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The Effects of Holistic Coping Strategies on Perceived Stress and Absenteeism in Hospital Nurses

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Abstract

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MS, University of the Incarnate Word, 1981

BA, University of the Incarnate Word, 1978

Dissertation Submitted in Partial Fulfillment

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Abstract

The demanding work environments of professional nurses often contribute to high levels of stress that impact their professional practice and well-being. Although there is a significant amount of research regarding stress and absenteeism, a gap in the literature exists about the effects of holistic coping strategies on nurses' perceived stress and absenteeism. Based on the biopsychosocial model, the purpose of this quantitative study was to investigate effects of holistic coping strategies on perceived stress and absenteeism in 128 hospital nurses. An online cross-sectional survey design used the Perceived Stress Scale-10 to measure nurses' perceptions of stress. The independent grouping variable was self-reported use of meditation, massage, or exercise. Absenteeism data were collected using nurses' attendance records provided by the hospital nursing administration office. Multiple linear regression analysis and *t* tests were significant for increased absenteeism with the use of meditation, but showed no change in absenteeism with massage or exercise. There was no significant relationship found between use of massage, meditation, or exercise, and perceived stress. Consideration of these findings may be of interest to hospital administrators in addressing perceived stress and absenteeism in nursing personnel. Positive social change is achieved for society, community, and the individual by preventing burnout and by addressing the financial and attendance issues related to nurse shortages in hospitals.

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Chapter 1: Introduction to the Study

Background

Police work, teaching, and health care are high-stress occupations (Healey & McKay, 1999). In the health care profession, nurses experience a challenging work environment, which often exacerbates stress (Laal & Aliramaie, 2010). Nurses suffer from environmental, occupational, and organizational stressors that add to their constant work demands (Escot, Artero, Gandubert, Boulenger, & Ritchie, 2001; McGrath, Reid, & Boore, 2003). Factors that contribute to the strains and pressures experienced by nurses include high patient acuity, high caseloads, long workdays, high performance expectations (Bost & Wallis, 2006), and an overall shortage of nurses in the United States. In 2012, Buerhaus estimated that approximately 850,000 registered nurses were more than 50 years of age, out of a 2.9 million nursing workforce in the United States. By the year 2015, at least 118,000 Baby Boomers will be retiring, and new nurse shortages will surface, which will increase the strain felt by nurses and consequential absenteeism.

On average, work-related absenteeism is 1.5 times higher among healthcare providers than among members of nonhealthcare professions (Davey, Cummings, Newborn-Cook, & Lo, 2009). Tunton, Hope Woods, and Bott (1995) reported that large firms had paid more than $1 million in absence benefits and approximately $5 million in replacing employees who had left their nursing positions. Similarly, Davey et al. (2009) stated that when a hospital nurse is paid $28 an hour, it costs the hospital $1,344.00 if the nurse calls in six absences in 1 year, with an additional approximate $2,688 to replace the nurse at double time. Consequently, if 50 nurses call in six absences in 1 year, this costs the hospital approximately $201,600. The increased financial burden stems from hiring

extra staff to cover absenteeism, as well as extra expenses related to hiring replacements for nurses who have left the profession or retired (Shively, 2006). Milliken, Clements, and Tillman (2007) reported that financial groups nationally had incurred approximately $250 to $300 billion in costs related to reduced work production, poor decision making, medical expenses, retention, replacement of positions, and absenteeism that they attributed to stress and burnout.

The consequences of stress and burnout are significant and can affect nurse work productivity by contributing to a lack of sound decision making, lack of concentration, performance impairment, and increased errors in patient care (Milliken et al., 2007). Nurses often use absenteeism as a way of coping with and managing work-related stress and fatigue that are beyond their control. Absenteeism is an important issue because it directly affects the number of staff caring for patients. When the staff-to-patient ratio is in disproportion, it can have an impact on the care a patient receives (AbuAlRub, 2004) and the safety of the patient (Gaudine & Gregory, 2010). An inadequate staff-to-patient ratio because of absenteeism decreases the continuity of patient care and increases the burden for hospital nurses by adding more hours and workload and contributing to low morale and stress (Haun, Virero, Leach, & Liuzza, 2002).

Researchers have pointed to the existence of a relationship between stress and illness. Cannon (1927) and Selye (1946) identified stress as a biochemical and physiological response to excessive demand or threat. The constant strains and pressures of the nurse work environment have been demonstrated to impact the health and well-being of nurses through related symptoms of digestive disorders, headaches, and hypertension (Humaida, 2012), which frequently give rise to feelings of despair,

hopelessness, exhaustion, and weariness (Rutledge et al., 2009). Bost and Wallis (2006) found that "nurses had higher physical illness, psychiatric admissions, and mortality than other workers outside of the healthcare environment" (p. 4). Danna and Griffin (1999) reported that depression, burnout, and stress experienced by nurses because of their work demands often resulted in job dissatisfaction, frequent change of employment, low job performance, and reduced work productivity.

Minimizing stress in the workplace has been associated with increased health, work satisfaction, and performance (AbuAlRub, 2004). AbuAlRub (2004) and Laal and Aliremaie (2010) defined *stress* as the rate of *wear and tear* on the body system. They further indicated that coping strategies are important to nurse reactions. How an individual maintains or adapts to stressful psychosocial, physiological, or environmental events is a learned response. Coping responses can be either positive or negative and either active or reactive, depending on the situation and content of the response. A nurse population reported behavioral coping strategies that included problem solving and emotional responses (Healy & McKay, 1999). Lazarus and Folkham (1984) suggested that individuals use several coping skills to help reduce stress. Research has indicated that holistic coping strategies related to massage, meditation, and exercise have resulted in reduced levels of stress in populations of social workers and academic teachers (MacFarlane & Montgomery, 2010; Siebert, 2005).

Although extensive studies on stress and coping exist, literature about holistic practices as coping strategies among healthcare providers is limited. Therefore, I examined the relationship between the use of massage, meditation, or exercise as holistic coping strategies on absenteeism and perceived stress among hospital nurses. This

knowledge fills a gap in the literature on holistic techniques as coping skills for hospital nurses. This study provides key information about how these holistic coping strategies relate to perceived stress for nurses. Results provide information on the use of massage, meditation, and exercise and the correlation between perceived stress and absenteeism. Findings showed that that massage and exercise did not make a difference in absenteeism or perceived stress. However, the findings indicated that meditation had a correlation with total absenteeism and perceived stress. Additionally, the data indicated a difference between the nurses who used meditation and those nurses who did not. Hence, the knowledge obtained from the present study may increase understanding of holistic coping strategies such as massage, meditation, and exercise in nursing academia and nurses' work environment. In turn, this could have an impact on effective patient care and on the emotional and physical health of nurses (Siebert, 2005).

There is consensus that most nurses perceive their job as quite stressful because of factors beyond their control (Wilkins, 2003). Coping strategies that help minimize negative responses such as stress, depression, burnout, and absenteeism are important for nurses, nursing practice, and institutions that employ nurses. Holistic coping strategies used in this study followed the holistic concept of mind-body wellness (Chow & Tsang, 2007) and the biopsychosocial model. The framework in this study used the biopsychosocial model, which I further detail in Chapter 2. Although quantitative research on holistic therapies is limited, the aim of this study was to fill a literature gap by providing information on perceived stress and absenteeism associated with holistic therapies in the nursing profession. Knowledge on the use of holistic therapies as coping strategies in healthcare may promote social change. This study examined the impact that

holistic coping strategies such as massage, meditation, or exercise had on nurse-perceived stress and absenteeism in the work environment (Siebert, 2005).

Problem Statement

Although ample literature exists on perceived stress, absenteeism, and holistic techniques, research on the impact that holistic coping strategies have in the nursing profession in relation to absenteeism and perceived stress is limited. This study was developed to address a gap in the literature of the nursing profession by examining the relationship that holistic coping strategies such as massage, meditation, or exercise have with absenteeism and perceived stress. The consensus in the literature is that hospital nurses' performance requirements expose them to demanding work environments that can ultimately take a toll on their physical health, mental health, or both (West, Horan, & Games, 1984). Positive coping strategies can make a difference in the perception of stress and stress management (Chinweuba, 2007, Laal & Aliramaie, 2010). Coping with stress impacts health and well-being (Kunter, King, & Kolkhorst, 2007; MacFarlane & Montgomery, 2010). While evidence of a relationship between stress and absenteeism has been established in helping professions (Haun et al., 2002), use of holistic coping strategies has also been established as contributing to the mitigation of stress (Dillenberger, 2004; Mehling et al., 2011).

Purpose

The purpose of this quantitative study was to investigate the independent variable of massage, meditation, or exercise as holistic coping strategies on the dependent variables of absenteeism and perceived stress in hospital nurses. The intent of this study was to explore any differences found between the use and nonuse of these holistic coping

strategies on the dependent variables. Researchers of holistic coping strategies in a student-teacher population in the United States indicated that physical exercise could influence appraisal and overall stress level (MacFarlane & Montgomery, 2010). Conversely, Davis, Cooke, Holzhauser, Jones, and Finucane (2005) showed that although aromatherapy, massage, and music reduced anxiety levels, occupational stress related to the workload in emergency nurses remained high. Despite the studies associated with holistic coping strategies and perceived stress, information remains sparse, especially information related to the use of holistic coping strategies and absenteeism in the nursing population. This study assessed the relationship between the independent variable of massage, meditation, or exercise on the dependent variables of perceived stress and absenteeism using the biopsychosocial model as its framework.

Research Questions and Hypotheses

RQ1: Is there a significant difference in perceived stress, as measured by the Perceived Stress Scale–10, between hospital nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise?

$H_0$1: There is not a significant difference in perceived stress, as measured by the Perceived Stress Scale-10, between hospital nurses who report use of massage, meditation, or exercise and those nurses who do not use holistic coping strategies.

$H_1$1: There is a significant difference in perceived stress, as measured by the Perceived Stress Scale-10, between nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise.

RQ2: Is there a significant difference in absenteeism between hospital nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise?

$H_0$2: There is no significant difference in absenteeism between nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise.

$H_1$2: There is a significant difference in absenteeism between hospital nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise.

RQ3: Does use of massage, meditation, or exercise predict perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses?

$H_0$3: The use of massage, meditation, or exercise does not predict perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses.

$H_1$3: The of use massage, meditation, or exercise does predict perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses.

RQ4: Does use of massage, meditation, or exercise predict absenteeism among hospital nurses?

$H_0$4: The use of massage, meditation, or exercise does not predict absenteeism among hospital nurses.

$H_1$4: The use of massage, meditation, or exercise does predict absenteeism among hospital nurses.

Theoretical Base

Engel (1977) proposed the biopsychosocial model to account for biological, psychological, and sociological factors that affect disease and health. This model takes into account the relationship that exists between the outside and inside systems of a person, which influences the emotional and psychological states of wellness (Sperry, Powers, & Griffith, 2008). The conceptualization of the biopsychosocial model includes factors that affect the whole person and contribute to a state of complete physical and mental wellbeing. The biological, psychological, and social components expressed in this model function together with mind-body interactions to achieve a healthy balance (Chow & Tsang 2007).

Monet and Lazarus (1991) incorporated aspects of personality, social, and immune function in their study. Monet and Lazarus suggested a relationship between stress and coping that caused reactions, which impacted the immune system and resulted in illness. The biopsychosocial model explains the relationship associated with mind-body interactions, pain, stress, and illness, and the stability that an individual needs in order to reach a homeostatic balance of wholeness and well-being (Evans, Sternlieb, Tsao, & Zeltzer, 2009).

Hospital nurses often face daily mental and physical stressors in their work environment (Deeney & O'Sullivan, 2009). Having coping skills to keep a balance in an already hectic environment is important for nurses, the institutions where they work, and the patients in their care. Zittel, Lawrence, and Wodarski (2002) indicated that a relationship exists between positive coping strategies and wellbeing. Using a biopsychosocial perspective, Zittel et al. demonstrated how the use of positive coping

strategies achieved a balance that obtained positive psychological and physiological reactions, such as positive attitude, job satisfaction, and decreased absenteeism. This study gave support to the biopsychosocial model concept that presumes that the balance among biology, psychology, and social factors can influence health (Santrock, 2007).

Holistic or mind-body techniques and practices such as low to moderate muscular exercise promote physical, psychological, and spiritual well-being (Evans et al., 2009). Other researchers have demonstrated that meditation, yoga, and biofeedback are effective interventions and strategies for improving psychological and physical health (Chow & Tsang, 2007). This study used the biopsychosocial model to understand the impact of the use of holistic coping strategies of massage, meditation, and exercise on hospital nurses' perceived stress and absenteeism. Chapter 2 further describes the theoretical framework.

Nature of the Study

This study examined the difference in perceived stress and the difference in absenteeism with use or no use of holistic coping strategies by nurses from a Level I trauma hospital. In addition, this study examined any impact of the holistic coping strategies on perceived stress and/or absenteeism. This study used descriptive statistics to describe the sample population. A cross-sectional survey used socio-demographic variables including gender, education, and other categorical variables. Collecting demographic information enabled a cross-tabulation and comparison of subgroups. In addition, these variables helped determine which factors may have influenced participants' responses. The independent grouping variable was the self-reported use of holistic coping strategies identified as massage, meditation, or exercise (yes/no) from the demographic section of the survey. The dependent variables were absenteeism and

perceived stress as measured by the Perceived Stress Scale–10 (Cohen, Kamarck, & Mermelstein, 1983). Conduction of a *t* test determined significance difference in perceived stress scores between nurses who used massage, meditation, or exercise and those who did not. Additionally, a *t* test was used to assess differences in the number of absences between nurses who used or did not use massage, meditation, or exercise. Conduction of linear regression assessed whether there were any correlations between the independent variables and the dependent variables. Cross-tabulations using chi-square compared observed frequencies to the expected frequencies associated with the dependent variable of absenteeism on the categorical independent variable. Chapter 3 contains further description of the analysis, as well as details of the methods, procedures, and objectives of the study.

Assumptions

One of the assumptions in this study was that participants were truthful in their responses to questions about use and no use of massage, meditation, or exercise and how they perceived their current level of stress. Similarly, it was assumed that nurses' responses to the questionnaire disclosed differences between use and no use of massage, meditation, and exercise on absenteeism and perceived stress. Consequentially, another assumption made was that a structured dichotomous question with a yes-or-no response to measure difference between use and no use of the holistic coping strategies of massage, meditation, or exercise was adequate for the analysis. Other assumptions included that the attendance record collected by the hospital administration office for each participant was accurate and that the Perceived Stress Scale-10 (Cohen et al., 1983) used to gather information from participants had psychometric accuracy. Finally, it was

assumed that differences and correlations between variables found in this study exist despite differences in demographics such as gender or socioeconomic status.

Scope and Delimitations

The scope of this study involved investigating the difference between use and absence of use of massage, meditation, or exercise in terms of absenteeism and perceived stress by registered and certified Trauma Level I hospital nurses in South Texas. The boundaries of this study delimited it to the examination of registered and certified nurses who had or had not been practicing the holistic coping strategies and had been employees of the participating facility for at least 3 months at the time of this study. Nurses who reported practicing holistic coping strategies other than massage, meditation, or exercise were not included in this study. Although nurse work environment, absenteeism, and perceived stress were included in the scope of this study, related theories on stress appraisal and coping (Lazarus, & Folkman, 1984) and burnout (Maslach & Jackson, 1984) were not included.

Limitations

This study had several limitations. Participants needed access to an Internet connection to take the survey; therefore, only nurses with computer access to an Internet connection could participate. Results from this study were specific to a Trauma Level I hospital nurse population and did not reflect other hospital healthcare populations. This study did not take into account Trauma Level II and III hospitals, which may engender different levels of stress for registered or certified nurses. A lack of generalizability exists because the results are specific to a hospital in South Texas and not specifically applicable to all hospitals nationwide. Another constraint included the limitation of

holistic coping strategies explored in this study. This study only focused on massage, meditation, or exercise as described by the National Center for Complementary and Alternative Medicine (NCCAM) of the National Institute of Health (2011); it did not include any other holistic techniques or practices.

