

YOGA FOR STRESS REDUCTION IN NURSING STUDENTS  
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## **Abstract**

Undergraduate nursing students are under vast amounts of stress to adapt to the substantial workload while learning patient care. A lack of stress reduction tools in the nursing curriculum leaves these students at risk for stress related outcomes. In the past, research has addressed the effects of stress on health care providers, but little has been specific to nursing students. The rising popularity of yoga is an opportunity to offer such a tool to address stress in nursing students. Using YouTube as an avenue to provide yoga classes designed for stress reduction in nursing students is accessible for most of this population. This study was conducted to explore the hypothesis of using YouTube yoga videos to address stress reduction before and after participating over a two-week period. A review of related literature was examined and Tsai's theory was the theoretical framework applied to the stress nursing students experience as they take on the new role of caregiver. A descriptive design was used to compare data collected.

The results found that according to the Perceived Stress Scale, the intervention of YouTube classes did significantly reduce the stress level of these nursing students that participated in the study.

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## **Chapter 1**

### **Introduction**

Stress is a universal problem that anyone can experience. However, nursing students are under vast amounts of stress due to the demanding and rigorous academic coursework and high expectations of clinical performance. Moscaritolo (2009) stated that some of the most common stress and anxiety factors for undergraduate nursing students were first time clinical experiences, fear of making a mistake, being able to perform clinical skills, evaluations from faculty, lack of support by nursing personnel, and a discrepancy of what is taught in class versus what is practiced at clinical rotations. Other stressors include food changes, unbalanced diets, varying environments, monetary problems, self-expectations, and expectations from classmates and family (Kim, 2014).

Finding tools for stress reduction is a necessity for the nursing students' success during undergraduate education and also for meeting the demands of a nursing career. Yoga is unique in the way it integrates various breathing patterns, postures, and meditation. Yoga differs from exercise in the fact that there is a movement of prana, the energy or life force through the body, with the intention of allowing opening and letting go. The basis is one of noncompetitiveness, especially with one's own ego. Faulds (2006), states that sequencing of yoga postures allows for strengthening and stretching of the entire body, which releases chronic tension. We will look at the effects of yoga practice as such a tool in this research study.

### **Background of the Problem**

Clark and Pelicci (2011) explored several classic studies that have demonstrated that nursing students have high levels of stress and could benefit from learning ways to manage this

stress during their academic endeavors along with clinical experiences. They went on to observe that, if these stressors are not properly managed, they can lead to negative physical and mental health, and can ultimately affect overall quality of life. Blaug, Kenyon, and Lekhi (2007) identified the effects of stress to include insomnia, headache, palpitations, fatigue, muscle pain, and increased risk for respiratory infections. This is compounded with common mood and behavioral effects such as anxiety, anger, overeating, sadness, depression, and social withdrawal (Donovan, Doody, & Lyons, 2013). In their review of the literature, Lim, Leng, and Poon (2013) found that prolonged stress, if left unmanaged, could lead to acute and chronic health conditions such as high blood pressure and heart disease. The literature also supported that stress could increase risk-taking behaviors and habits such as smoking and poor diets. Moscaritolo (2009) noted that undergraduate nursing students who experience stress and anxiety is not a new phenomenon to nursing education. According to Lim et al. (2013), there have been many studies that have explored stress among professionals and the results have shown that nurses, in particular, experienced enormous levels of work stress.

## **Yoga**

Yoga dates back two thousand years and is one of the systems of Indian philosophy. Yoga is defined as a connection of posture (asana) and breath (pranayama). There are various types of yoga, ranging from very gentle movement to a yoga practice that is vigorously athletic.

According to Iyengar (1976), the eight limbs of yoga include Yama (restraints), Niyama (observances), Asana (posture), Pranayama (breathing), Pratyahara (withdrawal of senses), Dharana (concentration), Dhayana (meditation), and Samadhi (bliss) (Iyengar, 1983). Yama (restraints) is the moral basis for yoga. Practicing these restraints of non-harming, truthfulness,



non-stealing, energy containment, and non-coveting will allow the nursing student foundations for the right mind for yoga practice and nursing professional practice. Niyama (observances) is the ethical basis for yoga. This limb includes cleanliness, contentment, enthusiasm, self-study, and celebration of the spirit. Asana (posture) allows for strengthening the body, building stamina and resilience. During the course of the asana practice, mindful breathing (pranayama) connects the movement. Ujjayi pranayama is a controlled breath used in many types of Hatha yoga. This breath is a nasal breathing, with closed mouth, and constriction to the back of the throat. According to Faulds (2006), Ujjayi is also known in the Kripalu Style of Yoga as “Ocean Sounding Breath” or “Victorious Breath” (p.22). The design of Ujjayi pranayama allows the yoga practitioner to sustain the flow of the breath during warm up and posture, to maintain a uniform flow of the breath, and to gauge the pace and effort of the practice (Faulds, 2006). Mindfulness is defined as the process of witnessing the activity of the mind, recognizing unproductive thinking process, and letting go (Faulds, 2006). Pratyahara (withdrawal of senses) and the gaze (Drishti) are used for focus of the mind during the physical practice of yoga. This focusing of the gaze increases the state of mindfulness, allowing for the physical practice to unfold as a moving meditation. Pegrum (2001) describes Drishti as a process of steadying of the mind, as to not be distracted by stray thoughts, smells, sounds, and tactile impulses. Lama Surya Das, teacher of meditation since 1974, taught that Dharana (concentration) is “Concentration brings your attention to a pinpoint focus, and mindfulness leads you deeper into the fabric and texture of temporal reality (Das, 2011, p. 70)”. Dhayana (meditation) is the essence of yoga as a moving meditation is not the posture or the breathing, but the moment-by-moment experience of being fully present (Faulds, 2006). According to Iyengar (1976), yoga is defined as the cessation

of the fluctuations of the mind. This calming of the mind, being present in the moment, allows the practitioner the opportunity to let go of worry and regret, for the moment. With continuing yoga practice, comes a deeper and greater benefit. Samadhi (bliss) is the conclusion of the yoga practice is deep relaxation, which allows for relaxation, rejuvenation, and healing. Integration of yoga practice into a mindset will allow for benefits off the mat.

The theoretical framework will be Tsai's theory of caregiver stress. Tsai's theory was developed to address the stress family members' experience in the role of caregivers. For this study, Tsai's theory will be applied to the stress nursing students experience as they take on this new role of caregiver. Even though this application of Tsai's theory may differ from the original context, the researchers feel that the concept of this theory can be translated to nursing students.

### **Statement of the Problem**

The demands of coursework and the need to learn new skills to provide patient care are sources of stress for undergraduate students. A lack of stress management strategies in the nursing curriculum leaves these students at risk for stress related outcomes. Although research has been done to address the effects of stress on health care providers, methods and assessment tools used to study stress in nursing students in the United States have been varied, thus limiting comparison of results between studies (Lim et al., 2013).

### **Research Question and Hypotheses**

Among undergraduate nursing students, is there a difference in stress levels as measured on the PSS before and after participating in a YouTube yoga program?

The following are hypothesized:

H<sub>0</sub>: As measured on the PSS, there is no difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

H<sub>A</sub>: As measured on the PSS, there is a difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

### **Definition of Terms**

1. Stress- “a physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation” (“Stress,” 2015).
2. Undergraduate Associate of Science in Nursing- One of three pathways to meeting eligibility requirements to sit for the National Council Licensure Examination (NCLEX-RN) to become a registered nurse (National Council of State Board of Nursing, 2016).
3. Yoga- a series of exercises that involves different physical postures, positions, breathing techniques, and meditation for physical and mental health (“Yoga,” 2015).
4. YouTube- an internet website that allows videos to be uploaded and viewed.

### **Need for the Study**

The purpose of this quantitative study is to investigate the effect participating in a YouTube Yoga Program has on stress levels of undergraduate nursing students. There is a gap in previous studies addressing using yoga for stress relief in nursing students. Conducting a CINAHL Complete search using the terms nursing student AND stress AND yoga NOT patients yielded 9 articles. Of the 9 articles, only four were relevant (see Chermomas & Shapiro, 2013; Conley, Durlak, & Dickson, 2013; Ewing, Ryan, & Zarco, 2007; Shirey, 2007). Among the four relevant articles, yoga was not the sole focus, and in two of the articles, students other than nursing students were included in the study.

Kim (2014) noted that yoga interventions had been done on medical students in previous studies, yielding an overall decrease level of stress and improvement in general well being. Most studies focusing on yoga for nursing students' stress management had either a mixed population with other health care professionals or mixed methodology with meditation.

### **Significance of the Problem**

Stress has the potential to impact many areas of a person's life: personal stability, daily functioning, illness development, and interference in ability to learn and retain information, life satisfaction, interaction with others, and ability to care for others (Moscaritolo, 2013).

Detrimental effects of unmanaged stress among nursing students can include impaired cognitive processes as well as health problems. Academic performance can suffer and ultimate failure can occur if stress is not properly managed and handled. In the clinical setting, stress can increase risks for mistakes which can have a direct impact on patient care (Lim et al., 2013). Stress can lead to acute and chronic health problems such as high blood pressure, heart disease, diabetes, obesity, and a sedentary lifestyle (Lim et al., 2013). In addition, literature reviewed by Clark and Pelicci (2011) has shown that nursing students are at a higher risk for addictive behaviors and that substance abuse for nurses typically begins while they are in nursing school. Clark and Pelicci note the following statistics:

“24% to 86% of nursing students have used alcohol on any given week and with one study finding up to 54% have binged during any given week. These rates are higher than rates for the general population and there has been a call for nursing students to be a target group for primary prevention and early intervention with substance abuse issues.”

(p. 14).

The authors attribute this increase risk to stressful circumstances.

In light of these findings, the present study assumes nursing students experience stress. The purpose of our study is to evaluate the effectiveness of yoga as a strategy to lessen the effects of stress in this population. All undergraduate nursing students could benefit from this study. The findings may be applicable to practice, education, and/or administration by integrating the practice of yoga into nursing curriculums.

### **Assumptions**

For this study, the following assumptions were made:

1. Undergraduate nursing students experience stress.
2. Participants will answer self-assessment survey questions honestly.
3. Participants will provide an honest self-report of their participation in the YouTube yoga classes.
4. Participants will have access to a computer and the internet to view YouTube videos.
5. Participants will understand English language and direction.
6. Participants will take responsibility for any physical limitations that would be contraindicated in these YouTube yoga videos.

