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The Relationship of Stress Levels to Wellness Practices Among
U.S. Radiologic Technology Program Directors

A thesis

presented to

the faculty of the Department of Allied Health Sciences

East Tennessee State University

In partial fulfillment

of the requirements for the degree

Master of Science in Allied Health

by

Jesse D. Pennington

August 2013

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Dr. Randy L. Byington

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Keywords: Wellness, Stress, Occupational Stress, Radiologic Technology Program Director

ABSTRACT

The Relationship of Stress Levels to Wellness Practices Among U.S. Radiologic Technology Program Directors

by

Jesse D. Pennington

The purpose of this modified replication study is to examine the relationship between the stress levels and the wellness practices of U.S. radiologic technology program directors and to determine if correlations exist between wellness practices and stress levels of the group. Additionally, relaxation activities and the feelings, characteristics, and symptoms associated with stress were considered. The design of the study was ex post facto correlational. The population of the study was U.S. radiologic technology program directors working in JRCERT accredited programs. The electronic instrument was distributed to 635 program directors through e-mail, with 424 (66.7%) usable returns. Significant associations were found between the management of stress and the balance of wellness practices for the RT program directors. It was concluded that while program directors showed significant control in stressful events and issues, continued efforts are needed to promote wellness practices into their busy lives.

DEDICATION

I dedicate this research to my family, my loving beautiful wife Trina, and my two wonderful sons, Garrett and William; along with my parents Jesse and Mary Jane Pennington. Secondly, I dedicate this work to my professional mentors Dr. Charles W. Newell, Dr. Ester L. Verhovsek, and Mr. Bill H. May; your encouragement and faith gave me the strength to continue moving forward. Lastly, I dedicate this research to my Great Aunt Virginia “Ginny” Heaberlin-Daniels-Vail for her love and financial support during my Associates of Allied Health Science Degree in Radiologic Technology from Morehead State University. Thank you so much for your contributions, it opened the doors and allowed me to continue my life-long educational journey.

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TABLE OF CONTENTS

	Page
ABSTRACT.....	2
DEDICATION	3
ACKNOWLEDGEMENTS	4
LIST OF TABLES	10
Chapter	
1. INTRODUCTION.....	11
Statement of the Problem.....	16
Research Questions.....	16
Significance of the Study.....	17
Delimitations.....	18
Limitations.....	18
Operational Definitions	19
2. REVIEW OF LITERATURE.....	21
The Concept of Stress.....	23
History of Stress.....	24
Classifications of Stress.....	25
Stress Symptoms.....	26
Stress Diseases and Conditions.....	27
Occupational Stress.....	29
Stress and Health Care Workers.....	30
Stress and Higher Education.....	31

Wellness Practices.....	32
Spiritual Wellness.....	33
Physical Wellness.....	34
Social Wellness.....	35
Emotional and Mental Wellness.....	36
Occupational Wellness.....	37
Stress and Radiologic Technology Program Directors.....	38
Radiologic Technology Program Directors.....	39
RT Program Directors Challenges.....	41
Summary.....	44
3. METHODOLOGY.....	46
Overview.....	46
Research Design.....	46
Population.....	47
Dawson’s Survey Instrument.....	47
Modified Survey Instrument.....	50
Instrument Validity.....	51
Pilot Study.....	51
Institutional Review Board.....	52
Informed Consent.....	52
Hypotheses.....	52
Null Hypotheses.....	53
Data Collection Procedures.....	53

Data Analysis Procedures.....	54
Research Questions.....	55
Summary.....	57
Background of the Researcher.....	57
4. DATA ANALYSIS.....	59
Results.....	60
Research Question 1.....	60
Gender	60
Age	60
Years of Experience	61
Ethnicity.....	62
Research Question 2.....	62
Research Question 3.....	64
Research Question 4.....	65
Research Question 5.....	66
Research Question 6.....	66
Research Question 7.....	68
Research Question 8.....	69
Research Question 9.....	71
Research Question 10.....	72
Summary.....	74
5. CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS.....	75
Conclusions.....	76

Discussion.....	78
Recommendations.....	80
REFERENCES.....	82
APPENDICES.....	95
Appendix A: Request to Perform Modified Replication of Research.....	96
Appendix B: Permission to Perform Modified Replication of Research.....	97
Appendix C: Dawson’s Survey Instrument.....	98
Appendix D: Survey Instrument.....	113
Appendix E: IRB Approval.....	127
Appendix F: Initial Contact Letter to Participants.....	128
Appendix G: First Follow-Up Letter.....	129
Appendix H: Second Follow-Up Letter.....	130
Appendix I: Final Follow-Up Letter.....	131
Appendix J: Stress Sources of U.S. Radiologic Technology Program Directors.....	132
Appendix K: Occasionally Occurring Workplace Activities Causing High Stress.....	134
Appendix L: Frequently Occurring Workplace Activities Causing Moderate to High Stress.....	143
Appendix M: Personal or National Activities and Events Causing Moderate to High Stress.....	145
Appendix N: Feelings, Characteristics, and Symptoms.....	147
Appendix O: Frequently Occurring Feelings, Characteristics, and Symptoms of Stress.....	148
Appendix P: Wellness Practices of U.S. RT Program Directors.....	149

Appendix Q: Difference by Gender in the Wellness Practices.....	151
Appendix R: Wellness Practices of U.S. Radiologic Technology Program Directors.....	163
Appendix S: Favorite Relaxation Activities of U.S. RT Program Directors.....	164
Appendix T: Ranked Favorite Relaxation Activities of U.S. RT Program Directors...	170
VITA.....	172

LIST OF TABLES

Table	Page
1. Search Engines Used in the Literature Search.....	22
2. Common Symptoms and Effects of Stress on the Body, Mood, and Behavior.....	27
3. Examples of Stress-Related Diseases and Conditions.....	28
4. Demographic Profile of RT Program Directors – Gender.....	60
5. Demographic Profile of RT Program Directors – Age.....	60
6. Demographic Profile of RT Program Directors – Years of Experience.....	61
7. Demographic Profile of RT Program Directors – Ethnicity.....	62
8. Top 10 High Stress Variables Among RT Program Directors.....	63
9. Relationship Levels of Stress, Gender, and Years of Service.....	64
10. Minority and Nonminority Stress Levels.....	66
11. Top 10 Common Wellness Practices of RT Program Directors.....	67
12. Difference by Gender in the Wellness Practices.....	68
13. Top 10 Most Common Self-Reported Methods of Relaxation.....	70
14. Amount of Time to Relax.....	70
15. Relationship Between Stress Levels and Wellness Practices.....	71
16. Perceived Balance of Wellness and Management of Stress.....	73

CHAPTER 1

INTRODUCTION

Wellness is often used when describing or promoting a healthy lifestyle. There are a multitude of factors that affect and influence a person's health and perception of wellness. A healthy lifestyle is rooted in making good choices each day and in working toward the preservation and development of a healthier way of life. Wellness efforts can increase one's health and the living experience, which frequently leads to a sense of accomplishment, wholeness, and happiness (Corbin & Lindsey, 2006). Seaward's (1999) wellness paradigm suggested "wellness is the balance, integration and harmony of the physical, intellectual, emotional and spiritual aspects of the human condition" (p. 20). Insel and Roth (2002) later mirrored Seaward's (1999) definition of wellness, describing wellness as "the holistic perception of optimal health, which includes physical, emotional, mental, spiritual, environmental, and social well-being" (p. 4).

The dynamic and integrated concept of wellness is not new and can be found in Sir Isaac Newton's mechanistic approach to scientific thinking. The wellness paradigm is also illustrated in Albert Einstein's unified field theory "suggesting that the universe is a living web, validating the ancient whole systems theory in which everything is connected together and the whole is greater than the sum of its parts" (Seaward, 1999, p. 19). Powers and Dodd as cited by Dawson (2004) concluded that it is within this concept the merger of lifestyle elements become a part of our total well-being, including the management of stress.

"Stress in physical terms, means strain, pressure or force on a system" (Althoff, Svoboda, & Girdano, 1988, p. 281). Seaward (1999) defined stress as "the inability to cope with a (real or imagined) threat to one's mental, physical, emotional, and spiritual well-being, which resulted in

a series of physiological responses and adaptations” (p. 5). Prior to 1960, the word stress was infrequently used in this context (Seaward, 1999). The word *stress* has now become common and ingrained into modern society’s terminology. Today’s world is filled with stress. According to Huether and McCance (2012) “stress experiences include daily hassles involving fast-paced scheduling, pressure to remain in constant contact with social media and cell phones, major life events such as loss of a family member or loss of a job, abuse and trauma” (p. 204). “Stress can be traced back to the Stone Age as a survival mechanism; however what was once a means of survival is now linked with the development of disease and illness claiming the lives of millions of people” (Seaward, 1999, p. 3).

The early stages of physiologic stress can be subtle and may go undiagnosed until a more serious physical illness or disturbing malfunction takes place, many of these understated signs or symptoms of physiological stress include headaches, neck and or lower back pain, and face-jaw pain (McCance, Huether, Brashers, & Rote, 2010). During 2009 the Center for Disease Control and Prevention (CDC) (2010) conducted a national health interview survey on adults with migraines or severe headaches, pain in the neck, lower back and face-jaw pain by gender and found the following:

Females were more likely than males to have experienced a migraine or severe headache (21.8% versus 10.0%), pain in the neck (17.5% versus 6%), pain in the lower back (30.2% versus 26.0%), and pain in the face or jaw (6.6% versus 3.3%). For both sexes, pain in the lower back was the most common of these four types of pain, and pain in the face or jaw was the least common (CDC, 2010, para. 3).

Calculated differently, the approximate number of people in the U.S. population with migraines or severe headaches is 48 million. Another 47 million experience neck pain, 88 million

experience lower back pain, and 15 million experience face or jaw pain. All of these aches and pains are symptoms often related to the first stages of physiologic stress (Huether & McCance, 2012).

“Physiologic stress may cause or aggravate several disease states and is related to the severity of symptoms and outcomes of diseases and conditions” (McCance et al., 2010, p. 255). Many of these diseases or disorders are life threatening including: heart disease, hypertension, type 2 diabetes, atherosclerosis, osteoporosis, anxiety, depression, insomnia, chronic pain and fatigue syndromes, obesity, metabolic syndrome, and autoimmune inflammatory and allergic disorders (Huether & McCance, 2012). Six of these diseases are included in the CDC’s top 10 leading causes of death in the U.S. and have links to stress variables, playing a role in the disease process (CDC, 2009; Huether & McCance, 2012). The top 10 leading causes of death related to stress include: heart disease, malignant neoplasms (cancer), cerebrovascular disease (strokes), accidents, diabetes mellitus, and intentional self-harm (suicide) (CDC, 2009). Understanding the connection between stress and wellness is critical (United States Department of Health and Human Services [DHHS], 2010). “Chronic diseases, such as heart disease, cancer and diabetes, are responsible for seven out of every 10 deaths among Americans each year and account for 75 percent of the nation’s health spending” (DHHS, 2010, para. 4). Clearly we must recognize the position “...wellness plays in the reduction of stress, accepting the reality that each dimension must be fostered for the achievement of a balanced and productive lifestyle” (Dawson, 2004, p. 15).

According to the American Registry of Radiologic Technologist (ARRT) (2012), radiologic technologists (RT) are the third largest category of healthcare professionals, surpassed in number only by physicians and nurses. The connection between occupational stress and health

care, including the division of radiology sciences, is well documented. The multifaceted concerns of occupational stress have been a recurrent subject of researchers for many years. When there is a high level of occupational stress, health can be adversely affected, resulting in increased absences, submaximal performance, low productivity, and burnout among people in many professions, including radiologic science educators and program directors (Strazdins, D'Souza, Lim, Broom, & Rodgers, 2004).

Radiography program directors face a multitude of challenges as they lead their programs. Many of these challenges or demands, such as curriculum revision, budget cuts, balancing the supply of graduating student to job market demands, maintaining a current knowledge of technological advancements, and accreditation changes, can be stressful for program directors. In 2012 the American Society of Radiologic Technologists Education and Radiography Steering Committees revised and adopted a new radiography curriculum (American Society of Radiologic Technologists [ASRT], 2012e). The pressures of implementing a new curriculum are numerous. A new curriculum often requires many course changes including adding, deleting, or merging of courses. In addition, revising the curriculum requires changes in course syllabi, course content and delivery, as well as assessment and evaluation. Some of these changes will also require faculty training. All of these changes necessitate hours of time by the program director and his or her faculty, who subsequently cite an overall lack of time as one of the main recurring stressors in education (McCann & Holt, 2009; McCracken, 2001).

In addition to day-to-day undertakings, many radiography program directors must cope with budgetary reductions as educational institutions struggle to work with reduced governmental funding (Micheau, 2009; Penfold, 2011). Faced with budget cuts, a number of institutions have decreased or eliminated travel funds for professional development. Setting a

professional example for other radiographers and their students, a large percentage of program directors are actively involved in their local, state, and national professional societies. As a result of reduced or eliminated institutional funding, many program directors are often forced to withdraw from or finance professional development activities out of pocket. This decision can be stressful for some program directors because they are pressured into choosing between career or professional and personal or family obligations.

Another occupational pressure for program directors is the difficult task of balancing student admissions and the supply of graduates with the job market demand for entry level radiographers. This complex duty may conflict with administrative enrollment mandates, which can create additional stress for radiography program directors. A surplus of students graduating from radiologic technology programs drives down the radiographer job market. The negative impact of this domino effect will then result in fewer students interested in medical imaging due to a stagnant or poor job market.

Program directors also are under constant pressure to maintain current knowledge of multifaceted technological advancements within the diagnostic imaging profession. Joint Review Committee on Education in Radiologic Technology (JRCERT) accreditation standards require “program directors to maintain current knowledge of the professional discipline and educational methodologies through continuing professional development and to assume the leadership role in the continued development of their program” (JRCERT, 2011, p. 42). With changes in the curriculum, changes in student population, changes in accreditation, reduced budgeting issues, and changes in course delivery methods; many program directors are faced with increasingly difficult and stressful job requirements. Continued occupational pressure can lead to adverse health effects. Many program directors struggle to keep pace in this ever-changing environment,

and in order to survive they will need to find methods to counteract or reduce these occupational stressors.

Researchers have validated strong and widespread allegations that workplaces have become incredibly stressful (DiGiacomo & Adamson, 2001; Dawson, 2004; Dutta, Pyles, & Miederhoff, 2005; McCracken, 2001; Schaufeli & Greenglass, 2001). Other researchers have examined the causes, symptoms, effects, and management strategies for stress related to nonmanagement or lower level staff positions (Akroyd, Caison, & Adams, 2002; Deshkulkarni, 2009; Eslick & Raj, 2002; Killion, 2009; Mason, 2006; Rutter & Lovegrove, 2008; Sciacchitano, Goldstein, & DiPlacido, 2001; Sechrist & Frazer, 1992). This research replicates with modification that of Dawson (2004) who examined the stress and wellness levels of community college presidents.

Statement of the Problem

Despite Dawson's research and the significant amount of literature on employee stress, no research has ever been conducted on the existence of stress or levels of stress on radiologic technology program directors, especially that which is based on their practices of wellness. The purpose of the study was to determine if correlations exist between wellness practices and stress levels of radiologic technology program directors.

Research Questions

The following research questions were proposed:

1. What is the demographic profile for gender, age, ethnic origin, and years of experience of an RT program director?
2. What variables generate high or extreme stress among RT program directors?

3. Is there a relationship between the levels of stress and the independent variables of gender and years of service as an RT program director?
4. Is there a difference between minority and nonminority respondents on the stress levels of RT program directors?
5. Is there a relationship between the levels of stress experienced by RT program directors and their weekly feelings, characteristics, and stress symptoms?
6. What are the wellness practices among RT program directors?
7. What are the differences in wellness practices of RT program directors by gender?
8. What are the most commonly cited relaxation techniques of RT program directors and how much time do directors have to relax?
9. Is there a relationship between the stress levels experienced by RT program directors and the wellness practice subscales of this group?
10. Is there a relationship between the perceived overall balance of wellness and the perceived management of stress?

Significance of the Study

The balance of health and wellness is an essential element to all aspects of life and is necessary to perform at an optimal level in any occupational position. The significance of this study is its ability to discover appropriate wellness practices to assist and motivate radiologic technology program directors toward making informed decisions about healthy lifestyles. Radiologic technology program directors will benefit from this research by gaining a better understanding of stress and its connection to disease. It will also assist them in recognizing personal sources of stress and wellness activities that can lead to stress reduction and a healthier lifestyle.