Significance

High levels of stress found in a hospital environment affect job satisfaction, turnover, health, and patient incident error (Roger, Hwang, Scott, Aiken, & Dinges, 2004). The way nurses perceive stress can affect how they cope with and manage stressful encounters in the work environment. Nurses and other healthcare providers often take time off work to help with coping and managing high levels of work-related stress, which can affect physical and emotional well-being over time.

Absenteeism disrupts the working environment and negatively affects employee morale, increases hospital costs, and affects the continuity and quality of patient care (Davey et al., 2009). Hence, billions of dollars are lost per year in American businesses because of employee absenteeism (Taunton, Krampis, & Woods, 1989). Identifying and learning how to decrease levels of stress can have significant implications in healthcare. Information obtained from this study adds knowledge that can improve well-being for nurses. Use of meditation as the identified effective holistic coping strategy by this study indicated a difference in perceived stress and absenteeism in the nursing participants.

The knowledge obtained from this study offers information about massage, meditation, and exercise in a hospital environment, especially in the nurse population. This information may lead to positive social change because nurses can reach a healthier level of well-being that affects job satisfaction and perceived stress and may keep them in

their profession longer (Tveito & Eriksen, 2009). In turn, healthcare systems may decrease the large cost of hiring extra staff because fewer staff members are absent or leaving the profession due to stress and burnout. Having extra tools for destressing equips nurses to improve the way they handle stress, retain their jobs, and improve job performance.

Definition of Terms

Absenteeism: Persistent nonattendance or not being present for work on a regular base (Markham, Scott, & McKee, 2002), including missing partial or whole days of work because of personal situations such as illness or business other than paid vacation (Markham et al., 2002; Suby, 2008). Davey et al. (2009) defined absenteeism as "not coming to work when scheduled … [as] measured by frequency and duration of work days missed" (p. 313).

Biopsychosocial model: A balance between biological, psychological, and social factors, such as emotions and behaviors that contribute to a person's well-being and illness (Evans et al., 2009).

Call in: Unexpected absence from work because of personal circumstances other than paid vacation (Suby, 2008).

Holistic coping strategies: Mind-body resources, such as meditation, massage, and exercise, which individuals use to handle and respond to stressors in their environment (Jimenez, Navia-Osorio, & Diaz, 2009).

Exercise: Movements performed or practiced for the purpose of improving health (e.g., physical movements such as walking or running; O'Grady, Wan, Tynan, O'Hare, & Muldoon, 2009).

Massage: Manipulation of different layers of muscle for the promotion of health and well-being (Davis, Cooke, Holzhauser, Jones, & Finucane, 2005).

Meditation: A quiet state of mind of extreme relaxation and concentration where the body is at rest or slow movement that brings about stress reduction. Meditation is achieved by silent repetition in the mind of spiritual passages, mantras, or physical writings (Oman, Thoresen, & Hedberg, 2010).

Meditation practice: Exercising the intention of being aware of thoughts, feelings, and bodily sensations for a period of time as a sole mindful activity (Meyers et al., 2012).

Mind/body techniques: Practices and techniques such as yoga, meditation, and mindfulness reduction breathing that are designed to promote the mind's positive impact on the body and spirit (Evans et al., 2009; Mehling et al., 2011).

Perceived stress: The perceptions an individual has of his or her stressfulness, determined by how situations in the individual's life are appraised as stressful (Cohen et al., 1983).

Stress: The product of imbalance between the demands of an individual's environment and an individual's appraisal of his or her resources (Kinman & Jones, 2005). Stress may hinder concentration, problem solving, decision-making, and other abilities necessary for an individual to function at a normal level of consciousness (Reilly & Fitzpatrick, 2009).

Summary and Transition

Given the workload, long hours, and shortage of nurses, nurses experience an insurmountable amount of stress that contributes to call-ins, absenteeism, frequent job change, and health problems. Finding coping skills and strategies that can alleviate stress

and the factors that it implicates can be of benefit to nurses, health care professions, healthcare system, and the communities they serve. Behavioral coping strategies make a difference in the work environment. Holistic coping strategies make a difference in stress. The use of holistic coping strategies and practices that decrease perceived stress and lessen absenteeism is important in achieving better health and balance for hospital nurses. The stress that nurses experience can have both direct and indirect impacts on society.

Indirectly, there is a compromise in the nurse-to-patient ratio when high levels of stress affect a nurse's health and the nurse calls in a sick day (Sauter et al., 1999). Health services used for direct care of employees because of health implications give rise to financial burdens. Taunton et al. (1995) pointed out that absenteeism was increasing, with large firms paying out more than $1 million each year in absence benefits and a decrease of overall productivity, morale, and customer service.

The popularity and acceptance of holistic strategies such as massage, meditation, and exercise, as demonstrated by the National Center for Complementary and Alternative Medicine (NCCAM; 2011), indicates that billions of dollars are spent on an array of holistic therapies and products in the United States annually. The NCCAM reported that Americans spent $33.9 billion out of pocket on holistic therapies and products in 2009. Hence, adding information to the literature on the use of holistic coping strategies associated with absenteeism and perceived stress may lead to positive social change that ensures healthier workforces, thereby benefiting institutions such as hospitals as well as the economy.

The subsequent chapters include detailed information about the present study. Chapter 2 describes the literature review and background. Chapter 3 follows with a

description of the study's design and the methods of analysis used to investigate the relationship between the independent and dependent variables. In addition, the instruments and measures, along with the sample and data collection procedures, are addressed in Chapter 3. A description of results is in Chapter 4, and a conclusion and summary are contained in Chapter 5.

Chapter 2: Literature Review

Introduction

Stress is an emotional and physical strain caused by an individual's body response to pressure encountered in his or her environment (Kinman & Jones, 2005). According to Shirey (2006), stress is extensive and occurs through the challenges encountered in the workplace, shortages of nurses, individual lack of control in the work environment, and demands placed on the employee. Positive coping strategies are of key importance to health care providers because they enable them to achieve effective management of the stress they encounter in their demanding health care workplace. The purpose of this study was to investigate whether there was a difference between use and no use of massage, meditation, or exercise as holistic coping strategies in terms of absenteeism and perceived stress in hospital nurses.

Continued pressure and strains in the workplace can lead to chronic stress and burnout, which can affect health. Stress levels exacerbated in work environments expose individuals to higher emotional responses that could contribute to imbalance among biological, psychological, and social factors. Dillenberger (2004) and Gatchel, Peng, Peters, Fuchs, and Turk (2007) indicated that homeostasis in the environment, which includes social and psychological factors, has an influence on illness and health.

Holistic interventions reduce stress and serve as coping mechanisms for social workers (Siebert, 2005). Richards, Oman, Hedberg, Thoresen, and Bowden (2006) reviewed several stress management studies that used a variety of approaches such as relaxation, behavioral training for problem solving, and mindfulness training to find effective interventions for decreasing stress and increasing empathy in health care

providers such as nurses. Numerous other approaches such as aromatherapy massage with music have demonstrated noteworthy results of reduced anxiety levels and increased job satisfaction in emergency nurses (Davis et al., 2005). Results associated with physical exercise have indicated improved mood in student teachers (MacFarlane & Montgomery, 2010). Meditation studies in hospital nurses have demonstrated an increase in calmness and concentration levels (Richards et al., 2006). A description of the holistic coping strategies of massage, meditation, and exercise is part of the definition section. Further discussion of these holistic coping strategies is in this chapter and Chapter 3.

Literature Research

The literature search for this study was conducted through the Walden Library Home research databases, including EBSCOhost, Behavioral Studies and Psychology Database, Psychology: A SAGE Full Text Collection, Advanced Search, PsycARTICLES, Health Sciences and Nursing Database, Health Science: A SAGE Full Text Collection, CINHAL Plus With Full Text, and MEDLINE With Full Text. Key search words included *stress, perceived stress, absenteeism, healthcare, nurse coping strategies, nurse self-care, holistic therapies, complementary and alternative, massage, exercise, meditation, mindfulness, nurse work environment, work environment,* and *work stress*. The information gathered for this study focused on nurses' work environment and nurses' response to stress. The literature research concentrated on nurses' self-care and coping skills that can have an impact on nurses' emotional, physical, and psychological health, which in turn can affect patient care (Siebert, 2005).

Stress in the Workplace

The stress concept is complex and has several implications on the individual and organizational levels of healthcare services. *Psychological stress* is described as the level at which individuals perceive or appraise that their demands exceed their ability to cope. For this reason, interest exists in this topic around the world (Burgess, Irvine, & Wallymahmed, 2010). Contained in this section is a description of the concept of perceived stress associated with work-related stress.

Impact of Stress

Selye (1946) defined *physiological stress* as the body's response to events that are negative or harmful. Cannon (1927), a physiologist, described the body as having an internal mechanism that helps to achieve equilibrium by adjusting and compensating for changes in the body. However, when the body is unable to compensate for or balance physiological stress, damage to tissue and illness occur. Similarly, Selye reported that when an organism was exposed to changes that caused stress, nonspecific responses of alarm reaction, resistance, and exhaustion occurred. The body attempted to compensate with a fight-or-flight reaction to reach a balanced state. However, when the body could no longer sustain the compensating reaction, exhaustion would set in and make the body susceptible to damage and even death. Stress is a contributor to physical and emotional responses in the workplace.

Stress takes place when the requirements of a job do not match the resources, responsibilities, demands, or capabilities of the employee. Not meeting employee needs can increase job-related stress, leading to poor health and injury, according to studies reviewed in the past 20 years (Sauter et al., 1999). Highly stressed employees are likely

to have greater health risks, increased cost, and productivity losses than those individuals with normal or lower stress levels (Wolever et al. 2012).

Perceived Stress

According to Monat, Richard, and Reevy (2007), psychological stress is associated with perception, appraisal, and sociocultural factors coupled with a social system disturbance. Perception, appraisal, and socio-culture interact with one another depending on the circumstances of a situation and the individual (Monat et al., 2007). In a study of 270 nurse participants at an acute military medical center, researchers administered questionnaires to capture the stress state of nursing staff during a period such as war (Kashani, Eliasson, Chrosniak, & Vernails, 2010). Their methods consisted of several specific questionnaires such as the Perceived Stress Scale-14 (PSS-14; Cohen et al., 1983). The 14-item questionnaire involved asking participants how often certain experiences had occurred within the last month. The instrument measured the degree of stress appraised in a situation. Cohen's Perceived Stress Scale is one measure I used in this topic of study and is detailed in Chapter 3.

Wolever et al. (2012) placed 239 national insurance carrier employee volunteers into either a yoga worksite stress-reduction program involving mindfulness or a control group. Their findings indicated the mind-body interventions showed significant improvement in perceived stress, sleep quality, and heart rhythms. Wolever et al. determined that mindfulness-based stress reduction and therapeutic yoga programs reduce high levels of stress. The use of yoga as a specific holistic coping strategy in Wolever et al. indicated that an impact on perceived stress existed. This provides support

for exploring the use of holistic strategies to reduce absenteeism and perceived stress in the nurse population, which was the interest of this study.

The previous information described the concept of stress in the workplace and the impact it has on an individual's health, emotions, and perception. The concept of stress and coping is vast, and much literature on the topic exists. Perceived stress has adverse impacts on physical and mental health. It is widely recognized as a major contributor to poor morale, high staff turnover, reduced productivity at work, and absenteeism in various populations, including the nurse population (Wolever et al., 2012). Kashani et al. (2010) and Wolever et al. (2012) addressed the impact of perceived stress and results of negative factors such as absenteeism. In addition, Wolever et al. found that the use of holistic practices had a positive effect on perceived stress. These studies lent support to the use of perceived stress, absenteeism, and holistic coping strategies as variables in the present study.

Coping Strategies

Stress reduction is necessary in the workplace because 46% of the current work environments in the United States can be defined as high-stress occupations because of their fast-paced environments (William, 2011). In the last 30 years, there has been a noticeable increase in the impact of work-related stress on health care employees (Bost & Wallis, 2006). In a conscious effort to minimize or tolerate problems and stress, individuals develop coping strategies. This section addresses various approaches of coping with stress and particular coping strategies that were the focus of this study.

Frankenhauser (1984) stated that the body has defenses and ways of coping with stress. The actions the body takes when perceiving threats and challenges in the

environment generate a succession of neuroendocrine actions, which can be associated with the fight-or-flight concept (Cannon, 1927). There are cognitive approaches based on how an individual appraises a situation (Lazarus & Forkman, 1984). Differences in individual characteristics, personality, and coping styles contribute to determining whether certain conditions result in stress. What is stressful for one individual may not be a stressor for another individual (Ben-Zur, 2009; Burgess et al., 2010; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990). Sauter et al. (1999) indicated that certain factors in a work environment could contribute to excessive workload and demands, which contribute to conflicting expectations. These expectations affect the appraisal of an individual and could affect perceived stress. Other work environment factors that may impact appraisal and perceived stress for nurses include long hours, shift work, decreased sense of control in the work environment, routine task function, lack of organizational communication, and poor social support (Gelsema, Van der Doef, Maes, Akerboom, & Verhoeven, 2005; Kashani et al., 2010).

Lazarus and Folkman (1984) described two general forms of coping strategies: emotion focused and problem focused. These researchers described problem-solving strategies as inner and outer directed. An inner-directed problem solving strategy involves reconsidering and reorganizing oneself in order to develop new skills and responses. The intention of an outer-directed problem solving strategy is altering a situation or behavior aimed at others. Put simply, the use of problem-focused strategies is involved when a challenge arises, and emotion-focused strategies step in when the challenge is beyond an individual's control or when the individual needs to remain relaxed or emotionally stable (Vitaliano et al., 1990).

Emotion-focused strategies involve releasing pent-up emotions, managing hostile feelings, meditating, or using systematic relaxation procedures. These types of coping strategies include physical exercise, emotional expression, and searching out support (Lazarus & Folkman, 1984). Emotion-focused coping is oriented toward managing the emotions that accompany the perception of stress (Brannon & Feist, 2010).

Most often, individuals use a combination of problem- and emotion-focused strategies to manage stress-related situations. Coping strategies are important tools that help with the management of stress. Nurses represent a large healthcare work group in the United States (Gershon et al., 2007) that often experiences challenging work environments. Having the proper coping strategies can bring a stabilizing factor of balance that decreases negative stress reactions (Laal & Aliramaie, 2010). The present study centered on emotion-focused coping strategies, which included massage, meditation, and exercise in association with absenteeism and perceived stress in hospital nurses. Massage, meditation, and exercise details are in this chapter under the section on holistic modalities.

Nurse Work Environment

Nearly 60% or 2.4 million registered nurses work in acute-care hospital settings in the United States. Nurses are one of the largest work groups in the healthcare system, making up approximately 25% of the total hospital workforce in the United States (Gershon et al., 2007). Given the large population of nurse professionals in the United States, the following sections include several aspects of the nurse work environment. The quality of work life and the effect that workloads have on nurses, which often contribute to nurse shortages, work dissatisfaction, health issues, and absenteeism, are included in

this discussion. In addition, nurse work environmental stressors can affect nurses' overall health and their professional practice and are included along with the overall shortage of nurses in the United States.

Shortage of Nurse Professionals

Various factors contribute to nurse shortages, such as a change in the national economy. In 2012, a slight decrease in the nurse shortage occurred after the recession in the United States (Buerhaus, 2012). However, a rise in nurse shortage will begin by the year 2015, when a large number of nurses will reach retirement age, causing a decrease in the nursing population (Buerhaus, 2012). Nurse shortages place a massive amount of stress on nurses, who are already experiencing demanding jobs with high levels of patient care processes.