### **Summary of the Problem**

The pressure of nursing school and being able to perform in the clinical setting can cause tremendous amounts of stress and subsequent anxiety. If left unmanaged, stress can affect one's entire life physically and mentally. Nursing students need to have a way to cope and manage their stress. This study will explore the effects of yoga on the stress levels of nursing students,

and will answer the question: Does participation in a YouTube yoga program decrease stress levels in undergraduate nursing students?

## **Chapter 2**

### **Review of Literature**

This chapter will explore stress in nursing students, yoga as a stress management strategy for nursing students, and the theoretical framework.

#### **Stress in Nursing Students**

Stress is a universal problem that exists in our daily world. Blaug, Kenyon, and Lekhi (2007) noted that, if left unmanaged, stress can lead to negative health outcomes such as insomnia, headaches, fatigue, and muscle pain. An alarming trend in college student health was the lack of taking care of oneself and the increase in student stress (Clark and Pelicci, 2011). Stress can ultimately affect overall quality of life, especially in nursing students.

In a study done by Shirey (2007), it was noted that along with stress came the emotion of anger. If this emotion is not dealt with by learning how to manage stress, it can lead to irrational decisions that can put patients in danger as well as other nursing students and faculty (Shirey, 2007). The goal in this particular study was to offer exposure to mindfulness based stress reductions (MBSR) strategies early in nursing schools as a tool to help reduce stress in nursing students. Their study involved using a sample of 23 baccalaureate nursing students in an 8-week MBSR course. They had weekly sessions where the students were taught mindfulness practices, which included deep reflection, attention to one's internal environment, moment-to-moment focus, and a disregard to the external environment. Also, as part of the course, instruction was provided for guided mindfulness through the use of sitting and walking meditation and the use of yoga (Shirey, 2007). Students kept a daily journal to note innermost thoughts and interactions. A pre and posttest was administered using the Derogatis Stress Profile (DSP) to assess the level

of stress, and the Interpersonal Reactivity Index (IRI) to evaluate empathy and recordings of attitude and behavior changes after regular meditation. The results showed that 63% of the participants reported changes in how they thought and felt. One of the most important findings were 57% of the participants reported an increased ability to handle stress, while 60-88%, respectively, reported other positive findings such as greater self confidence, more hopeful and assertive, and learned skills with lasting value (Shirey, 2007).

According to Beddoe and Murphy (2004), high stress and anxiety impede concentration, memory, and problem solving skills, which can adversely affect academic performance. They conducted a study with 23 baccalaureate-nursing students involved in an 8-week mindfulness-based stress reduction (MBSR) course on stress and empathy. Pre and posttest were administered using the Interpersonal Reactivity Index (IRI) and the Derogatis Stress Profile (DSP). Participants used guided meditation audiotapes at home and had journal assignments. Mindfulness was presented using various techniques such as the body scan, sitting meditation, Hatha yoga, and walking meditation. Of the 23 volunteers, only 18 students completed the course, and of the 18, only 16 completed both the pre and posttest. Results showed that student participants expressed high levels of attitude and behavioral changes. Beddoe and Murphy found that 63-88% respectively, of the participants reported changes in relationships, greater self-confidence, more hope, and felt more assertive. Thirteen of the 16 participants reported feelings of increased ability to handle stressful situations, and 14 reported learning something of lasting value from the course. The intention of the study was to provide the students with tools to cope with stress- both personal and professional, and foster empathy through intrapersonal knowing (Beddoe & Murphy, 2004).



Moscaritolo (2009) stated that the learning that occurs in the nursing environment, mainly classroom and clinical, tends to present challenges that give nursing students high levels of stress and anxiety. Moscaritolo also noted the importance of clinical nursing faculty being able to foster a supportive learning environment conducive to student learning. The main purpose of her article was “to provide clinical nurse faculty with the most current literature related to humor, peer instructors and mentors, and mindfulness training as strategies to decrease undergraduate student nurse anxiety in the clinical setting” (p.17). It is of the utmost importance that clinical instructors be aware of the increased anxiety and stress that nursing students may experience during clinical rotations and training (Moscaritolo, 2009).

Research suggests that the degree of stress nursing students experience increases as they progress in their education. Jimenez, Navia-Osorio, and Diaz (2010) conducted a study to identify the differences of stress and health between novice and experienced nursing students. The study involved 357 students from all 3 years of a nursing diploma program at a Spanish nursing college over an 8-month period. There were two surveys used in this study: a 30-question Perceived Stress Scale survey and a 22 question Biopsychosocial Response Scale. It was noted that perceived clinical stressors were more intense than academic stressors. The results of the study demonstrated that first year nursing students reported to be generally healthy, while second year nursing students reported poorer health and more psychic anxiety than the first and third year students (Jimenez et al.).

## **Yoga as a Stress Management Strategy for Nursing Students**

Beddoe and Murphy (2004) observed that coping with stress is an important facet of nursing education, but stress management is not included in most curriculums. Clark and Pelicci (2011) observed that nursing students have high levels of stress and could really benefit if they were able to learn how to manage their stress while pursuing their academic journey.

According to Kim (2014), there are various ways to reduce stress, yoga being one of them. Kim conducted a randomized controlled trial to evaluate the effects of yogic exercises on life stress and blood glucose levels. Study participants consisted of 27 randomly selected undergraduate female nursing students aged 20-23 years. Of the 27 students, 12 students were assigned to an exercise group where they did yogic exercises, consisting of physical exercise (*suryanamaskara*) combined with relaxation and meditation (*shavasana* and *yoga nidra*) for 60 minutes one day a week for 12 weeks, while the other 15 students were the control group. Participants were then asked to fill out the Life Stress Scale for College Students to measure life stress pre and post study along with postprandial blood glucose levels measured by a digital glucometer. The LSS results pre-intervention indicated no significant differences between the 2 groups; however, there was a significant difference in the stress scores post intervention, particularly in those who were assigned to do the yoga exercises. The postprandial blood glucose levels significantly differed between the 2 groups. For the yoga group, the average post intervention glucose level was significantly decreased compared to the average pre intervention blood glucose. For the control group, the average post intervention blood glucose was significantly increased compared to the average pre intervention blood glucose. Kim explains, “Breathing exercises during yoga practice reduces sympathetic tone, increases parasympathetic

activity, and help to reduce stress in yoga practitioners. Meditation also brings about a hypometabolic state and reduces stress induced by sympathetic over activity” (Kim, 2014, p. 2003).

It is important that nursing students utilize relaxation techniques due to the stress that nursing practices ensue. In a study done by Chow and Kalischuk (2008), the importance of self care had been highlighted in most nursing curriculums, however, students’ perspectives on and about self care was not well understood. This study took place in Western Canada where it examined degree, diploma, and post-diploma undergraduate nursing students’ self-care behaviors. Students were given a 27-item questionnaire asking about sleep, diet, exercise, fluid intake, weight, checkups, relaxation, complementary therapy use, alcohol intake, health goals, and smoking habits. Instructors of the nursing program administered the questionnaire to their class, and students were asked to complete the questionnaire on a voluntary basis. If students did not wish to participate, the questionnaire was left blank and returned in the envelope. Of the 330 students, 211 students responded.

Results from the questionnaire were broken up into different categories: meeting daily needs, health-promotion activities, and engagement in health and healing modalities. In regards to this specific study and its relevance, the focus is on the results of engagement in health and healing modalities. The study found that 76% of the students reported they personally used complementary therapies. Nursing students were asked to identify which complementary therapy they were most satisfied with. Student response ranged from the most popular being massage, vitamins, chiropractic, all of the complementary therapies, and finally yoga (Chow & Kalischuk, 2008). Since nursing practice is stressful, it is important that nurses utilize relaxation

strategies. “The most popular way for nursing students (n=208, 99%) to relax was using complementary therapies such as yoga, music, prayer, meditation, deep breathing, or massage” (Chow & Kalischuk, 2008, p. 34).

### **Theoretical Framework**

Pao-Feng Tsai’s theory of caregiver stress served as the framework for this study. This theory is based on Sister Callista Roy's adaptation model, which focuses on holistic nursing using both flexibility and change (McEwen & Wills, 2011). This middle range theory is based on a humanist philosophy with an emphasis on subjective experience as a source for knowing, and that every individual has a range of coping abilities. It is used to predict levels of caregiver stress based on age/gender/ relationship and to assess the caregiver’s objective burden, social roles, and the presence or lack of social support and other stressful life situations. This theory provides a method to test the Roy Adaptation Model (RAM) in chronic illness caregiving (Tsai, 2003). Underlying assumptions related to this theory, are: (a) caregivers can respond to changes in the environment, (b) caregivers determine how they respond to these changes, (c) caregivers’ adaptation is a sum of their environmental stimuli and adaptation level, and (d) caregivers’ behaviors as a result of coping mechanisms are results of chronic caregiving (Tsai, 2003). Even though Tsai’s theory was directed towards family caregivers, the researchers feel that it is appropriate to extend this theory definition to include nurses and nursing students as caregivers.

### **Application of Framework to the Study**

Tsai’s model represents four adaptive modes that make up the framework of the theory. In the present study, each adaptive mode correlates with some aspect of nursing students’ stress or their adaptation to stress. The physiologic-physical mode addresses how stress affects the

student nurse in both physiologic and physical symptoms. Self-concept-group-identity mode addresses how student nurses rely and identify with other student nurses as well as with other nurses, nurse instructors, and nurse preceptors. The role function mode addresses how the student nurse begins to take on the responsibility and the stress related to care giving.

Interdependence mode addresses the relationship between the students due to their purpose and structure in their groups will potential of these relationships as individuals and as a group will relate to the process of adaptation (McEwen & Wills, 2011, p. 172).

The application of this theory to nursing students further aligns with the conceptual framework as follows:

1. *Objective burden*: nursing school
2. *Stressful life event*: clinical rotations and academic testing
3. *Social support*: yoga classes
4. *Social roles*: nursing student and more
5. *Demographic information*: gender, age, income, education level

(Tsai, 2003)

### **Summary of Literature Review**

Stress levels in health professionals are addressed in many publications and academic journals, with inclusion and reference to undergraduate nursing students. With stress comes health related issues such as risk for substance abuse, high anxiety levels, and decreased student performance. The literature suggests that there is a need for more studies addressing stress levels and coping tools in nursing students. Yoga has been found to decrease stress levels in health professionals. This study will address specifically how YouTube yoga classes will address stress

levels in nursing students. To adequately gauge stress levels, the PSS will be used, as it has been an accepted scale used for decades to determine measurements of stress levels.