Delimitations

This study investigating the relationship between stress levels and wellness practices among radiologic technology program directors was delimited to the following:

1. RT program directors employed by schools with RT programs accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT). Currently the JRCERT accredits other radiologic technology educational programs including radiation therapy, magnetic resonance, and medical dosimetry; however, the study was delimited to radiography program directors only.
2. Participants had to be employed as RT program director between the dates of January 28 and February 25, 2013 because the responses were collected during this period.
3. The questionnaire was limited to a 4-week response period.

Limitations

1. The study was limited by the honesty of the RT program directors in answering the survey questions.
2. Due to the subjectivity of the study, the current moods or attitudes of the respondents could influence their response.
3. The information collected from the study was limited to the questions asked in the survey and may not elicit additional information that could be obtained by other research methods.
4. The survey was emailed to program directors; in the event that a survey did not reach a program director, the researcher might not be aware of this event. No other method of data collection was used.
5. The study was limited to RT program directors and does not reflect the opinions of other key administrators or instructors within the higher education arena.

6. The length of the survey.

Operational Definitions

Adverse Health Effect: Characteristic that indicates declining health such as heart disease, hypertension, and gastrointestinal problems (Killion, 2009).

Burnout: "...A state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding" (Schaufeli & Greenglass, 2001, p. 501).

Environmental Stressors: Environmental or external stressors originating from cataclysmic phenomena such as earthquakes and other disasters, bereavement that includes job loss and or loss of a family member, and daily hassles including day-to-day difficulties found on the job (Lazarus & Cohen, 1977).

Joint Review Committee on Education in Radiologic Technology (JRCERT): Provides accreditation of educational programs in the radiologic sciences. The JRCERT is the only agency recognized by the United States Department of Education and the Council on Higher Education Accreditation for the accreditation of educational programs in radiography, radiation therapy, magnetic resonance, and medical dosimetry (JRCERT, 2011, p. 1).

Occupational stress: "...The general and often unconscious mobilization of the individual's energy when confronted with any organizational or work demand" (Raj, 2006, p. 1).

Radiologic Technology Program: An educational program designed to educate students in radiologic technology sciences.

Radiologic Technology Program Director: An administrator or manager of a radiologic technology program that assures effective program operations, oversees ongoing program

assessment, participates in budget planning, maintains current knowledge of the professional discipline and educational methodologies through continuing professional development, and assumes the leadership role in the continued development of the program (JRCERT, 2011, p. 42).

Stress: The inability to cope with a (real or imagined) threat to one's mental, physical, emotional, and spiritual well-being that resulted in a series of physiological responses and adaptations (Seaward, 1999, p. 5).

Stressor: Any demand made by internal or external environment, causing stress that upsets one's balance, creating a need for restoration. These may be physiological, social, or psychological (Althoff et al., 1988, p. 280).

Stress management: Understanding of the stress response; recognition of the stressor; development of stress reduction skills and the regular incorporation of these skills into one's lifestyle (Althoff et al., 1988, p. 280).

Wellness: Wellness in this study is the holistic perception of optimal health that includes physical, emotional, mental, spiritual, environmental, and social well-being (Insel & Roth, 2002, p. 4).

Well-being: A theoretical concept that includes the ideas of contentment, morale, and happiness (Spiriduso, 1995, p. 305). Influenced by environmental occurrences, well-being is an individual, somewhat short-lived, emotional feeling measured through self-report (Spiriduso).

Wellness Practices: "Wellness practices in this study include the amount of time and concern expended in each of the health dimensions, including physical, emotional, mental, spiritual, and social health" (Dawson, 2004, p. 22).

CHAPTER 2

REVIEW OF LITERATURE

To support the context of this literature review a systematic structured search approach was conducted to connect the literature regarding the relationship between stress levels and wellness practices and their effects on radiologic technology program directors. The wellness practices of spiritual, physical, social, mental, emotional, and occupational domains were reviewed to demonstrate their interlinking connection to stress. Furthermore, the literature review search was conducted to provide historical structure, to strengthen the context, and to ensure the search was focused, purposeful, and meaningful (Cottrell & McKenzie, 2011). The search was conducted primarily using Internet academic databases. These data bases included: CINAHL Full Text, Education Full Text, Heath Source: Nursing Academic Edition, Nursing and Allied Health, PsycINFO, MEDLINE, Google Scholar, American Society of Radiologic Technologists (ASRT), Journal of The American Society of Radiologic Technologists, Association of Educators in Imaging and Radiologic Sciences, Inc. (AEIRS). In addition to the Internet academic database search, reference lists from highly pertinent articles were reviewed along with bibliographies and references of select works to identify articles that were missed in the initial electronic search.

The search options for inclusion and exclusion criteria required the studies to be peer-reviewed full-text articles written in the English language. Articles describing research on stress and wellness using samples of elementary, middle school, or high school teachers were excluded. In addition, Internet searches of websites with a Uniform Resource Locator (URL) ending in .gov, .org, and .edu were also included along with an online search of thesis and dissertations from East Tennessee State University's Sherrod Library as primary sources. Secondary sources

such as books, news reports, and encyclopedias were used on a limited basis to increase the validity of the health information research.

Boolean operators were used with the descriptor or keywords of the Internet academic databases. The keyword terms included in the search were: “stress,” “burnout,” “stressors,” “stress and burnout,” “stress and wellness,” “college or university,” “program directors or administrator or supervisor or faculty,” “department chair.” The search was predominantly limited to articles published from 2002 to 2012 to gain the most current information available. To reveal the inter-disciplinary nature of stress and wellness topic, database search engines included research in education, nursing, and allied health sciences. Table 1 outlines the search coverage provided by each of the keywords used. Collectively, the databases provided coverage from 2000 to 2012. Additionally, a hand search was conducted, scrutinizing the content of the American Society of Radiologic Technology’s journal, the *Radiologic Technology*.

Table 1.

The Search Engines used in the Literature Search

Data Base	Focus	Cover Period
CINAHL Full Text	Nursing and allied health journals	2002 to March 2012
Education Full Text	Education literature and journals	2002 to March 2012
Heath Source: Nursing Academic Edition	Journals focusing on medical disciplines	2002 to March 2012
Nursing and Allied Health	Nursing and allied health journals	2002 to March 2012
PsycINFO	Psychology and related disciplines	2002 to March 2012
MEDLINE	National Library of Medicine's database of journals	2002 to March 2012
Google Scholar	Scholarly literature	2005 to March 2012
American Society of Radiologic Technologists (ASRT)	Radiologic technology sciences	
ASRT Education and Research Resources	Radiologic technology sciences literature	2005 to March 2012
ASRT White Papers	Radiologic technology sciences literature	2005 to March 2012

Table 1. (continued)

Radiologic Technology Journal	Radiologic technology sciences literature	2000 to March 2012
Association of Educators in Imaging and Radiologic Sciences, Inc. (AEIRS) Radiologic Science & Education Journal	Education in imaging and radiologic science literature	2000 to March 2012

The Concept of Stress

There are many definitions for stress. According to the American Heritage Dictionary, the word *stress* is described as (a) “importance, significance, or emphasis placed on something,” (b) “a condition of extreme difficulty, pressure, or strain,” (c) “a condition of metabolic or physiologic impairment in an organism, occurring usually in response to adverse events and capable of causing physical damage,” (d) “a condition of psychological strain occurring in people and animals, usually in response to adverse events and capable of causing symptoms and signs such as increased blood pressure, insomnia, and irritability” (Stress, 2011, para. 1). Mosby’s Medical, Nursing, and Allied Health Dictionary (2002) defined stress as “any emotional, physical, social, economic, or other factor that requires a response or change” (p. 1639).

For the purposes of this study, stress was defined as “the inability to cope with a (real or imagined) threat to one’s mental, physical, emotional, and spiritual well-being, which resulted in a series of physiological responses and adaptations” (Seaward, 1999, p. 5). Another term related to stress is stressor, which is defined as “any demand made by internal or external environment, causing stress that upsets one’s balance, creating a need for restoration, which can be physiological, social or psychological” (Althoff et al., 1988, p. 280).

Stress can be found in all living organisms and “is an inescapable part of life” (Dawson, 2004, p. 25). Often, stress encourages survival because it forces organisms to adjust or acclimatize to quickly changing environmental situations (Stress, 2012).

For example, in response to unusually hot or dry weather, plants prevent the loss of water by closing microscopic pores called stomata on their leaves. However, when an organism’s response to stress is inadequate or when the stress is too powerful, disease or death of an organism may result. Humans respond to stress through basic physiological mechanisms, similar to all other organisms; however, in humans, stress is an especially complex phenomenon, influenced and complicated by modern lifestyles and technologies (Stress, 2012, para. 1)

A term rarely 50 years ago in this context, *stress* has now become common terminology, where “stress experiences include daily hassles involving fast-paced scheduling, pressure to remain in constant contact with social media and cell phones, major life events such as loss of a family member or loss of a job, abuse and trauma” (Huether & McCance, 2012, p. 204).

History of Stress

“Stress can be traced back to the Stone Age as a survival mechanism; however what was once a means of survival is now linked with the development of disease and illness claiming the lives of millions of people” (Seaward, 1999, p. 3). Walter Cannon, (1871-1945) (Selye, 1975) a distinguished Harvard neurologist and physiologist, first used the term *stress* in this context during 1914 in physiological and psychological categories, after correlating stress engineering concepts to stress in the physiologic practice. Cannon also theorized that emotional stimuli could cause stress in a psychological sense (Huether & McCance, 2012; McCance et al., 2010). Cannon’s groundbreaking research on stress was only the beginning.

Hans H. Selye (1907-1982) was an endocrinologist but is celebrated as the father of stress (Hans Selye, 2012). During his experiments to discover a new sex hormone, Selye theorized and discovered that stress caused biological responses in rats after they had been injected with ovarian extracts (Huether & McCance, 2012). He further theorized these physiologic changes or conditions were not limited to injections but also transpired after the rats were exposed to other stimuli such as cold, surgery, and restraint (Huether & McCance, 2012). Selye named these stimuli *stressors* and “identified three components of physiologic stress: the stressor, the physiologic disturbance produced by the stressor, and the body’s adaptation to the stressor” (Huether & McCance, 2012, p. 219). As pioneers in the discovery of stress, Cannon and Selye brought stress conceptually into mainstream science (Huether & McCance, 2012).

Classifications of Stress

Selye (1979) identified two primary divisions of stress, called distress and eustress and “found harmful distress or simply stress causes feelings of helplessness, frustration and disappointment, while eustress or beneficial stress generated feelings of achievement, satisfaction, and fulfillment” (Dawson, 2004, p. 28). Unfortunately, because the terms stress and distress are used interchangeably, the difference Selye intended between distress and eustress is lost (Le Fevre, Kolt, & Matheny, 2006). According to McGowan, Gardner, and Fletcher, (2006) there has been considerably more research done on the negative components of stress than on the positive. Stress, if handled appropriately, can provide positive results. Since Selye’s original research on eustress and distress, other researchers have concluded that not all stress is destructive (Bhat, Sameer, & Ganaraja, 2011; Gibbons, Dempster, & Moutray, 2008; Le Fevre et al., 2006; Le Fevre, Matheny, & Kolt, 2003; Niki, 2007; O’Sullivan, 2011).

Beyond the basic stress classifications of distress and eustress are other categories of stress including acute, episodic acute, chronic, and traumatic (Stress, 2012). In humans each of these categories of stress has its distinctive “symptoms, duration and treatment approaches” (American Psychological Association, 2012, para. 1). Acute stress is a result of stressors that may have come from the “recent past or anticipated near future and is often treatable and manageable” (American Psychological Association, 2012, para. 2). Acute stress is the most common form of stress and because it has a short duration is not related to the disease process associated with other forms of stress (Frances, 2000; Lubit, 2011). Episodic acute stress is characterized by a longer duration and is often found in individuals with type-A personalities and in those who experience continual worry or dread. Chronic stress is described as never-ending or milling, wearing people down through perpetual erosion “demolishing bodies, minds and lives” (American Psychological Association, 2012, p. 1). The last category of stress is traumatic stress or posttraumatic stress disorder (PTSD). According to Gore (2011) PTSD is a relatively new condition and did not appear in the *Diagnostic and Statistical Manual of Mental Disorders* until the 1980s when it was defined as a “pathological anxiety that usually occurs after an individual experiences or witnesses severe trauma that constitutes a threat to the physical integrity or life of the individual or of another person” (para. 2).

Stress Symptoms

Regardless of the classifications, stress comes with symptoms. Many people experience headaches, insomnia, or decreased work productivity without realizing these complaints are common stress symptoms (Mayo Clinic, 2011). A number of common stress symptoms and their effects on an individual’s body, mood, and behavior are summarized in Table 2 (The American Psychological Association, 2012; Mayo Clinic, 2011).

Table 2

Common Symptoms and Effects of Stress on the Body, Mood, and Behavior

Body	Mood	Behavior
Headache or dizziness	Anxiety	Overeating or under-eating
Muscle tension or pain	Restlessness	Angry outbursts
Chest pain	Lack of motivation or focus	Drug or alcohol abuse
Fatigue	Irritability or anger	Tobacco use
Change in sex drive	Sadness or depression	Social withdrawal
Stomach upset		
Sleep problems		
Elevated blood pressure		
Rapid heartbeat		
Shortness of breath		
Sweaty palms		
Cold hand or feet		

Because many of the symptoms of stress are similar to those of pathological diseases, the Mayo Clinic (2012) noted the importance of consulting a physician to verify an individual’s stress symptoms.

Stress Diseases and Conditions

Stress left unchecked can contribute to many compounding health problems such as high blood pressure, heart disease, obesity, and diabetes. Subsequently, these conditions are life altering and can lead to loss of productivity at work and home, disability, and finally premature death (Dallman et al., 2003; Larkin, 2005; Mayo Clinic, 2011; Stansfeld & Marmot, 2002; Wellen & Hotamisligil, 2005). “Chronic diseases, such as heart disease, cancer and diabetes, all of which have connections to stress, are responsible for seven out of every 10 deaths among Americans each year and account for 75% of the nation’s health spending” (DHHS, 2010, para. 4). Particularly alarming is the fact that 6 diseases included in the CDC’s top 10 leading causes of death in the U.S. [heart disease, malignant neoplasms (cancer), cerebrovascular disease (strokes), accidents, diabetes mellitus, and intentional self-harm (suicide)] have links to stress

variables (CDC, 2009; Huether & McCance, 2012). Understanding the connection between stress and wellness is critical because identification of many risk factors can contribute to prevention of associated diseases (DHHS, 2010). A summary of Huether and McCance's (2012, p.208) examples of stress-related diseases and conditions and the target organs or systems is included in Table 3.

Table 3

Examples of Stress-Related Diseases and Conditions

Target Organ	Disease or Condition
Cardiovascular system	Coronary artery disease Hypertension Stroke Disturbances of heart rhythm
Muscle	Tension headaches Muscle contraction backache
Connective tissues	Rheumatoid arthritis (autoimmune disease) Related inflammatory diseases of connective tissue
Pulmonary system	Asthma (hypersensitivity reaction) Hay fever (hypersensitivity reaction)
Immune system	Immunosuppression or deficiency Autoimmune diseases
Gastrointestinal system	Ulcer Irritable bowel syndrome Diarrhea Nausea and vomiting Ulcerative colitis
Genitourinary system	Diuresis Impotence Frigidity
Skin	Eczema Neurodermatitis Acne
Endocrine system	Type 2 diabetes mellitus Amenorrhea
Central nervous system	Fatigue and lethargy Type A behavior Overeating Depression Insomnia

Occupational Stress

According to Hofrichter (2003) the changing structure of work continues to have massive implications for workers' health and wellness. The World Health Organization (WHO)(2012d) defined occupational or work stress as, "... a response people may have when presented with work demands and pressures that are not matched to their knowledge and abilities and which challenge their ability to cope" (para. 3). Another widely used definition of occupational stress is "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, and needs of the worker" (National Institute of Occupational Safety and Health, 1999, para. 1).