Positive Work Environment

Laal and Aliramaie (2010) conducted a study to determine whether positive work environments make a difference when nursing staff cope with stressful work events. Laal and Aliramaie wanted to understand the relationship between job coping and health outcomes in the nursing population. Their methodology included a cross-sectional survey, which they gave to 100 nurse participants from two hospitals in Iran. The questionnaire included coping strategies found in Adolescent Coping Orientation for Problem Experiences (A-COPE). Laal and Aliramaie conducted an examination of the relationship between demographics and coping methods, using SPSS for analysis. Some positive coping strategies described by Laal and Aliramaie were listening to music, shopping, watching television, hiking, and going to the park. They described disputing, insulting, and self-negative thoughts or statements as negative coping methods. Results

indicated that nurse participants used several strategies to cope with stressful situations in their work environment. Proper application of coping methods in the nurse population was judged to be good by 19%, moderate by 51%, and weak by 30%, but 49% processed negative coping responses to stress.

Laal and Aliramaie (2010) demonstrated significant differences related to gender ($p = 0.000$) and job experience ($p = 0.035$) in terms of negative response to stress. Laal and Aliramaie found that it was important to provide a positive work environment for the nursing community. Stress related to the work environment often affects nurses' health and the workforce, as nurses sometimes leave their profession for less demanding jobs.

Shively et al. (2011) pointed to the relationship found between stress and burnout and patient practice. Stress, fatigue, burnout, and excessive workload, along with work environment, adversely affect work performance and could contribute to medical errors (Shively et al., 2011). Nurse-related work stress frequently leads to compassion fatigue, mental exhaustion, and physical problems such as weight gain and higher risk of cardiovascular disease (Kashani et al., 2010). Kashani et al. (2010) demonstrated a significant association between personality styles and ability to cope with stress and work environment. Acknowledgement is made of possible differences between U.S. and Iranian hospitals in association with Laal and Aliramaie's (2010) study. However, the general conclusion the researchers reached in their study did not seem to be limited to Iranian hospital nurses, according to other studies (Burgress et al., 2010; Kravis, McAllister-Black, Grant, & Kirk, 2008). This study includes Laal and Aliramaie's research study because it gives support to emotion-focused strategies.

Kashani et al. (2010) also used the Pittsburgh Sleep Quality Index (PSQI; Buysse, Monk, Berman, & Kupfer, 1989), which they administered as a self-rated questionnaire to assess the quality of sleep and disturbances the nurses had experienced over 1 month. In addition, they used the Epworth Sleepiness Scale (ESS; Johns, 1992) to detect daytime sleepiness and to measure participants who dozed off. The researchers also used the Fatigue Visual Numeric Scale (Merritta, Cherian, Macaden, & John, 2010) to capture participants' expressions about their fatigue from 0-10 over 2 weeks. The salient findings of the Kashani et al. study indicated that 55% of the nurse participants experienced very high stress while 26% experienced moderate stress. Kashani et al. measured multiple reported stressors to be fatigue (66%), finances (33%), home (25%), and health (18%). Even though a few nurses reported missed work the average number of days absent in 3 months was13.6 days. Morale, on the other hand, indicated participant stress as very high (47%) and moderately high (24%). On average, participants had 5.5 hours of sleep per night, 8.8 hours per week taken for time off, and 3.8 hours per week for exercise. The researchers accomplished data analysis with the Microsoft Office Excel 2007. They used the student's *t* test for continuous variables and X2 test for discrete variables so they could analyze intergroup differences. From overall findings of the survey, Kashani et al. concluded that stress levels largely attributed to work were strikingly elevated in their nurse staff population.

Workload and Job Performance

Stress is associated with many of the dilemmas encountered in nurses' work environment. Concern exists about the nurse work environment, its relationship with stress, and any impact that may result on patient care. Shively et al. (2011) conducted an

investigation of 119 registered nurses in acute and critical settings of three hospitals. The method used in this study involved observational design that investigated the relationship of the work environment and stress levels encountered by the nurses. Using the Ecological Momentary Assessment (EMA; Stone & Shiffman, 2002), Shively et al. assessed daily activity, real-time work, and physical work stress. The aim of the study was to examine the relationship between work environment and stress in association with patient load, poor sleep, and patient care activities in three acute and critical hospitals. The findings of this study were demonstrated in a regression analysis, which indicated that the number of assigned patients was a significant predictor of stress ($p < .01$) in adult care, where the greater the number of patients, the higher the stress level.

Job-related stress contributes to organizational inefficiency that attributes to lack of support among nurses. In a study by AbuAlRub (2004), stress was the contributing factor of organizational inefficiency among 303 nurses because of high turnover and absenteeism. The researchers concluded that high turnover and absenteeism decreased quality and quantity of care among nurse practice, which lead to the production of job dissatisfaction and low job performance. AbuAlRub indicated perceived social support from co-workers enhanced the level of job performance and decreased job-related perceived stress. Using the Pearson product moment correlations and the hierarchical regression technique of analysis, a curvilinear relationship demonstrated that nurses who reported moderate levels of stress thought they did not perform their job as well as those who had reported less stressful jobs. The finding of the study demonstrated a relationship between perceived job stress and job performance.

Deficit and Expenditures

An association exists between stress in the work environment and development of health factors as well as work force cost. Healthcare expenditures are nearly 50% higher for workers who report increased levels of stress (Sauter et al. 1999). The average cost of stress related disorders reported by a Canadian company is approximately $12 billion per year. The American Institute of Stress reported that stress related job accidents were up to 80%, while turnover was 40% because of stress. Stressful working conditions interfere with best and safe work practices that result in the increase of work injury and error (Sauter et al. 1999). Large amounts of income are lost annually throughout the nation because of stress in the work place. The Occupational Health and Safety News/ National Council of Compensation Insurance in the United States reported that approximately $26 billion is lost to healthcare because of medical and disability payments. In addition, approximately $300 billion are lost in productivity per year because of stress issues resulting in absenteeism, anxiety, loss of concentration, job dissatisfaction, and insurance costs (Rosch, 2001). In another study, the estimated cost of $4.2 to $60 billion was incurred due to stress related illnesses (Benton, 2000), which translates to about $13,000 annual cost per employee regardless of profession (Bruhn, Chesney, & Slacido, 1995). Suby (2008) reported deficit demands of absenteeism, nurse vacancy replacement, and over time had a large impact on hospital finances.

Quality of Work Life and Job Satisfaction

Certain stress predictors are associated with nurse work environment such as workload and time pressure. Workload, heavy physical work, patient concerns of dealing with medical treatment, and death, demonstrated to be stressors in the nurse environment.

Motowidlo, Packard, and Manning (1986) identified work overload and little supervisory support as sources of stress associated with decreased work performance and depression. Nurses experience high levels of stress because of high demands placed on them and the low or nonexistent opportunities or possibilities to release stress within their job environment. Frequently, they experience limited opportunity for control over their work environment, which relates to individual, social and environmental, occupational and organizational factors (Gelsema et al., 2005).

Gelsema et al. (2005) used 807 registered nurse participants from an academic hospital to investigate work and time pressure, physical demand, social support from supervisors and colleagues, and nurse to physician collaboration as job characteristics influencing psychological distress, emotional exhaustion, somatic complaints, and job satisfaction. Other variables included personal resources, material resources, work agreements, communication on stress, and the relationship between environmental conditions of work and job characteristic on health and wellness. Several instruments such as the Leiden Quality of Work Life Questionnaire for Nurses ([LQWLQn]; Van der Doef, & Maes, 1999) measured quality of work life, job satisfaction, and work and time demands. Dutch versions of the Maslach Burnout Inventory (Tomic & Tomic, 2008) measured emotional exhaustion and psychological distress, while System Check list (SCL-90) measured somatic complaints; all instruments were reliable and valid. Using correlation analysis, Tomic and Tomic demonstrated that job satisfaction was significant with low physical demand, skill discretion, and social support for nurse. Nurses experiencing increased work demands and pressure had more somatic complaints, increased psychological distress, and suffered from emotional exhaustion. The results

confirmed that conditions in the nurse work-environment had determinants of stress-related outcomes. The finding suggested that job demands influenced stress related outcomes of emotional exhaustion, psychological distress, and physical complaints.

Health and Stress

A relationship is associated between stress, illness, and disease. In terms of health, it is just as important to have the capability of responding to stress, as it is to have the ability to relax (Monat et al., 2007). According to Monat et al., the National Institute Occupational Safety and Health (NIOSH) compiled data using 22,000 workers in 130 occupations, which demonstrated the disease incidence by occupation. Healthcare workers, such as nurses whether registered nurse, licensed vocational nurses, or nurse aides, had higher than average healthcare admission and mortality. Mojoyinola (2008) indicated that job stress is negatively associated with health factors of muscle tension, musculoskeletal pain, hypertension, aggressive behavior, and absenteeism. Mojoyinola researched 153 nurses at two public hospitals in Nigeria, and administered a single 72 item Stress Assessment Questionnaire for Hospital Nurses (SAQFHN). Using analysis of variance and *t*-test, stress had a significant effect on the nurse's health. Mojoyinola found that significant differences in the levels of stress were dependent on personal and work behaviors. The researcher concluded that job stress negatively increased symptoms of ill health, negative personal and work behavior such as absenteeism, bullying, and dissatisfaction.

Generally, nurses who experienced extreme stress in their work environment, reported suffering triple the rate of cardiovascular problems, five times the rate of colorectal cancer, three times the rate of back pain, and hypertension. Nurses have a

higher risk of experiencing stress and burnout than other non-healthcare professions (Aiken, Clarke, & Sloan, 2002). The incidence of burnout due to stress was 54% in the United States and 32% in Scotland. Using cross-sectional analysis on 10,000 nurse participants from 128 hospitals; Aiken et al., found that high patient-to- nurse ratio in hospitals, high risk-adjusted 30-day mortality and failure to rescue rates, attributed to nurses experiencing burnout and job dissatisfaction.

The implications that stress has can be detrimental to the health and well-being of nurses as indicated by different studies (Mojoyinola, 2008; Shirey, 2006). Psychologically challenging work in which employees had slight or no control over their work process experienced increased risk of cardiovascular disease and problems with musculoskeletal disorder (Sauter et al., 1999). Stress is a significant psychological concept that can influence health and well-being as described in a study from Nigeria (Mojoyinola, 2008). Employees who experience high levels of stress in their work place accounted for differences in mental health problems such as depression and burnout (Sauter et al., 1999). High levels of stress result in impairment of decision making, decreased attention, and episodic memory, that leads to higher incident of critical errors in patient care (Shively et al., 2011).

Khalsa, Amen, Hanks, Money, and Newberg (2009) examined changes in brain physiology during a chanting meditation practice using cerebral blood flow single-photon emission, through use of computerized tomography scans. When the meditation state was compared with the baseline condition, significant increase in cerebral blood flow were observed in the right temporal lobe and posterior cingulated gyrus, and decreases of the left parietotemporal and occipital gyri were observed. Khalsa et al. concluded that

meditation practice was associated with brain changes. Lupien (2009) indicated that suppression of neurogenesis and dendric shrinkage contributes to depression and cognitive decline because of extreme chronic stress. The researchers described several behaviors such as aggression or hostile behavior, depression and absenteeism in the work place as manifestations of unresolved stress (Sauter et al., 1999).

Absenteeism in the Workplace

When an employee misses part or a whole day because of illness, personal business, or any other reason besides paid vacation, it is defined absenteeism. Absenteeism is an expensive problem for many organizations. Fortune 500 companies reported a cost approximately $75 million per year at a 6% rate of absenteeism in 1997 (Markham et al., 2002). Taunton et al. (1995) reported large firms paid over $1 million annually in benefits because of absenteeism. Taunton et al. expressed concern about the impact absenteeism had on continuity and productivity of work, morale, and customer services.

According to the Watson Wyatt Canadian Staying at Work Survey, an association between absenteeism and high levels of stress in the workplace cost approximately $3,550 per employee per year (Watson Wyatt Worldwide Report, 2000). In the United States, about 1 million people each day do not attend work; this indicates approximately 50% of lost work days are stress related according to the Occupational Health and Safety New National Council on Compensation Insurance (Sauter et al. 1999). One of the most expensive challenges facing hospitals is filling open nursing shifts that result from unexpected absences, also known as call-in. The terms unplanned absence and call- in designate taking unscheduled time off work. The use of these terms is interchangeable in

this study. Call-in accounted for 5.2% of the total 17% of all registered nurse deficit demands such as vacant shifts (Sauter et al., 1999) or unexpected absence (Suby, 2008).

The preceding sections described the nurse work environment and the factors that often contribute to dissatisfaction, health, stress issues, and nurse shortages. The theoretical framework selected for this study included the biopsychosocial model, because it supports the theory of holism. The approach of the biopsychosocial model theory and holism indicates interconnectedness that exists between mental, physical, psychological and social factors and affect a person as a whole (Engel, 1977; Oshry, 2008).

Theoretical Framework

Many holistic therapies or complementary and alternative medicine approaches emphasize holism, which considers the health of an individual as a reflection of the combination of their physical, mental, emotional, social, and spiritual aspects (Caspi et al., 2003). Chow and Tsang (2007) The biopsychosocial theoretical framework was chosen to understand and explain the connection between holistic coping strategies of mind-body such as massage, meditation, and exercise that offer holism (Chow & Tsang, 2007).

The biopsychosocial theory emphasizes physical, social, and psychological balance, which can influence health and illness (Engel 1977). The concept of holism, according to Erickson (2007), is composed of mind, body, and spirit integrated into an inseparable whole greater than the sum of the parts and continuously interacts in balance to achieve health and well-being. Engel was the first to propose the biopsychosocial model (Borrello-Carrio, Suchman, & Epstein, 2004). Engle (1977) proposed three aspects

to the biopsychosocial model: biological, psychological, and social influences that interplayed to produce adequate responses that could overcome disease states or exacerbate the condition. Engel (1980) indicated the biological, social, and psychological components of the biopsychosocial model of health and illness accentuated the systems of the mind-body in a synergistic manner. The homeostatic balance concept of the biopsychosocial model is similar to that of a holistic perspective employed by complementary and alternative therapies (Chow & Tsang, 2007). According to Chow and Tsang, the biopsychosocial model is a holistic model of mind-body well-being, employed in some medical and health care professions. Chow and Tsang used the biopsychosocial theory as basis to study Qigong; a mindful holistic therapy exercise.

Selye (1946) suggested more of a biological response toward stress. He proposed a three-stage body response to stress; alarm reaction, resistance, and exhaustion, termed general adaptation syndrome (GAS). The body's alarm reaction was associated with the sympathetic nervous system in a fight-or-flight response, increasing physiological reactions of blood pressure, respiration, and heart rate. The body would resist as it adapted to the stressors in motion and, depending on the length of the stress reaction, the body would enter into exhaustion as the parasympathetic nervous system response decreased. While Selye's theory mostly engaged in physiological body reactions, the Lazarus and Folkman (1984) transactional model of stress identified psychological components of perception to stress. Lazarus and Folkman suggested three stages: (a) primary appraisal, (b) secondary appraisal, and (c) outcome evaluation. Categories of events viewed as stressful by individuals included harmful, threatening, or challenging. Lazarus and Folkman suggested that an individual made a primary appraisal of the

situation, followed by a secondary appraisal to gauge the ability of dealing with the event and to identify strategies for dealing with the situation. Once an individual had applied the strategies to the situation, they would evaluate the outcome.