Tsai's theory is the framework for this study and guided the review of literature. Central concepts including objective burden, stressful life events, social support, social roles, and demographic information explain the extent to which student nurses will be able to adapt to stress levels during the course of their study to obtain their Registered Nurse (RN) degree.

## **Chapter 3**

### **Methodology**

This study investigated the differences in stress levels of nursing students before and after participating in a YouTube yoga program for two weeks. It is important to understand the stress levels in undergraduate nursing students in order to help them learn how to effectively manage stress during their academic and clinical journey. Ultimately, learning to cope with stress will give these students skills to help them during their nursing education, their nursing career, and many other stressful life situations. In this chapter, the research design, setting of the data collection, sample, ethical considerations, data collection, and analysis will be discussed.

#### **Research Design**

A pretest-posttest design was used to investigate the differences in stress levels before and after the intervention of a YouTube yoga program. Students filled out a Perceived Stress Scale (PSS) before and after the intervention, along with a researcher-developed demographics survey.

#### **Setting**

The setting took place in the choosing of each participant that was equipped with a computer and internet for viewing the YouTube yoga videos.

#### **Sample**

A convenience sample of undergraduate nursing students who were currently in nursing school at a college located in rural Northwest Pennsylvania were recruited for the two-week study. Other prospective undergraduate nursing students were invited using social networking associated with YouTube sharing such as Facebook. The sample size for this study was 53

participants, with 15 usable surveys returned both before and after the intervention. Inclusion criteria included all genders, age, and enrollment in an undergraduate nursing program. Students had to be English speaking and also have access to a computer and Internet. Exclusion criteria included any student who currently had a regular yoga practice of at least one hour per week. For safety concerns, students were responsible to opt out if physical limitations or restrictions would classify this practice as inappropriate and/or contraindicated.

### **Ethical Considerations**

There were no real ethical concerns or ethical threats regarding this study. Permission to conduct the study was obtained from Clarion University Institutional Review Board (Appendix A) and from Clarion University School of Health Sciences, Department of Nursing to solicit the participants. Consent (Appendix B) was obtained through informed waiver that described the study, goals of the study, and the expectation and responsibility of the participant. The participants of the study were anonymous. The anonymous option of survey submission was selected via SurveyMonkey to ensure anonymity. The investigators, the research study chair, and committee were the only ones to see the completed surveys. The target population was nursing students; so it was assumed that these participants had the emotional, mental, intellectual, and physical stamina to participate in basic yoga classes. The data collection was processed through SurveyMonkey. This data was saved in a secure manner until completion of the thesis, at which time it will be destroyed. The researchers have completed the Collaborative Institutional Training Initiative (CITI) training for protection of human subjects and understand and followed these guidelines for this research project prior to the start of this study. Permission



is written to use the PSS for the purpose of this project, which is stated on the website <http://www.mindgarden.com/products/pss.htm> (Cohen, 1994).

## **Instruments**

The primary research tool that was used to evaluate data for this study was the Perceived Stress Scale (PSS) (Appendix C), which measured the stress levels before and after the intervention. *The Perceived Stress Scale* (PSS) was developed by Cohen, Kamarch, and Mermelstein (1983) as an objective measure of nonspecific stress. The PSS was developed while comparing other scales of measurement of stress, namely the modified version of the College Student Life-Event Scale (CSLES) and the Social Avoidance and Distress Scale (SADS). The results of a study with college students demonstrated the tool's reliability and validity (Cohen et al., 1983, p. 394).

The original PSS consisted of 14 questions. For this study, the more widely used 10-question version of the PSS was used. The rating scale ranges from 0 to 4, with 0 = Never, 1 = Almost Never, 2 = Sometimes, 3 = Fairly Often, and 4 = Very Often (Cohen, 1994). This tool was appropriate for this study in the fact that it measures perceived stress over the period of a month, which is significant in that the time period of other life event scales span six to 12 months (Cohen, 1994).

The PSS is an established tool for measuring stress. In an evaluation study of the 10-question PSS, Lee (2012), states that the coefficient values  $>.70$  are usually recommended, and found "test-retest reliability of the PSS-10 was assessed in four studies, and met the criterion of  $>.70$  in all cases" (p. 122).

In addition to the 10-question PSS, the second instrument was a researcher-developed tool added to the SurveyMonkey survey for collection and evaluation of demographics (Appendix E). Demographic data included whether students were a first or second year associate degree student or other, gender, age, and if they were a Clarion University of Pennsylvania student or not. Results allowed the researchers to draw possible relationships between demographics and perceived stress levels.

### **YouTube Yoga Classes**

The intervention for the study was four yoga classes over the course of two weeks. Each class built upon the previous class, and became less instructional. This allowed the student the opportunity to ultimately achieve a yoga practice that is quieter and more introspective. (Appendix F). For references of descriptions on the yoga poses see Appendix G.

The first class was a beginning yoga introductory class. It was the most instructional of the series. This class began with a sitting meditation and breathing awareness, and then transitioned to standing poses. The yoga class continued with the student supine. It included stretching, a simple inversion, and a restorative pose at the end.

The second class was a flowing yoga, which allowed for flow of yogic energy- *prana*. The class began in Childs pose (53) and continued to hands and knees for variations of the six movements of the spine. Dolphin pose (12), Dolphin pushups (13), and Dolphin Plank (11) built core and upper body strength and stamina. The class continued supine for hamstring stretching, Happy Baby pose (21), and Dead Bug (9) pose. The class ended in Bridge pose (2) and Savasana (31).

The third class focused on Moon Salutations. This version of Moon Salutations was conservative and therefore more accessible for students with muscular and joint tightness. The Moon Salutations series is a series of twists and side stretches, which allowed for calming of the nervous system and releasing of muscular tension and tightness (Faulds, 2006). The class continued supine for hamstring stretching, Happy Baby pose (21), and Dead Bug pose (9). The class ended with Bridge pose and Savasana.

The fourth and final class focused on Sun Salutations. This is the basis for many flow yoga classes. There were modifications offered. The benefits of Sun Salutations included creating heat and energy for strengthening, stretching, focus, and tension release (Pegrum, 2001). The class continued with simple forward bends, a counter pose, and core strengthening. Half Shoulder Stand pose (19) allowed the student's nervous system to quiet and become centered. The class ended in Savasana.

### **Procedures for Data Collection**

Data for this research study began with the investigators recruiting the target population for participation. The target population was undergraduate nursing students at a college located in rural Northwest Pennsylvania. With permission of the students' instructor, the investigators were present to present the purpose of the study and related information to the first and second year students during a classroom session. Related information included the detailed consent for participation, instructions for submitting the surveys, and the investigators' contact information.

Surveys were distributed to the undergraduate nursing students using various avenues. They were initially posted through LISTSERV to all ASN and BSN students enrolled at Clarion University of Pennsylvania (CUP). This is an email access to these students who have signed up

to receive selected communication. The most successful way to elicit participation in the study was a face-to-face visit to the first and second year ASN nursing students at CUP. Additional flyers were also distributed throughout the community through nursing department colleagues and educators. The researchers were able to increase the exposure of the study by linking the YouTube videos and SurveyMonkey to Facebook. These posts were public, inviting nursing students and their friends and families to “share” the opportunity to participate in the study. The researchers received 21 pre-participation surveys from the second year students and 13 from the first year students at CUP. There were 19 nursing students from other schools of nursing that also returned pre-participation surveys. The total of pre-participation surveys was 53. Even though the survey was anonymous, it was a requirement of the Institutional Review Board (IRB) of Clarion University of Pennsylvania (CUP) that signed consents would be required. Along with the signature on the final consent page, email address was requested. This enabled the researchers the opportunity to send two email reminders to the participants on the timeframe of participation and closing dates of the study.

The yoga intervention took place over a two-week period with two classes a week, totaling four yoga sessions. The first step was for participants to fill out the pre intervention survey via SurveyMonkey prior to starting the yoga classes. It was the responsibility of the participants to complete the Perceived Stress Scale (PSS) honestly. Step two was to access the posted yoga classes on YouTube at their convenience. Each class was approximately 40 minutes long and went in progressive order from the previous session. The third step, after completion of the 2-week class, was for participants to fill out the post intervention PSS via SurveyMonkey. If at any time a participant felt uncomfortable or wished to withdraw from participation before the

end date, they were free to do so. Finally, the participants had one week to submit the final survey after the two-week yoga program was completed.

### **Summary of Methodology**

Addressing the substantial amount of stress that undergraduate nursing students are under, a study comparing the students' perceived stress was measured before and after participation in YouTube yoga classes. This population of students must contend with multiple levels of stress factors, including substantial academic knowledge and demanding clinical and lab requirements.

The sample was a convenience type, with a goal of 30 volunteers enrolled in an Associate of Science in Nursing Degree program. No personal identifying data including name or social security numbers were obtained. The goal for returned surveys was at least 20 usable surveys. This study had an initial total of 53 pre-participation students and a final total of 15 post-participation students.

## **Chapter 4**

### **Results and Discussion**

This chapter includes the results from the research study. Demographics will be discussed and how these were factors in the final outcome. Analysis of the collected data will be presented comparing stress levels of the nursing students both before and after participation in the YouTube videos, as well as which areas the most change was noted. Interpretation of these findings will include acceptance or rejection of the null hypothesis. Finally, possible limitations of this study will be discussed related to the findings.

#### **Demographics**

There were 53 total pre-participant respondents to the research survey. These included 20 first year and 33 second year students. All respondents were Associate of Science in Nursing (ASN) students. These included five male students. Thirty-four were Clarion University of Pennsylvania (CUP) students and 19 were non-CUP students. Twenty-seven students were 25 years or older and 26 students were under 25 years old.

There were 15 total post-participant respondents to the survey. These included 10 first year and 5 second year students. The respondents were almost all female, with only one male first year student. Eight of the 15 students were 25 years or older. Seven of the 15 students were CUP students and eight were not CUP students.