As changes such as technological advancements, mergers, international expansion, and recessions have occurred over the last 50 years, workers have encountered less job security and stability that have added to their job related stress. McGowan et al.(2006) found that occupational stress is an immense international problem throughout the world and the incidence of work-related stress is increasing with huge consequences for the worker's individual health and wellbeing. In an article titled "What Workers Say About Stress" Northwestern National Life found that "40% of their workers reported their jobs as being extremely stressful and one-fourth of employees viewed their jobs as the number one stressor in their lives" (CDC, 1999, "What Workers Say About Stress," para. 1). As noted in the same article, Princeton Survey Research found "26% of workers report they were often burned out or stressed by their jobs and three-fourths of employees believe the worker had more on-the-job stress than a generation ago" (CDC, 1999, "What Workers Say about Stress," para. 1). The last report was from the St. Paul Fire and Marine Insurance Co. which reported "29% of their workers felt quite a bit stressed or extremely stressed and problems at work were more strongly associated with health complaints

than are any other life stressor-more so than even financial problems or family problems” (CDC, 1999, “What Workers Say About Stress,” para. 1). Hofrichter (2003) suggested a clear connection with the “...downturn of the U.S. economy further altering the nature and work experience for Americans and further increasing the stress burdens on workers” (p.252) who are “working longer and harder than at any time in the post war period” (p. 255).

Stress and Health Care Workers

Though work-related stress is not new, researchers over the last 10 years have connected stress and wellness and health care occupations (Beddoe & Murphy, 2004; Chang & Hancock, 2003; Dickinson & Wright, 2008; England, 2008; Gibbons et al. 2008; Gelsema, Van Der Doef, Maes, Akerboom, & Verhoeven, 2005; Gelsema et al., 2006; Gibbons et al. 2008; Golubic, Milosevic, Knezevic, & Mustajbegovic, 2009; Litvak et al., 2005; McGilton, McGillis, Wodchis, & Petroz, 2007; McGrath, Reid, & Boore, 2003; McVicar, 2003; Michelle & Sherlock, 2005; Mimura & Griffiths, 2003; Siegrist et al., 2010; Shirey, 2006; Van Den Tooren & De Jonge, 2008; Verhaeghe, Mak, Maele, Kornitzer, & Backer, 2003; Virtanen et al., 2008). According to the CDC (n.d.a.) the U.S. health care industry has a history of healthy expansion in employment, ranking number one in overall growth. However, health care also has a history of occupational stress and continues to rank high for work related stress. Additionally, the CDC (n.d.a.) reported the rate of drug abuse and suicide among health care workers as the highest of any profession, with elevated rates of “depression, anxiety, psychological distress, burnout, absenteeism, employee intent to leave, reduced patient satisfaction and diagnosis and treatment errors” (CDC, n.d.a, para 1).

Similarly, the Department of Labor (n.d.) also reported hospital work as being highly stressful as a result of “providing life-threatening care by overworked, understaffed, tight

schedules, paperwork, intricate or malfunctioning equipment, complex hierarchies of authority and skills, dependent and demanding patients and patient deaths” (para. 2). Health care employees may develop “difficulties in communicating with very ill patients, problems or difficulties maintaining pleasant relationships with coworkers and judging the seriousness of a potential emergency” (U.S. Department of Labor, n.d., para 2). According to the CDC (2008), stress is widespread in the health care setting, the top five stressors being “inadequate staffing levels, long work hours, shift work, role ambiguity and exposure to infectious and hazardous substances” (p. 1-2). Categories of symptoms for stress found in health care workers include “psychological (irritability, job dissatisfaction, depression), behavioral (sleep problems, absenteeism), and physical (headache, upset stomach, changes in blood pressure)” (CDC, 2008, p. 3).

Stress and Higher Education

Stress is not limited to hospital workers. There is a similar stress-wellness connection for instructors working in higher education; both hospital clinical workers and health care instructors often work short-staffed with tight schedules. The two primary recurring sources of stress for faculty members involved time pressures and high self-expectations (McCann & Holt, 2009; McCracken, 2001). Ravichandran and Rajendran (2007) suggested the increase in teaching assignments or class loads, personal expectations, instructor evaluations, lack of administrative support, insufficient facilities, organizational policy, and student-parental expectations are linked to higher levels of stress. Unending curriculum changes and pressure to publish are also sources of stress for health care instructors, (Slišković & Maslić, 2011). In addition, programmatic and institutional accreditation is frequently a source of high stress for educators (Elkins et al., 2010). At one time or another, health care practitioners, educators, and supervisors are subject to highly stressful situations. As health care provider, educator, and manager all rolled into one, the

position of radiologic technology program director would also be subject to highly stressful situations.

Wellness Practices

Stress and wellness are connected. In 1967 the World Health Organization (WHO) defined wellness as “not just the absence of illness but a state of complete physical, mental, and social well-being” (Roscoe, 2009, p. 216). The definition was expanded in 1998 to

Wellness is the optimal state of health of individuals and groups. There are two focal concerns: the realization of the fullest potential of an individual physically, psychologically, socially, spiritually and economically, and the fulfillment of one’s role expectations in the family, community, place of worship, workplace and other settings (Smith, Tang, & Nutbeam, 2006, p. 5).

The National Wellness Institute (n.d.) definition of wellness emphasized the cognitive concept of wellness as being a self-directed and evolving process of achieving full potential. Wellness practice is “the amount of time and concern expended in each of the health dimensions, including physical, emotional, mental, spiritual, and social health” (Dawson, 2004, p. 22). Two key components of health promotion and disease prevention are health and wellness. Both health and wellness are defined independently; however, they are connected with a dependent relationship and do not perform in isolation or a vacuum (Pettit & Peabody, 2008). Both health and wellness are constantly interacting hence optimal wellness can only be obtained through a balance of physical, intellectual, social, emotional, and spiritual health (Dawson, 2004). In the final analysis, by taking control of one’s own life with attention to all the domains of wellness including spiritual, physical, social, emotional or mental, and occupational each

individual increases his or her probability for increased health and a longer, fuller, and more productive life.

Spiritual Wellness

According to Powell, Shahabi, and Thoresen (2003) religion is very important to health and wellness. Starting in the 1940s through 2011 Gallup polled Americans multiple times to determine how many people believe in God, and consistently more than 9 in 10 Americans reported a believe in God (Gallup, 2011). There are numerous spiritual wellness studies as confirmed by researchers such as Catalfo, 2006; Hill and Pargament, 2008; Miller and Thoresen, 2003; Powell et al., 2003; Purdy and Dupey, 2005; Rostant, 2012; Seeman, Dubin and Seeman, 2003; Swedin, 2003; Thoresen and Harris, 2002; Vader, 2006. Mosby's Medical, Nursing, and Allied Health Dictionary (Mosby) provided two separate definitions of spiritual well-being.

According to Anderson:

Spiritual well-being is the personal expressions of connectedness with self, others, higher power, all life, nature, and the universe that transcended and empowers the self; the process of an individual's developing or unfolding of mystery through harmonious interconnectedness that springs from inner strength (2002, p. 1616).

Mosby also added several defining characteristics of spiritual well-being including: "inner strength: sense of awareness, self-consciousness, sacred source, unifying force, inner core and transcendence; unfolding mystery: one's experience about life's purpose and meaning, mystery, uncertainty, and struggles; harmonious interconnection: relatedness, connectedness, harmony with self, others, higher power or God and the environment" (Anderson, 2002, p. 1616). In comparison, Pettit and Peabody (2008) also incorporated a portion of Mosby's tenets in their spiritual wellness description, stating that spiritual wellness "refers to one's connectedness to a

higher power (e.g., God, Buddha, nature) and sense of meaning of life” (p. 119). Of all the wellness domains, spiritual wellness is one of the most investigated, researched, and well-defined in literature (Roscoe, 2009).

Religious doubt or lack of faith can lead to diminished feelings of well-being and greater distress. Increased spirituality often provides beneficial wellness and decreased distress (Ai, Tice, Peterson, & Huang, 2005; Giaquinto, Spiridigliozzi, & Caracciolo, 2007; Hills, Paice, Cameron, & Shott, 2005; Salsman & Carlson, 2005). Salsman and Carlson (2005) reported that those who have “a mature faith that is integrated in their everyday lives and emphasizes the centrality of their relationship with God are likely to experience less depression, paranoia, and hostility, as well as less overall psychological distress “(p. 206).

Physical Wellness

Physical wellness is described as “biological and physiological elements of health” (Pettit & Peabody, 2008, p. 119). The physical dimensions of wellness are multifaceted and include eating a proper diet, exercising on a regular basis, getting proper amounts of rest and sleep, and having regular or routine medical examinations (Dawson, 2004). Pellegrino, Saffici, and Pellegrino, (2012) agreed with Dawson and added other characteristics including: avoiding harmful habits, making responsible decisions about sex, learning about and recognizing symptoms of disease, and taking steps to prevent injuries at home, on the road, and on the job. In addition, Roscoe (2009) stated that physical wellness was an “active and continuous effort to maintain the optimum level of physical activity and focus on nutrition, as encompasses one’s attention to physical self-care and maintaining healthy life choices” (p. 219). With all the physical elements considered, it is also important to factor in each individual’s gender, age, height, weight, and growth rate for proper levels of energy and nutrients (Lee, Djoussé, Sesso, Wang, & Buring, 2010).

Schulte et al. (2007) suggested there was increasing evidence connecting obesity to

stressful adverse work conditions and a connection between obesity and high demand, low-control work environments and long hours. Schulte et al. (2007) hypothesized that occupational stress from work could increase weight gain resulting from alcohol consumption, sedentary leisure activity, psychological strain, modification of hormonal factors, long work hours creating fatigue leading to decreased time in physical activity.

Social Wellness

Social wellness is another dimension of holistic wellness. Social wellness (Pettit & Peabody, 2008) includes the “breadth and quality of one’s network of friends, family members, peers and other confidants” (p. 119). Chobdee (2009) defined social wellness as “the ability to relate to and connect with other people in our world. Our ability to establish and maintain positive relationships with family, friends and co-workers...” (para. 2). The tenets of social wellness provided by Chobdee (2010) stated it was “better to contribute to the common welfare of our community than to think only of ourselves and better to live in harmony with others and our environment than to live in conflict with them” (para. 1).

People engaged in social wellness see the value of living in harmony with others, seek positive interdependent relationships with others and develop healthy behaviors and are also willing to actively seek out ways to preserve the beauty and balance of nature and the community (UCAR, 2010, para. 3).

Pellegrino et al. (2012) agreed with Chobdee (2010) regarding the development of good communication skills. Communication is the foundation upon which relationships are built, connecting family members and friendships. In sum, all individuals require and benefit from social public and private relationships; building these social relationships requires time, energy, goodwill, and effective communication skills as part of their basic foundation.

Effective communication and social wellness are important to health care, teaching, and management; which can be highly stressful. According to Medland, Howard-Ruben, and Whitaker (2004) fostering psychosocial wellness in the workplace can decrease occupational distress and job burnout and increase employee retention among oncology nurses. Their research described occupational social interaction as community building in the work setting and concluded that building social interactions was highly beneficial in reducing job burnout and distress during times of uncertainty and during change. Community building provided protection against the frequently changing health care setting. Other social support groups such as clubs, professional societies, and faith-based organizations provide increased opportunities for program directors to boost their social wellness and buffer against occupational distress.

Emotional and Mental Wellness

Emotional wellness was described by Pettit and Peabody (2008) as pertaining to “one’s ability to recognize, express and manage a wide array of emotions, such as happiness and love” (p. 119). Pellegrino et al. (2012) expanded the description to include optimism, trust, self-esteem, self-acceptance, satisfying relationships, and the ability to share feelings. They also incorporated three requirements for mental wellness, “monitoring our thoughts and feelings, identifying obstacles to mental well-being and finding solutions to emotional problems” (p. 705). Roscoe (2009) incorporated the ability to cope with stress in her definition of emotional wellness. In contrast, Mosby (2002) defined emotional deprivation as a “lack of adequate warmth, affection and interest; especially of a parent our significant nurturer” (p. 591) and suggested that emotional deprivation was a “common problem among institutionalized persons and children from broken homes” (p. 591).

In contrast to emotional wellness, Pettit and Peabody (2008) suggested mental wellness included decision making and problem-solving skills. Pellegrino et al. (2012) characterized mental wellness as being open to new ideas, having the capacity to question and think critically, motivated to master new skills, having a sense of humor, being creative, and exhibiting curiosity. Further, they stated that an active mind is essential to overall wellness because it detected problems, found solutions, and directed behavior. “Individuals who enjoy intellectual wellness never stop learning and seek out and relish new experiences and challenges” (Pellegrino et al., 2012, p. 705). According to Roscoe’s (2009) integrated concept, intellectual wellness is “the perception of and motivation for one’s optimal level of intellectual activity achieved by continual acquisition, use, sharing and application of knowledge in a creative and critical fashion for personal growth and the betterment of society” (p. 220).

Occupational Wellness

Occupational wellness is the last facet of holistic wellness discussed in this research. Roscoe (2009) defined occupational wellness as “the level of satisfaction and enrichment gained by one’s work and the extent to which one’s occupation allows for the expression of one’s values” (p. 221) and stated that occupational wellness included “the contribution of one’s unique skills and talents to the community in rewarding, meaningful ways... (p. 221). Roscoe (2009) also found work attitude to be an important attribute along with personal satisfaction and enrichment as a positive trait of occupational wellness. Chobdee (2009) described occupational wellness as the “ability to get personal fulfillment from one’s job or chosen career field while maintaining balance in his/her life” (para. 6). In addition, Chobdee (2009) stated that occupational wellness often includes a desire to contribute and make a positive impact on one’s organization and society.

Most people spend much of their lives working to provide an income for themselves and their family; therefore, occupational wellness is an essential element to enjoying a large portion of our life; however, occupational wellness is not always included in holistic wellness research (Dawson, 2004; Pettit & Peabody, 2008). Despite workers having little say about the demands placed upon them by their employer and having few or no opportunities to broaden their work related skills, Pellegrino et al. (2012) suggested workers who have opportunities to maximize and learn new skills often find work enjoyable and exciting. Additionally, these workers welcome new opportunities and view them as a chance for occupational growth, advancement, and acknowledgment for achievement.

Beyond maintaining a balance between work and leisure time, workers with occupational wellness are often able to address workplace stress in a healthy manner and build positive relationships with coworkers. Some people with occupational wellness believe they are meant for their career as a result of a calling from deep inside them as they explored their career options and where they would fit in best with their employer (Chobdee, 2010). A worker's attitude towards work is a key element to obtaining new skills and talents that are rewarding and meaningful (Chobdee, 2010). One's choice of profession, job satisfaction, career ambitions, and personal performance are all significant components of the path to occupational wellness.

Stress and Radiologic Technology Program Directors

During the past decade the research exploring stress and wellness of health care educators was significant, (Clark & Pelicci, 2011; Killion, 2009; Kiteley, 2007; LeBlanc, 2009; Shirey, 2006); however, the magnitude of the research was considerably less extensive compared to the broader sector of higher education in general. Numerous research studies have revealed a relationship between psychosocial, occupational stress, and wellness factors in healthcare and

healthcare education; however, there has been no research conducted on the stress and wellness of radiologic technology program directors as of the date of this study. Stress and wellness research has been conducted on numerous other managerial and administrative positions. Dawson (2004) investigated the relationship of stress levels to wellness practices among community college presidents and found significant associations between the management of stress and the balance of wellness practices. Mirvis, Graney, Ingram, Tang, and Kilpatrick (2006) researched medical intercollegiate deans in the connection to burnout and psychological stress and found high levels of occupational stress and job burnout that impacted their leadership effectiveness. Studies have shown that nurses in hospital administration and management positions experience workplace stress (Elkins et al., 2010; England, 2008; Mano, 2011; Mirvis et al., 2006; Moreno et al., 2010; Ryska, 2002). The implications include evidence there is a need for organizations to initiate corrective action to help nurses in administrative roles to cope with increased levels of job strain, minimize potential psychological and physiological consequences, and preserve job satisfaction (Elkins et al., 2010). Health care, education, management, and administrative positions have been established as highly stressful occupations; therefore, it would be logical to conclude that the position of radiologic technology program director is also significantly stressful.

Radiologic Technology Program Directors

The department chair and program director is a middle management position “linking faculty and administration, one program or department to another and between the discipline and the institution” (Comer, Haden, Taylor & Thomas, 2002, p. 514). The radiologic technology program director or department chair is an:

administrator or manager of a radiologic technology program that assures effective program operations, oversees ongoing program assessment, participates in budget planning, maintains current knowledge of the professional discipline and educational methodologies through continuing professional development, and assumes the leadership role in the continued development of the program (JRCERT, 2011, p. 42).

In addition, program directors are responsible for “ensuring the overall quality of the program curriculum; recruiting, developing, and retaining faculty; and communicating up and down the administrative ladder” and many other day-to-day responsibilities (Haden et al. 2002, p. 514).