Benedetto, Burns, Linnder, and Kent (2010) explored a partial latent structural regression analysis of 113 patients with depressive symptoms. This study involved the influence of perceived stress and coping on the depressive symptoms through the concept of the biopsychosocial model. The aim of that study provided preliminary results for a biopsychosocial model of depression post-acute coronary syndrome (ACS). Benedetto et al. found that higher levels of coping indicated lower levels of depression when age, smoker status, and perceived stress were controlled ($p < 0.05$). Perceived stress resulted in a significant indirect effect on depression through coping ($p < 0.001$). The biopsychosocial structural model used by Benedetto et al. included perceived stress and cognitive, social, spiritual, and physical coping resources to explain depression post ACS after controlling for age and smoking. Although this dissertation is not associated with depression post ACS as in Benedetto et al., there are variables in this dissertation, which include perceived stress and coping strategies while using the biopsychosocial theoretical framework. The limitations mentioned in this particular study were associated with smaller sample size, although it did meet minimum requirements for structural analysis.

Evans et al. (2009) proposed similarities between the physical, psychological, and spiritual effects of the yoga tradition and the biopsychosocial model of health. The intention of their article was to conceptualize a model that would help in understanding the relationship between yoga as a meditative exercise used for health purposes and the biopsychosocial model of healthcare. Through use of several databases and cross-

referenced published reviews, these investigators determined that the overall efficacy of yoga was to achieve mental, spiritual, and physical well-being by establishing internal and external environment balance. Evans et al. found evidence indicating that yoga acted favorably in multiple aspects of an individual's health. Although the work was literature research-based, the researchers demonstrated similarities between the concepts in holistic therapy and the biopsychosocial model of wholeness and well-being. The weakness in this study was the empirical evidence of methodological design and the yoga literature that emerged from India and was not generalizable to the U.S. according to these investigators (Evans et al., 2009).

The biopsychosocial model and the holistic concept are evident in the research studies mentioned and give support to the use of the biopsychosocial theoretical framework in this study. The above-mentioned biopsychosocial researchers indicated that the balance of biological, social, and psychological nature promote health and wellness, thereby stimulating holism. Similarly, Chow and Tsang (2007) demonstrated the concept of promoting wellness and balance through use of holistic therapies and practice. Their study included holistic coping strategies that promoted holism and explored the effects of absenteeism and perceived stress.

Holistic Modalities

Holism is part of a whole that contains a balance through interaction between physiological and psychological components. Therapies that contain holistic components are non-pharmaceutical and can be holistic interventions, integrative therapies, and complementary and alternative therapies (National Institute of Health, 2011). In this study, the term *holistic coping strategies* identify the variables of *massage, meditation*

and exercise. Selection of massage, meditation, or exercise for the purpose of this study includes information from the National Institute of Health Center for Complementary and Alternative Medicine, and relevant research studies obtained in the literature research.

Practice of Holistic Therapy

In the U.S., holistic techniques, practices, and therapies often used as holistic coping strategies are more mainstreamed than may be presumed (Ho & Robles, 2011). The National Health Interview Survey reported that 38.3% of adults and 11.8% children have used some form of holistic therapy within 12 months in 2007 (Barnes, Bloom, & Nahin, 2008). In a random sample of 726 critical care nurses, demand for complementary and alternative therapies in a healthcare setting was examined (Tracy et al., 2005). Tracey et al. used the National Survey for Complementary and Alternative Therapies to measure participants' attitude, knowledge, perspective, and use of complementary and alternative therapies. These researchers concluded that information provided through educational programs about use of complementary and alternative therapies would increase the appropriate use of these modalities that will support better outcomes. In the United States, people practice numerous diverse holistic therapies (Ho & Robles, 2011; NCCAM, 2011). Nurses are aware of complementary and alternative therapy use through their academic nursing program.

The present study included massage, meditation, and exercise. Both massage and meditation are on the top list of the most commonly used holistic therapies in the U.S. (NCCAM, 2011). There is an array of physical exercises, which include slow, meditative movements of Tai chi, yoga, and Qigong. In addition, physical exercises include fast

moving movements such as Zumba, Salsa, and aerobics. I am investigating the relationship between use of holistic therapies on perceived stress and absenteeism.

Massage. Massage was one of the holistic coping strategies used for this present study. Nurses are familiar with massage therapy and the benefits of massage through their nursing education. In the early 1920s, massage was part of the nursing curriculum and nurses practiced it as part of daily patient care (Calvert, 2011). The definition of massage given by Hessig, Arcand, and Frost (2004) is that of rubbing, stroking, or kneading of the body's soft tissue to promote comfort and relaxation producing the feelings of healing, wellbeing, and contentment. Massage therapy is an ancient form of treatment described by Chinese in the second century that later surfaced in India and Egypt. In 400 B.C.E., Hippocrates defined massage as the art of rubbing (Monat et al., 2007). In the U.S., massage is an alternative and complementary therapy. Even though massage has existed for centuries, there are few literary research articles with clinical trials or empirical studies about massage. These empirical studies indicated that the use of massage played a role in reducing daily stress because it dilates the blood vessels thereby increasing blood circulation. In turn, the blood circulation increases oxygen and nutrients, which produces feelings of warmth and relaxation (Phillips, & Morrow, 1998). Phillip and Marrows explored massage and other holistic interventions as part of the self-care management for HIV infected patients experiencing psychological and physical discomforts. Using 30 participants, Hernandez-Reif, Field, Krasnegor, and Theakston (2000) demonstrated that 30 minute massages twice a week for 5 weeks had physiological effects of decreased blood pressures, cortisol levels, and anxiety.

Other research studies included massage therapy as a tool for stress management in the workplace (Bost & Wallis, 2006; Katz, Wowk, Culp, & Wakeling, 1999). In a randomized controlled trial, Bost and Wallis investigated the effectiveness of massage therapy using physiological and psychological indicators of stress. These researchers used a sample group of 60 nurses employed in an acute care hospital in South East Queensland, Australia. The control group received no massage and the experimental group received 15 minutes massages once a week with stress levels measured at Week 1 and five using a Spielberger State Trait Anxiety Inventory. All participants completed demographic information and a brief medical history. Finding indicated no significant changes in urinary cortisol and blood pressure between the two groups. However, the group that received massage did have lowered scores on the State Trait Anxiety Inventory (Spielberger, 1983) over a five-week period as compared to the control group, which indicated a statistically significant difference between the two groups. Bost and Wallis stated that their sample size could be a limitation to the conclusion they reached, which indicates a weakness in this particular investigation.

In a pilot study conducted by Katz et al. (1999), 12 participants working in a large teaching hospital received eight 15-minute massage treatments each. Staff was comprised of 10 registered nurses and 2 nonmedical staff. The researchers used the Profile Mood States (Pollock, Cho, Reker, Volvaka, 1979) to measure pain, tension, and relaxation pre- and post- massage treatment. The pain intensity and tension levels indicated significantly lower scores after massage of $p < 0.01$, while relaxation and mood state improved significantly after treatments at $p < 0.01$. The eight-session workplace massage treatments demonstrated that the pain and tension of the nurse participants who worked in

a large teaching hospital was significant and warranted a massage therapy-intervention program to improve health and wellness for nurses. The preceding researchers demonstrated that massage had a physiological and psychological impact on participants, lending support to the current study for use of massage.

Meditation. Along with massage, meditation is a holistic therapy that originated over 3,000 years ago. People practice meditation in various forms including religious contexts throughout the world. Meditation is a form of spiritual contemplation that an individual achieves through direct awareness and focus of thought by obtaining greater insight and well-being (Shapiro & Walsh, 2003). Much attention has been given to meditation in the last six decades since Hess (1949, as cited in Smith, 1999) discovered the anti-stress relaxation area in the hypothalamus, which was followed transcendental meditation relaxation response, and then by Mindfulness Bases Stress Reduction (Davidson et al., 2003). Studies on meditation indicate a positive impact on the brain and body that result in stress reduction, immune enhancement, and a large cerebral cortex (Kalsha, 2010). Different formats of meditation techniques exist; meditation is a state of awareness.

In a national government survey, using a sample of 23,393 U.S. adult participants, 9.4% of respondents or 20 million people used meditation within 12 months (NCCAM, 2011). Meditation is the second most widely used mind-body technique in the country besides deep breathing exercise. Different forms of meditation exist with transcendental and mindfulness meditation as the most popular.

A transcendental meditation, longitudinal neuroimaging research sponsored by the National Institute of Health (Orem-Johnson, Schneider, Son, Sanford, & Cho, 2006),

demonstrated different meditation techniques had different effects on the brain, which caused pain reduction. Orem-Johnson's study had 24 healthy participants who practiced meditation twice daily for 5 months. The fMRI demonstrated a difference from the long-term meditators and the health controls. The meditators had a 40-50% lower response than their counter participants for pain response did. These researchers hypothesized that the Transcendental Meditation program reduced the brain's response to pain.

In a transcendental meditation study of 103 Metabolic Syndrome cardiac heart patients, meditation had beneficial effects on adjusted blood pressure, insulin resistance, and cardiac autonomic nervous system tone as compared with the control group. Results from this study led investigators to propose that meditation may adjust the physiological response to stress via neurohumoral activation (Paul-Labrador et al., 2006). The conclusion of the 16 weeks transcendental meditation practice resulted in reduction of adjusted blood pressure and insulin resistance. The International Society of Psycho-Neuro Immunology Conference (Jacob, Stout, & Price, 2004) reported that telomere lengths increased because of long periods of meditation. One common weakness found in these meditation studies was the use of small sample sizes.

In another meditation study, 40 nurses and nurse aides offered a brief mindfulness based stress reduction program (Poulin, Mackenzie, Soloway, & Karayolas, 2008). The program consisted of four, 30-minute training sessions that focused on an introduction to mindfulness. The participants obtained a CD of mindfulness practices and practiced mindfulness meditation15 to 20 minutes daily. Using Maslach Burnout Inventory, Poulin et al. examined emotional exhaustion, depersonalization, and reduced personal accomplishments. The Satisfaction with Life Scale determined the participants' well-

being. The results indicated the participants had experienced a significant reduction of emotional exhaustion and stress.

According to Tomasko (2008) meditation practice of at least five minutes daily, gave support to attitude regulation and was vital to successful nursing in any setting. In addition, meditation promoted focus and higher concentration (Tomasko, 2008). The meditation studies stated in this section indicate a positive psychological and physiological impact on the nurses and individuals that practiced meditation. These studies give support for the use of meditation as a variable for this study. This study explored the practice of meditation as it affected absenteeism and perceived stress.

Exercise. Another holistic coping strategy used in this study was exercise. O'Conner et al. (1989) demonstrated the use of exercise as a treatment for an array of health reasons such as cardiovascular disease, osteoarthritis, and diabetes to name a few. Previous work indicated a connection between mental health and physical activity (Farmer et al., 1988). Hence, North McCullagh, and Tran (1990) suggested use of physical fitness for psychological treatment of depression. Even though different types of exercise fitness programs exist, active exercise was included as part of this study. Given the original definition of yoga as a mind discipline (Birdee et al., 2009), yoga was recognized as meditation rather than as an active exercise. Active exercise includes aerobics, core exercises, running, or walking and cardio workouts.

Aerobic exercise is an endurance type of exercise that increases metabolic rates by increasing myocardial contractions and decreasing vascular resistance (Haung, 2001). Using the 2003, Labour's Physical Fitness Test Methods formulated by the Taiwan Institute of Occupational Safety and Health, Yuan et al. (2009) health-fitness program

intervention demonstrated an improved physical performance of flexibility and durability. Improvements of cardiopulmonary functions, strengthening of the immune system, and psychological stresses of depression decreased with exercise (Lu et al. 2002). Experts recommend approximately 20 to 60 minutes, 3 times a week in order to achieve a constant balance of health. However, the University of Wisconsin study demonstrated cardiovascular benefits and improved health with 15-minutes of exercise, twice a week (Schmidt, Biwer, & Kalscheuer, 2001). In addition to this information, intermittent exercise practice was more effective and indicated a change in the improvement of lipids (Altena, Michaelson, Ball, & Thomas, 2004).

Berger (1994) suggested that physical exercise positively correlated with improvement of wellbeing and coping. Engaging in physical exercise positively improved the participants' reaction toward stress even though the actual problem was not solved (Berger, 1994). One study using 135 university students using low impact exercise such as walking or tai chi had a high response in lowering stress (Carmack, Boudreaux, Amaral-Melendez, Brantely, & de Moor, 1999). In a study of student teachers who experienced high levels of stress, the mind through body model for coping was used (MacFarlane & Montgomery, 2010). The theoretical model indicated that physical exercise influenced cognitive appraisal process by increasing tolerance for stressful events. Further, Ploughman, (2008) noted that physical exercise affected secondary appraisal enhancing cognition. In general, exercise influenced a person's appraisal and overall stress.

Summary

Nurses make up a significant part of the employee healthcare population in the U.S. They often experience a multitude of work related challenges and stressors in their work environment that are beyond their control (Burgess et al., 2010; Mojoyinola, 2008) Absenteeism is a costly financial burden to organizations, institutions, and companies throughout the United States. Large companies have reported a cost of over $70 million per year because of absenteeism (Markham et al., 2002). For these reasons, learning more about coping strategies and the impact on stress has on employee attendance including health issues and burnout, is important to balance in the workplace and the well-being of the employee.

Coping strategies are reported to have direct impact on stress reduction in the work of Healy and McKay (1999). In other relevant studies holistic therapies and practices of massage, meditation, or exercise reduced stress (Bost & Wallis, 2006; Khalsa, 2010; Yuan et al., 2009). Similarly, the focus of this investigation was to study the relationship that massage, meditation, or exercise had on perceived stress and absenteeism in the nurse population.

Previous researchers indicated a relationship exists between stress and health in nurses. This study filled a gap in literature by extending knowledge that provides information on use of holistic coping strategies and the relationship it has on how nurses perceive stress. This information will add new knowledge to the relationship between use of holistic coping strategies and nurse absenteeism. The ability to handle stress is a topic vital to the survival of nursing professionals, given the shortage of nurses and the high demands of their jobs.

This current study also contributes knowledge to the current literature in complementary and alternative medicine (CAM) research. Although there are many studies on various complementary and alternative or holistic therapies and products with carefully planned-out and randomized control trials, numerous studies lack methodology rigor, randomization, control groups and large sample size (Hessig e al., 2004). The information collected in this current study added to the literature gap by being an evidence-based study with randomized participants and adequate sample size. .

Because stress is the result of multiple sources, such as personality moderations, the work and family environment, and emotional response (Lazarus & Folkman, 1984), there is no one particular sole cause of nurse stress. The intensity of an acute hospital environment contributes to continued workloads and high work demand related stress, that affect the health and wellness of health care workers such as nurses. Stress will always exist in the nursing profession; therefore, nurses must learn to develop internal coping responses. Numerous research studies exist on stress such as the work of Lazarus and Folkman who suggested that a connection exists between stress and coping.

Chapter 3 is a description of the methodology design derived from the literature overview mentioned above. A discussion details the instruments used to measure the variables along with relevant literature that lends support to the tools used for this current study. Chapter 3 includes information on the reliability and validity of these instruments. Specific aspects of the population used for the study is given including the intended sample size and effect size. The following chapter establishes the planned survey distribution and data collection, including integrity and safety for the participants.

Chapter 3: Research Method

Introduction

The purpose of this study was to explore whether or not holistic coping strategies had an impact on perceived stress and absenteeism in hospital nurses. The demands that hospital nurses encounter often contribute to high levels of stress (Laal & Aliramaie, 2010). Exploring whether holistic coping strategies of massage, meditation, or exercise make a difference in managing stress is important to nurses working in stressful environments. This chapter contains a detailed description of the methodology, research design, participants, procedure, and data collection. In addition, measures and instruments, analysis plans, and ethical considerations are included.

