. *The European Health Psychologist*, *10*, 2-5.
- Sandberg, M., Wijma, K., Wyon, Y., Nedstrand, E., & Hammar, M. (2002). Effects of electro-acupuncture on psychological distress in postmenopausal women. *Complementary Therapies in Medicine*, *10*, 161-169.
- Sandhu, S.K., & Barlow, H.M. (2002). Strategies for successful aging. *Clinics in Geriatric Medicine*, *18*, 643-648.
- Sapolsky, R.M. (2004). *Why zebras don't get ulcers: The acclaimed guide to stress, stress-related diseases, and coping* (3rd ed.). New York: St. Martin's Griffin.

- Schnatz, P.F., Banever, A.E., Greene, J.F., & O'Sullivan, D.M. (2005). Pilot study of menopause symptoms in a clinic population. *The Journal of The North American Menopause Society, 12*(5), 623-629.
- Schwartz, C.E., Dean, J., Howard-Peebles, P.N., Bugge, M., Mikkelsen, M., Tommerup, N., Hull, C., Hagerman, R., Holden, J.J.A., & Stevenson, R.E. (1994). Obstetrical and gynecological complications in Fragile X carriers: A multicenter study. *American Journal of Medical Genetics, 51*, 400-402.
- Seidl, M.M., & Stewart, D.E. (1998a). Alternative treatments for menopausal symptoms: Systematic review of scientific and lay literature. *Canadian Family Physician, 44*, 1299-1308.
- Seidl, M.M., & Stewart, D.E. (1998b). Alternative treatments for menopausal symptoms: Qualitative study of women's experiences. *Canadian Family Physician, 44*, 1271-1276.
- Shapiro, D., & Cline, K. (2004). Mood changes associated with Iyengar yoga practices: A pilot study. *International Journal of Yoga Therapy, 14*, 35-44.
- Shapiro, D., Cook, I.A., Davydov, D.M., Ottaviani, C., Leuchter, A.F., & Abrams, M. (2007). Yoga as a complementary treatment of depression: Effects of traits and moods on treatment outcomes. *Evidence-Based Complementary and Alternative Medicine, 4*(4), 493-502.
- Sheldon, K.M., Ryan, R.M., Deci, E.L., & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin, 30*(4), 475-486.

- Sheps, S. G. (2010). *Pulse pressure: An indicator of heart health? What is pulse pressure? How important is pulse pressure to your overall health?* Retrieved from the Mayo Clinic: <http://www.mayoclinic.com/health/pulse-pressure/AN00968>.
- Shin, H.S. (2010). Effects of Koryo hand therapy on serum hormones and menopausal symptoms in Korean women. *Journal of Transcultural Nursing, 21*(2), 134-142.
- Shin, D.C., & Rutkowski, C.P. (2003). Subjective quality of Korean life in 1981 and 2001. *Social Indicators Research, 62/63*, 509-534.
- Skevington, S.M., Lofty, M., & O'Connell, K.A. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial: A report from the WHOQOL group. *Quality of Life Research, 13*, 299-310.
- Sokolowski, R. (2000). *Introduction to phenomenology*. New York: Cambridge University Press.
- Stumbo, N.J., & Peterson, C.A. (1998). The leisure ability model. *Therapeutic Recreation Journal, 32*(2), 82-96.
- Sund-Levander, M., Forsberg, C., & Wahren, L.K. (2002). Normal oral, rectal, tympanic and axillary body temperature in adult men and women: A systematic literature review. *Scandinavian Journal of Caring Sciences, 16*, 122-128.
- Sund-Levander, M., Grodzinsky, E., Loyd, D., & Wahren, L.K. (2004). Errors in body temperature assessment related to individual variation, measuring technique and equipment. *International Journal of Nursing Practice, 10*, 216-223.

- Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, California: Sage Publications, Inc.
- Tashakkori, A., & Teddlie, C. (Eds.). (2003). *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, California: Sage Publications, Inc.
- Tashakkori, A., & Teddlie, C. (Eds.). (2010). *SAGE handbook of mixed methods in social and behavioral research* (2nd ed.). Thousand Oaks, California: Sage Publications, Inc.
- Taylor, M. J. (2003). Yoga therapeutics: An ancient, dynamic systems theory. *Techniques in Orthopaedics*, 18(1), 115-125.
- Taylor, S.E. (2012). *Health psychology* (8th ed.). New York, NY: McGraw-Hill.
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Thousand Oaks, California: Sage Publications, Inc.
- Thacker, H.L. (2009). *The Cleveland clinic guide to menopause*. New York, NY: Kaplan Publishing, Inc.
- Theroux, R. (2010). Women's decision making during the menopausal transition. *Journal of the American Academy of Nursing Practitioners*, 22, 612-621.
- Tiran, D. (2006). Integrated healthcare: Herbal remedies for menopausal symptoms. *British Journal of Nursing*, 15(12), 645-648.
- Tooley, G.A., Armstrong, S.M., Norman, T.R., & Sali, A. (2000). Acute increases in night-time plasma melatonin levels following a period of meditation. *Biological Psychology*, 53, 69-78.