The present day program director has been described as a beggar, psychologist, mediator, and maid who has a difficult and often thankless job with little power and an overload of paperwork (Wilson, 2001). U.S. program directors described their job as stressful as a result of walking a thin line between administration and faculty, receiving little or no training, dealing with multiple personal problems, and performing an exhausting job for little extra money (Wilson, 2001). “Many would disagree with these negative perceptions, but few would deny the need for superior leadership and management skills to address the increasingly complex responsibilities of these positions” (Haden et al., 2002, p. 514).

The JRCERT identified the radiologic technology program director as an administrator or manager; however, at their core, the program director is also a radiologic technologist and health care educator. Effectively wearing three different hats, the program director oversees and has direct responsibility over the entire didactic and clinical components of radiography program. Program directors are also responsible for meeting programmatic accreditation standards and assisting with institutional accreditation as well. Often the radiologic technology program director functions as a leader, role model, mentor, and advisor to students and program

instructors. Many program directors are profession leaders with significant involvement in state and national societies.

There is a plethora of work-related responsibilities included in the radiologic technology program directors job description, all of which require vast leadership proficiency. According to Aaron (2005) many of these duties are similar to those of other department chairs, while others are unique, such as the professional knowledge of radiographic science and technology.

Technology often evolves at a rapid pace that can be a challenge for program directors and their faculty who must keep abreast of these developments in order to stay current within the profession. As new technology and procedures evolve, others can quickly become obsolete.

Aaron (2005) also noted that these changes in technology always evolve faster than the resources and textbooks, which are desperately needed in order to relay the information to the students.

These issues and many more can be stressful for program directors and their faculty.

RT Program Directors Challenges

Radiologic technology educators have an enormous responsibility in educating their students, yet many have no formal training in education (Aaron, 2005). Some educators have previous classroom experience, while others do not. The same holds true for program directors, some have previous administrative experience and others are new to the experience. Aaron (2005) added that both educators and program directors obtain their position through a variety of methods. Ironically, some radiographers who became educators with no formal instruction in education or management were later promoted to the position of program director.

Many radiologic technology program directors had two primary barriers that were likely contributed to their work stress: their level and type of education and their experience as administrators (Aaron, 2005). In an effort to strengthen educational requirements the JRCERT

revised Standard 6.2 of the *Standards for an Accredited Educational Program in Radiologic Sciences* (JRCERT, 2011). The changes required program directors to have a minimum of a master's degree beginning 2007. This requirement is currently included in JRCERT's (2011) Standard 6.3 which "documents that all faculty and staff possess academic and professional qualifications appropriate for their assignments" (p. 67). The JRCERT Standards only dictate the level of degree for program directors and fulltime radiography faculty but do not specify the modality or discipline of the degree.

In addition to the increased degree level for program directors, JRCERT's Standard 6.3 also included additional experience requirements. Standard 6.3 required program directors to be "proficient in curriculum design, program administration, evaluation, instruction, and academic advising; to have three years clinical experience in the professional discipline; with two years of experience as an instructor in a JRCERT-accredited program" and to maintain current ARRT registration along with unrestricted state licensure if required by the state where the program resides (JRCERT, 2011, p. 67).

Program directors are confronted with many other stressors beyond those created by deficient education and experience issues, some of which are created by a decline in national and local economies in which the program director has no control (Aaron, 2005). Hospitals may reduce staff or even close, both of which can result in reduced clinical positions for student internships (Aaron, 2005). Competition for clinical sites is also increasing as indicated by the ASRT's *Enrollment Snapshot of Radiography, Radiation Therapy and Nuclear Medicine Technology Programs 2011*, (2011b). According to this report there was a 21% increase in the growth of radiography programs between 2001 and 2011. The increase in program growth results in an increased number of new RT graduates, which produces additional stress for program

directors. The increased pressure for program directors is associated with JRCERT Standard Five (JRCERT, 2011) that requires programs to “develop and implement a system of planning and evaluation of student learning and program effectiveness outcomes in support of its mission” (JRCERT, 2011 p. 57). Standard 5.2 specifically addresses job placement for new graduates, requiring programs to maintain and report new graduate job placement scores to the accrediting agencies. Standard 5.2 requires radiography programs to document program effectiveness data:

Five-year average credentialing examination pass rate of not less than 75 percent at first attempt, *five-year average job placement rate of not less than 75 percent within six months of graduation* [emphasis added], annual program completion rate, graduate satisfaction, and employer satisfaction (JRCERT, 2011 p. 57).

If job placement continues to be poor, programs will be in violation of JRCERT Standard 5.2 and risk losing programmatic accreditation. The majority of radiography programs also have a number of other competing programs within their surrounding area. The added competition of new graduates vying for the same limited number of entry level RT positions reduces camaraderie and decreases the tendency to work in collaborative relationships.

Additional stressors for program directors come from keeping pace with the rapidly changing technology and then applying these changes to their curriculum. “Program directors must remain current in the discipline and be proactive in making changes to the curriculum in order to prepare students appropriately for the current healthcare environment” (Aaron, 2005, p. 8). The ASRT provides the curriculum free of charge to any radiography program; however, it has no authority to require educational programs to use the curriculum. Consequently, the ASRT curriculum is endorsed by the JRCERT and the ARRT, which require their expectations on educational programs.

The JRCERT and the ARRT can impose expectations on educational programs to comply with instructional content that is aligned with a nationally recognized curriculum, and can require that candidates seeking professional certification have completed an accredited program of study that, through the accrediting process, has demonstrated compliance with a nationally recognized curriculum (ASRT, para. 8).

During 2012 the ASRT revised the radiography curriculum and addressed the technological changes developed during the last decade in computed radiography and digital radiography. As many hospitals in the U.S. have upgraded to this new technology, the use of film in diagnostic radiology departments is quickly becoming a thing of the past. The profession is in a time of transition; therefore, educators must prepare students with film-screen and digital methods that will be included on their certification examinations (Aaron, 2005).

It is critical for radiologic technology program directors or those considering working toward the program director's position to be aware of these stressors within their discipline. This understanding is vital because many program directors do not have the educational or business background for successful management of their position. Even for those who do have prior teaching and administrative experience, the department chair or program director position can be highly stressful. Although not all stress is counterproductive, the key is in the ability to manage stress before it becomes chronic.

Summary

The balance of health and wellness is an essential element to all aspects of life and is necessary to perform at an optimal level in any occupational position. The literature review produced numerous sources that described a historical record of stress and the numerous pathological diseases and conditions linked to prolonged stress and symptoms of stress.

Many of the researched articles related stress to the wellness domains that were discussed including spirituality, physical, social, emotional, mental, and occupational. The abundance of articles found and incorporated in this study suggested that health care, higher education, and management positions are highly stressful. Furthermore, the literature verified a vital need for wellness practices to help balance day-to-day stressors often found in these positions.

Understanding the relationship between wellness practices and stress levels of radiologic technology program directors could lead to positive lifestyle changes for the program directors and others suffering from occupational stress.

CHAPTER 3

METHODOLOGY

Overview

This research is a modified replication of Dawson's (2004) dissertation investigating the variety and level of wellness practices of community college presidents and the relationship of these practices to the stress levels of the group. According to Cottrell and McKenzie (2011) modified replication is a research study where "after reviewing literature one chooses to perform the same study as another researcher but changes the population sample being studied or the instrumentation being used" (p. 23). After reviewing Dawson's study, an initial request was approved from the researcher's thesis committee chair to conduct a replication study. Upon receiving approval, an e-mail was sent to Dr. Dawson in February 2012 requesting her permission to replicate her study with radiography program directors (Appendix A). Dr. Dawson responded by e-mail and gave consent to perform the study (Appendix B). As a modified replication study, this research used the same methodology, research design, and survey instrumentation as conducted by Dawson (2004) replacing the population of community college presidents with U.S. radiologic technology program directors. Chapter 3 includes a description of the research design, population, survey instrument, validity, application for the Institutional Review Board, instrumentation timeframes, and statistical techniques for the data analysis.

Research Design

The purpose of the study was to examine the relationship between the stress levels and the wellness practices of U.S. radiologic technology program directors and to determine if correlations exist between wellness practices and stress levels of the group. The study also investigated the extent and type of association between stress and wellness practices to

respondent demographics such as age, race, gender, and years of experience as program director. To answer the research questions and test the hypotheses, a quantitative nonexperimental research method will be used. Nonexperimental quantitative research designs are frequently used in health education "...when it is not practical, possible, feasible, or desirable to manipulate an independent variable as would be necessary in experimental research" (Cottrell & McKenzie, 2011, p. 194). A survey was used to gather data in order to identify and examine the relationship between wellness practices and the stress levels of U.S. radiologic technology program directors. The design of the study was be ex post facto correlational. Ex post facto, also known as causal-comparative studies, is "a form of non-experimental research seeking to determine the cause or consequences of differences that already exist between or among a group of individuals" (Cottrell & McKenzie, 2011, p. 9). The correlational research portion of the study is also a form of nonexperimental research that will "...describe the relationships between or among variables" (Cottrell & McKenzie, 20011, p. 9).

Population

The population for this research consists of all U.S. radiologic technology program directors currently employed in JRCERT accredited institutions, colleges, or universities. The JRCERT identified 635 accredited programs in their *2010 Annual Report* (JRCRT, 2010). As required by the JRCERT Standard 2.2, each radiography program must have a full-time program director (JRCERT, 2011); therefore, there are approximately 635 U.S. radiologic technology program directors as the target population of the research.

Dawson's Survey Instrumentation

According to Cottrell and McKenzie (2011) survey research is also known as descriptive research and is one of the frequently used designs in health science literature. Survey research

involves the “administration of a set of questions to a sample or to an entire population of people in order to determine the attitudes, opinions, beliefs, values, behaviors, or characteristics of the group being studied” (Cottrell & McKenzie, 2011, p. 195). Contrasting the basic difference between questions used in a survey versus questionnaire, survey questions include a set of multiple choice responses from which the participants select those that best represents their feeling or thoughts (Cottrell & McKenzie, 2011), while questionnaires are designed without a set of responses and the participants provide their own personal thoughts or feelings to answers the questions (Cottrell & McKenzie, 2011). This study incorporated both survey and questionnaire questions.

Dawson (2006) used information gained from her literature review process to form the basis for the variables in her survey instrument titled *Stress Levels and Wellness Practices Measurement for Community College Presidents* (Appendix C). According to Dawson (2004) prevailing stressful issues, common stress symptoms, major wellness practices, and relaxation techniques were researched in her study. The survey was attitudinally scaled in an attempt to obtain the participant’s viewpoint or disposition to the survey questions. A *Likert*-like scale was used for the study to obtain “...the level and frequency of stress from a range of topics and activities; the feelings, characteristics, and symptoms generated from stress; and the commonality and frequency of wellness and relaxation practices” (Dawson, 2004, p. 62). To further enrich the data analysis for this study, demographic data on the participant’s gender, age, years of experience, and ethnicity were included. A time frame of approximately 15 minutes was estimated for completing the survey. Dawson (2004) developed her survey instrument questions with information from her literature review and divided the survey into three sections. *Section One* of the survey was subdivided into four parts: *Part One – Occasionally Occurring*

Workplace Activities, Part Two – Frequently Occurring Workplace Activities, and Part Three – Personal or National Activities and Events. The final heading in *Section One* was titled *Section Four – Feelings, Characteristics, and Symptoms*, but in this study was titled *Part Four* to maintain continuity.

Part One – Occasionally Occurring Workplace Activities contained 12 Likert-scaled survey questions along with a question that asked participants to list other occasionally occurring workplace activities that caused high stress. *Part Two – Frequently Occurring Workplace Activities* contained 30 scaled survey questions and a question that asked participants to list other workplace activities that had the potential to generate stress. *Part Three – Personal or National Activities and Events* contained 18 scaled survey questions that had the potential to create stress along with a question that asked participants to list other personal or national activities such as terrorist attacks or other alarming news worthy events that caused moderate to high stress. For each variable found in the first three parts of *Section One* participants are asked to indicate the level of stress experienced from a 5-point ordered response scale ranging from “no stress,” with a value of one (1) to “extreme stress,” with a value of five (5). Some variables also included a *does not apply* or *no occurrence* option with a value of nine (9) assigned. These were not used in analysis of the data (Dawson, 2004, p. 63).

There are different levels of stress resulting in a number symptoms or feelings that could be negative or positive (Dawson, 2004). These findings provided the foundation for the final portion of *Section One, Part Four – Feelings, Characteristics and Symptoms*. For each variable found in *Part Four* of *Section One* participants were asked to indicate the frequency of stress experienced from options ranging from ranging from “Always,” (value of five 5) to “Never”(value of one 1).

Part Four included 27 scaled survey questions and one question asking participants to list other frequently occurring indicators of stress.

Section Two: Activities and Practices, contained a total of 50 Likert-scaled questions related to wellness activities in the physical, mental, social, spiritual, and occupational domains and relaxation activities and practices, along with a question asking participants to list other activities they practiced regularly. The survey question response options ranged from low value of one (1) indicating *Never* practiced to a high score of five (5) indicating *Regularly* practiced.

Section Three: General Information contained nine nonnumbered general demographic questions; six questions were multiple choices and three were short answer asking the participants to list their favorite relaxation activities, age, and the number of years they had served in the position of a community college president.

Modified Survey Instrument

For this study Dawson's survey instrument was used with the following modifications: The instrument was titled *Stress Levels and Wellness Practices Measurement for U.S. Radiologic Technology Program Directors* (Appendix D). The three sections along with their respective parts and titles were retained, except for *Section One, Section Four* that was retitled *Section One, Part Four* to maintain continuity. Throughout the survey references to community college presidents were replaced with radiologic technology program directors. Some questions were reworded or deleted as necessary to reflect the differences between the job descriptions of the original participants and those in this study. Questions from *Section One Part One – Occasionally Occurring Workplace Activities* remained unchanged. *Part Two - Frequently Occurring Workplace Activities* was reduced from 30 to 25 scaled survey questions, deleting

questions 12, 16, 18, 24, and 28. *Part Three – Personal or National Activities and Events* was reduced from 18 to 16 scaled survey questions, deleting questions 16 and 17. *Part Four – Feelings, Characteristics, and Symptoms* remained unchanged. *Section Two - Activities and Practices* remained unchanged. In *Section Three - General Information*, the nine questions were unnumbered in the original version were numbered.

Instrument Validity

According to Cottrell and McKenzie (2011) “validity is concerned with whether the instrument actually does measure the underlying attribute or not” (p. 334). In the application of research design, McMillan and Schumacher (2001) defined validity as “the degrees to which scientific explanations of phenomena match the realities of the world” (p. 167). The content validity of this instrument was established through the literature review. All items in the survey-questionnaire were incorporated after extensive research of articles on the topics of stress and wellness practices. In the original research (Dawson, 2004) a pilot study was conducted to test the validity of the survey instrument. Content experts were consulted to provide content expertise and provided recommendations for adding or deleting variables related and relevant to the survey.

Pilot Study

According to McMillan and Schumacher (2001) a pilot study designed on a small scale is critical to test the instructions and the survey instrument before mass distribution to the population. Dawson’s (2004) research included a pilot study; therefore, a pilot was not performed in this modified replication study.

Institutional Review Board

Researchers have the ethical obligation of protecting the ethical, legal, and confidentiality rights of their participants (Cottrell & McKenzie, 2011). An application requesting exempt status was completed and presented to East Tennessee State University's (ETSU) Institutional Review Board (IRB) for approval. ETSU's IRB approved the research on December 12, 2012 (Appendix E).

Informed Consent

Each participant was presented with an e-mail letter detailing the purpose of the study. Participant consent for the research was implied as a result of participating in the study under a strictly volunteer status. Participants who responded and completed the survey thereby gave their consent to participate in the stress and wellness research. Participants choosing not to respond and or complete the survey did not participate in the study. In addition, all participants' identities will remain confidential (Appendix D).

Hypotheses

The following hypotheses were used with an alpha level set at .05:

1. There is a significant relationship between the levels of stress and gender as RT program directors. (Research Question 3).
2. There is a significant relationship between the levels of stress and years' tenure as RT program directors. (Research Question 3).
3. There is a difference between minority and nonminority respondents on stress levels of RT program directors. (Research Question 4).
4. There is a significant relationship between the levels of stress experienced by RT program directors and their weekly feelings, characteristics, and stress symptoms. (Research Question 4).

- 5).
5. There are significant differences by gender in the wellness practices of RT program directors. (Research Question 7).
6. There is a significant relationship between the RT program directors perceived overall balance of wellness and the perceived management of stress. (Research Question 10).