Research Design

The design for this study explored the research questions associated with the impact of holistic coping strategies on perceived stress and absenteeism in hospital nurses. The independent variables were holistic coping strategies of use or no use of massage, meditation, or exercise. The dependent variables were absenteeism and perceived stress. Further, the research design included a correlational design with a cross-sectional survey method. Multiple regression, *t* test, and chi square analysis aided in finding differences and relationships among variables.

The survey method used in this study allowed collection of relevant information associated with the problem statement. The problem statement included the speculation that a relationship exists between the independent variables of holistic coping strategies (massage therapy, meditation, or exercise) and the dependent variables of perceived

stress and absenteeism in hospital nurses. Survey Monkey collected participant survey data through an online service. The time period for data collection was 4 weeks.

Other research relevant to this topic of study reported use of a survey design. Myers et al. (2012) conducted a study that demonstrated use of a survey method to collect self-care and perceived stress data on 488 psychology graduates. Conducting statistical analysis of the data collected, Myers et al. were able to demonstrate significant differences in perceived stress when students were educated on self-care practices within a mindfulness framework. Similarly, this study explored perceived stress as a variable and used a survey design.

One instrument used for this study was the Perceived Stress Scale-10 (PSS; Cohen et al., 1983). The measure used for absenteeism included the number of hours absent for each participant as recorded by the hospital administration office for the past 3 months prior to the study. The categories used for absenteeism included planned, unplanned, or total absence. Total absence included the sum of both planned and unplanned absences for each participant. Holistic coping strategies of massage, meditation, and exercise were each assigned units of value, indicated by either *yes* or *no* in participant response.

Methodology

Population

Eligible participants included registered nurses who held a bachelor's degree in nursing or a certification in nursing. The participants were from a target population of approximately 500 nurses. This nonprobability nurse sample was from a participating

South Texas hospital. In addition, the sample was from a tax-supported hospital because it was readily available and convenient.

Power analysis (G*3 Power 3.1.2) was used to calculate an empirically valid sample size (Girton, 2011; Lipsey & Wilson, 1993; Meyers et al., 2012). A medium effect size of (*d*) .50 (Cohen, 1988), is an accepted standard value that was selected to indicate moderate to large differences (Zint, 2006). A generally accepted power level of .80 and a significant alpha level of .05 (Howell, 2010) are required to achieve empirical validity for a sample size of $N = 128$ or 64 participants per group (Faul, Erdfelder, Buchner, & Lang, 2008). The sample size established attained results with enough power to produce significant results, lessen the potential for Type I or Type II errors, and reject or accept the hypothesis stated in this study.

The participants needed to have at least 90 days of hospital employment in the organization and have access to an Internet connection. Exclusion criteria for this study included nurses younger than 20 years of age or older than 65 years of age. In addition, participants had to have been in the nursing profession for at least 90 days.

Procedures

Prior to the actual collection of participant survey information and to follow appropriate steps to protect the rights and interest of participants, approval was obtained from the Institutional Review Board (IRB Approval # HSC20140023H) of the participating university medical school in Texas and the affiliate of the participating teaching hospital, as well as the Walden University IRB (IRB Approval # 08-06-13-0131769). Nurse participation was encouraged through an invitation via a hospital intranet flash ad and the nurse portal. Paper copies of posters announced the study in

open areas of the hospital (Appendix A). A link to the survey, hosted on Survey Monkey, was electronically accessible to participants through the nurse intranet hospital portal. All information about the survey, including the survey, was accessible to participants online. As a preface to the survey, the informed consent contained information explaining the study. In addition, it contained an explanation about obtaining attendance records from nursing administration and any benefits or potential risks, including anonymity regarding participation (Appendix B). Participants acknowledged their informed consent by responding to the survey after having read the electronic consent form. A recommendation to print a copy of the informed consent, which contained my contact number, was provided.

The participants indicated any practice of massage, meditation, or exercise by reporting yes/no for a period of 3 months prior to the study (Meyers et al., 2012). Participants used the Perceived Stress Scale-10 to report stress levels. The nursing administration office timekeeper provided absenteeism information from participants who voluntarily provided their employee identification numbers. At the completion of the study, and to increase the likelihood of participation, the participants could print an incentive in the form of a coupon valued at $10 for use at the hospital cafeteria.

Data Collection

A web-based online survey company, Survey Monkey, collected and stored all data. Participants provided participation consent to the study and their employee identification numbers (see Appendix B for participant consent). Acknowledgement of consent and employee identification number by participants followed by their answers to a socio-demographic questionnaire, the Perceived Stress Scale–10, and generalized

questions about massage, meditation, or exercise (see Appendix C). The socio-demographic section in the questionnaire included gender, age, ethnicity, marital status, highest educational credential within the nursing profession, amount of time worked within the nursing profession, amount of time worked in this hospital, and type of shift within this hospital. These types of socio-demographic data have been used in several studies to predict nurse satisfaction, intent to stay, and stress (Kovner, Brewer, Greene, & Fairchild, 2009; Sourdif, 2004).

A brief self-reported questionnaire (see Appendix C) elicited information on use of massage, meditation, or exercise from the demographic portion of the survey. To determine *yes* versus *no* for these holistic strategies, the participants indicated any practice of meditation by reporting *yes I practice meditation once a week or more for at least 15-20 minutes* (A1) or *no meditation practice* (A2), *for a period of 3 months prior to this study* (Poulin et al., 2008). According to Poulin et al. (2008), a significant difference in improved relaxation and decreased emotional exhaustion occurred with 15-20 minutes of daily mindfulness practice for about 2 months. Participants for this study indicated use of at least a 15-minute massage by reporting *yes I get a massage once a week or once a month* (B1) or *no I do not use massage* (B2), *within a period of 3 months prior to this study* (Bost & Wallis, 2006). Bost and Wallis (2006) found that massage therapy improved the health of nurses and reduced psychological stress with 15-minute weekly massage interventions for 5 weeks. Participants indicated *yes I do exercise for at least 10-15 minute* (C1) or *I do not exercise* (C2), *for at least 7 days or more* (Sterner, 2008). Sterner (2008) reported that 15-minute workouts were beneficial in maintaining a healthy weight and improved fitness as compared to 30-minute exercise.

The participating hospital nursing administration office provided absenteeism records for this study through use of participants' employee identification numbers. A letter of cooperation from the nursing administration office (see Appendix D for letter of cooperation) to gain access to participants' attendance records was required. The hospital timekeeper in charge of maintaining attendance records for nurses accessed the absenteeism records via e-mail. A confidential agreement from the operations manager/attendance record timekeeper was required (see Appendix E for confidential agreement). Confidentiality for participants was maintained by having the timekeeper access attendance information using employee identification numbers, which were unknown to me as the researcher in this study.

The best source of accurate absenteeism data was organizational attendance records rather than participant self-report, which demonstrated bias (Gaudine & Gregory, 2010). Finally, an American Psychological Association *Mind/Body Health: Job Stress Fact Sheet* (Weiss & Molitor, 2013) was available electronically for participants upon completion of the survey. Once the participant exited, no further follow-up or interview was required, although participants had my contact details.

Data were first stored in Survey Monkey and then exported into the Social Sciences Program (SPSS) 20.01 graduate package for analysis. All data collected in this investigation are stored on a disk. The disk is in a safe, protected, locked cabinet in my office at the participating hospital that is only accessible to me. The disk will be stored in compliance with Walden University guideline requirements and without deletion until a minimum of a 5-year period has elapsed.

Measures

The set of measures consisted of (a) a sociodemographic questionnaire; (b) a questionnaire (yes/no) on use of massage, meditation, and exercise; (c) the Perceived Stress Scale-10; and (d) collection of absenteeism information from the hospital employee electronic attendance data.

Sociodemographic Questionnaire

A self-reported questionnaire (see Appendix C) requested participants' information on gender, age, ethnicity, marital status, highest educational credential within the nursing profession, amount of time worked within the nursing profession, amount of time worked in this hospital, and type shift within this hospital (Kovner et al., 2009; Sourdif, 2004). This information had descriptive purposes and should make it possible to compare findings and compare future research in kind.

Questionnaire on Use of Massage, Meditation, and Exercise

The independent grouping variable was the self-reported use of meditation, massage, or exercise as a holistic coping strategy from the demographic part of the survey (Appendix C). For each strategy, participants responded with *yes* or *no* regarding their engagement in the strategy for the 3 months preceding the study. A specific definition of endorsement for use of each particular strategy was provided. Definitions for use of massage, meditation, and exercise were on the survey. For example, participants answered *yes* to massage if they had received a massage once a month or more for at least 15 minutes. Participants answered *no* if they had not received massage according to the definition of endorsement (Bost & Wallis, 2006). Participants answered *yes* to meditation if they had meditated once a month for at least 15 minutes or more.

Likewise, participants answered *no* if they had not meditated according to specifications. Meditation practice was defined as intentionally being aware of thoughts, feelings, and bodily sensations for a period of time as a sole mindful activity (Meyers et al., 2012). Finally, participants answered *yes* to exercise if they had exercised for at least 15-20 minutes once a week or more (Sterner, 2008) but answered *no* if they had not exercised accordingly. (See Appendix C for complete holistic coping strategy questionnaire).

Perceived Stress Scale

The Perceived Stress Scale-10 is a brief 10-item questionnaire (see Appendix C) designed to measure perceived stress (PSS; Cohen et al., 1983). The Perceived Stress Scale is the most widely used global measure of perceived stress, and permission for use is unnecessary when it is used for academic research or educational purposes (Cohen, 2013). The Perceived Stress Scale measures the degree of stress appraised by an individual in a situation. Items in the PSS indicate the participant's perceptional response associated with how he or she feels about life, such as overwhelming, uncontrollable, or impulsive. Other items include the respondent's present levels of experienced stress. The PSS has several scale versions; however, this study used the 10-item scale (Cohen & Williams, 1988) to measure nurses' perceptions of stress because it is the most reliable and widely used version of the PSS. Reliability of the PSS was determined using 2 studies. The study sampled college students and a heterogeneous group enrolled in smoking cessation classes. The coefficient alpha scores were .84, .85, and .86, respectively. The test-retest correlation of .85 resulted from a test-retest correlation administered to a sample of college students instructed to strive for accuracy rather than consistency (Cohen, 1988). The validity of this instrument was determined using

normative data on 2,387 respondents resulting in a strong correlation of .76 and .65 between the Perceived Stress Scale–10 and depressive symptoms. Each item in the PSS is rated on a 5-point Likert-type scale (0 = *never* to 4 = *very often*). Calculations of total PSS scores are achieved after reversing positive item scores (Items 4, 5, 7, and 8) and then summing up all scores. Total scores for PSS-10 range from 0 to 40; a higher score indicates greater perceived stress. An example item is "In the last month, how often have you felt difficulties were piled up so high that you could not overcome them?" (Cohen, 1988).

Absence Frequency

Concerns of staff nurse absenteeism are growing because of expenses to the hospital employers, continuity of patient care, and amplification of the nurse shortage. In a systematic review of studies aimed at examining predictors of short-term absenteeism in hospitals, work environment, job dissatisfaction, burnout, and job stress were factors that needed to be considered as contributors (Davey et al., 2009). In stressful work environments, absenteeism is often a coping mechanism used by employees to manage stress (Sauter et al., 1999; Suby, 2008).

Attendance records are more reliable than self-reported attendance (Davey et al., 2009). In a study comparing the accuracy of absenteeism between organizational records collected from a biweekly pay stub and a self-reported questionnaire that included absenteeism, the accuracy of self-reported absences in nurses indicated a bias that underestimated the number of absences (Gaugdin & Gregory, 2010).

Measuring Absenteeism

As a reliable and accurate source of attendance records, the participating hospital nursing administration office provided participants' absence information via the nurses' employee identification numbers (Davey et al., 2009; Gaudin & Gregory, 2010). By request, participants voluntarily provided their employee identification numbers on the survey (see Appendix C). Using the employee identification number allowed participants' names and personal information to remain confidential. The electronically processed attendance information is only accessible to view through the hospital operations manager, who is the record keeper. It is important to note that attendance records differentiated between planned and unplanned absences, where unplanned absences did not include vacation or planned absences. Total absence included both recorded planned and unplanned absences. Hammer and Lanaus (1986) defined two types of absenteeism: *Culpable absenteeism* refers to voluntary, unapproved, or unplanned work days missed, and *inculpable absenteeism* refers to involuntary, approved, or planned work days missed because of unforeseen reasons or reasons beyond control such as illness or family death. Often, it is difficult to distinguish between culpable and inculpable absences in a hospital-based nurse environment that has formal sick leave programs because the nurses only receive benefits when they call in sick. Frequency and duration are measures of absences categorized by sick days, whether culpable or not culpable. Davey et al. (2009) and Hammer and Landau (1986) indicated that frequency measures, although imperfect, offered a reasonable index of culpable absence. Frequency of participant absences retrieved from the employee attendance records included a 3-month period prior to the date of the survey used in this study.

Data Analysis

For this study, the data was stored in the Survey Monkey, and then transferred into the Social Sciences Program (SPSS) 20.0 1 for Windows. Descriptive statistics provided a description of the sample population. Frequency and percentages of gender, education, and other categorical variables were calculated. In an effort to provide a graphic representation of the participants' perceived scores and absenteeism, a frequency table depicts the data analysis, including means and standard deviations. A table form illustrates demographic characteristics within the nurse sample including multiple regression predictors of perceived stress and absenteeism among hospital nurses. Additional figures provide a visual illustration of the data as they related to holistic-coping strategies, level of perceived stress scores, and frequency of absenteeism using the chi- square analysis and *t* test respectfully. Only participant information from eligible participants as stated in the participation section was included to address the first hypothesis.

RQ1: Is there a significant difference in perceived stress, as measured by the Perceived Stress Scale-10, between hospital nurses who report use of massage, meditation or exercise and those that do not use massage, meditation, or exercise?

$H_0$1: There is not a significant difference in perceived stress, as measured by the Perceived Stress Scale-10, between hospital nurses who report use of massage, meditation, or exercise and those nurses that do not use holistic coping strategies.

$H_1$1: There is a significant difference in perceived stress, as measured by the Perceived Stress Scale-10, between nurses that report use of massage, meditation, or exercise than those who do not use massage, meditation, or exercise.

An independent sample *t* test assessed Research Question 1 and determined if a difference existed in perceived stress between hospital nurses who used massage, meditation, or exercise and those who did not. The independent sample *t* test is the appropriate analysis when the goal of research is to assess if differences exist on a continuous dependent variable by a dichotomous grouping independent variable (Pagano, 2009). Perceived stress was the continuous dependent variable in the analysis as measured by the total score from the PSS. Positive item scores were reversed (Items 4, 5, 7, and 8) coded and participant responses were summed to create a total PSS score. Total scores could range from 0 - 40 and higher scores indicated greater perceived stress; data were treated as continuous. The independent grouping variable in the analysis was self-reported as use of holistic coping strategies of massage, meditation, and exercise (Response *yes* or *no*) from the demographic portion of the survey.

An assessment for the assumptions of normality and homogeneity of the variance took place prior to analysis. A one-sample Kolmogorov-Smirno (KS) test assessed the normal distribution of PSS scores, assuming normality. The *t* test is robust against violations of normality (Morgan, Leech, Gloekner, & Barrentt, 2007). Homogeneity of variance assumed that both nurses who reported use of holistic coping strategies and those who did not, had equal error variances and were assessed using Levene's test. If Levine's test was significant, a violation of the assumption occurred. A report for the degrees of freedom for unequal error variances adjusted for this violation. The *t* test was two-tailed, and the alpha level, or the probability of rejecting the null hypothesis when it is true, was set at $p < .05$ to ensure with 95% confidence that differences did not occur by lone chance. With an alpha set of .05, a significant finding was rendered when the

calculated *t* value is greater than the critical *t* value after considering degrees of freedom (*df*) for independent samples (*n*- 2).

RQ2: Is there significant difference in absenteeism between hospital nurses who report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise?