Table 1

*Frequency Distribution of Post-Participation Students' Characteristics (n = 15)*

Characteristic	Number (Percent)
Gender	
Male	1 (6.67%)
Female	14 (93.33%)
Age	
Under 25	7 (46.67%)
25 or older	8 (53.33%)
CUP student	
Yes	7 (46.67%)
No	8 (53.33%)
Class status	
First year	10 (66.67%)
Second year	5 (33.33%)

### **Analysis of Survey Results**

Results from the total PSS scores were compared from the pre-participation and post-participation surveys returned by the 15 respondents completing the final survey. These scores were weighted on a scale of 0-4 on a Likert scale, with 4 being the highest stress levels. The 10 questions were analyzed using a weighted average for each question using SurveyMonkey. Four questions were “positive” questions that required reverse weighting in SurveyMonkey.

Overall results from the pre-participation and post-participation surveys showed decreased scores for the weighted average for each question of the PSS. Results of the total average scores for the students' PSS decreased from 22.13 to 17.66. A score of 21 and over is rated as “much higher than average”, whereas a score of 16-20 is rated as “slightly higher than average” (Cohen, 1994).

Table 2

*Perceived Stress Scale Survey Responses From ASN Students (n=15) Before Participating in YouTube Yoga Classes*

Survey Item	Responses										Weighted Average
	Never		Almost Never		Sometimes		Fairly Often		Very Often		
	N	%	N	%	N	%	N	%	N	%	
1. that you been upset because of something that happened unexpectedly.	0	0.00	3	20.00	6	40.00	5	33.33	1	6.67	2.27
2. that you were unable to control the important things in your life.	0	0.00	5	33.33	1	6.67	8	53.33	1	6.67	2.33
3. nervous and stressed.	0	0.00	0	0.00	3	21.43	4	28.57	8	53.33	3.33
4. confident about your ability to handle your personal problems.*	0	0.00	4	26.67	3	20.00	6	40.00	2	13.33	1.60
5. that things were going your way.*	0	0.00	2	13.33	8	53.33	5	33.33	0	0.00	2.13
6. that you could not cope with all the things that you had to do.	1	6.67	4	26.67	3	20.00	5	33.33	2	13.33	2.20
7. been able to control irritations in your life.*	2	13.33	1	6.67	7	46.67	4	26.67	1	6.67	1.93
8. that you were on top of things.*	0	0.00	3	20.00	6	40.00	6	40.00	0	0.00	1.80
9. been angered because of things that were outside of your control.	0	0.00	7	46.67	0	0.00	5	33.33	3	20.00	2.27
10. difficulties were piling up so high that you could not overcome them	0	0.00	4	26.67	5	33.33	4	26.67	2	13.33	2.27

Note. \*Questions 4, 5, 7, and 8 are presented here as answered, but reverse Likert scale represents analyzed data for weighted averages.



Table 3

*Perceived Stress Scale Survey Responses From ASN Students (n=15) After Participating in YouTube Yoga Classes*

Survey Item	Responses										Weighted Average
	Never		Almost Never		Sometimes		Fairly Often		Very Often		
	N	%	N	%	N	%	N	%	N	%	
1. that you been upset because of something that happened unexpectedly.	1	6.67	4	26.67	8	53.33	2	13.33	0	0.00	1.73
2. that you were unable to control the important things in your life.	1	6.67	3	20.00	6	40.00	4	26.67	1	6.67	2.07
3. nervous and stressed.	0	0.00	1	6.67	4	26.67	6	40.00	3	20.00	2.60
4. confident about your ability to handle your personal problems.*	0	0.00	1	6.67	3	20.00	6	40.00	5	33.33	1.00
5. that things were going your way.*	0	0.00	1	6.67	4	26.67	10	66.67	0	0.00	2.07
6. that you could not cope with all the things that you had to do.	2	13.33	5	33.33	5	33.33	1	6.67	2	13.33	1.73
7. been able to control irritations in your life.*	0	0.00	2	13.33	4	26.67	6	40.00	3	20.00	1.33
8. that you were on top of things.*	0	0.00	3	20.00	4	26.67	6	40.00	2	13.33	1.53
9. been angered because of things that were outside of your control.	4	26.67	4	26.67	2	13.33	3	20.00	2	13.33	1.67
10. difficulties were piling up so high that you could not overcome them	1	6.67	6	40.00	3	20.00	3	20.00	2	13.33	1.93

Note. \*Questions 4, 5, 7, and 8 are presented here as answered, but reverse Likert scale represents analyzed data for weighted averages.

Table 4

*Summary of PSS Survey Question Average Scores (n=15)*

Questions	Pre-survey	Post-survey	Difference
1	2.27	1.73	0.54
2	2.33	2.07	0.26
3	3.33	2.60	0.73
4	1.60	1.00	0.60
5	2.13	2.07	0.07
6	2.20	1.73	0.47
7	1.93	1.33	0.60
8	1.80	1.53	0.27
9	2.27	1.67	0.69
10	2.27	1.93	0.34

The highest weighted average of 3.33 from the pre-participation was from question #3 “... how often have you felt nervous or stressed?” (Table 2) The question #3 also resulted in the most significant change, a decrease of 21.93% in the weighted average of 2.60 in the post-participation PSS survey. The least change was in question #5: In the last month, how often have you felt that things were going your way? (Table 4)

## **Research Question Analysis**

Among undergraduate nursing students, what effect does participating in a YouTube Yoga program have on stress levels, as measured on the Perceived Stress Scale (PSS)?

**H<sub>0</sub>:** As measured on the PSS, there is no difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

**H<sub>A</sub>:** As measured on the PSS, there is a difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

GraphPad (GraphPad QuickCalc, 2016) software was used to determine statistical significance using a paired t-test. The group one values was the summary of each question's mean response before participating in the YouTube yoga classes. The group two values was the summary of each question's mean response after participating in the YouTube yoga classes. The results found that the two-tailed P value was less than 0.0001. Using  $\alpha = .05$ , then  $.0001 < .05$  is statistically significant. The mean of group one minus group two equals 0.4470. This represents a 95% confidence interval of this difference: from 0.2987 to 0.5953. The t-value was 6.8166, showing a significant difference between pre and post participation results.

The null hypothesis ( $H_0$ ) is rejected; as measured on the PSS, there is a significant difference in the scores representing stress levels of undergraduate nursing students before ( $M=2.21$ ,  $SD=0.46$ ) and after ( $M=1.77$ ,  $SD=0.44$ ) participation in a YouTube yoga program.

## **Discussion of the Results Related to the Theoretical Framework**

As stated before, Pao-Feng Tsai's theory was more directed towards family caregivers, but the researchers felt it was appropriate to extend this theory definition to include nurses and nursing students as caregivers. Each person has a range of coping abilities and by introducing yoga as a stress reduction tool, proved valuable in helping nursing students adapt and address

their objective burdens, social roles, and the presence or lack of social support and other stressful life situations.

This study supported the theoretical framework that by having a stress reduction tool, such as yoga, helped student nurses as they adapted to the stress levels they encountered during their course of study to become a Registered Nurse (RN). The results yielded in the posttest surveys showed that there was in fact a significant decrease in stress levels after completing the YouTube yoga classes compared to the pretest results of the PSS. Through the implementation of yoga among nursing students, it can add another stress reduction coping strategy to help decrease the overall stress levels that come while pursuing a nursing career.

### **Discussion of Results Related to the Review of Literature**

Stress as a major factor for nursing students' as they pursue an undergraduate education is at the forefront of the many obstacles to success. The results from the PSS scale represent these areas of stress as reported by the participating nursing students. Stress can ultimately affect overall quality of life, especially in nursing students. In the study by Shirey (2007), extensive stress leads to the emotion of anger. Results from question 9 of the PSS pretest survey asking "... how often have you been angered because of thing that were outside of your control" found the weighted average of 2.27, on a Likert scale of 0-4, with 2 being Sometimes and 3 being Fairly Often. Shirey went on to say that if anger is not dealt by stress management, it can lead to put patients, other nursing staff and faculty in danger. The goal in this particular study was to offer exposure to mindfulness based stress reductions (MBSR) strategies early in nursing schools as a tool to help reduce stress in nursing students, which included the use of yoga (Shirey, 2007). One of the most important findings were 57% of the participants reported an increased ability to handle stress (Shirey, 2007). We found that post-participants reported a decrease in the posttest

survey showed a weighted average of 1.77, a 19.91% decrease from a weighted average of 2.21 after participating in the YouTube yoga classes. This decreases the PSS stress level to between a 1 (Almost Never) and 2 (Sometimes). These results correlate with the Moscaritolo (2009) study stating that the education environment tends to present challenges that give nursing students high levels of stress and anxiety.

First year students represented a significantly greater number of respondents from the pre to the posttest PSS surveys, as compared to the second year students. There were 20 pretest first year participants, with 10 posttest participants (50% decrease); whereas there were 33 pretest second year participants, with only 5 posttest participants (85% decrease). This correlated with the research study by Jimenez, Navia-Osorio, and Diaz (2010) suggesting that the degree of stress nursing students experience increases as they progress in their education.

Student stress levels may be a contributing factor to the attrition from the 53 students that filled out the initial research survey to the 15 total that completed the classes and submitted the post-participation research survey. These results correlate with the Beddoe and Murphy's (2004) study with 23 baccalaureate-nursing students involved an 8-week mindfulness-based stress reduction (MBSR) course focusing on stress, using meditation and Hatha yoga. Of the 23 volunteers, only 18 students completed the course, and of the 18, only 16 completed both the pre and posttest. The intention of the Beddoe and Murphy study was to provide the students with tools to cope with stress. The intention our study was to provide a tool for undergraduate nursing students to reduce stress.

## **Limitations**

Limitations included numerous factors that affected this study. A convenience sample limits one's ability to generalize this study to the entire population of nursing students. The relatively small number of potential participants in the study was also a limitation.

Another major consideration was the time limitation for implementing the multi steps of this process; although the two week limitation for participating was necessary to meet the time constraints of the course. Time limitation is a significant stress factor for these students. This includes time spent in class, time studying vast amounts of information, and time spent in clinical rotation. More time would allow for more flexibility for the students to participate in the YouTube videos at times when their busy schedule allowed. A longer period of time would have also allowed for greater access to more students. Additionally, there are the time restraints of adult life, with 27 out of 53 (50.94%) initial respondents reported age as 25 and older. This adds additional adult life responsibilities and therefore more limitations on available time.