Null Hypothesis

The following null hypotheses were used with an alpha level set at .05:

1. There is no relationship between the levels of stress and gender as RT program directors. (Research Question 3).
2. There is no relationship between the levels of stress and years' tenure as RT program directors. (Research Question 3).
3. There is no difference between minority and nonminority respondents on stress levels of RT program directors. (Research Question 4).
4. There is no relationship between the levels of stress experienced by RT program directors and their weekly feelings, characteristics, and stress symptoms. (Research Question 5).
5. There are no differences by gender in the wellness practices of RT program directors. (Research Question 7).
6. There is no relationship between the RT program directors perceived overall balance of wellness and the perceived management of stress. (Research Question 10).

Data Collection Procedures

Using Survey Monkey, an *Initial Contact Letter to Participants* (Appendix F) was sent by e-mail to all JRCERT accredited RT program directors. The e-mail included an active electronic link taking the participants directly to the survey. The electronic letter emphasized the

participants' anonymity and confidentiality and that participation was voluntary. The *Initial Contact Letter to Participants* (Appendix F) was sent on January 28, 2013. All RT program directors not responding received the *First Follow-Up Letter* (Appendix G) by e-mail on February 1, 2013. The *Second Follow-Up Letter* (Appendix H) was sent to all RT program directors not responding on February 6, 2013. A *Final Follow-Up Letter* (Appendix I) was e-mailed to all RT program directors on February 18, 2013 and the survey was closed on February 25, 2013.

Data Analysis Procedures

The design of this study was created to use descriptive and inferential statistics to analyze the data collected. Measures to determine the degrees and relationships of the independent and dependent variables were statistically analyzed similar to the data analysis used by Dawson (2004). The data on the stress levels and wellness practices of radiologic technology program directors were collected using a Likert type scale to yield interval data. The variables related to stress from *Section 1* of the instrument ranged from a value of 1 (*no stress*) to a high stress value of 5 (*extreme stress*). The value of 99 was used to indicate missing information was not used for data analysis. The wellness variables of *Section 2* ranged from a low value of 1 (*never practiced*) to a high score of 5 (*regularly practiced*). The relaxation techniques in that section ranged from a low value of 1 (*never practiced*) to a high score of 5 (*regularly practiced*). Additionally, the instrument included a demographic section containing nominal and numerical measurement scales. The Statistical Procedure for Social Sciences (SPSS) Version 20 software program was used to analyze the collected data.

Research Questions

Research Question 1 – “What is the demographic profile for gender, age, ethnic origin and years of experience as program director?” Descriptive statistics (frequency distributions and percentages) were used to summarize the categorical data. The demographic data will be displayed using cross-tabulation tables.

Research Question 2 – “What are the 10 most common stress related variables generating high or extreme stress among radiologic technology program directors?” This was answered by determining the mean, standard deviation, and range of the data collected from the first three parts of section one of the survey instrument.

Research Question 3 – “Is there a relationship between the levels of stress and independent variables of: gender and years’ tenure as radiologic technology program director?” Independent samples *t* test and a bivariate correlation was employed to determine the effects of stress categories collectively and independently for gender and years of service.

Research Question 4 – “Is there a difference between minority and non-minority respondents on the stress levels of radiologic technology program directors?” A one-way analysis of variance (ANOVA) compared minority and nonminority stress levels of respondent RT program directors.

Research Question 5 – “Is there a relationship between the levels of stress experienced by radiologic technology program directors and their weekly feelings, characteristics, and stress symptoms?” This was analyzed using descriptive statistic means from all questions in *Section 4* as a subscale and a Bivariate Correlation.

Research Question 6 – “What are the 10 most common wellness practices among the program directors?” Descriptive statistics was used to determine the mean, standard deviation, and range for each variable.

Research Question 7 – “Is there a difference by gender in the wellness practices of RT program directors?” The t-test (Levene’s Test) for equality of variance was used to measure unpaired t-test (tests if variables differ between groups). The unpaired t-test was used when the groups are not paired or equal in size.

Research Question 8 – “What are the 10 most commonly cited relaxation techniques of radiologic technology program directors and how much time do program directors have to relax?” This was answered by determining the mean, standard deviation and range of the data collected from the first three parts of section one of the survey instrument.

Research Question 9 – “Is there a relationship between the stress levels experienced by radiologic technology program directors and the wellness practice subscales of this group?” The Pearson’s coefficient of correlation with a multiple regression analysis was used. The subscales were determined from Section 2-Part 1 (*Wellness Practices*) of the instrument; 14 variables were related to physical wellness (1, 5, 7, 8, 9, 10, 11, 16, 18, 19, 20, 21, 35 and 39); 16 questions were related to mental/emotional wellness (2, 3, 15, 22, 23, 24, 25, 27, 30, 40, 41, 42, 43, 45, 47, and 49); 7 questions were related to spiritual wellness (6, 12, 26, 29, 34, 44, and 45); and 9 questions were related to social wellness (4, 13, 14, 17, 28, 31, 32, 33, 36, 37, 38, 46, and 48).

Research Question 10 – “Is there a relationship between the RT program directors perceived overall balance of wellness and the perceived management of stress?” This was analyzed using a bivariate correlation.

Summary

Chapter 3 described the quantitative research plan, provided a description of the population, sample, study design, detailed survey instrument development, discussed research validity, the pilot study, application for ETSU Institutional Review Board approval, and other instrumentation timeframes. Chapter 4 presents an analysis of the findings followed by Chapter 5 that summarize the research with a conclusion, discussion, and recommendations for future research.

Background of the Researcher

A graduate of East Carter High School in Northeastern Kentucky, the researcher continued his education at Morehead State University completing his Associate of Allied Health Science Degree in Radiologic Technology in 1990. After working for several years as radiologic technologist and clinical instructor, the researcher completed his Bachelor of Arts Degree at Ottawa University in 2004. Currently, the researcher anticipates completing his Master of Science in Allied Health degree from East Tennessee State University in 2013.

As a radiologic technologist with dual credentials in radiography and computed tomography (CT), the researcher worked as a staff radiographer and manager with a number of hospitals in Central Kentucky. He began his teaching career as a teaching technologist for the University of South Alabama, and later as clinical coordinator for Sanford-Brown College and Fortis Institute. During 2008 the researcher was selected to attend the American Society of Radiologic Technologists (ASRT) Leadership Academy for Educators in Albuquerque, New Mexico. He has also been active with state and national professional societies serving as Computed Tomography (CT) Delegate for the ASRT House of Delegates, Chairman of the CT Steering Committee, and Chairman of the ASRT's Resolutions and Bylaws Committee. At the

state level the researcher has also served for several years on the Board of Directors for Tennessee Society of Radiologic Technologists (TSRT).

The researcher's experience as a radiography administrator and instructor provided firsthand experience with the stress levels encountered by program directors. The researcher hopes this study will provide information regarding appropriate wellness practices to assist and motivate radiologic technology program directors in making informed decisions about healthy lifestyles.

CHAPTER 4

DATA ANALYSIS

The purpose of this study was to investigate the variety and level of wellness practices of U.S. radiologic technology program directors and the relationship of these practices to the stress levels of this group. The extent and type of associations between stress and wellness practices and respondent demographics such as gender, age, years of experience, and ethnicity, were investigated. The target population for the study consisted of 635 U.S. men and women holding the position of RT program director in JRCERT accredited programs.

The electronic survey instrument *Stress Levels and Wellness Practices Measurement for U.S. Radiologic Technology Program Directors* (Appendix D) was distributed after being designed through the merging of a comprehensive stress scale and a multidimensional wellness scale. The data collection procedure detailed in Chapter 3 was initiated on January 28, 2013, and concluded on February 25, 2013. Within this time-frame, data were collected from the 635 RT program director population. The instrument was used to solicit RT program directors' perceptions of stress from variables in their professional and personal lives. Additionally, the instrument investigated the participants' frequency of engagement in wellness and relaxation activities. Participants were asked to provide demographic information and additional comments at the end of each section of the instrument through open-ended question items. Four hundred twenty-four surveys were returned for a response rate of 67%. Thirty percent did not respond to the e-mail requests and 3% had opted out of Survey Monkey solicitations prior to the study. The response number exceeded the estimated sample required of 240.

Research questions with subsequent hypothesis and null hypotheses where appropriate were presented to guide the investigation. The alpha level for this study was .05.

Results

Research Question 1: Demographic Profile of Program Directors

Research question 1: What is the demographic profile for gender, age, ethnic origin and years of experience as an RT program director? Descriptive statistics (frequency distributions and percentages) were used to summarize each profile element.

Gender

The majority (67%) of respondent RT program directors were female. The results of this test are found in Table 4 below.

Table 4.

Demographic Profile of RT Program Directors – Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	122	28.8	30.0	30.0
Valid Female	284	67.0	70.0	100.0
Total	406	95.8	100.0	
Missing 9	18	4.2		
Total	424	100.0		

Age

Respondents ranged from 20 to 70 years of age with a mean age of 51.75 ($n = 406$). The results of this test are found in Table 5 below.

Table 5.

Demographic Profile of RT Program Directors – Age

Statistics		
N	Valid	406
	Missing	18
Mean		51.75

Table 5. (continued)

Median	53.00
Mode	56
Std. Deviation	8.611
Variance	74.145
Range	50
Minimum	20
Maximum	70

Years of Experience

Respondents' years of experience ranged from 1 year to 44 years, with a mean of 12.34 years. The most frequent occurring number of years experience was 10 years. Only 38 (9.35%) had held the position of RT program director for 30 years or more, and only 6 (1.47%) held the position for 40 or more years. The results of this test are found in Table 6 below.

Table 6.

Demographic Profile of RT Program Directors – Years of Experience

N	Valid	406
	Missing	18
Mean		12.34
Median		10.00
Mode		1
Std. Deviation		10.145
Variance		102.931
Range		43
Minimum		1
Maximum		44

Ethnicity

Participants in the study were overwhelmingly Caucasian (91.1%). Other ethnic groups represented were: African American (4.2%), Hispanic (2.2%), Asian Alaskan (0.5%), Native American (0.2%), and Other (1.7%). The results of this test are found in Table 7 below.

Table 7.

Demographic Profile of RT Program Directors – Ethnicity

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Caucasian	370	87.3	91.1	100.0
African American	17	4.0	4.2	8.9
Hispanic	9	2.1	2.2	4.7
Asian Alaskan	2	.5	.5	2.2
Native American	1	.2	.2	2.5
Other	7	1.7	1.7	1.7
Total	406	95.8	100.0	
Missing	9	4.2		
Total	424	100.0		

Research Question 2: Common High Stress Variables Among RT Program Directors

Research question 2: What are the 10 most common stress related variables generating high or extreme stress among radiologic technology program directors? Variables to determine stress levels of RT program directors made up Part 1, Part 2, and Part 3 of *Section One* of the survey. These included: occasionally occurring workplace activities (Part 1), frequently occurring workplace activities (Part 2), and personal or national activities and events (Part 3). Data were gathered from a scaled response including: no incident (0), no stress (1), mild stress (2), moderate stress (3), high stress (4), and extreme stress (5). Descriptive statistics were used to determine the mean, standard deviation, and range for each variable in the three groups collectively and to determine which variable created the highest stress level.

The 10 most common stress related variables generating high or extreme stress among RT program directors are listed in descending order in Table 8. The accreditation process ($n = 424$; mean 3.52) ranked highest, followed by multifaceted work demands ($n = 419$; mean 3.32) as the second highest level of stress for the respondents within the three parts of *Section One* collectively. Balancing work and family ranked as a close third ($n = 419$; mean 2.99). A narrow margin separated the means of the program directors selections, including: personnel negotiations, time management, meeting deadlines, college funding issues, policy or procedural issues, and budgeting decisions. A complete listing of the stress sources for respondents is found in Appendix J. Additionally, a list of self-reported occasionally occurring workplace sources of stress are reported in Appendix K, self-reported frequently occurring workplace sources of stress are reported in Appendix L, and self-reported personal or national sources of stress are reported in Appendix M.

Table 8.

Top 10 High Stress Variables Among RT Program Directors

	N		Mean	Median	Mode
	Valid	Missing			
1. Accreditation Process: S1, P1, Q3	424	0	3.52	4	4
2. Multifaceted Work Demands: S1, P2, Q1	419	5	3.32	3	4
3. Balancing Work/Family: S1, P2, Q2	419	5	2.99	3	3
4. Personnel Negotiations: S1, P1, Q2	424	0	2.83	3	3
5. Time Management: S1, P2, Q23	419	5	2.80	3	3
6. Meeting Deadlines: S1, P2, Q19	419	5	2.76	3	2
7. College Funding Issues: S1, P2, Q3	419	5	2.70	3	3
8. Policy/Procedural Issues: S1, P2, Q7	419	5	2.69	3	3
9. Budget Decisions/Balancing Budget: S1, P2, Q4	419	5	2.68	3	3
10. Clinical Affiliate Contracts: S1, P1, Q9	424	0	2.63	3	3

Research Question 3: Stress Level Correlations to Gender and Years' Tenure

Research question 3: Is there a relationship between the levels of stress and independent variables of gender and years' tenure as radiologic technology program director? An independent samples *t* test was used to determine if differences existed between the nominal independent variable, gender of RT program directors, and the continuous variable of stress levels experienced by the directors. Because $p = .528$ and alpha for the study is $.05$, there is no significant difference in stress between gender and years of service; therefore, we must fail to reject the null hypothesis. There is no difference in stress based upon the gender of the respondent. Pearson Correlation Coefficients exhibit values between -1.0 and $+1.0$. Because the correlation coefficient is low ($-.056$), there is no significant correlation between levels of stress and number of years serving as a RT program director. The results are found in Table 9 below.

Table 9.

Relationship Between Levels of Stress, Gender, and Years of Service

		S3 Q4: Overall, how would you rate your current level of stress as compared to 1 year ago?	
		Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F	.075	
	Sig.	.785	
t-test for Equality of Means	t	-.611	-.633
	df	404	248.165
	Sig. (2-tailed)	.541	.528
	Mean Difference	-.068	-.068

Table 9. (continued)

	Std. Error Difference	.111	.107
	95% Confidence Interval Lower of the Difference	-.285	-.279
	Upper	.150	.143

		S3 Q4: Overall, how would you rate your current level of stress as compared to 1 year ago?	S3 Q8: How many years have you been an RT PD?
S3 Q4: Overall, how would you rate your current level of stress as compared to 1 year ago?	Pearson Correlation	1	-.056
	Sig. (2-tailed)		.257
	N	406	406
S3 Q8: How many years have you been an RT PD?	Pearson Correlation	-.056	1
	Sig. (2-tailed)	.257	
	N	406	406

Research Question 4: Difference Between Minority and Nonminority Stress Levels

Research question 4: Is there a difference between minority and nonminority respondents on the stress levels of radiologic technology program directors? A one-way analysis of variance (ANOVA) compared minority and nonminority respondents stress levels. Because $p = .156$ and alpha for the study is $.05$, there is no significant difference in stress based upon the ethnicity of the respondent; therefore, we must fail to reject the null hypothesis. Because no differences were found, post hoc testing using the Tukey method is moot. The results are found in Table 10 below.

Table 10.

Minority and Nonminority Stress Levels

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8.362	5	1.672	1.613	.156
Within Groups	414.869	400	1.037		
Total	423.232	405			

Research Question 5: Relationship of Stress Levels and Weekly Feelings, Characteristics, and Stress Symptoms

Research question 5: Is there a relationship between the levels of stress experienced by radiologic technology program directors and their weekly feelings, characteristics, and stress symptoms? A multiple regression analysis indicated the R Square value for this correlation is only 2.1%; therefore, it can be concluded that there is no relationship between the level of stress and any of the subscales derived from feelings, characteristics, and symptoms. A list of feelings, characteristics, and symptoms means and self-reported symptoms of stress are listed in Appendixes N and O respectively. The symptom *insomnia* was the most frequently occurring self-reported indicator of stress ($n = 7$).

Research Question 6: Top 10 Wellness Practices

Research question 6 was stated as follows: What are the 10 most common wellness practices among the program directors? These variables were measured with a five-point scale including never, seldom (4-5 days per year), sometimes (4-5 days per month), fairly regularly (usually 1-2 days per week, and regularly practiced (3+ days per week or as appropriately applies). Descriptive statistics were used to determine the mean and standard deviation for each

variable. The 10 most common wellness practices among RT program directors are listed in descending order in Table 11. Wearing seat belt when traveling ($n = 409$; mean 4.89) ranked highest, followed by actively listen to others ($n = 409$; mean 4.47) as the second most common wellness practice for the respondents. Finding humor or laughing and getting at least 6 hours of sleep per night tied and ranked as third ($n = 409$; mean 4.41). A narrow margin separated the means of the next wellness selections, including: Setting priorities, maintaining positive outlook, and experiencing love and joy. Listen or play music and/or sing ranked eighth ($n = 409$; mean 4.29), find beauty and meaning in nature or surroundings ranked ninth ($n = 409$; mean 4.25), and obtain regular physical exams ranked 10th ($n = 409$; mean 4.23). Participating in competitive sports (such as tennis, racquetball, volleyball, or basketball) ranked last in the survey with a mean score of 1.38. A complete listing of mean scores for wellness practices of respondents is found in Appendix P.