$H_0$2: There is no significant difference in absenteeism between nurses that report use of massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise.

$H_1$2: There is a significant difference in absenteeism between hospital nurses that use massage, meditation, or exercise and those nurses who do not use massage, meditation, or exercise.

An independent sample *t* test assessed Research Question 2, and to determine if there was a difference in absenteeism between hospital nurses who reported use of massage, meditation, or exercise and those who did not. Chi square analysis determined differences between two or more actual samples. This analysis determined significance relationship between absent number of frequent occurrence and holistic coping strategies.

RQ3: Does the use of massage, meditation, or exercise predict less perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses?

$H_0$3: The use of massage, meditation, or exercise does not predict less perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses.

$H_1$3: The use of massage, meditation, or exercise does predict less perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses.

To assess Research Question 3 and to determine if the use of holistic coping strategies predict less perceived stress, as measured by the PSS among hospital nurses, a multiple linear regression was conducted. Multiple linear regression is the appropriate statistical analysis when the goal of research is to determine the extent of a relationship among a set of dichotomous predictor variables on a continuous criterion variable. Perceived stress is the continuous criterion variable, or dependent variable, in the analysis as measured by the total score from the PSS. To score the instrument, items 4, 5, 7, and 8 were reverse coded, and participant responses were summed to create a total score. Total scores could range from 0 - 40 and higher scores indicated greater perceived stress; data were treated as continuous. The predictor variables, or independent variables, in the analysis were self-reported use of three holistic coping strategies to include massage, meditation, or exercise. Each holistic coping strategy was a dichotomous predictor variable (yes/no); data came from the demographic portion of the survey. An alpha level of .05 assessed the data.

Multiple regression was conducted to assess if the use of massage, meditation, and exercise predicted perceived stress. The following regression equation (main effects model) was used: $y = b0 + b1*x1 + b2*x2 + b2*x3 + e$; where y = perceived stress, $b0$ = constant (which included the error term), $b1$ = first regression coefficient, $b2$ = second regression coefficient, x = predictor variables and e = the residual error (Tabachnick & Fidell, 2012).

Standard multiple regression was used and all predictor variables were entered simultaneously into the model. The bases of evaluation for each predictor was on what it added to the prediction of perceived stress that was different from the predictability

provided by the other predictors (Tabachnick & Fidell, 2012). The *F* test assessed whether the use of massage, medication, or exercise collectively predicted perceived stress. R-squared reported and determined how much variance in perceived stress accounted for by the set of predictor variables. The *t* test determined the significance of massage, meditation, or exercise and beta coefficients determined the extent of prediction for each predictor variable. For significant predictors, every one-unit increase in the predictor, perceived stress increased or decreased by the number of unstandardized beta coefficients.

The assumptions of multiple regression was assessed prior to conducting the multiple regression analysis. Those assumptions included linearity and homoscedasticity. Linearity assumed a straight-line relationship between the predictor variables and perceived stress. Homoscedasticity assumed perceived stress scores had a normally distributed about the regression line. Both assumptions were assessed using examination of scatter plots. The absence of multicollinearity assumed that massage, medication, and exercise were not too related and were assessed using Variance Inflation Factors (VIF). VIF values over 10 suggested the presence of multicollinearity (Stevens, 2009).

RQ4: Does use of massage, meditation, or exercise predict less absenteeism among hospital nurses?

$H_0$4: The use of massage, meditation, or exercise does not predict absenteeism among hospital nurses.

$H_1$4: The use of massage, meditation, or exercise does predict absenteeism among hospital nurses.

To assess Research Question 4 and to determine if, the use of the either or any of the three types of holistic coping strategies use predicted less absenteeism among hospital nurses, a multiple linear regression was conducted as explained in Research Question 3.

Ethical Procedures

Walden University and the participating hospital facility provided institutional permissions and IRB approvals. Moreover, this study maintained the ethical standards established by Walden University's IRB and the participating hospital facility IRB. Recruitment for participants took place through the electronic hospital website flash ad and the nurse portal. This type of recruitment was convenient because it was available to most nurses throughout the hospital. The nurses from this hospital are accustomed to frequenting the website and nurse portal for information and hospital news. I also recruited at the general hospital staff meetings by briefly mentioning the existence of the study and directions on how to participate. The participants received an inexpensive incentive for participating that was justifiable as a token of appreciation. The participating hospital facility provided a letter of cooperation (see Appendix D for Letter of Cooperation from University Health System Nursing Administration).

The participants received information in advance of the purpose and nature of this research and their right to discontinue at any time. In addition, participants received information in advance about the purpose for requesting Employee Identification Number to access attendance record. The employee badge contains a bar code on the back that the employee swipes on the time clock to clock in and out of work. The information obtained from the electronic time clock automatically matches the employee identification number and electronically records the information for payroll and attendance. Knowing the

employee identification number allows the timekeeper to pull out the attendance record without having to look up the name of the participant or any other identifiers. Notification to participants indicated that attendance information was electronically processed, and no other participant identification or information was accessible for this study or to the researcher. The operations manager/timekeeper whose job was to maintain the electronic records via identification numbers made the attendance data available to me without the use of any other information. The timekeeper is bound by the participating hospital as a place of employment and signed the Walden University Confidentiality Agreement (see Appendix E for Confidentiality Agreement). Detailed explanation reassured participants that providing employee identification number would not influence them or their job in any manner by the employer. Participants received assurance that all information was confidential, and precautions to safe guard information were in place.

All information given by participants in the survey remains confidential in a secure locked cabinet in the researcher's office at the participating facility. Participants received information that a doctoral student conducted this study. The consent form provided information apprising participants about risks and benefits for participating in the study. The participant acknowledged informed consent by taking the survey after having read all the information about the study including consent information. I provided participants a contact number in the survey to accommodate any questions concerning any discrepancy or stress felt because of this study. All information and data collected are stored on a disk and maintained in a locked area in my office in the participating hospital.

This disk will be stored for a minimum of a 5-year period and then deleted per the Walden University Office of Research Integrity and Compliance.

Summary

The purpose of this study was to investigate any relationship between massage, meditation, and exercise as holistic coping strategies on perceived stress and absenteeism in a hospital nurse population of a Trauma Level 1 healthcare system. This study included previous literature research investigations associated with the nursing profession, stress, perceived stress, holistic therapies, and absenteeism. Exclusion for participation included nurses with fewer than 30 days of employment in the organization. Invitation for participation included hospital intranet flash ad, nurse intranet portal, and paper copies of posters announcing the study in open areas of the hospital. Two questions included participant's practices of these holistic coping strategies. Chapter 4 is a report of the data and Chapter 5 is the analysis and interpretation of those data.

Chapter 4: Results

Introduction

The purpose of the study was to determine whether there was a difference of perceived stress as measured by the Perceived Stress Scale-10 (PSS 10; Cohen & Williamson, 1989) when hospital nurses either used or did not use massage, meditation, or exercise. A second goal was to examine if there was a difference in hospital nurse absenteeism, as recorded by the participating institution on nurses' attendance record, between nurses who used or did not use the holistic coping strategies (massage, meditation, or exercise). The four research questions investigated in this study included the following. The first question addressed whether there was a difference in perceived stress as a function of holistic coping strategies (massage, meditation, or exercise) when measured by the Perceived Stress Scale-10. The second question concerned whether there was difference in absenteeism between nurses who practiced massage, meditation, or exercise and those who did not. In addition, the third research question addressed whether perceived stress was predictable with use of massage, meditation, or exercise. The fourth research question concerned whether absenteeism was predictable with use of massage, meditation, or exercise.

One hypothesis was that there was a significant difference in perceived stress as a function of massage, meditation, or exercise. Another hypothesis was that there was a significant difference in absenteeism as a function of these holistic coping strategies. In addition, massage, meditation, or exercise were hypothesized to predict perceived stress and absenteeism.

Participants responded to survey items via the hospital intranet and Survey Monkey. To answer the research questions and address the hypotheses, I used 21.0 version of the IMB-Statistical Package for the Social Sciences (SPSS) program. For all analyses, significance was set at alpha less than or equal to .05.

Data Collected

Data were collected from 239 respondents out of a total sample of 500 hospital nurses. To participate in the study, participants had to sign an informed consent document and have been nurses for 90 days or more. In addition, all participants needed to have worked in the institution for 90 days or more. A possibility existed for nonnurses to complete survey responses because they received an invitation to participate through the hospital employee intranet. The explanation for the removal of respondents' surveys is as follows. One respondent answered the survey twice; the first response was kept, and the second entry was deleted. Twenty-eight (11.7%) respondents were not nurses and were removed from the data. Another 20 (8.4%) participants who started the survey were not included because they failed to answer questions for nurse education, time as a nurse, time working in the participating facility, or Perceived Stress Scale. Eleven (4.6%) respondents had less than 90 days of being a nurse at the participating facility and were not eligible. After subtracting 60 noneligible participants from 239 respondents, 179 eligible participants remained. However, four (1.7%) nurses did not answer the perceived stress scale, and another six (2.5%) did not provide their employee identification numbers and were removed. Finally, 12 cases had improper reporting of absences such that a letter instead of a numerical value recorded attendance. The final sample was composed of 157

nurses out of the eligible number of participants, yielding a response rate of 87.7% (157 of 179).

Next, univariate outliers from the data were assessed using z scores. Data were standardized to a mean of 0.00 and standard deviation of 1.00, and cases with responses greater than 3.00 standard deviations from the mean were considered outliers and removed from the data (Tabachnick & Fidell, 2012). There were no skew or kurtosis problems noted for these study data.

Results

The majority of participants were female (n = 132, 84.1%), White (n = 61, 38.9%), married (n = 103, 65.6%), and baccalaureate prepared (n = 102, 65.0%). Participants' mean age was 44.34 (SD = 11.26, range 23 to 66). When participants were asked what shift they worked, the most common response was indicated as a 12-hour day (n = 75, 47.8%). A range of 3 months to 43.33 years (M = 16.8, SD = 11.4) indicated the participants' responses to number of years they had been in the nursing profession. The number of years working at the participating institution ranged from 3 months to 32.42 years (M = 8.2, SD = 7.4). Frequencies, percentages, means, and standard deviations for demographic characteristics appear in Table 1.

Table 1

Participant Demographics

Variable	Percent
Gender	
Male	15.9
Female	84.1
Race/ethnicity	
White	38.9
Hispanic	29.9
Filipino	14.6
Asian Indian	9.6
Black, African American	2.5
American Indian or Alaskan Native	1.9
Marital status	
Married	65.6
Single	34.4
Highest education within nursing profession	
PhD, DNP, MSN	6.4
BSN	65.0
ADN/Diploma	25.5
LVN	3.2
Type of shift work	
12-hour day	47.8
12-hour night	15.9
8-hour day	24.2
PRN	1.3
Other	10.8
Demographic characteristic	*Standard Deviation*
Age	11.26
Years in the nursing profession	11.4
Years at the participating institution	7.40

Note. Percentages may not total 100 because of rounding errors and items with multiple response choices.

In addition, the participants in this study reported whether they used massage, meditation, or exercise by answering *yes* or *no* to questions about these holistic coping strategies. The majority of participants indicated that they did exercise (*n* = 119, 75.8%), but reports of massage and meditation use were substantially less. Table 2 indicates frequencies and percentages.

Table 2

Frequencies and Percentages for Holistic Coping Strategies (N =157)

Variable	*n* (%)	
	Yes	No
Massage	52 (33.1%)	105 (66.9%)
Meditation	38 (24.2%)	119 (65.8%)
Exercise	119 (75.8%)	38 (24.2%)

The timekeeper from the participating institution provided nurses' absences for the 3 months prior to participation. Absences in hours per day included planned, unplanned, or total absence of planned and unplanned absences. Approximately 40% of the participants had no absences in the last 3 months (*n* = 60). For the remaining 97 participants, the majority (*n*= 48, 49.5%) had only planned absences, 30 (31.5%) had a combination of planned and unplanned absences, and 19 (21%) had only unplanned absences.

The mean for unplanned absences was 16.24 (*SD* = 11.86) and was significantly and positively skewed at 2.11. Unplanned absences had 108 missing responses, which led to a higher likelihood of skew. The mean for planned absences was 48.41 (*SD* = 40.57),

and the mean for total absences was 29.12 (*SD* = 38.91). This study included total absences rather than total unplanned or total planned absence for analysis. Using total absences also reduced the likelihood of skewed responses influencing the test analysis.

Next, I summed scores on the 10-item Perceived Stress Scale (PSS). The total scale can range from 0 to 40, with higher scores indicating higher perceived stress. In the current sample, PSS scores ranged from 11 to 39 with a mean of 25.25 (*SD* = 5.98). Cronbach's alpha coefficient evaluation provided examination of the internal item consistency across the 10 PSS items. Alpha coefficients can range from 0-1, in which > .9 is excellent, > .8 is good, > .7 is acceptable, > .6 is questionable, > .5 is poor, and < .5 is unacceptable (George & Mallery, 2010). The reliability for the PSS scale in the current sample was good at 0.87.

Hypothesis 1

It was hypothesized that perceived stress as measured by the Perceived Stress Scale–10 (Cohen, 1983) would not be significantly different between hospital nurses who reported use of massage, meditation, or exercise and those nurses who did not use holistic coping strategies. A series of *t* tests performed for analysis addressed the first hypothesis. This series included using massage, meditation, or exercise as the independent variable and total perceived stress score as the dependent variable. None of the tests reached statistical significance (see Table 3 to view findings from the independent *t* tests). The groups did not differ from one another in perceived stress as a function of hospital nurses who used massage, meditation, or exercise; hence, there was no rejection of the null hypothesis.

Table 3

Independent t Test Results for Total Perceived Stress Scores (PSS) as a Function of Participants' Reported Use of Holistic Coping Strategy

Variable	*n*	Mean	*SD*	*t*	*p*
No massage	105	25.31	6.15	0.18	n.s.
Massage	52	25.13	5.70		
No meditation	119	25.25	6.01	- 0.01	n.s.
Meditation	38	25.26	5.97		
No exercise	38	24.66	5.30	-0.71	n.s.
Exercise	119	25.45	6.19		

Note. Sample sizes for the independent *t* tests differ based on participants' use of holistic coping strategies; n.s. = not significant.
* $p < .05$; ** $p < .01$.

Hypothesis 2

The second hypothesis stated that there would be no significant difference in absenteeism between nurses who reported use of massage, meditation, or exercise and those nurses who did not use massage, meditation, or exercise. To assess the second hypothesis, a series of independent *t* tests performed for analysis included the responses of massage, meditation, or exercise use as the independent variables and the total absentee hours as the dependent variable. The *t* test results revealed that there were no differences in total absentee hours when based on participants' responses regarding use or no use of massage or exercise on total absentee hours. In contrast, results indicated a significant difference in total absentee hours as a function of participant use of meditation, t (155) - 2.58, $p < .05$. Specifically, participants who reported using meditation as a holistic coping strategy had significantly greater absentee hours (M = 43.05, SD = 49.36) than did participants who did not use meditation (M = 24.67, SD =

33.99; see Table 4). Significant findings indicated rejection of the null hypothesis for meditation but no rejection of null hypothesis for massage and exercise.

Table 4

Independent t Test for Total Absentee Hours as a Function of Participants' Reported Use of Massage, Meditation, or Exercise

Variable	*n*	Mean	*SD*	*t*	*p*
No massage	105	28.58	41.30	-0.25	n.s.
Massage	52	30.21	33.94		
No meditation	119	24.67	33.99	-2.58	*
Meditation	38	43.05	49.36		
No exercise	38	27.61	37.65	-0.28	n.s.
Exercise	119	29.61	39.46		

Note. Sample sizes for the independent *t* tests differ based on participants' use of holistic coping strategies; n.s. = not significant.
* $p < .05$; ** $p < .01$.