The word yoga has many preconceived notions attached to it. Ideas of having to be very flexible or chant Sanskrit terms are just a few ideas that come to mind. The researchers found that of the 77 initial ASN students at CUP that were asked to participate in the YouTube video yoga classes, only 34 students were willing to fill out the pre-participation survey and consent.

Finally, the major limiting factor is the stress of the demands of nursing school limits the students' options to address this stress. Many factors lend to the extent of nursing students' stress level. One factor is attrition of the number of students continuing onto the next level. There are many reasons for this attrition including personal decisions, economics, timing, academics, life events, and many more. The knowledge that a student may not continue to the next level is a significant stress factor.

## Summary

The process of data collection involved active recruitment to potential students. LISTSERV to Clarion University of Pennsylvania nursing students served as an introduction, but the face-to-face visit to Clarion University proved to be an important factor in the successful recruitment of potential participants. Nursing department colleagues and educators at other schools of nursing also enlisted their undergraduate ASN students for this project. The final post-participants totaled 7 (46.67%) from Clarion University and 8 (53.33%) from other schools of nursing. Access through email allowed for follow up of upcoming dates to these students. The demographics were included if the student was or was not a Clarion University of Pennsylvania student, year of education, age, and sex (Appendix E). The researchers were able to determine the participants who completed the post-survey by random number selected by the student, while still maintaining their anonymity.

Results of weighted average for each question of the PSS showed overall decrease stress levels in these students; also the total scores for the students' PSS decreased from an average of 22.13 to 17.66. A score of 21 and over is rated as "much higher than average", whereas a score of 16-20 is rated as "slightly higher than average" (Cohen, 1994). Interpretation of these findings found p value= 0.0001. Rejection of the null hypothesis states that there is a significant difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

## **Chapter 5**

### **Summary, Conclusions, and Recommendations**

#### **Summary of Findings**

Nursing students are under a heavy stress load while trying to learn and adapt to the nursing curriculum as well as learning patient care. Stress levels in health care professionals are addressed in many academic journals and publications, with inclusion and reference to undergraduate nursing students. The literature suggests that there is a need for more studies addressing stress levels and coping tools in nursing students. The lack of a stress reduction tool increases the nursing students risk for the negative effects that stress can cause physically and emotionally; particularly the risk for substance abuse, high anxiety levels, and decreased student performance. The rising popularity of yoga is one way to offer a stress reduction tool for nursing students.

The study was to evaluate whether or not participating in YouTube yoga could help reduce the perceived stress in undergraduate nursing students. Participants were asked to fill out perceived stress scale surveys (PSS) before and after participation in a two-week course of YouTube yoga sessions while maintaining complete anonymity. There were basic demographic questions asked for data purposes only.

Based on the findings of the study, the null hypothesis ( $H_0$ ) was rejected; as measured on the PSS, there was a significant difference in stress levels of undergraduate nursing students before and after participation in a YouTube yoga program.

#### **Implications for Nursing**

The use of yoga as a tool for stress reduction in undergraduate nursing students proved to be effective and was evidenced by the results of the PSS surveys. It has also been shown to



decrease stress levels in other health professionals based on the current literature. There was a significant difference in the stress levels of undergraduate nursing students before and after participation in YouTube yoga. This finding is applicable to nursing practice due to the tremendous amount of stress and anxiety that nursing school and clinical performance embody. By having a stress reduction tool, such as yoga, nursing students have a way to help manage not only their academic and clinical journey, but can implement and share this information with the patients they take care of during their nursing career.

Limitations to the study included time restraints, graduation and pinning ceremony approaching for second year students, attrition rates with first year students, and preconceived notions with the word “yoga.” One of the major limiting factors to the study was the mere fact that the stress of nursing school limits the students’ option to even address this stress.

### **Recommendations for Further Research**

This study can be used as a stepping off point for further research. Reviewing potential opportunities for increasing awareness, increasing participation, and increasing integration of these yoga practices into a tool for stress reduction is the ultimate goal. The biggest obstacle as found in the total individual scores from the PSS, found that these students’ stress levels “much higher than average” (Cohen, 1994). To make this study more available to these students, some suggestions would be to decrease the number of classes to two instead of four or increase the amount of time to participate from two weeks to four months. Finding time as the determining factor could be addressed by offering these four classes as part of the nursing education curriculum. This would address not only self care needs, but also cultural awareness and nursing care for patients and families in stressful situations. Beginning this process on a trial basis would

be a reasonable start, with analysis of results being determined by the nursing students themselves.

## References

- Beddoe, A., & Murphy, S. (2004). Does mindfulness decrease stress and foster empathy among nursing students? *Journal of Nursing education, 43*(7), 305-312.
- Bell, B.A. (2013). *Pre-test post-test design. Sage research methods*. Retrieved from <http://srmo.sagepub.com/view/encyc-of-research-design/n331.xml>
- Blaug R., Kenyon, A., Lekhi, R. (2007). Stress at work: A report prepared for The Work Foundation's Principal Partners. <http://tinyurl.com/kqcp867>
- Chow, J., & Kalischuk, R. (2008). Self-care for caring practice: Student nurses' perspectives. *International Journal for Human Caring, 12*(3), 31-37.
- Clark, C., & Pelicci, G. (2011). An integral nursing education: A stress management and life balance course. *International Journal of Human Caring, 15*(1), 13-22.
- Cohen, S. (1994). *Perceived Stress Scale, Mind Garden, Inc.* Retrieved from <http://www.mindgarden.com/products/pss.htm>
- Cohen, S., Kamarch, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*(4), 385-396.
- Das, S. (2011). *Buddha standard time: Awakening to the infinite possibilities of now*. New York, NY: HarperOne.
- Donovan, R., Doody, O., & Lyons, R. (2013). The effect of stress on health and its implications for nursing. *British Journal of Nursing, 22*(16), 969-973.
- Faulds, R. (2006). *Kripalu Yoga, a guide to practice on and off the mat*. New York, NY: Bantam Books. The Impact of Education on Nursing Practice. (2015). Retrieved from <http://www.aacn.nche.edu/media-relations/fact-sheets/impact-of-education>
- GraphPad QuickCalcs: T test calculator. (2016). Retrieved from <http://www.graphpad.com/quickcalcs/ttest2/>

- Iyengar, B.K.S. (1976). *Light on Yoga*. New York, NY: Schocken Books.
- Jimenez, C., Navia-Osorio, P., & Diaz, C. (2010). Stress and health in novice and experienced nursing students. *Journal of Advanced Nursing*, 66(2), 442-455.
- Kirk, M. & Boon, B. (2004). *Hatha Yoga illustrated*. Champaign, IL: Human Kinetics Books.
- Lee, E.H. (2012). Review of the psychometric evidence of the Perceived Stress Scale. *Asian Nursing Research* (6)2012, 121-127.
- Lidell, L. (1983). *The Sivananda companion to yoga*. London, UK: Gaia Books.
- Lim, M., Chow, Y., & Poon, E. (2013). Evaluation of meditation programmes used by nurses to reduce stress: A literature review. *Singapore Nursing Journal*, 40(3), 11-20.
- Little, C. (2013). Integrative health care: Implications for nursing practice and education. *The Journal of Alternative and Complementary Medicine*, 16(4), 1160-1163.
- McEwen, M., & Wills, E. M. (2011). *Theoretical basis for nursing (3<sup>rd</sup> ed.)*. Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Moscaritolo, L. (2009). Interventional strategies to decrease nursing student anxiety in the clinical learning environment. *Journal of Nursing Education*, 48(1), 17-23.
- National Council of State Board of Nursing. (2016). Retrieved from <https://www.ncsbn.org/nclex.htm>
- O'Regan, P. (2010). Complementary therapies: A challenge for nursing practice. *Nursing Standard*, 24(21), 35-39.
- Pegrum, J. (2001). *Ashtanga yoga*. New York, NY: Sterling Publishing Co., Inc.
- Polit, D.F., & Beck, C.T. (2014). *Essentials of nursing research: Appraising evidence for nursing practice* (8th ed.). Philadelphia, PA: Wolters Kluwer Health.

Sang Dol, K. (2014). Effects of yogic exercises on life stress and blood glucose levels in nursing students. *Journal of Physical Therapy Science*, (26)12, 2003-2006.

doi: 10.1589/jpts.26.2003

Shirey, M. (2007). An evidence-based solution for minimizing stress and anger in nursing students. *Journal of Nursing Education*, 46(12), 568-571.

Stress. (2015). In *Merriam-Webster's online dictionary* (11<sup>th</sup> ed.). Retrieved from

<http://www.merriam-webster.com/dictionary/stress>

Tsai, P. (2003). A middle-range theory of caregiver stress. *Nursing Science Quarterly*,

16(2), 137-145. Retrieved from <http://nsq.sagepub.com/content/16/2/137>

Yoga. (2015). In *Merriam-Webster's online dictionary* (11<sup>th</sup> ed.). Retrieved from

<http://www.merriam-webster.com/dictionary/yoga>

## Appendix A

### CLARION UNIVERSITY OF PENNSYLVANIA Institutional Review Board

**DATE:** March 1, 2016

**FROM:** Rhonda Clark, Chairperson  
Institutional Review Board

**TO:** Terry A. Gustas  
Tiffany Zajacs

**RE:** ARA Approved

Your application for Research Approval, Yoga for Stress Reduction in Nursing Students, Project 32-15-16, has been reviewed and approved as exempt. **Be sure that you include your IRB project number in your project cover letter and in any correspondence with the Administrative Office. Also, please include your approval number from the initial application, if submitting an addendum. Your IRB project number should appear on your informed consent and/or your survey instrument.**

Please review the following IRB policy guidelines, which cover your responsibilities as primary investigator:

**You must file written permission, which serves as consent, from the institution or facility with the Administrative Office (included in your IRB application). You must also retain all signed consent forms, if required for participation, for a period of three years after the end of the research approval period.**

**If your research extends beyond one year, you must submit a request for extension and an annual progress report.**

Principal investigators are responsible for reporting the progress of the research to the Administrative Office no less than once per year. Problems involving risks or changes in the research must be reported immediately.

**You must promptly report injury and/or unanticipated problems involving risks.** Principal investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any injuries to human subjects and any unanticipated problems, which involve risks to the human research subjects or others.

**You must report changes in the research.**

Research investigators are responsible for promptly reporting (in writing) to the Administrative Office, through their department heads, any proposed changes in a research activity.