Table 11.

Top 10 Common Wellness Practices of RT Program Directors

	N		Mean	Median	Mode
	Valid	Missing			
1. Use of Seatbelt When Traveling (S2, Q11)	409	15	4.89	0.554	4
2. Actively Listen to Others (S2, Q28)	409	15	4.47	0.671	3
3. Find Humor/Laugh (S2, Q15)	409	15	4.41	0.79	3
4. Get at Least 6 Hours of Sleep per Night (S2, Q16)	409	15	4.41	0.898	4
5. Set Priorities (S2, Q27)	409	15	4.39	0.713	3
6. Maintain Positive Outlook (S2, Q22)	409	15	4.37	0.747	3
7. Experience Love and Joy (S2, Q30)	409	15	4.37	0.885	4
8. Listen/Play Music and/or Sing (S2, Q42)	409	15	4.29	0.991	4

Table 11. (continued)

9. Find Beauty and Meaning in Nature or Surroundings (S2, Q26)	409	15	4.25	0.904	4
10. Obtain Regular Physical Exams (S2, Q35)	409	15	4.23	1.232	4

Research Question 7: Difference by Gender in the Wellness Practices

Research question 7: Is there a difference by gender in the wellness practices of RT program directors? An independent sample *t*- test was conducted to evaluate the difference of wellness practices by gender. Between respondent male and female RT program directors, a significant difference was found in the scores of 17 out of 50 wellness activities and practices; therefore, the null hypothesis was rejected on these specific activities. The activities and practices from *Section Two* scoring a significant difference among RT program directors are listed in descending order in Table 12. A complete listing of respondent’s wellness practices by gender is reported in Appendix Q.

Table 12.

Difference by Gender in the Wellness Practices

	Male Mean	Female Mean
Q5: Complete Home Maintenance Activities for 30 Minutes or More	3.31	3.75
Q7: Generally Consume a Low-Fat Diet	3.29	3.67
Q10: Use of Sun Block When Exposed To Sun	3.19	3.75
Q14: Make Time for Visiting Others Such as Relatives or Friends	3.07	3.31
Q16: Get at Least 6 Hours of Sleep per Night	4.25	4.47
Q19: Participate in Sports	2.06	1.73

Table 12. (continued)

Q22: Maintain Positive Outlook	4.41	4.23
Q27: Set Priorities	4.18	4.43
Q30: Experience Love and Joy	4.17	4.45
Q31: Preserve a Strong Support Network of Friends	3.57	4.05
Q35: Obtain Regular Physical Exams	3.86	4.39
Q38: Celebrate Others Successes	3.59	3.87
Q39: Deep Sea or Fresh Water Fish	1.63	1.38
Q41: Read for Pleasure	3.16	3.54
Q46: Attend/Participate in Dance	1.39	1.62
Q47: Participate in Board Games, Cards, Puzzles	2.34	2.76
Q49: Travel for Leisure	3.32	3.62

Research Question 8: Top 10 Relaxation Techniques of RT Program Directors

Research question 8: What are the 10 most commonly cited relaxation techniques of radiologic technology program directors and how much time do program directors have to relax? Descriptive statistics were used to determine the self-reported information on the 10 most frequently occurring favorite ways to relax for RT program directors. Reported answers were alphabetized and counted. The results of this test are found in Table 13 below.

The favorite way to relax as self-reported by respondents was reading ($n = 137, 33.5\%$). Movies and plays ranked second ($n = 53, 13\%$). A narrow margin separated the means of TV watching ($n = 38, 9.3\%$) third and walking ($n = 37, 9.0\%$) fourth. Music ($n = 31, 7.6\%$), exercising ($n = 23, 5.7\%$), and pets ($n = 18, 4.4\%$) ranked next, followed by traveling ($n = 16, 3.9\%$) ranked

eighth. The means of family activities and golfing tied ($n = 15$, 3.7%) for the ninth and 10th place, completing the top 10 relaxation techniques. A complete listing of self-reported wellness practices is found in Appendix R.

Table 13.

Top 10 Most Common Self-Reported Methods of Relaxation

	<i>n</i>	%
1. Reading	137	33.5
2. Movies and Plays	53	13.0
3. TV Watching	38	9.3
4. Walking	37	9.0
5. Music	31	7.6
6. Exercising	23	5.6
7. Pets	18	4.4
8. Traveling	16	3.9
9. Family Activities	15	3.7
10. Golfing	15	3.7

Descriptive data were collected on the amount of time RT program directors have to relax. The five-point scale ranged from Never (1); Seldom, few times per year (2); Sometimes, few times per month (3); Regularly, at least once a week (4); and Always, daily (5). The results are found in Table 14 below.

Table 14.

Amount of Time to Relax

	<i>f</i>	%
Never	2	.5
Seldom	37	8.7
Sometimes	127	30.0
Regularly	173	40.8
Always	67	15.8
Total	406	95.8

Table 14. (continued)

Missing	9	18	4.2
Total		424	100.0

The majority of respondents regularly took time to relax ($n = 173$; 40.8%) indicating they relaxed at least one time per week. Sixty-seven respondents (15.8%) relaxed daily. A complete listing of self-reported favorite relaxation practices are presented alphabetically in Appendix R. Multiple responses are listed with similar categories grouped and ranked in Appendix S. Self-reported favorite relaxation activities with multiple responses are listed with similar categories grouped and ranked in Appendix T.

Research Question 9: Relationship Between Stress Levels and Wellness Practices

Research question 9: Is there a relationship between the stress levels experienced by radiologic technology program directors and the wellness practice subscales of this group? A multiple regression analysis was run to determine if the stress levels experienced by the RT program directors could be predicted by coping subscales (Physical, Mental or Emotional, Spiritual, and Social). These variables did not result in a model that predicted stress levels ($R = .251$) and it can be concluded that there is no relationship between the stress levels of RT program directors and the wellness practice subscales. The results are found in Table 15 below.

Table 15.

Relationship Between Stress Levels and Wellness Practices

Correlations

	S3 Q4: Overall, how would you rate your current level of stress as compared to one year ago?	Physical Subscale	Mental Emotional Subscale	Spiritual Subscale	Social Subscale
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Table 15. (continued)

	S3 Q4: Overall, how would you rate your current level of stress as compared to one year ago?	1.000	.215	.202	.152	.132
Pearson Correlation	Physical Subscale	.215	1.000	.501	.270	.463
	Mental Emotional Subscale	.202	.501	1.000	.459	.641
	Spiritual Subscale	.152	.270	.459	1.000	.425
	Social Subscale	.132	.463	.641	.425	1.000
	S3 Q4: Overall, how would you rate your current level of stress as compared to one year ago?	.	.000	.000	.001	.004
Sig. (1-tailed)	Physical Subscale	.000	.	.000	.000	.000
	Mental Emotional Subscale	.000	.000	.	.000	.000
	Spiritual Subscale	.001	.000	.000	.	.000
	Social Subscale	.004	.000	.000	.000	.
	S3 Q4: Overall, how would you rate your current level of stress as compared to one year ago?	406	406	406	406	406
N	Physical Subscale	406	406	406	406	406
	Mental Emotional Subscale	406	406	406	406	406
	Spiritual Subscale	406	406	406	406	406
	Social Subscale	406	406	406	406	406

Research Question 10: Perceived Balance of Wellness and Management of Stress

Research question 10: Is there a relationship between the RT program directors perceived overall balance of wellness and the perceived management of stress? The Pearson correlation procedure indicated a weak correlation relationship between the scores, $r = .294$. There was a direct or positive relationship between the wellness practices and stress management. As the RT program directors increased their overall balance of wellness practices (spiritual, physical, mental, and social), their overall management of stress increased. The results are found in Table 16 below.

Table 16.

Perceived Balance of Wellness and Management of Stress

Descriptive Statistics

	Mean	Std. Deviation	N
S3 Q3: In the past 3 months, how would you describe your overall balance of wellness practices including spiritual, physical, mental, and social practices?	2.92	1.125	406
S3 Q5: Overall, how would you rate your current management of stress as compared to 1 year ago?	3.20	.817	406

Correlations

		S3 Q3: In the past 3 months, how would you describe your overall balance of wellness practices including spiritual, physical, mental, and social practices?	S3 Q5: Overall, how would you rate your current management of stress as compared to 1 year ago?
S3 Q3: In the past 3 months, how would you describe your overall balance of wellness practices including spiritual, physical, mental, and social practices?	Pearson Correlation Sig. (2-tailed) N	1 406	.294** .000 406
S3 Q5: Overall, how would you rate your current management of stress as compared to 1 year ago?	Pearson Correlation Sig. (2-tailed) N	.294** .000 406	1 406

** . Correlation is significant at the 0.01 level (2-tailed).

Summary

Descriptive and comparative analyses of data from the *Stress Levels and Wellness Practices Measurement For U.S. Radiologic Technology Program Directors* generated from the 424 RT program directors were presented in this chapter. Frequency distributions were used to demographically characterize the respondents. The demographic profile included gender, age, years of experience, and ethnicity. The majority of the respondents were female (67%) and (87.3%) were Caucasian. The mean years of experience was 12.34 years.

Frequency distributions and self-reports of research questions associated with the most common stressors, feelings, characteristics, symptoms, and wellness practices of RT program directors were summarized, with complete listings of each of these areas included in the appendices. Comparative analysis of each of these areas was presented to address the research questions. Only two of the six findings were significant for the RT program directors. A significant difference was found in the scores (17 out of 50) between gender and wellness activities and practices. A weak positive correlation was found between the wellness practices and stress management. As the RT program directors increased their overall balance of wellness practices (spiritual, physical, mental, and social), their overall management of stress increased. No relationship existed between the level of stress and gender or years of service; no relationship was found between ethnicity and stress levels; no relationship was found between the level of stress and any of the subscales derived from feelings, characteristics, and symptoms; and no relationship was found between the stress levels of RT program directors and the wellness practice subscales.

CHAPTER 5

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

This chapter includes the conclusions, discussion, and consequent recommendations resulting from the study. In comparison to the substantial amount of literature on occupational stress, little research has been conducted on the existence or levels of stress among health care administrators and, in particular, RT program directors, based upon their practices of wellness. The purpose of this study was to investigate the variety and level of wellness practices of RT program directors and the relationship of these practices to the stress levels of this group.

The sample for this study consisted of 424 U.S. men and women holding the position of RT program director in JRCERT accredited programs during the February, 2013. The response rate was 67% which exceeded the estimate needed for the study. Participating program directors completed an electronic survey based on issues and activities relevant to their home and personal life. The study measured RT program directors' stress levels and the participation in wellness practices using the *Stress Levels and Wellness Practices Measurement for U.S. Radiologic Technology Program Directors*. The survey instrument was designed to address the frequency, cause, and symptoms of stress of RT program directors. It also addressed the types of wellness practices engaged in by this group and the influence these practices have on stress levels. The Likert scaled instrument included demographic information on gender, age, years of experience, and ethnic origin. Additionally, self-reported information pertaining to stress and wellness practices were included. The instrument was developed after an examination of similar studies that identified variables considered important in wellness practices and stress concerns. Additionally, studies and information defining the issues and concerns of today's RT program director were considered.

Conclusions

The study's limitations were considered before arriving at research-based conclusions. The study was limited by the honesty of the RT program directors answering the survey questions. Due to the subjectivity of the study, the current moods or attitudes of the respondents could have influenced their response. The survey research was also limited to the opinions of 424 RT program directors employed by schools with RT programs accredited by the JRCERT and did not reflect the opinions of other key administrators or instructors. The questionnaire was limited to a 4-week response period. Participants had to be employed as RT program director between the dates of January 28 and February 25, 2013. Another limitation to be considered is the geographical location because the participant group was limited to the U.S.

After consideration of these limiters and the research results presented in Chapter 4, the following conclusions can be drawn regarding the relationship of stress levels to wellness practices among U.S. RT program directors.

1. The data indicated significant majority of the respondents were female (67%) and ranged from 20-70 years of age with a mean for all directors of 51.75 ($n = 406$). The number of years serving as an RT program director ranged from 1-44 with a mean of 12.34 for all directors. The overwhelming majority of the respondents were Caucasian (83.7%), 4% reported their heritage as African American, 2.1% were Hispanic, less than 1% reported as Native American or Asian Alaskan, and nearly 2% reported their heritage as other ethnicity.
2. The accreditation process (mean 3.52) ranked as the top of variable generating high stress for RT program directors. Other occupational related variables causing high stress included: Multifaceted work demands, balancing work and family, personnel negotiations, time

management, meeting deadlines, college funding issues, policy and procedural issues, budgeting decisions, and clinical affiliate contracts.

3. There was no significant difference in stress between male and female RT program directors in relationship to the years of service. Additionally, there was no connection between levels of stress and number of years as a program director. The respondent's gender and years of services had no relationship with their stress levels.
4. There was no significant difference in stress based upon the ethnicity of RT program directors.
5. There was no relationship between the level of stress and any of the subscales derived from feelings, characteristics, and symptoms for RT program directors.
6. The 10 most common wellness practices among the program directors: Wearing a seat belt when traveling (mean 4.89) ranked highest, followed by actively listen to others, finding humor or laugh, getting at least 6 hours of sleep per night, setting priorities, maintaining positive outlook, experiencing love and joy, listen or play music and/or sing, finding beauty and meaning in nature or surroundings, and obtain regular physical exams.
7. There was a difference by gender in the wellness practices of RT program directors.
8. The 10 most common self-reported relaxation techniques of RT program directors are: Reading (33.5%), movies and plays, TV watching, walking, music, exercising, pets, traveling, family activities, and golfing.
9. There was no relationship between the stress levels of RT program directors and the wellness practice subscales (physical, mental, spiritual, and social).
10. There was a weak positive correlation relationship between wellness practices and stress management. As the RT program directors increased their overall balance of

wellness practices (spiritual, physical, mental, and social), their management of stress increased.

11. Occasionally occurring workplace events (mean = 2.20) were marginally higher sources of stress than frequent occurring workplace activities (mean = 2.15). Personal and national events (1.76) caused least stress.

Discussion

The purpose of this investigation was to understand the relationship between the stress levels of RT program directors and their practice of selected dimensions of wellness. Several issues related to the program director's role were examined, as were common wellness dimensions.

A number of the findings were supported by the literature. Dawson (2004) reported the importance to set aside time for renewal. Forty percent of respondent RT Program directors regularly or at least once a week had an opportunity to relax, while 15.8% indicated they always or daily had an opportunity to relax. Combined, a small majority (56.6%) of program directors had an opportunity to regularly relax; however, a sizable portion (43.4%) of the respondents indicated they sometimes or seldom had opportunities to relax.

Selye (1979) made the distinction between harmful stress and beneficial stress. The respondents in this study reported they sometimes to fairly frequently have positive feelings of satisfaction, achievement, fulfillment, and exhilaration. The majority of respondents indicated a moderate amount of positive feelings; however, they also indicated several negative characteristics and symptoms such as neck and back pain, irritability, impatience, easily fatigued, forgetfulness, and overeating.

Seaward (1999) reported the importance and health benefits of integrating the domains of spiritual, physical, social, emotional or mental, and occupational wellness. In this study there was a weak positive relationship between wellness practices and stress management of the RT program directors.

A number of commonalities were discovered among the program directors' self-reported answers to questions about stress, symptoms of stress, wellness practices and favorite ways to relax. The majority of respondents viewed the accreditation process as stressful. This research did not differentiate between programmatic and institutional accreditation; however, accreditation was selected as the number one task generating high or extreme stress. Many RT program directors reported the general multifaceted work demands or overall job related responsibilities as being highly stressful. They also had difficulties balancing work and family. Program directors listed administrative concerns such as unending demands from administration, lack of trust, institutional meetings, and multiple mandatory duties that take numerous hours of time away from their primary program responsibilities. Other self-reported topics causing high or extreme stress were faculty, student, and personnel concerns; time management; and budget concerns.