Hypothesis 3

The third hypothesis stated that the use of massage, meditation, or exercise does not predict perceived stress, as measured by the Perceived Stress Scale-10, among hospital nurses. A multiple linear regression for analysis assessed whether the holistic coping strategies used in this study would have an effect on perceived stress, as measured by the 10-item Perceived Stress Scale (Cohen & Williamson, 1998). Preliminary analyses conducted ensured that assumptions for normality, linearity, multicollinearity, and independence of error were met.

The overall test for the linear regression indicated that it was not significant (F (4, 152) = 0.60, ns; see Table 5 for linear regression). Because multiple linear regression analyses are sensitive to outliers, there were no potential influential outliers identified

when examined through studentized residual, Mahalanobis distance, and Cook's distance scores (Tabachnick & Fidell, 2012). These results support the third null hypothesis because massage, meditation, or exercise did not predict increased total scores of perceived stress.

Table 5

Nonsignificance Multiple Linear Regression with Use of Massage, Meditation, or Exercise for Predicting Perceived Stress Score (N = 157)

	B	*SE*	β	*t*	*p*
Constant	24.29	1.06		22.96	.000
Massage	- 0.28	1.07	-0.02	-0.27	n.s.
Meditation	- 0.25	1.03	-0.02	-0.24	n.s.
Exercise	0.82	1.14	0.06	0.72	n.s.
Total absences	0.17	0.01	0.11	1.35	n.s.

Note. $F(4, 152) = 0.60$, n.s. = not significant. Constant = intercept (mean value of y).
** $p < .05$; ** $p < .01$.*

Hypothesis 4

The fourth hypothesis proposed that the use of massage, meditation, or exercise does not predicted absenteeism among hospital nurses. To address Research Question 4 and examine the hypothesis, a multiple linear regression was conducted. However, prior to conducting the linear regression, the assumptions were examined for normality and absence of multicollinearity and independence of error were met (Pallant, 2010).

Using multiple linear regression revealed that meditation was a significant predicator of total absence. Specifically, according to the unstandardized coefficient, those who meditated would be expected to have 18.96 more hours of absenteeism than

those who did not meditate ($B = 18.96$, $\beta = 0.21$, $p = .011$). The overall test for the linear regression indicated that it was not significant, $F(4, 152=2.16$, ns; see Table 6 for linear regression). These results supported the fourth null hypothesis for massage and exercise, but not for meditation use.

Table 6

Multiple Linear Regression with Use of Massage, Meditation, or Exercise for Predicting Absentee Hours (N = 157)

	B	*SE*	β	*t*	*p*
Constant	6.93	14.25		0.49	.063
Massage	- 2.47	6.79	-0.30	-0.36	n.s.
Meditation	18.96	7.35	-0.21	2.58	*
Exercise	1.14	7.27	0.01	0.16	n.s.
PSS total	0.70	0.51	0.11	1.35	n.s.

Note. $F(4, 152) = 0.60$, n.s. = not significant. Constant = intercept (mean value of y).
* $p < .05$; ** $p < .01$.

Summary

In summary, using a series of *t* test the results of this study indicated; failure to reject the first null hypothesis because there was no statistical significant difference in perceived stress between the hospital nurses that used or did not use massage, meditation, or exercise in the three months prior to their participation. In addition, there was a rejection of the null hypothesis for research question 2 in association with use of meditation. The results indicated that there was a significant difference in total absenteeism as a function of meditation. There was no significant difference found in total absentee hours whether participants used or did not use massage or exercise, and

there was no rejection of the second null hypothesis associated with total absenteeism, massage or exercise. Using multiple linear regression for analysis revealed failure to reject the third null hypothesis because there was no significant difference indicated in perceived stress with the holistic coping strategies used in this study. When considering the research question four and the hypothesis, there was a positive significant; albeit a weak difference was indicated with use of meditation and total absences using multiple regression. However, there was no significant difference with use of massage and exercise when considering total absence. Overall, the results from this study were different from expected considering the literature research.

Chapter 5 will include a discussion of the findings addressed in this chapter including the use of the biopsychosocial model theory as framework for this study. In addition, chapter 5 will include the study's limitation, recommendations for further study, and action for continued study. A discussion for social change implications, according to Walden University, associated with this topic are part of the chapter. Finally, given the results obtained from this research study helps establish conclusions detailed in the following chapter.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The stress nurses encounter often intensifies because of their challenging work environment (Healey & McKay, 1999). Increased physical illnesses, psychiatric admission, and mortality are higher in the nursing profession (Boost & Wallis, 2006). Nurses frequently use time off from work as a coping mechanism to relieve stress and help with stress management (Markham, Scott, & McKee, 2002). Earlier work indicated that use of holistic techniques decreased levels of stress (Dillenberger, 2004; Lazarus & Folkman, 1984). Further, literature research indicated that massage, meditation, and exercise are holistic practices that decreased stress levels when administered as interventions (Brennan & Debate, 2006). The present study explored massage, meditation, and exercise as holistic coping strategies to examine perceived stress and absenteeism in hospital nurses.

The purpose of this current study was to examine if any significant difference existed in perceived stress as measured by PSS-10 between nurses that reported use or nonuse of massage, meditation, or exercise. The investigation also examined any significant difference in absenteeism between nurses who used or did not use the holistic coping strategies. Another goal of this study was to explore whether use of massage, meditation, or exercise would predict increased perceived stress levels or absenteeism.

In summary, this study used an online survey design directed at a hospital nurse population. The survey included inquiries about the participants' demographics, the Perceived Stress Scale–10, and dichotomy questions (yes or no) to indicate if the nurse participants used or did not use massage, meditation, or exercise. In addition, the nurse

participants' work attendance records reflected a collection period of 3 months prior to participation to examine any difference that might be associated with the use or no use of the identified holistic coping strategies.

The key findings of the current study suggested a significant difference between nurses who used meditation and those who did not when looking at the total number of absentee hours using a *t* test analysis. However, there was no significant difference indicated on perceived stress and absenteeism with massage or exercise. Further findings using multiple regression suggested a difference in total absence with use of meditation when controlling the demographics and entering holistic coping strategies. In addition, there was no significant difference found in the 10-item Perceived Stress scores (Cohen et al., 1983) between hospital nurse participants and use of massage or exercise.

Interpretation of the Findings

Previous studies indicated that massage, meditation, or exercise did make a difference in stress levels. One of the studies indicated that anxiety and psychological levels of stress decreased with a 5-week massage therapy intervention in nurses of an acute care facility (Bost & Wallis, 2006). In another study, Khalsa (2010) indicated that meditation had physiological effects on caregivers in an Alzheimer's facility. In addition, meditation reduced stress levels and enhanced the immune system when practiced for 12 minutes a day for 8 weeks. Finally, MacFarlane and Montgomery (2010) showed that the use of physical exercise influenced cognitive appraisal and increased tolerance of stressful events.

Interpretation of *t* Test Analysis

The findings of the current study indicate that there was no significant relation between massage, meditation, or exercise and perceived stress when measured by the Perceived Stress Scale-10 among the participants in this study, which supported the first null hypothesis. The finding occurred even when demographic information among participants was accounted. Incongruently, the findings of this study indicated that a relationship existed between use of meditation and total absenteeism. Further, this study showed a significant difference in total absenteeism as a function of meditation, indicating rejection of the second null hypothesis. The participants who reported use of meditation had a greater number of absentee hours. These findings suggest that meditation was associated with a higher number of absentee hours; in other studies, it was not necessary for participants to practice meditation to indicate higher absenteeism when there were high levels of stress. Support for these findings included Watson Wyatt's (2007) results, which indicated that a significant relationship exists between high levels of stress and higher absenteeism.

One interpretation for the findings in this current study could be that nurses use meditation and take time off to help alleviate their stress and burnout. Another possible interpretation of these findings is that nurses use meditation and take time off work to obtain work-life balance. Using the biopsychosocial model as framework indicates stability and balance of biological, psychological, and social support (Engel, 1977). In addition, to establish holism, there needs to be a balance of mind, body, and spirit (Erikson, 2007). Authors who contributed to the literature on the biopsychosocial theory acknowledged that coping strategies supported reduction of stress and influenced stress,

health, and well-being (Evans et al., 2009). Benedetto, Burns, Linder, and Kent (2010) used biopsychosocial theory in their study to take into account the biological, psychological, and social factors that play a role in human functioning. Their results demonstrated that higher levels of coping indicated lower levels of depression when age and perceived stress were controlled. By contrast, Tveito and Eriksen (2009) found that an integrated health program was not effective in reducing sick leave or absenteeism but reduced subjective complaints and increased job satisfaction and well-being.

Interpretation of Multiple Linear Regression Analysis

When entering the perceived stress variable for multiple regression analyses, controlling for demographic variables, and entering massage, meditation, or exercise, the findings indicated that massage, meditation, and exercise were not predictors of perceived stress. These findings indicated that the third null hypothesis was not rejected. In support of these findings, the work of Davis et al. (2005) indicated that even though holistic techniques of aromatherapy, massage, and music reduced anxiety levels, occupational stress related to workload in emergency nurses remained high.

Further, findings of this study proposed significant positive difference between increased meditation and total absenteeism in a multiple regression analysis. There were significant results predicting there would be more absences among nurses who meditated than among those who did not. Data indicated that use of meditation increased as the total number of absences increased. Hence, these findings suggest that a relationship exists between meditation and total absences, rejecting the fourth null hypothesis. One interpretation of these findings is that nurses who practice meditation may take time off in order to cope with the high demands of their job and manage their stress levels. In

contrast, massage and exercise were not significant predictors of total absenteeism when nurses reported used of massage or exercise, failing to reject the fourth null hypothesis.

In summary, the use of meditation practice became a means of predicting increased absenteeism. In comparison to other similar studies, this study had several differences that may have contributed to the results. It is important to note the differences in methodology. While this study was conducted in an online format, the previous studies introduced the holistic techniques as interventions to participants in healthcare facilities and a school. The difference of findings may lend itself to the interpretation that absences might be due to other outside stresses or means of coping in conjunction with meditation.

Limitations of the Study

Limitations of the current study included relying on the truthfulness of responses provided by participants. Conducting this study in an online format confined data collection to individuals who were able to have access to the survey. Another limitation was having the online survey posted on the participating institution's employee intranet because it allowed other nonnurses to take the survey. Hence, 28 nonnurses out of the initial sample of 239 participants were not included in this study for completing the survey responses. Another limitation encountered was that not all nurse services and areas from the hospital were included because not all nurses responded to the online survey. Limitations also included relying on the participants' self-report associated with massage, meditation, or exercise. In addition, the responses regarding holistic coping strategies were limited because they lacked specificity about the nature of the massage, meditation, or exercise used.

The current study was different from previous research studies. Other studies used holistic coping techniques as interventions rather than an online survey with self-reports of the use of massage, meditation, or exercise (Bost & Wallis, 2006; MacFarlane & Montgomery, 2010) and perceived stress. There was a limitation to generalizability because the nurse participants were specific to a Trauma Level I hospital in South Texas, and these findings are not particular to other facilities nationwide. The sample size for this current study was 157 participants and satisfied the empirical validity for the sample size calculated for this study.

Recommendations

Several recommendations are included for future research associated with this current topic of study. One is to examine results of onsite massage, meditation, or exercise as interventions on perceived stress levels and absenteeism while in a controlled environment. Brennan and Debate (2006), who demonstrated that an onsite Swedish massage intervention of 10 minutes administered to hospital bedside nurses reduced perceived stress, supported this recommendation. Another recommendation for future study is to collect attendance records for a longer period than the 3 months in this study. Much less data were collected for unplanned absence than for planned and total absence (planned and unplanned) for the total number of participants. Collecting attendance data for at least 6 months rather than 3 months would provide more information about unplanned absences.

Implications

Environmental, organizational, and occupational stressors exacerbate stress in demanding work areas such as hospitals. Nurses experience high stress levels due to

strains and pressures of high caseloads, long workdays, and high expectations of patient care (Bost & Wallis, 2006; Laal & Aliramaie, 2010). The stress that hospital nurses experience because of demanding work environments has implications for their profession (Danna & Griffin, 1999). Often, nurses leave their profession because of the high levels of stress (Shively, 2006). Many develop health issues because of the high levels of stress they experience daily (Milliken et al., 2007). Higher rates of work-related absenteeism often are associated with increased levels of stress (Davey et al., 2009). Extensive research has defined the impact that stress has on nurses (Laal & Aliramaie, 2010). While there are different ways a nurse may cope with work-related stress, the impact holistic coping strategies have on absenteeism is relatively unknown. Although several research studies have examined the benefits of massage, meditation, or exercise, they lack extensive quantitative research (Nahin & Straus, 2001).

This study examined holistic coping strategies and helped to fill the literature gap that exists. The finding of this study indicated that there was no significant difference with use of massage, meditation, or exercise on perceived stress when nurses participated in an online survey. However, there was a difference noted in use of meditation when considering absenteeism. The nurses who meditated were inclined to have higher absenteeism hours, which might be an attempt at managing their stress levels. Hence, being able to achieve a balance of wellbeing is important because it increases the opportunity for nurses to stay in their profession longer, especially when there is a national shortage of nurses (Buerhaus, 2012).

This study may lead to positive social change by raising awareness about the importance of managing and coping with stress in a health care environment such as the

participating facility. Those nurses who experience high levels of work-related stress could be encouraged and given the opportunity to use holistic coping strategies such as meditation during work hours in order to achieve a sense of balance and centeredness, especially after a traumatic caseload. Much like the theoretical framework for this study, the biopsychosocial model implies that the balance of biological, psychological, and psychological factors is needed to achieve health and wellbeing. Given the unfortunate impact that high levels of stress have on the heath of many nurses, their work environment, and professional outcomes, it is important to find coping strategies that can assist this population in leading a healthier work life that keeps them in the nursing profession. Investigating the impact of holistic coping strategies on perceived stress and absenteeism could promote understanding of the need of employee stress management within hospital environments such as the participating facility. In addition, this study could promote a relationship between stress and coping associated with perceived stress and absenteeism that might promote productivity, prevention of burnout, and remediation of financial and attendance issues that relate to nurse shortages.

Conclusion

Demanding work environments give rise to employee health and wellness issues, including absenteeism and stress. The purpose of this study was to investigate perceived stress and absenteeism in relation to holistic coping strategies of massage, meditation, and exercise. There was an interest in answering questions of whether or not these holistic coping strategies made a difference in perceived stress and absenteeism. In addition, this study examined questions about massage, meditation, and exercise as predictors of perceived stress and absenteeism.

As stated, the results indicate that there was no significant relationship between massage or exercise and perceived stress of nurses when using a self-reported online based survey. On the other hand, there was a difference noted with meditation and absenteeism. Essentially, the study revealed that participants who meditated had a tendency to have more absentee hours. One reason could be that those nurses who are undergoing high levels of stress might take time off in order to manage their stress. In addition, using meditation could help alleviate the stress they experiencing. Hence, coping strategies such as meditation may be one tool that could promote wellbeing and health in an often fast-paced trauma hospital environment.

These findings have potential importance in expanding and understanding the relationship that exists between holistic coping strategies practiced by nurses and perceived stress and absenteeism. In light of the findings, offering programs that teach meditation could strengthen the ability of nurses to cope with their work environment. It may be valuable for hospitals and healthcare institutions to provide information related to the impact of stress and positive coping skills. Providing nurses the opportunity to practice holistic coping strategies such as meditation would allow for decreased levels of stress felt after difficult traumatic cases and would increase overall patient care and nurse wellbeing. The knowledge provided by this study can make a difference in the workplace environment for nurses, hospitals, and other healthcare institutions. The positive social change attained from this study could influence society, communities, and individuals through the prevention of burnout while addressing financial and attendance issues that relate to the nurse shortage.