Changes in research during the period for which IRB approval has already been given **shall not be initiated** by the research investigators **without IRB review and approval**, except where necessary to eliminate apparent immediate hazards to the subject. In such occurrence the IRB is to be notified as soon as possible.

**You must report noncompliance with this assurance.**

Research investigators and department heads are responsible for reporting promptly to the Administrative Office and the IRB any serious or continuing noncompliance with the requirements of this assurance or the determinations of the IRB.

**If your project is under continuing review (Expedited and Full-Board Applications), you may be requested to produce evidence that your research is following the guidelines provided in your application.** If your project is chosen for an audit, you will be notified.

**You must submit a research conclusion form, available on the IRB site, once your research project is completed. Please submit the research conclusion form to [irb@clarion.edu](mailto:irb@clarion.edu).**

Clarion University of Pennsylvania  
840 Wood Street, Clarion, PA 16214  
814-393-2774 (Phone)  
814-393-2825(Fax)

## **Appendix B**

### **YouTube Yoga classes Consent Form**

Project 32-15-16

#### **Principle investigators:**

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#### **Who we are and what the study is about**

We are graduate students from the Master's Program in Nursing at Clarion and Edinboro Universities of Pennsylvania. Tiffany is pursuing her degree as a Family Nurse Practitioner, while Terry pursues her degree as Nurse Educator. You are being invited to take part in a research study measuring the stress levels in nursing students before and after participation in four YouTube yoga sessions over the course of two weeks. The results will be used to determine if there is a significant level of stress reduction by participating in these yoga classes.

Ultimately, the intention is integrate yoga classes into the nursing curriculum. Please read this form carefully and email us any questions you may have before agreeing to take part in the study.

#### **Qualifications of presenters for safe and effective yoga practice**

Terry Gustas RN BSN has been teaching yoga since 2003, and became certified by Yoga Alliance in 2003. She has attended many teachers training and continuing training workshops



throughout the past 14 years. These include Art of Teaching Workshops with Laurel Hodory; Fundamental Training for Group Exercise Instructors, Bally Total Fitness; The Sacro-Iliac Joint (Part 1) and (Part 2), Donna Fahri; Journey to the Core, Ana Forest workshop; Diagnostic and Therapeutic Yoga with Gary Kraftsow; Anusara Yoga, Retreat at Kripalu with Todd Norian; workshop with Beryl Bender Birch; The Kripalu Methodology teacher certification with Naresh Ron King; Meditation and Yoga Retreat with Ani Trime Lhamo and Cyndi Lee; Anusara Yoga Workshop with Todd Norian and Ann Greene; workshop with Shri Dharma Mittra; Teachers Training Workshop with Rodney Yee; Ayurvedic Yogic Workshop with Connie Habash; Taoist Yoga: Comparative Anatomy with Paul Grilley; Pilates training, Bally Total Fitness; The Heart of Yoga, Convention in Miami; Omega Institute study with Shiva Rae, Aadil Palkhivala, Alan Finger, Bryan Kest, Rod Stryker, Beryl Bender Birch, Sarah Powers, Gary Kraftsow, and David Life; Iyengar yoga workshop with Joan White; Restorative and Therapeutic Yoga; Iyengar Yoga: Restorative and Therapeutic Yoga with Gabriel Halpern; Certification in Iyengar Style Yoga from Health Thru Yoga, 100 hours; and The Heart of Yoga, Convention in Miami Beach, Omega Institute, with Aadil Palkhivala, Ana Forrest, Nischala Joy Devi, Rodney Yee, Gurmukh Kaur Kalsa.

In addition, the instructional videos and thesis content has been under the advisement of yoga expert Lynn Duda. Lynn Duda is the owner of Linz-Exergetics, Inc., and has been teaching a variety of fitness classes for over three decades. She holds a 500- hour Experienced Registered Yoga Teacher (E-RYT) registration with Yoga Alliance, and a 200-hour Yoga certification with the Himalayan Institute. Her other certifications include group fitness through the American Council on Exercise (ACE) and personal training with the Aerobics and Fitness Association of America (AFAA). She has studies asana, meditation and philosophy with Doug Keller, Richard

Freeman, Donna Farhi, Cindy Lee, Dharma Mittra, David Swensen, Judith Hanson Lasater, Rolf Sovik, Shari Friedrichsen, Sandra Anderson, Ana Forrest and many other qualified teachers.

Lynn is also a PA licensed massage therapist and Reiki master.

### **Period of time required for subject participation**

This study will take place during the Spring semester 2016.

### **Description of all discomforts and risks**

YouTube yoga videos will include physical movement. Although minimal, there may be a risk of injury and post practice muscular discomfort.

### **Potential benefits**

Potential benefits include stress release, muscular tension relief, increase strength, increase flexibility, increase stamina, decrease blood pressure and heart rate, and coping mechanisms for stressful situations in the future.

### **Who can participate in the study?**

Student nurses who are enrolled in either an ADN or BSN program may participate in this study.

### **Student Consent of Personal Responsibility**

The student nurse agrees to the following:

1. That I will be participating in the YouTube yoga classes created by Terry Gustas RN BSN E-YRT MSN student in conjunction with Tiffany Zajacs RN BSN MSN student, under the direction and approval of Lynn Duda E-RYT, during which I will receive instruction pertaining to yoga and moving meditation for the intention of stress reduction. I understand that yoga requires physical exertion and I am fully aware of the risks and hazards involved.

2. I understand that it is my responsibility to consult with a physician prior to and regarding my participation in these yoga classes. I have no medical conditions which would prevent my full participation in these YouTube yoga classes.

3. I understand that it is my full responsibility for any risks, injuries or damages, known or unknown, which might incur as a result of participating in these YouTube yoga classes.

4. I understand that it is my full responsibility for any risks, injuries or damages, known or unknown, which might incur as a result of participating in these YouTube yoga classes, which include, but are not limited to, back injuries, knee injuries, hamstring injuries, wrist strains, and neck injuries.

5. I understand should any of these injuries either mentioned or not should occur while participating in this study that I should contact my primary care provider or the Clarion Student Health Center at 814-393-2121, if I am a Clarion student, as soon as possible.

6. I understand that participation is completely voluntary and there is no monetary compensation.

7. I understand that I have the option to withdraw from participation at any time.

### **Data collection**

- Students will be asked to fill in an online survey that includes five demographic questions and 10 Perceived Stress Scale questions. This survey will be requested both before practicing the YouTube videos and again afterwards. The PSS survey should take less than 10 minutes to complete. The students may decline to answer any questions and still participate in the study.
- The results from these surveys will be used for educational purposes of investigating the effects of yoga practice on perceived stress levels.

**Participation will be fully confidential**

The SurveyMonkey questionnaire is set to anonymous response only. The student will be asked to create a random seven digit number for reference to before and after questionnaires, for analyzing demographic data, and for assuring anonymity. Please complete your survey before initial participation and within one week afterwards.

**Statement of Consent:** I have read the above information and understand that the completion of the survey is voluntary. By signing, I hereby acknowledge for myself, my heirs, executors, and administrators waive and release any and all claims for damages I may have against Clarion University, Terry Gustas, and Tiffany Zajacs for any and all injuries that might be suffered while participating in these YouTube yoga classes.

I acknowledge that any physical activity, including these yoga classes, may lead to physical injuries.

Please scan this final page and email it to [yogathesis2016@gmail.com](mailto:yogathesis2016@gmail.com)

\_\_\_\_\_

\_\_\_\_\_

Signature of Participant

Date

Project 32-15-16

email \_\_\_\_\_

## Appendix C

### Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?..... 0 1 2 3 4
2. In the last month, how often have you felt that you were unable to control the important things in your life? ..... 0 1 2 3 4
3. In the last month, how often have you felt nervous and “stressed”? ..... 0 1 2 3 4
4. In the last month, how often have you felt confident about your ability to handle your personal problems? ..... 0 1 2 3 4
5. In the last month, how often have you felt that things were going your way?..... 0 1 2 3 4
6. In the last month, how often have you found that you could not cope with all the things that you had to do? ..... 0 1 2 3 4
7. In the last month, how often have you been able to control irritations in your life?..... 0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things?.. 0 1 2 3 4
9. In the last month, how often have you been angered because of things that were outside of your control?..... 0 1 2 3 4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? ..... 0 1 2 3 4

## Appendix D

### *Perceived Stress Scale Scoring Grid*

<b>Total Score</b>	<b>Perceived Stress Level</b>	<b>Health Concern Level</b>
0-7	Much Lower than Average	Very Low
8-11	Slightly Lower than Average	Low
12-15	Average	Average
16-20	Slightly Higher than Average	High
21 and over	Much Higher than Average	Very High

## **Appendix E**

### **Demographics Analysis Tool**

1. Are you a first or second year ASN nursing student? First or Second or Other
2. Are you a Clarion University of Pennsylvania student? Yes or No
3. Fill in a four digit number \_\_\_\_\_
4. What is your age? Under 25 OR 25 and over
5. Are you male or female?
6. Is this your pre-participation survey or post participation survey submission?

## Appendix F

### YouTube Yoga Classes

See Appendix G for explanations on yoga poses, noted the first time in parentheses.

#### **Class 1 Beginning yoga**

- Sit on your yoga mat, cross right leg in front of left. Soften your outward senses and begin to focus inward. Notice the natural flow of your breath to help you become completely present. Scan your body from head to toes, notice if you are holding onto any tension that you are able to release.
- Seated Sun Breath: Begin with arms extended beside your body, elbows straight, fingertips touching the mat. On an inhale, lift the arms up overhead until the palms touch. On an exhale, lower both arms until the finger tips touch the mat. Repeat four times. On the fifth round while both arms are lifted, place the right hand on the mat, and extend the left side of the body. Remain here for three breaths. Lift the right arm back up, and repeat on the left side.
- On an exhale flex hips and fold forward, placing your hands on the floor. Fold forward as far as you can comfortably. Hold for five breaths. Change the crossing of the legs and repeat to the other side.
- Come onto your hands and knees then shift your weight onto the balls of the feet for Squat pose variation with knees together (34). Hold here for three breaths.
- Stand at the front of your mat for Mountain pose (28).
- Beginning with right leg forward: Warrior 1 (38), Warrior 2 (39), Side Angle pose (32), Triangle pose (36), and Wide Legged Forward Bend (40). Hold each pose for five breaths. Return to Mountain pose on the front of the mat. Repeat sequence on left side.
- Balance on each side Tree pose (35).