Self-reported regularly occurring personal and or national activities causing moderate to high stress also had commonality for responding program directors. Personal concerns included home security worries, stolen identity, in-laws, children and grandchildren concerns, and pet issues. National concerns included the re-election of President Obama and his national health care plan, national financial management, national debt, poor response to terrorist activities, doubts regarding Social Security and Medicare benefits for future retirement, taxes, and family members in the military. Self-reported career concerns included pay-cuts, student loan debt for master's degree, professional association duties, recession, and job hiring freezes.

There was a need for more diversity in the respondents; the large majority of the program directors were Caucasian females; however, this study supported a number of established theories and findings related to stress and wellness and provided new information about U.S. RT program directors. For example, through examination of respondents, there were no significant differences in stress levels between male and female program directors based upon the years of service. Likewise, there were no significant differences in stress based upon the program director ethnicity. Although there were a number of commonalities among the RT program directors, each had a unique perspective and feeling on the effects of stress and the type and frequency of wellness and relaxation practices.

Recommendations

The following recommendations for research on the relationship between wellness practices and stress could be developed:

1. A wide range of topics relevant to the stress levels and wellness practices of U.S. RT program directors were used in this research; however, there is a vast amount of information available on each topic related to stress and wellness practices that could be studied individually and in greater depth.
2. There are other dimensions of wellness beyond those considered in this study; if they were incorporated the new elements or viewpoints could change the outcomes.
3. This research was limited to U.S. RT program directors; a study performed on program directors in other countries may yield different results. The information could then be further expanded for an international comparison.
4. The stress levels and wellness practices of RT program directors working in private schools versus public schools could be incorporated for comparison.

5. This research could be conducted on RT clinical coordinators or instructors for contrast and to determine which faculty member is more successful at balancing stress levels and wellness practices.
6. Beyond RT program directors, the research could be expanded to include other allied health programs, administrators, and faculty members.

The balance of health and wellness is an essential element to all aspects of life and is necessary to perform at an optimal level in any occupational position. This study was conducted to investigate and ultimately aid RT program directors to better understand occupational stress levels and its connection to health and wellness activities. I believe the large number of respondents (67%) completing the survey indicates a large interest in occupational stress and wellness topics among RT program directors. Working as an RT instructor and clinical coordinator with a number of program directors, I have observed and experienced many of the daily challenges associated with teaching and managing an RT program. It was these personal experiences that provided the inspiration for this research.

Each individual has unique personal and occupational experiences that provide a diverse life perspective and likewise has different abilities to cope with stress and its effects. I am optimistic about the hardiness and resiliency of RT program directors as they continue to manage their programs. I hope this research provides insight for RT program directors into the connection between stress and disease, along with recognizing personal sources of stress and wellness activities to assist them in stress reduction and a healthier lifestyle.

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APPENDICES

Appendix A

Request to Perform Modified Replication of Research

From: Jesse Pennington [jpennington722@yahoo.com]
Sent: Wednesday, February 08, 2012 6:09 PM
To: Sherri Dawson [sherri.dawson@sw.edu]
Subject: Request to Conduct Modified Replication of Dissertation

February 8, 2012

Dr. Eva C. Ratliff Dawson (Sherri)
Associate Professor, Program Developer
Southwest Virginia Community College
PO Box SVCC, Richlands VA 24211

RE: Request to Conduct Modified Replication of Dissertation

Dear Dr. Dawson:

My name is Jesse D. Pennington and I am completing a Master of Science in Allied Health Degree at East Tennessee State University. While researching information in the Sherrod Library I found your doctorate dissertation, *The Relationship of Stress Levels to Wellness Practices Among Community College Presidents*. Your investigation of stress levels and wellness practices, along with the positive associations you found between the management of stress and the balance of wellness practices is interesting to me. The relaxation activities and the feelings, characteristics, and symptoms associated with stress were also intriguing.

With your permission, I would like to complete a modified replication of your dissertation, which would form the basis of my thesis research on radiologic technology program directors. I would like to use a similar methodology, research design and instrumentation to perform a study on program directors to determine if there is an ex post facto/correlation between their level of stress and wellness practices.

Sincerely,

Mr. Jesse D. Pennington, B.A., R.T. (R) (CT) (ARRT)
722 West Oak Drive
Cookeville, TN 38501

Phone: (931) 528-7170

Appendix B

Permission to Perform Modified Replication of Research

From: Sherri Dawson [sherri.dawson@sw.edu]
Sent: Tuesday, February 14, 2012 6:47 AM
To: Jesse Pennington [jpennington722@yahoo.com]
Subject: Request to Conduct Modified Replication of Dissertation

Jesse,

I am please that you find my dissertation meaningful and useful. You may use my dissertation, *The Relationship of Stress Levels to Wellness Practices Among Community College Presidents*, in the modified format as described. Of course, please reference my work as required. I look forward to seeing your findings.

The best to you in your academic journey,

Sherri Dawson

Appendix C

Dawson’s Survey Instrument

Stress Levels and Wellness Practices Measurement for Community College Presidents

The *Stress Levels and Wellness Practices Measurement for Community College Presidents* examines the source and level of stress for community college leaders and identifies the wellness and relaxation practices that support the management of stress. The instrument is divided into three sections. Section one, containing four parts, pertains to the degree of stress attributed to occasionally occurring events related to the workplace or from day-to-day activities related to the workplace; to personal events and activities in one’s life; and to the symptoms, feelings, or characteristics experienced from stress. Section Two contains variables related to wellness activities commonly practiced. Section Three contains general questions and demographic information. The total time for completing all sections is approximately 15 minutes. Thank you for completing the survey.

Please enter your identification number: **You can find this number in your participant e-mail message. Note that this number only identifies respondents and is not linked to or included in the survey analysis.**

Section One

Part 1 - Occasionally Occurring Workplace Activities

Occasionally occurring workplace activities are generally experienced one time per month or less (or not at all). Indicate the level of stress experienced from each of the following *activities* within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Loss of Key Administrator

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*
○ ○ ○ ○ ○ ○

2. Personnel Negotiations

Extreme Stress High Stress Moderate Stress Mild Stress No Stress
○ ○ ○ ○ ○

3. Upcoming Accreditation

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Pending Review*
○ ○ ○ ○ ○ ○

4. Increased Nationwide School/Campus Violence

Extreme Stress High Stress Moderate Stress Mild Stress No Stress
○ ○ ○ ○ ○

5. Loss of Key Board Member

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

6. Laying Off College Staff

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Layoffs*

7. Major Workplace Technological Changes

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

8. Presidential Evaluations

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

9. Personnel Contracts

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

10. Career Change

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Career Change*

11. Retirement in College's Workforce

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Retirements*

12. Death of Work Associate

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incidents*

13. Please List Other Occasionally Occurring Workplace Activities Causing High Stress

Part Two - Frequently Occurring Workplace Activities

Frequently occurring workplace activities are generally experienced one or more times per week. Indicate the level of stress experienced from each of the following *activities* within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Multifaceted Work Demands

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

2. Balancing Work/Family
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
3. College Funding Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
4. Internal Budget Decisions/Balancing the Budget
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
5. Interaction with Local College Board Members
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
6. Accelerating Technology
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
7. Policy/Procedural Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
8. Community Relations
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
9. Out-of-Town Meetings
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
10. Conflicts among Local Board Members
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
11. Retention Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
12. Risk Management Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
13. Personnel Conflicts/Issues/Grievances
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

14. Traffic Delays/Driving
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
15. Enrollment Requirements/Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
16. Discrepancies with Outside Organizations
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
17. Inadequate Campus Facilities
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
18. Staff Maintaining Focus on College Vision
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
19. Accountability Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
20. Diversity Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Diversity Issues*
21. Workplace Ethical Challenges
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Ethical Challenge*
22. Meeting Deadlines
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
23. Inadequate Physical Maintenance Staff
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Inadequacies*
24. State Governance Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

25. Interaction with Other Colleges

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

26. Inadequate Resources/Equipment

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

27. Time Management

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

28. Interaction with Local Officials/Community leaders

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

29. Union Issues

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Occurrence*

30. Tenure Issues

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

31. Please List Other Workplace Activities Causing Moderate to High Stress

--

Part Three - Personal or National Activities and Events

Personal activities or events are experienced outside the workplace. They include home, family, or national occurrences that affect our lives. Indicate how often you have experienced stress from the following activities or events within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Personal Injury or Illness

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Injury/Illness*

2. Relationship with Spouse/Significant Other

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Relationship*

3. Death of Family Member

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Deaths*

4. Death of Friend
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Deaths*
5. Failing Health of Family Member
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Health Problems*
6. Children Issues/Responsibilities
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Issue/Responsibilities*
7. Holidays
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
8. Vacation
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Vacation*
9. Mortgage or Other loans
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Mortgage*
10. Home Construction or Renovation
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Construction/Ren*
11. Home Maintenance
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
12. Financial Management
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
13. Personal Retirement Affairs
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
14. Stock Market Investments
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress
15. Identity Theft/Security Concerns
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

16. September 11 National Tragedy

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

17. Increased National Terror Threats

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

18. Current International Conflicts

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

19. Please List Other Personal or National Activities Causing Moderate to High Stress

--

Section Four – Feelings, Characteristics, and Symptoms

Indicate how often you have experienced the following symptoms, characteristics, or feelings within the past year by selecting the appropriate response. Selections are Always (Weekly); Often (Monthly), Occasionally (Few Times Year); Rarely (Once in Year); to Never.

1. Rapid, Pounding Heartbeat

Always Often Occasionally Rarely Never

2. Neck or Back Pain

Always Often Occasionally Rarely Never

3. Sweaty Palms

Always Often Occasionally Rarely Never

4. Sense of Fulfillment

Always Often Occasionally Rarely Never

5. Irritability

Always Often Occasionally Rarely Never

6. Exhilarated

Always Often Occasionally Rarely Never

7. Feelings of Hopelessness

Always Often Occasionally Rarely Never

8. Impatience

Always Often Occasionally Rarely Never

9. Alienation

Always Often Occasionally Rarely Never

10. Sense of Achievement

Always Often Occasionally Rarely Never

11. Upset Stomach

Always Often Occasionally Rarely Never

12. Consuming Alcohol to Relieve Stress

Always Often Occasionally Rarely Never

13. Smoking Cigarettes to Relieve Stress

Always Often Occasionally Rarely Never

14. Powerlessness

Always Often Occasionally Rarely Never

15. Under Eating

Always Often Occasionally Rarely Never

16. Tendency to be Controlling

Always Often Occasionally Rarely Never

17. Mouth Dryness

Always Often Occasionally Rarely Never

18. Aggressiveness

Always Often Occasionally Rarely Never

19. Nervous Mannerisms

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Headaches

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Easily Fatigued

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Depressed

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Forgetfulness

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Heartburn

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Sense of Satisfaction

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Negative Feelings

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. Overeating

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. Please List Other Frequently Occurring Indicators of Stress

--

Section Two
Activities and Practices

Please respond to how often you engage in the following practices by selecting the appropriate response. The scale range is from never, seldom (*4-5 days per year*), sometimes (*4-5 days per month*), fairly regularly (*usually 1-2 days per week*), and regularly (*3+ days per week or as appropriately applies*).

1. Aerobic Activities (Such as Walking, Running, Hiking, Biking, Jogging, Aerobics) for at Least 30 Minutes Three Times per Week.

Never Seldom Sometimes Fairly Regularly Regularly

2. Practice Mental Revitalization through Decision Making, Research, Conferences, Etc.

Never Seldom Sometimes Fairly Regularly Regularly

3. Read Newspaper/Journals or Other Current Publications

Never Seldom Sometimes Fairly Regularly Regularly

4. Participate in Activities with Immediate Family

Never Seldom Sometimes Fairly Regularly Regularly

5. Complete Home Maintenance Activities for 30 Minutes or More

Never Seldom Sometimes Fairly Regularly Regularly

6. Read Spiritual Books and Materials

Never Seldom Sometimes Fairly Regularly Regularly

7. Generally Consume a Low-Fat Diet

Never Seldom Sometimes Fairly Regularly Regularly

8. Drink at Least 8 Cups of Water Daily

Never Seldom Sometimes Fairly Regularly Regularly

9. Avoid Eating Prepackaged and Convenience Foods

Never Seldom Sometimes Fairly Regularly Regularly

10. Use of Sun Block When Exposed To Sun
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
11. Use of Seatbelt When Traveling
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
12. Practice Spiritual Renewal Activities
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
13. Participate In Leisure Activities (Such As Golf) With Friends
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
14. Make Time for Visiting Others Such as Parents, or Elderly Relatives or Friends
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
15. Find Humor/Laugh
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
16. Get at Least 6 Hours of Sleep per Night
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
17. Volunteer/Help Others
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
18. Generally Consume Three Balanced Meals a Day
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
19. Participate in Sports Such as Canoeing, Kayaking, Skiing, and/or Rowing
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
20. Practice Weight Bearing Activities (Such as Free Weights, Machines, Push Ups)
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
21. Participate in Competitive Sports (Such as Tennis, Racquetball, Volleyball, Basketball)
- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

22. Maintain Positive Outlook
 Never Seldom Sometimes Fairly Regularly Regularly
23. Engage In Professional Development Activities as Appropriate
 Never Seldom Sometimes Fairly Regularly Regularly
24. Engage in Thought Provoking Discussions
 Never Seldom Sometimes Fairly Regularly Regularly
25. Maintain a High Self-Esteem
 Never Seldom Sometimes Fairly Regularly Regularly
26. Find Beauty and Meaning in Nature or Surroundings
 Never Seldom Sometimes Fairly Regularly Regularly
27. Set Priorities
 Never Seldom Sometimes Fairly Regularly Regularly
28. Actively Listen to Others
 Never Seldom Sometimes Fairly Regularly Regularly
29. Decisions Guided by Spiritual Beliefs
 Never Seldom Sometimes Fairly Regularly Regularly
30. Experience Love and Joy
 Never Seldom Sometimes Fairly Regularly Regularly
31. Preserve a Strong Support Network of Friends
 Never Seldom Sometimes Fairly Regularly Regularly
32. Interpret Most Stressful Issues at Work Professionally Rather Than Personally
 Never Seldom Sometimes Fairly Regularly Regularly
33. Assume Leadership Roles in Family Activities
 Never Seldom Sometimes Fairly Regularly Regularly

34. Assume Active or Leadership Role in Spiritual Activities
 Never Seldom Sometimes Fairly Regularly Regularly
35. Obtain Regular Physical Exams (*Select Always if Yearly Exams are Maintained*)
 Never Seldom Sometimes Fairly Regularly Regularly
36. Involved in Community/Civic Activities Outside Of Workplace
 Never Seldom Sometimes Fairly Regularly Regularly
37. Actively Engage in Maintaining Long-Term Friendships
 Never Seldom Sometimes Fairly Regularly Regularly
38. Celebrate Others Successes
 Never Seldom Sometimes Fairly Regularly Regularly
39. Deep Sea or Fresh Water Fish
 Never Seldom Sometimes Fairly Regularly Regularly
40. Practice Meditation/Visualization
 Never Seldom Sometimes Fairly Regularly Regularly
41. Read for Pleasure
 Never Seldom Sometimes Fairly Regularly Regularly
42. Listen/Play Music and/or Sing
 Never Seldom Sometimes Fairly Regularly Regularly
43. Write for Pleasure
 Never Seldom Sometimes Fairly Regularly Regularly
44. Practice Yoga
 Never Seldom Sometimes Fairly Regularly Regularly
45. Draw, Paint, or Other Forms of Art/Craft
 Never Seldom Sometimes Fairly Regularly Regularly

46. Attend/Participate in Dance

Never Seldom Sometimes Fairly Regularly Regularly

47. Participate in Board Games, Cards, Puzzles

Never Seldom Sometimes Fairly Regularly Regularly

48. Attend Concerts, Plays, or Art Series

Never Seldom Sometimes Fairly Regularly Regularly

49. Travel (*Get Away*) for Leisure (*Select Regularly If Two or More Times per Year*)

Never Seldom Sometimes Fairly Regularly Regularly

50. Quiet Time at Home (*Such As Dinner or Movie and Popcorn*)

Never Seldom Sometimes Fairly Regularly Regularly

51. List Other Activities Practiced Regularly

Section Three General Information

Please respond to the following general statements by selection the appropriate response.

What is/are your favorite relaxation activity/activities?

Considering all activities that you engage in, how much opportunity do you have to relax?
The range is Never, Seldom, (few times per year), Sometimes (few times per month), Regularly (at least once a week), Always (daily).

Never Seldom Sometimes Regularly Always

In the past three months, how would you describe your overall balance of wellness practices including spiritual, physical, mental, and social practices?