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Appendix A: Massage, Meditation and Exercise Flyer

Holistic Coping Strategies Research Study
August 2013

You can opt to participate
SURVEY
TAKES ABOUT 20 MINUTES
of your personal time
and
GETA $10.00 Cafeteria Coupon

The information you provide will be kept
Confidential

Seeking nurses to participate in research who:

1. Hold a bachelor degree in nursing, are a registered nurse, are certified/licensed in nursing, or other (i.e., APRN, MSN).
2. Have been employed with University Health System for at least 90 days

If you have any questions or concerns about this study, please contact the researcher of this study; Mary Alice Ayon, MS at 358-1137. Please leave a confidential voice message if she is not immediately available.

The results of this research will help:
~ Identify holistic coping strategies of massage, meditation and exercise on perceived stress and absenteeism in hospital nurses.
~ Improve and add knowledge about positive coping strategies for work environment

Appendix B: Informed Consent Form

The Effects of Holistic Coping Strategies on Perceived Stress and Absenteeism in Hospital Nurses

You are invited to participate in a research study that will examine holistic coping strategies on perceived stress and absenteeism. If you hold a bachelor degree in nursing, are a registered nurse or have a certification in nursing you can participate in this study. This form is part of a process called "informed" consent to allow you to understand this study before deciding whether to take part in it.

This study is being conducted by: Mary Alice Ayon, a doctoral candidate and student researcher with the School of Psychology, Health Psychology Program at Walden University, Minneapolis, MN. You may already know the research as an employee, but this study is separate from that role.

Background Information:
The purpose of this study is to examine any difference between use and no use of massage, meditation, and exercise on nurse perceived stress and absenteeism in the work environment.

Procedures:
If you agree to be in this study, you will be asked to:

- Complete a SET of questionnaires. The questionnaires are brief and take between 3-10 minutes each to complete for a total 15- 20 minutes to complete the set.
    1) One questionnaire will ask you general questions about yourself such as: "What is your age?"
    2) Second questionnaire will ask about your stress levels through a series of 10 short questions such as; "In the last month, how often have you been upset because of something that happened unexpectedly?
    3) Third questionnaire will ask whether you use or do not use massage, meditation, and exercise by indicating yes vs. no for each
- Provide your Employee Identification Number on the survey:
  Participants are requested to enter employee identification number on the survey. This action is voluntary and allows information about your attendance in the past 3 months to be released to the researcher. Your attendance information is crucial to this study because it allows the researcher to study how use or no use of holistic coping strategies may impact absenteeism. Information attendance records will be obtained from University Health System Nursing Administration office which is processed electronically without knowledge of participants' name or any other identifying information. Employee identification number information will be kept confidential and under a locked file.

If you decide to be part of this study, the information you provide will be kept confidential and locked in a file cabinet by the primary investigator, Mary Alice Ayon.

The researcher will label each questionnaire with a number for use identification purposes.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision whether or not you choose to be in the study. No one at University Health System hospital will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time.

Risks and Benefits of Being in the Study:
There are no significant physical or psychological risks to this study. However, in the event you experience stress or anxiety during your participation in the study you may terminate your participation at any time. If you need more information on stress and coping go to the American Psychological Association website at http://www.apa.org/helpcenter/job-stress.aspx or contact the Employee Assistance Program at (210) 615-8880.

Benefits: The benefits to participation in this study are that you may feel good knowing you are contributing to scientific knowledge regarding the holistic coping strategies in the nurse work environment. Another benefit is that you will receive a compensation for participating in this survey.

Compensation:
The compensation can be given to you directly after you complete the survey.
You will be compensated with $10.00 coupon for use at the hospital cafeteria for participating in this study. You can print out the compensation coupon after you complete the survey.

Privacy:
Any information you provide will be kept confidential. Attendance information is electronically processed; no other identifying information is accessible for this study or to the researcher except the employee identification number supplied by the participant. The researcher will not use your personal information for any purpose outside of this research project. Also, the researcher will not include your employee identification number or anything that could identify you in the study reports. All information and research records will be kept confidential in a locked file; only Mary Alice Ayon or Dr. Maureen Levine, the committee chairperson from Walden University, will have access to the records. Data will be kept for a period of at least 5 years as required by the university.

Contacts and Questions:
The researcher conducting this study is Mary Alice Ayon. The researcher's chair is Dr. Maureen Levine. If you have questions about your participation in this study you may contact the researcher at 210-xxxxxxx. If you want to discuss your rights as a participant, you can call Dr. Leilani Endicott, representative of Walden University who can discuss

this with you. Her contact number is (612) xxxxxxx. Walden University's approval number for this study is:

Please save and/or print a copy of this informed consent and keep for your personal records.

Statement of Consent:
In order to indicate that you have read and understood the above information of the study well enough to make a decision to participate and to protect your privacy, no consent signature is requested. Instead, your completion of the survey indicates your consent to participate and the provision of your employee id number authorizes the researcher to obtain your attendance data for the past 3 months.

Appendix C: Questionnaires

Instructions

Please complete the set of questionnaires **honestly and to the best of your ability.**

Please supply your employee identification number. **This action is voluntary; however it is very crucial to this study** in order to obtain data that will allow for examination of how use or no use of holistic coping strategies may impact absenteeism.
(Please note there is **NO** other identifying information about you accessible to the researcher for this study through your employee identification number). (**REMEMBER** all information is confidential and will be kept in a locked file*).*

Checking "Yes" at the start of the survey questions will acknowledge that you have read and understood all of the information on the consent form and that you consent to participate in the study. Completion of the survey indicates your consent to participate and the provision of your employee id number authorizes the researcher to obtain your attendance data for the past 3 months.

Once you complete the questionnaire please submit.

Remember to make and keep a copy of the Informed Consent Form.

Thank you for your time and effort in taking this survey.

DEMOGRAPHIC QUESTIONNAIRE

Today's Date _____

Employee ID #_____

Mark X for your answer

(A). I read the Informed Consent and understand the terms?(1) Yes _____ (2) No _____

(B). I consent and agree to participate in this study?
(1) Yes _____ (2) No _____

(C) What is your gender? (1) Male _____ (2) Female _____

(D) What is your age? _____

(E) What is your race/ethnicity?

Hispanic, Latino, or Spanish origin
(1) Mexican, Mexican American, Chicano _____
(2) Puerto Rican _____ (3) Cuban _____

(4) White _____ (5) Black, African American, Negro _____
(6) American Indian or Alaskan Native _____
Print name of enrolled or principle tribe _____
(7) Asian Indian _____ (8) Japanese _____ (9) Native Hawaiian _____
(10) Chinese _____ (11) Korean _____ (12) Guamanian or Chamorro _____
(13) Filipino _____ (14) Vietnamese _____ (15) Samoan _____
(16) Other Asian race _____
(17) Other Pacific Islander _____

(F) What is your marital status? (1) Married _____ (2) Single _____

(G) What is your highest education within the nursing profession?
(1) ADN _____ (2) RN _____ (3) BSN _____ (4) MSN _____
(5) Other _____

(H) How long have you worked in the nursing profession? *(i.e. months, years, etc…)*
(1) Years _____ (2) Months _____

(I) How long have you worked at University Hospital? (1) Years ____ (2) Months ____

(J) What type of shift do you work? *(i.e. day, night or PRN).*
(1) 12hour day ____ (2) 12hour night _____ (3) 8 hours day ____
(4) PRN ____ (5) Other ____

PSS

INSTRUCTIONS:
The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
	0	1	2	3	4
1. In the last month, how often have you been upset because of something that happened unexpectedly?					
2. In the last month, how often have you felt that you were unable to control the important things in your life?					
3. In the last month, how often have you felt nervous and "stressed"?					
4. In the last month, how often have you felt confident about your ability to handle your personal problems?					
5. In the last month, how often have you felt that things were going your way?					
6. In the last month, how often have you found that you could not cope with all the things that you had to do?					
7. In the last month, how often have you been able to control irritations in your life?					
8. In the last month, how often have you felt that you were on top of things?					
9. In the last month, how often have you been angered because of things that were outside your control?					

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

version: 06/01/2013 PSS 1of1. Permission instructions for PSS 10 academic/educational non profit use: Retrieved from http://www.psy.cmu.edu/~scohen/

Report of Holistic Coping Strategies of
Massage, Meditation, and Exercise; Use or No Use

Please indicate use or no use of meditation, massage, and exercise for at least 3 months or more including and up to the time of this study. Place "X" on either "YES" or "NO" to indicate your response to use or no use of meditation, massage, and exercise.

Meditation
(A1)___ **YES** I practice meditation **once a week or more for at least 15-20 minutes**
(A2)___ **NO** I do not practice meditation.

Massage
(B1)___ **YES** I use massage **once a month or more for at least 15 minutes or more**.
(B2)___ **NO** I do not use massage

Exercise
(C1)___ **YES** I do exercise for **at least 10-15 minute once a week or more**.
(C2)___ **NO** I do not exercise

Appendix D: Letter of Cooperation

LETTER OF COOPERATION

July 12, 2013

Dear Mary Alice Ayon:

Based on my review of the research proposal summary, I give permission to Mary Alice Ayon to conduct the study entitled" The Effects of Holistic Coping Strategies on Perceived Stress and Absenteeism in Hospital Nurses" within University Health Hospital upon the approval from the University Health Science Center Institutional Review Board and the approval of University Health System Research office. Upon approval from IRB, I authorize you to disseminate recruitment announcements in order to recruit nurse participants in appropriate and designated areas according to University Health System Corporate Communication guidelines. I understand that this study will be conducted as an electronic survey that will take participants 15-20 minutes to answer. Individuals' participation will be voluntary and at their own discretion.

I understand that our organization will allow Jose Maganas, operations manager and attendance/ time keeper to supply specific attendance records using employee identification numbers for this research study and as approved by IRB. As a representative of University Health System, we reserve the right to withdraw from the study at any time if our circumstances change. I confirm that I am authorized to give permission for this research study to be conducted in this hospital setting after IRB approval and UHS approval. I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the research team without permission from the Walden University IRB.

Sincerely,

Nancy Ray, RN

Appendix E: Confidentiality Agreement

CONFIDENTIALITY AGREEMENT

Operations Manager
Nursing Administration

During the course of my activity in collecting data for this research: "The Effects of Holistic Coping Strategies on Perceived Stress and Absenteeism in Hospital Nurses" I will have access to information, which is confidential and should not be disclosed. I acknowledge that the information must remain confidential, and that improper disclosure of confidential information can be damaging to the participant.

By signing this Confidentiality Agreement I acknowledge and agree that:

1. I will not disclose or discuss any confidential information with others, including friends or family.
2. I will not in any way divulge, copy, release, sell, loan, alter or destroy any confidential information except as properly authorized.
3. I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
4. I will not make any unauthorized transmissions, inquiries, modification or purging of confidential information.
5. I agree that my obligations under this agreement will continue after termination of the job that I will perform.
6. I understand that violation of this agreement will have legal implications.
7. I will only access or use systems or devices I'm officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

Signing this document, I acknowledge that I have read the agreement and I agree to comply with all the terms and conditions stated above.

Signed _____ Date 7/15/17

Curriculum Vitae

Mary Alice Teveni Ayon, MS

Academic

03/08 – Present	Candidate for Doctor of Philosophy – Health Psychology, Walden University, Minneapolis, MN
09/78 -05/81	Master of Science – Biology- Genetics, University of the Incarnate Word
09/74 – 05/78	Bachelor of Arts – Biology, University of the Incarnate Word

Professional Experience

2008-Present Director
Program development
Staff support and resources for crises, health/wellness program development, chaplaincy, and self-care education according to healthcare core values of nurse practice. Related program development associated with hospital Magnet designation and re-designation.

2007-2008 Social Science Research Associate IV
Surgery Department/Trauma Division
Program development includes Center for Integrative Health, Community outreach and education, end-of life, and Chaplaincy presence in resuscitation area.

2004-2007 Social Science Research Assistant III
Health Research
Program assistant of the Center-Center for Integrative Health
Assist in the development of research activities, clinical and basic services to increase research protocols aimed at integrative medicine with focus on Mexican-American community. Assist to teach elective class on Hispanic holistic folk healing fourth year medical students as related to the community they serve.

1981-1991 Senior Research Assistant
Medicine Department/Nephrology Department
Develop, manage and run experimental projects for Nephrology division
Teach technicians and physicians experimental research techniques
Small animal surgery and research development

Presentations:

2014	The Power to Touch Perianasthesia Nursing Association Seminar Baptist Health Care School for Healthcare Providers
2014	Stress and Coping in the Health Care Workplace Human Resources Recruiting Team University Health
2014	Stress and Coping & Tails from the Bedside Nurse Residence Program University Health
2013	Staying Balanced & Self-care Patient Relations Department University Health
2013	Caring for Self As a Health Care Provider Pharmacy Residents University Health
2012	Nonpharmaceutical tools for Nurses & Their Patients Continuing Education In-service for Pain Nurses University Health
2012	Don't Worry About the Small Stuff: Combating Fatigue & Burnout Pharmacy Residents & Preceptors Continuing Education for Policy Requirements University Health
2012	Taking Aim at Empowerment: Stress Management of Self-care & Recognition School of Nursing at University Health Science Center
2012	Learn to Relax Through Coping: Biology of Stress Clinic & Community Social Workers' Continuing Education Seminar/In-service
2012	What is the Center for Caring & Its Resources? Nursing Ethics Counsel Topic Meeting Presentation
2012	Center for Caring as a Model of Self-care (poster) Strategic planning for nurse practice in magnet hospitals University Health

2011	Research and Holistic therapies (poster) Research conference University Health
2010	Stress and Coping Research conference University Health
2010	Modeling and Role Modeling Theory used in the Center for Caring Mayo Clinic International Human Caring Association Conference Rochester, MN
2010	Center for Caring Nurse Resources (poster & podium) Modeling Role Modeling Conference

Honors and Awards

2012	Employee of the 3rd quarter (management)
2012	National Honor Society in Psychology
2012	Gold award – Employee recognition
2011	Shining Star – Employee recognition
2012	American Board of Medical Hypnotherapy
2000-2012	Board Member of the University of the Incarnate Alumni
2010-	Freedom Ministry Board Member
2000-2012	Health and Healing Connections Advisory Board

Certificate/Training

2013	Emergency First Aide Spiritual Psychology
2013	Critical Stress Management
2012	Ethics – UHS Nursing Ethics Conference, San Antonio, Texas
2011	Mind Body – Institute of Mind Body – James Gordon, Washington D.C.
2007	Chaplaincy – Freedom Ministry, San Antonio, Texas
2006	Mind Body – Judy Oral, MD
2002	Hypnotherapy- Anne King's school of hypnosis. Boerne, Texas
2000	Reflexology- Reiki San Antonio, Texas
1999	Reiki- Reiki San Antonio. Texas

Publications

Teveni, M.A. (1981). Effects of Multiple Injections of 20-hyroxyecdysone at extended periods of time DNA Synthesis and DNA Formation in the Salivary Gland of Rhynchosciara hollanderi. Thesis requirement in fulfillment of Masters of Science degree.

Fried, T., Lau, A., Ayon, M.A., Stein, J. (1986). Elevation of Atrial Natriuretic peptide (ANP) levels in ureteral obstruction in the rat. Journal of Clinical Research, 34, 596 A.

Fried TA, Ayon MA, McDonald G, Lau A, Inagami T, Stein H. (1987). Atrial natriuretic peptide, right atrial pressure, and sodium excretion rate in the rat. American Journal of Physiology, 253, F969-F975.

McCoy, R., Hill, C., Ayon, M.A., Stein, J. (1988). Oxidant stress following renal ischemia: changes in the glutathione redox ration. Kidney International, 33, 812–817. doi:10.1038/ki.1988.72