- Lie prone on your mat for Sphinx pose (33), Cobra (7), Locust (24), Crocodile (8), and Childs pose (6).
- Sit on the mat, legs extended, for Head-to-Knee Forward Bend pose (22). Begin with the right leg extended, and the left foot on the right inner thigh. Stay in the pose for five breaths then repeat to the other side. Return to the starting position of legs extended.
- Boat pose (1). Explore variations by straightening the knees and releasing the hands from the legs.
- Lie supine (on your back). Draw the right knee towards your chest; change the hands to behind your right thigh. Flex and extend the right knee five times. Repeat on the left leg.
- For core strengthening, float the right straight leg from the mat a few inches. Reach for the ceiling with the right arm and lift the chest and release 10 times. Repeat to the other side.
- Happy Baby pose (21). Hold here for five breaths.
- Place your feet on the mat for Bridge pose (2). If you can interlace your fingers underneath your back, with your shoulder blades comfortably close together. If you have a block available, you can squeeze the block between your thighs. Hold for five breaths.
- Half Shoulder Stand pose (19), lift the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. If this is not appropriate, you may simply lift the legs and arms for Dead Bug pose (9).
- Lie on your back for Savasana (31), final relaxation. Allow your breath to become quiet and hardly noticeable. Scan your body for any places of tension or tightness. Allow any thoughts float through your mind without being engaged. Stay for at least five minutes, longer if you can.

## **Class 2 Energy Flow Yoga**

- Begin in Childs pose. Bring your attention to the breath. Become present in your body at this moment.
- Come to hands and knees. Inhale, look up curve the spine in for Dog Tilt (10). Exhale, round the spine upwards for Cat Stretch (3). Repeat 3 times. On the right side, add forehead to the knee on the inhale with Cat Stretch, exhale, extend leg with Dog Tilt. Repeat five times. Leave leg lifted. Come to forearms, interlace fingers. Bend knee, ankle flexed, heel to hip, long extension, five times. Rest in Childs pose. Repeat sequence to the other side.
- Come to hands and knees. Come to forearms and interlace fingers. Tuck the toes under and push the hips up for Dolphin pose (12). Lower the chin towards the floor for Dolphin pushups (13). For a variation, lower the knees. Repeat five times.
- Move the feet back for Dolphin plank (11). Hold for ten breaths. For a variation, lower the knees. For increased strengthening, lift one leg at a time.
- Stand at the front of your mat in Mountain pose. Inhale, sweep the arms up to Hands over the Head pose (20). Exhale Forward Bend (16). Inhale, head up. Exhale, step the right leg back into Lunge pose (26). Drop the right knee, keep the back toes tucked under to stay off the knee cap, left knee over left ankle. Keeping the left heel and right knee in place, shift the weight of the body towards the back foot, straightening the knee to a comfortable stretch. Return to knee over the ankle, drop the hip, and lift the chest. Repeat 4 more times. (Faulds, 2006, p.354) Step back into Plank (30), lower down knees then chest to lie on the belly. Inhale, Cobra, exhale Downward Dog (14) for five breaths. Step or walk to the front of your mat to Mountain pose. Repeat on the other side.

- From Mountain pose, step the right foot back to Warrior One. Hold five breaths. Open to Warrior Two. Hold for five breaths. Side Angle pose. Hold for five breaths. Straighten both arms and legs for Five Pointed Star pose. Triangle pose on the left side. Hold for five breaths. Come back to Five Pointed Star pose. Bring both feet parallel with each other, hands on hips. Inhale, bend backwards, exhale fold forward Wide Legged Forward Bend. Hold for five breaths. Inhale, hands to the waist, rise up to Five Pointed Star. Stand with feet together at the front of your mat for Mountain Pose. Repeat sequence to the other side.
- Balancing on right leg first, place left foot at appropriate place on right leg (not on the knee joint), balance in Tree pose. Repeat to the other side.
- Stand at the front of your mat in Mountain pose. Sweep the arms up, palms touch. Exhale, flexing forward placing hands to the mat. Step back into Downward Dog. Lift the right leg up, as high as is appropriate, then step the right foot beside the right hand for Lizard (23) pose, the back knee can be straight or bent or both. For a modified version, you can lie on your back with left foot on the mat, right ankle on left thigh. Lifting the left foot for the desired stretch. From Lizard, drop the right knee to the right side of the mat, right foot near left hip. Roll as much as possible onto the top of the left leg. With both hands under both shoulders, straighten the elbows lift the chest for Pigeon pose (29), exhale fold in Sleeping Pigeon Pose (29). Stay here for five breaths. Bring both hands back under both shoulders, press back to Downward Dog. Repeat the sequence on the other side.

- Lie on the mat in a supine position. With the left leg straight on the mat, inhale, hug the right knee into the chest. Exhale; release the leg to the mat. Inhale, hug the left knee into the chest. Exhale; release the leg to the mat. Repeat five rounds.
- Inhale, hug both knees to the chest, face the bottoms of both feet to the ceiling for Happy Baby pose. Release your hands from your legs and lie on your back with arms and legs extended towards the ceiling for 10 breaths for Dead Bug pose.
- Place your feet to the mat, knees bent for Bridge pose. If possible, interlace your fingers underneath you with shoulder blades comfortably close together. If you have a block handy, you can squeeze the block between your thighs. Hold for five breaths.
- Half Shoulder Stand pose, lift the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. There should be a bend in the hips. If this is not appropriate, you may simply lift the legs and arms for Dead Bug Pose.
- Come to lie on your back for Savasana, final relaxation. Allow your breath to become quiet and hardly noticeable. Scan your body for any places of tension or tightness. Allow any thoughts float through your mind without being engaged. Stay for at least five minutes, longer if you can.

### **Class 3 Moon Salutations**

- Begin standing. Take a moment for centering and grounding into the earth. Set an intention for your practice. Engage *Ujjayi* breath.
- Moon Salutations: Stand at the front of your mat, and then turn the body to face the right. Inhale, raise the arms overhead, palms touch. Exhale, bend left into Half Moon Rising (18). Inhale, return to center. Exhale, bend right. Inhale, return to center. Exhale, step the right foot comfortably wide from the left foot. Inhale, bend elbows 90 degrees,

shoulder height, and open feet 45 degrees. Exhale, bend both knees open and drop the tail bone towards the floor for Moon pose (27). Inhale, straighten both knees and arms into Five Pointed Star (15), exhale; bend to the right for Triangle pose. Inhale, return to Five Pointed Star. Exhale, bend to the left for Triangle pose. Inhale, return to Five Pointed Star (15). Exhale, left hand to right ankle, twist. Inhale, return to Five Pointed Star. Exhale, right hand to left ankle, twist. Inhale, return to Five Pointed Star. Exhale; bend to the right for Triangle. Inhale, return to Five Pointed Star. Exhale; bend to the left for Triangle. Inhale, return to Five Pointed Star. Exhale, bend both knees open and drop the tail bone towards the floor for Moon Pose. Inhale, step the right foot beside the left, arms overhead. Exhale, bend left into Half Moon Rising pose. Inhale, return to center. Exhale, bend right. Inhale, return to center. Take a moment of reflection, with eyes closed, on the effects of Moon Salutation, in Mountain pose. Repeat four more times. (Faulds, 2006, pp.126-131)

- Variations of Chair pose (4). Feet together, flex your knees and hips into Chair pose; arms shoulder height, palms down, hold for five breaths. Repeat with arms 45 degrees, hold for five breaths. Repeat for Half Chair pose (17), bringing the chest closer to the thighs, hold for five breaths. Repeat for Chair Prayer Twist (5). Hold here five breaths. Repeat to the other side.
- Stand at the front of your mat in Mountain pose. Sweep the arms up, palms touch, exhale hands to the mat. Step back into Downward Dog. Lift the right leg up, as high as is appropriate, then step the right foot beside the right hand for Lizard pose, the back knee can be straight or bent or both. For a modified version, you can lie on your back with left foot on the mat, right ankle on left thigh. Lifting the left foot for the desired stretch.

From Lizard, drop the right knee to the right side of the mat, right foot near left hip. Roll as much as possible onto the top of the left leg. With both hands under both shoulders, straighten the elbows lift the chest for Pigeon pose, exhale fold in Sleeping Pigeon pose. Stay here for five breaths. Bring both hands back under both shoulders, press back to Downward Dog. Repeat the sequence on the other side.

- Lie prone on your mat for Sphinx pose, Cobra, Locust, Crocodile, and Childs pose.
- Sit on the mat, legs extended, for Head-to-Knee Forward Bend pose. Begin with the right leg extended, and the left foot on the right inner thigh. Remain in the pose for five breaths then repeat to the other side. Return to the starting position.
- Continue with Boat pose; variations are explored by straightening the knees and releasing the hands from the legs.
- Lie supine (on your back). Draw the right knee towards your chest; change the hands to behind your right thigh. Flex and extend the right knee five times. Repeat on the left leg.
- For core strengthening, float the right straight leg from the mat a few inches. Reach for the ceiling with the right arm and lift the chest and release to a lifted position 10 times. Repeat to the other side.
- Happy Baby pose. Hold here for five breaths.
- Place your feet on the mat for Bridge pose. If you can interlace your fingers underneath you with shoulder blades comfortably close together. If you have a block available, you can squeeze the block between your thighs. Hold for five breaths.
- Half Shoulder Stand pose, lift the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. There should be a bend in the hips. If this is not appropriate, you may simply lift the legs and arms for Dead Bug pose.

- Lie on your back for Savasana, final relaxation. Allow your breath to become quiet and hardly noticeable. Scan your body for any places of tension or tightness. Allow any thoughts float through your mind without being engaged. Stay for at least five minutes, longer if you can.