- Tran, M.D., Holly, R.G., Lashbrook, J., & Amsterdam, E.A. (2001). Effects of Hatha yoga on the health-related aspects of physical fitness. *Preventive Cardiology*, 4(4), 165-170.
- Trendberth, L., & Dewe, P. (2005). An exploration of the role of leisure in coping with work related stress using sequential tree analysis. *British Journal of Guidance and Counseling*, 33(1), 101-116.
- Turek, F.W. & Gillette, M.U. (2004). Melatonin, sleep, and circadian rhythms: Rationale for development of specific melatonin agonists. *Sleep Medicine*, 5, 523-532.
- Turnbull, S. (2010). Yoga as a treatment for menopausal symptoms. *Journal of Yoga – Ontogenetic and Therapeutic Investigation*, 2(1), 14 -15.
- Turner, G., Robinson, H., Wake, S., & Martin, N. (1994). Dizygous twinning and premature menopause in fragile X syndrome. *The Lancet*, 344, 1500.
- Utian, W.H. (2005). Psychosocial and socioeconomic burden of vasomotor symptoms in menopause: A comprehensive review. *Health and Quality Life Outcomes*, 3(47).
- United States Department of Health and Human Services Administration on Aging (2010). *A profile of older Americans: 2010*. Retrieved from www.aoa.gov/aoaroot/aging_statistics/profile/2010/docs/2010profile.pdf.
- Vaillant, G.E., & Mukamal, K. (2001). Successful aging. *The American Journal of Psychiatry*, 158(6), 839-847.
- Van Andel, G.E. (1998). TR service delivery and TR outcome models. *Therapeutic Recreation Journal*, 32(2), 180-193.

- Vaze, N., & Joshi, S. (2010). Yoga and menopausal transition. *Journal of Mid-life Health, 1*(2), 56-58.
- Vincent, A., Barton, D.L., Mandrekar, J.N., Cha, S.S., Zais, T., Wahner-Roedler, D.L., Keppler, M.A., Kreitzer, M.J., & Loprinzi, C. (2007). Acupuncture for hot flashes: a randomized, sham-controlled clinical study. *Menopause: The Journal of the North American Menopause Society, 14*(1), 45-52.
- Watts, C.E., & Caldwell, L.L. (2008). Self-determination and free time activity participation as predictors of initiative. *Journal of Leisure Research, 40*(1), 156-181.
- Welty, F.K., Lee, K.S., Lee, N.S., Nasca, M., & Zhou, J.R. (2007). The association between soy nut consumption and decreased menopausal symptoms. *Journal of Women's Health, 16*(3), 361-369.
- West, J., Otte, C., Geher, K., Johnson, J., & Mohr, D.C. (2004). Effects of Hatha yoga and African dance on perceived stress, affect and salivary cortisol. *Annals of Behavioral Medicine, 28*(2), 114-118.
- White, R.W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297-333.
- Wilson, P.M., Longley, K., Muon, S., Rodgers, W.M., & Murray, T.C. (2006). Examining the contributions of perceived psychological need satisfaction to well-being in exercise. *Journal of Applied Biobehavioral Research, 11*(3-4), 243-264.
- Wingert, P., & Kantrowitz, B. (2009). *The menopause book* (2nd ed.). New York, NY: Workman Publishing.

- World Health Organization Geneva. (1996). WHOQOL-BREF introduction, administration, scoring and generic version of the assessment: Field trial version. Retrieved as a pdf from www.who.int/mental_health/media/en/76.pdf.
- World Health Organization (1998). *Health Promotion Glossary*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2004). *The World Health Organization Quality of Life (WHOQOL)-BREF*. Retrieved as pdf from www.who.int/substance_abuse/research_tools/en/english_whoqol.pdf.
- World Health Organization (2007). *Measuring quality of life*. Retrieved as pdf from http://www.who.int/mental_health/media/68.pdf.
- The WHOQOL Group. (1994a). Development of the WHOQOL: Rationale and current status. *International Journal of Mental Health*, 23(3), 24-56.
- The WHOQOL Group. (1994b). The development of the World Health Organization quality of life assessment instrument (the WHOQOL). In J. Orley and W. Kuyken (Eds.). *Quality of Life Assessment: International Perspectives*. Heidelberg: Springer Verlag.
- Yin, R. K. (2009). *Case study research: Design and methods*. (4th ed.). Thousand Oaks, California: Sage Publishing, Inc.
- Yoga Alliance. (2010). *Registered Yoga Teachers*. Retrieved from <http://yogaalliance.org/content/registered-yoga-teachers>.

- Young, R.D. (2004). Aging in America with some review of the status of older South Carolinians. *USC Institute for Public Service and Policy Research: Public Policy and Practice*, 8-24.
- Zollner, Y.F., Acquadro, C., & Schaefer, M. (2005). Literature review of instruments to assess health-related quality of life during and after menopause. *Quality of Life Research*, 14, 309-327.