#### **Class 4 Sun Salutations**

- Sit on your yoga mat. Soften your outward senses and begin to focus inward. Notice the natural flow of your breath to help you become completely present. Scan your body from head to toes, notice if you are holding onto any tension that you are able to release. Set an intention for your practice.
- Stand at the front of your mat for Mountain pose. Engage *Ujjayi* breath.
- Do five rounds of Sun Salutation A. Begin in Mountain pose. Inhale, sweep the arms up to Hands over the Head pose. Exhale, Forward Bend. Inhale, head up, exhale, step right leg back into Lunge. Inhale, hold. Exhale, step back to Plank pose, lower to Low Plank (25). Inhale, Upward Dog pose (37). Exhale, Downward Dog, hold here for five breaths. Inhale, Forward Bend/Head Up. Exhale, Forward Bend. Inhale, return to Mountain Pose. Alternate sides for stepping back and repeat sequence total of five times. (Pegrum, J., 2001) (Figure 1)
- Beginning with right leg forward, practice standing poses: Warrior 1, Warrior 2, Side Angle pose, Triangle pose, and Wide Legged Forward Bend. Hold each pose for five breaths. Return to Mountain pose at the front of the mat. Repeat sequence on left side.
- Balance on each side Tree pose.
- Stand at the front of your mat in Mountain pose. Sweep the arms up, palms touch, exhale hands to the mat. Step back into Downward Dog. Lift the right leg up, as high as is

appropriate, then step the right foot beside the right hand for Lizard pose, the back knee can be straight or bent or both. For a modified version, you can lie on your back with left foot on the mat, right ankle on left thigh. Lifting the left foot for the desired stretch. From Lizard, drop the right knee to the right side of the mat, right foot near left hip. Roll as much as possible onto the top of the left leg. With both hands under both shoulders, straighten the elbows lift the chest for Pigeon pose, exhale fold in Sleeping Pigeon pose. Stay here for five breaths. Bring both hands back under both shoulders, press back to Downward Dog. Repeat the sequence on the other side.

- Sit on the mat, legs extended, for Head-to-Knee Forward Bend pose. Begin with the right leg extended, and the left foot on the right inner thigh. Stay in the pose for five breaths then repeat to the other side. Return to the starting position of legs extended.
- Lie supine (on your back). Draw the right knee towards your chest; change the hands to behind your right thigh. Flex and extend the right knee five times. Repeat on the left leg.
- For core strengthening, float the right straight leg from the mat a few inches. Reach for the ceiling with the right arm and lift the chest and release 10 times. Repeat to the other side.
- Happy Baby pose (21). Hold here for five breaths.
- Place your feet on the mat for Bridge pose (2). If you can interlace your fingers underneath your back, with your shoulder blades comfortably close together. If you have a block available, you can squeeze the block between your thighs. Hold for five breaths.
- Half Shoulder Stand pose (19), lift the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. If this is not appropriate, you may simply lift the legs and arms for Dead Bug pose (9).



- Lie on your back for Savasana (31), final relaxation. Allow your breath to become quiet and hardly noticeable. Scan your body for any places of tension or tightness. Allow any thoughts float through your mind without being engaged. Stay for at least five minutes, longer if you can.

## Appendix G

1. Boat pose- Begin sitting, bend the knees, while balancing the weight of your torso on the buttocks between the sitting bones and tailbone. Lift both shins until they are parallel with the floor, the hands are holding behind the thighs. Options include straightening the knees and releasing the hands from the legs (Kirk & Boon, 2004).
2. Bridge pose- A supine position with knees bent over ankles, hips lifted. The arms are along side of the body palms down, or hands interlaced underneath (Kirk & Boon, 2004).
3. Cat Stretch- From hands and knees; curve the spine up, “tucking the tailbone under, arching the mid-back up like an angry cat, and tucking the chin into the chest” (Faulds, 2006, p.38).
4. Chair pose- Begin standing with knees and feet together. Bend your knees to 90 degrees or less, stretch the arms up overhead (Kirk & Boon, 2004).
5. Chair Prayer Twist- Bring the hands together into prayer pose in front of the heart center. Sit down into Chair pose and twist to the right. You can place the left elbow between the legs or on the outside of the right thigh (Kirk & Boon, 2004).
6. Childs pose- The upper body is folded over the legs in a fetal position with the forehead touching the mat. The knees are apart, toes together. Hips move towards the heels as the body allows (Kirk & Boon, 2004).
7. Cobra pose- Lie on the belly. Bring your hands under both shoulders. Press into both hands and lift the upper body, while keeping the lower body on the mat (Kirk & Boon, 2004).
8. Crocodile- Lie prone on the mat on the hairline, arms and legs are outstretch about 45 degrees from the body (Faulds, 2006).

9. Dead Bug pose- A supine position with arms and legs extended into the air, with slightly bend elbows and knees (Faulds, 2006).
10. Dog Tilt- From hands and knees, curve the spine in, “lifting the tailbone, letting the belly and mid-spine fall toward the floor, lifting the chin, and looking straight ahead” (Faulds, 2006, p.39).
11. Dolphin plank- Same as Dolphin pose but body is aligned with the floor (Faulds, 2006).
12. Dolphin pose- This is a variation of Downward Dog. Begin on forearms with hands a few inches apart or interlaced, forearms parallel with each other. The body is an inverted V, with the feet two to three feet from the elbows (Faulds, 2006).
13. Dolphin pushups- Begin in Dolphin pose, with the elbows and feet stationary, move the chin over the hands towards the floor while dropping the hips (Faulds, 2006).
14. Half Shoulder Stand pose- left the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. There should be a bend in the hips (Faulds, 2006).
15. Downward Dog- From hands and knees, press the hips up to form an inverted V. Feet are hip distance apart. Press deeper into the pose by tipping the tailbone up and bringing the shoulder blades closer together. The gaze is between the legs (Faulds, 2006).
16. Five Pointed Star- Begin standing with the legs about four feet apart, the feet are parallel with each other. The arms are lifted shoulder height, palms down (Faulds, 2006).
17. Forward Bend- Starting in Mountain pose, hinge forward at the hips, bringing the head towards the knees. The knees can be straight or bent as needed (Pegrum, J., 2001).
18. Half Chair pose- a Chair pose variation with the chest closer to the thighs (Kirk & Boon, 2004).

19. Half Moon Rising- Standing with feet hip distance apart, hands in prayer position at heart center. Sweep the arms up until the palms touch overhead. Inhale, lengthen the torso. Exhale, bend to the right. Repeat to the other side (Faulds, 2006).
20. Half Shoulder Stand pose- Lift the hips off the mat and set them into the hands with elbows bent. Gaze up at your toes. There should be a bend in the hips. If this is not appropriate, you may simply lift the legs and arms (Faulds, 2006).
21. Hands over the Head pose- Raise the hands outward, drawing a large circle until palms touch overhead, lengthen the front body (Pegrum, 2001).
22. Happy Baby pose- Hug both knees to the chest, point the bottoms of both feet to the ceiling. With both hands around the outsides of both thighs, spread the knees towards the floor. If you can, take both feet with both hands, ideally take the outsides of the feet, but the insides will do (Kirk & Boon, 2004).
23. Head-to-Knee Forward Bend pose- Begin with right leg straight and left foot on right inner thigh. Lift arms on the inhale. Exhale, extend the body over the straight leg. Place a hand on either side of the leg on the floor to keep the shoulders relaxed (Kirk & Boon, 2004).
24. Lizard- From Downward Dog, lift the right leg up, as high as is appropriate, then step the right foot beside the right hand, the back knee can be straight or bent or both. (Faulds, 2006).
25. Locust- Lie on the belly with hands either under the shoulders or beside the waist. Legs are together or hip distance apart. Press with the hands and lift the upper body and legs together. The inner thighs press towards each other (Faulds, 2006).

26. Low Plank- Begin in Plank pose, lower the body towards the floor until the upper arms are parallel with the floor, elbows are close to the body at waist level (Pegrum, 2001).
27. Lunge pose- From hands and knees, step the right foot back onto the ball of the right foot, right knee over right ankle (Faulds, 2006).
28. Moon Pose- Stand with the feet wide, turned out slightly. Arms are lifted, elbows in line with the shoulders, wrists over elbows at a 90 degree angle. Palms face each other (Faulds, 2006).
29. Mountain pose- Feet are hip distance apart, shoulders over hips, hips over ankles. The chin is level to the ground, in slightly; pull up through the crown of the head (Faulds, 2006).
30. Pigeon/Sleeping Pigeon- From Lizard, drop the right knee to the right side of the mat, right foot near left hip. Roll as much as possible onto the top of the left leg. With both hands under both shoulders, straighten the elbows lift the chest for Pigeon pose, exhale fold in Sleeping Pigeon pose (Faulds, 2006).
31. Plank pose- An arm balancing pose with the body facing the floor, shoulders over wrists. The body is in alignment with the floor, knees are straight, weight evenly distributed on the hands and balls of the feet (Pegrum, 2001).
32. Savasana (final relaxation) - A resting pose that is supine, arms and legs extended about 30 degrees on the mat (Kirk & Boon, 2004).
33. Side Angle pose- From Warrior 2, bend the right elbow, forearm on the thigh, left arm over the left ear with a straight elbow, palm down. Repeat to the other side (Kirk & Boon, 2004).

34. Sphinx pose- A variation of Cobra pose but keep the forearms on the floor, parallel with each other, elbows directly under both shoulders (Faulds, 2006).
35. Squat pose- “With your feet together and flat on the ground, exhale and squat down keeping your hips off the floor” (Kirk & Boon, 2004, p.151).
36. Tree pose- Begin in Mountain pose. Place the right foot on the inside of the left leg anywhere but beside the knee joint. The hands can be overhead touching, overhead with arms apart, or prayer at the heart center (Kirk & Boon, 2004).
37. Triangle pose- Stand with feet about three feet apart, right toes turned out 90 degrees, left foot slightly right, both knees straight. Reach to the right and bend sideways with body in one plane. Rotate the rib cage open to look up. Repeat to the other side (Iyengar, 1966).
38. Upward Dog pose- Lie on the mat on the stomach, keep the feet about one foot apart. Place the palms by the side of the waist, fingers pointing forward. Straighten the elbows; press the shoulders down to lift the body from the mat. “The weight of the body rests on the palms and toes only” (Iyengar, 1966, p.109).
39. Warrior 1- From Mountain pose, step the right foot back about three feet. Turn the heel of your left foot in so that the foot faces out at a slight angle. Bend the left knee over the left angle about 90 degree. Lift the arms over head, palms can face each other or be together (Kirk & Boon, 2004).
40. Warrior 2- Spread the feet wide apart, arms extended out to the side, palms face downward. Turn the right foot out 90 degrees, left foot slightly in. Bend your right knee to 90 degrees. Repeat on the other side. (Kirk & Boon, 2004).

41. Wide Legged Forward Bend- Stand with the legs four to five feet apart, feet parallel with each other. Bend forward; place the hands on the floor. For a variation, you can use a block under the hands (Kirk & Boon).

Figure 3: Sun Salutation A