Poor Fair Good Above Average Excellent

Overall, how would you rate your current level of stress as compared to one year ago?

Much Worse Worse About the Same Somewhat Improved Greatly Improved

Overall, how would you rate your current management of stress as compared to one year ago?

Much Worse Worse About the Same Somewhat Improved Greatly Improved

Gender: Male Female

What is your current age in years? *Drop down Box*

How many years have you been a community college president? *Drop down box*

Indicate ethnic origin by selecting the appropriate response.

White African American Hispanic Native American Asian Alaskan Other

Appendix D

Survey Instrument

Stress Levels and Wellness Practices Measurement for U.S. Radiologic Technology Program Directors

The *Stress Levels and Wellness Practices Measurement for U.S. Radiologic Technology Program Directors* examines the source and level of stress for program directors and identifies the wellness and relaxation practices that support the management of stress. The instrument is divided into three sections. Section one, containing four parts, pertains to the degree of stress attributed to occasionally occurring events related to the workplace or from day-to-day activities related to the workplace; to personal events and activities in one's life; and to the symptoms, feelings, or characteristics experienced from stress. Section Two contains variables related to wellness activities commonly practiced. Section Three contains general questions and demographic information. The total time for completing all sections is approximately 15 minutes. Thank you for completing the survey.

Strict anonymity and confidentiality will be upheld for this study. Only group data will be reported after it has been statistically analyzed to complete the findings of the study.

Section One:

Part 1 - Occasionally Occurring Workplace Activities

Occasionally occurring workplace activities are generally experienced one time per month or less (or not at all). Indicate the level of stress experienced from each of the following *activities* within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Loss of Key Faculty Member

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Personnel Negotiations

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Accreditation Process

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Nationwide School/Campus Violence

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Loss of Key Administrator

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Laying Off Staff or Faculty
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

7. Major Workplace Technological Changes
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

8. Annual Evaluations
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

9. Clinical Affiliate Contracts
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

10. Career Change
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

11. Retirement in College Workforce
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

12. Death of Work Associate
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

13. Please List Other Occasionally Occurring Workplace Activities Causing High Stress

Part Two - Frequently Occurring Workplace Activities

Frequently occurring workplace activities are generally experienced one or more times per week. Indicate the level of stress experienced from each of the following *activities* within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Multifaceted Work Demands
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

2. Balancing Work/Family
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

3. College Funding Issues
 Extreme Stress High Stress Moderate Stress Mild Stress No Stress

4. Internal Budget Decisions/Balancing the Budget

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

5. Interaction with Campus Administration

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

6. Accelerating Technology

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

7. Policy/Procedural Issues

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

8. Community Relations

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

9. Out-of-Town Meetings

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

10. Conflicts among Faculty or Staff

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

11. Retention Issues

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

12. Personnel Conflicts/Issues/Grievances

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

13. Traffic Delays/Driving

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

14. Enrollment Requirements/Issues

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

15. Inadequate Campus or Department Facilities

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

16. Accountability Issues

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Diversity Issues

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Workplace Ethical Challenges

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. Meeting Deadlines

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Inadequate Physical Department or Campus Maintenance

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. Interaction with Competing Radiography Programs

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. Inadequate Resources/Equipment

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Time Management

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Union Issues

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Tenure Issues

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. Please List Other Workplace Activities Causing Moderate to High Stress

Part Three - Personal or National Activities and Events

Personal activities or events are experienced outside the workplace. They include home, family, or national occurrences that affect our lives. Indicate how often you have experienced stress from the following activities or events within the past year by selecting the appropriate response. The selections range from extreme stress to no stress.

1. Personal Injury or Illness

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Relationship with Spouse/Significant Other

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Death of Family Member

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Death of Friend

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Failing Health of Family Member

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Children Issues/Responsibilities *No Child*

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Holidays

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Vacation

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Mortgage or Other loans

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Home Construction or Renovation

Extreme Stress	High Stress	Moderate Stress	Mild Stress	No Stress	<i>No Incident</i>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Home Maintenance

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

12. Financial Management

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

13. Personal Retirement Affairs

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

14. Stock Market Investments

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

15. Identity Theft/Security Concerns

Extreme Stress High Stress Moderate Stress Mild Stress No Stress

16. Current International Conflicts

Extreme Stress High Stress Moderate Stress Mild Stress No Stress *No Incident*

17. Please List Other Personal or National Activities Causing Moderate to High Stress

Part Four - Feelings, Characteristics, and Symptoms

Indicate how often you have experienced the following symptoms, characteristics, or feelings within the past year by selecting the appropriate response. Selections are Always (Weekly); Often (Monthly), Occasionally (Few Times Year); Rarely (Once in Year); to Never.

1. Rapid, Pounding Heartbeat

Always Often Occasionally Rarely Never

2. Neck or Back Pain

Always Often Occasionally Rarely Never

3. Sweaty Palms

Always Often Occasionally Rarely Never

4. Sense of Fulfillment

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Irritability

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Exhilarated

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Feelings of Hopelessness

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Impatience

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Alienation

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Sense of Achievement

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Upset Stomach

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Consuming Alcohol to Relieve Stress

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Smoking Cigarettes to Relieve Stress

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Powerlessness

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Under Eating

Always	Often	Occasionally	Rarely	Never
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Tendency to be Controlling

Always Often Occasionally Rarely Never

17. Mouth Dryness

Always Often Occasionally Rarely Never

18. Aggressiveness

Always Often Occasionally Rarely Never

19. Nervous Mannerisms

Always Often Occasionally Rarely Never

20. Headaches

Always Often Occasionally Rarely Never

21. Easily Fatigued

Always Often Occasionally Rarely Never

22. Depressed

Always Often Occasionally Rarely Never

23. Forgetfulness

Always Often Occasionally Rarely Never

24. Heartburn

Always Often Occasionally Rarely Never

25. Sense of Satisfaction

Always Often Occasionally Rarely Never

26. Negative Feelings

Always Often Occasionally Rarely Never

27. Overeating

Always Often Occasionally Rarely Never

28. Please List Other Frequently Occurring Indicators of Stress

Section Two

Section Two: Activities and Practices

Please respond to how often you engage in the following practices by selecting the appropriate response. The scale range is from never, seldom (*4-5 days per year*), sometimes (*4-5 days per month*), fairly regularly (*usually 1-2 days per week*), and regularly (*3+ days per week or as appropriately applies*).

1. Aerobic Activities (Such as Walking, Running, Hiking, Biking, Jogging, Aerobics) for at Least 30 Minutes Three Times per Week.

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. Practice Mental Revitalization through Decision Making, Research, Conferences, Etc.

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. Read Newspaper/Journals or Other Current Publications

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. Participate in Activities with Immediate Family

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

5. Complete Home Maintenance Activities for 30 Minutes or More

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

6. Read Spiritual Books and Materials

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

7. Generally Consume a Low-Fat Diet

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8. Drink at Least 8 Cups of Water Daily

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Never | Seldom | Sometimes | Fairly Regularly | Regularly |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. Avoid Eating Prepackaged and Convenience Foods

Never Seldom Sometimes Fairly Regularly Regularly

10. Use of Sun Block When Exposed To Sun

Never Seldom Sometimes Fairly Regularly Regularly

11. Use of Seatbelt When Traveling

Never Seldom Sometimes Fairly Regularly Regularly

12. Practice Spiritual Renewal Activities

Never Seldom Sometimes Fairly Regularly Regularly

13. Participate In Leisure Activities (Such As Golf) With Friends

Never Seldom Sometimes Fairly Regularly Regularly

14. Make Time for Visiting Others Such as Parents, or Elderly Relatives or Friends

Never Seldom Sometimes Fairly Regularly Regularly

15. Find Humor/Laugh

Never Seldom Sometimes Fairly Regularly Regularly

16. Get at Least 6 Hours of Sleep per Night

Never Seldom Sometimes Fairly Regularly Regularly

17. Volunteer/Help Others

Never Seldom Sometimes Fairly Regularly Regularly

18. Generally Consume Three Balanced Meals a Day

Never Seldom Sometimes Fairly Regularly Regularly

19. Participate in Sports Such as Canoeing, Kayaking, Skiing, and/or Rowing

Never Seldom Sometimes Fairly Regularly Regularly

20. Practice Weight Bearing Activities (Such as Free Weights, Machines, Push Ups)

Never Seldom Sometimes Fairly Regularly Regularly

21. Participate in Competitive Sports (Such as Tennis, Racquetball, Volleyball, Basketball)

Never Seldom Sometimes Fairly Regularly Regularly

22. Maintain Positive Outlook

Never Seldom Sometimes Fairly Regularly Regularly

23. Engage In Professional Development Activities as Appropriate

Never Seldom Sometimes Fairly Regularly Regularly

24. Engage in Thought Provoking Discussions

Never Seldom Sometimes Fairly Regularly Regularly

25. Maintain a High Self-Esteem

Never Seldom Sometimes Fairly Regularly Regularly

26. Find Beauty and Meaning in Nature or Surroundings

Never Seldom Sometimes Fairly Regularly Regularly

27. Set Priorities

Never Seldom Sometimes Fairly Regularly Regularly

28. Actively Listen to Others

Never Seldom Sometimes Fairly Regularly Regularly

29. Decisions Guided by Spiritual Beliefs

Never Seldom Sometimes Fairly Regularly Regularly

30. Experience Love and Joy

Never Seldom Sometimes Fairly Regularly Regularly

31. Preserve a Strong Support Network of Friends

Never Seldom Sometimes Fairly Regularly Regularly

32. Interpret Most Stressful Issues at Work Professionally Rather Than Personally

Never Seldom Sometimes Fairly Regularly Regularly

33. Assume Leadership Roles in Family Activities
 Never Seldom Sometimes Fairly Regularly Regularly
34. Assume Active or Leadership Role in Spiritual Activities
 Never Seldom Sometimes Fairly Regularly Regularly
35. Obtain Regular Physical Exams (*Select Always if Yearly Exams are Maintained*)
 Never Seldom Sometimes Fairly Regularly Regularly
36. Involved in Community/Civic Activities Outside Of Workplace
 Never Seldom Sometimes Fairly Regularly Regularly
37. Actively Engage in Maintaining Long-Term Friendships
 Never Seldom Sometimes Fairly Regularly Regularly
38. Celebrate Others Successes
 Never Seldom Sometimes Fairly Regularly Regularly
39. Deep Sea or Fresh Water Fish
 Never Seldom Sometimes Fairly Regularly Regularly
40. Practice Meditation/Visualization
 Never Seldom Sometimes Fairly Regularly Regularly
41. Read for Pleasure
 Never Seldom Sometimes Fairly Regularly Regularly
42. Listen/Play Music and/or Sing
 Never Seldom Sometimes Fairly Regularly Regularly
43. Write for Pleasure
 Never Seldom Sometimes Fairly Regularly Regularly
44. Practice Yoga
 Never Seldom Sometimes Fairly Regularly Regularly

45. Draw, Paint, or Other Forms of Art/Craft
 Never Seldom Sometimes Fairly Regularly Regularly
46. Attend/Participate in Dance
 Never Seldom Sometimes Fairly Regularly Regularly
47. Participate in Board Games, Cards, Puzzles
 Never Seldom Sometimes Fairly Regularly Regularly
48. Attend Concerts, Plays, or Art Series
 Never Seldom Sometimes Fairly Regularly Regularly
49. Travel (*Get Away*) for Leisure (*Select Regularly If Two or More Times per Year*)
 Never Seldom Sometimes Fairly Regularly Regularly
50. Quiet Time at Home (*Such As Dinner or Movie and Popcorn*)
 Never Seldom Sometimes Fairly Regularly Regularly
51. List Other Activities Practiced Regularly

Section Three: General Information

Please respond to the following general statements by selection the appropriate response.

1. What is/are your favorite relaxation activity/activities?

2. Considering all activities that you engage in, how much opportunity do you have to relax?
 The range is Never, Seldom, (few times per year), Sometimes (few times per month), Regularly (at least once a week), Always (daily).

- Never Seldom Sometimes Regularly Always

3. In the past three months, how would you describe your overall balance of wellness practices including spiritual, physical, mental, and social practices?

- Poor Fair Good Above Average Excellent

4. Overall, how would you rate your current level of stress as compared to one year ago?

Much Worse Worse About the Same Somewhat Improved Greatly Improved

5. Overall, how would you rate your current management of stress as compared to one year ago?

Much Worse Worse About the Same Somewhat Improved Greatly Improved

6. Gender:

Male Female

7. What is your current age in years?

8. How many years have you been a radiologic technology program director?

9. Indicate ethnic origin by selecting the appropriate response.

White African American Hispanic Native American Asian Alaskan Other

Appendix E

IRB Approval



East Tennessee State University

Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

IRB APPROVAL – Initial Exempt

December 12, 2012

Mr. Jesse Pennington
722 West Oak Dr.
Cookeville, TN 38501

RE: The Relationship of Stress Levels to Wellness Practices Among U.S. Radiologic Technology Program Directors

IRB#: c1112.28e
ORSPA#: ,

On **December 10, 2012**, an exempt approval was granted in accordance with 45 CFR 46.101(b) Category 2 46.101 (b) (2)). It is understood this project will be conducted in full accordance with all applicable sections of the IRB Policies. No continuing review is required. The exempt approval will be reported to the convened board on the next agenda.

x form new protocol submission; Survey; Contact Letters to Participants; CV; Bibliography

Projects involving Mountain States Health Alliance must also be approved by MSHA following IRB approval prior to initiating the study.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Proposed changes in approved research cannot be initiated without IRB review and approval. The only exception to this rule is that a change can be made prior to IRB approval when necessary to eliminate apparent immediate hazards to the research subjects [21 CFR 56.108 (a)(4)]. In such a case, the IRB must be promptly informed of the change following its implementation (within 10 working days) on Form 109 (www.etsu.edu/irb). The IRB will review the change to determine that it is consistent with ensuring the subject's continued welfare.

Sincerely,

Chris Ayres, Chair
ETSU Campus IRB
Cc:



Accredited Since December 2005

Appendix F

Initial Contact Letter to Participants

Dear Radiologic Technology Program Director:

RT Program directors currently working in JRCERT accredited programs across the U.S. are now being asked to participate in this national stress and wellness research study. *The Relationship between Stress Levels and Wellness Practices of U.S. Radiologic Technology Program Directors* will explore the complexities of occupational stress and wellness relationships of radiologic technology program directors. The challenges faced by radiologic technology program directors can be very positive and rewarding; however the demands of the position can also create anxiety, stress, and an unhealthy lifestyle. Strict anonymity and confidentiality will be upheld, only group data will be reported after it has been statistically analyzed to complete the findings of the study.

Participation in this research is voluntary but your input is greatly needed for this study. The procedure for those participating is to simply complete the survey. By completing the survey the participants are giving their consent to participate in the stress and wellness research. The electronic survey instrument can be accessed by simply clicking on the web link located in the box below. Please feel free to forward this letter to your personal e-mail account if for any reason you are uncomfortable with completing the survey at work. The results of this study will assist in the further development of seminar topics relevant to radiologic technology program directors in their continuation or pursuit of a healthier and less stressful lifestyle. You may also forward this letter to your personal e-mail account for completion. If you have questions please contact Jesse Pennington by telephone at (931) 239-9930 or by e-mail penningj@goldmail.etsu.edu

Sincerely,

Mr. Jesse D. Pennington, RT (R) (CT) (ARRT)
722 West Oak Drive
Cookeville, TN 38501

Appendix G

First Follow-Up Letter

Dear Radiologic Technology Program Director:

RT Program directors currently working in JRCERT accredited programs across the U.S. are still being asked to participate in this national stress and wellness research study. *The Relationship between Stress Levels and Wellness Practices of U.S. Radiologic Technology Program Directors* will explore the complexities of occupational stress and wellness relationships of radiologic technology program directors. Thank you if you have already completed the electronic survey, however if you have not yet taken the survey your participation is greatly needed for this study. Answering the multiple choice questions will only take a few minutes. The link to the electronic survey instrument is located in the box below.

The challenges faced by radiologic technology program directors can be very positive and rewarding; however the demands of the position can also create anxiety, stress, and an unhealthy lifestyle. Strict anonymity and confidentiality will be upheld, only group data will be reported after it has been statistically analyzed to complete the findings of the study.

Participation in this research is voluntary but your input is greatly needed for this study. The procedure for those participating is to simply complete the survey. By completing the survey the participants are giving their consent to participate in the stress and wellness research. The electronic survey instrument can be accessed by simply clicking on the web link located in the box below. Please feel free to forward this letter to your personal e-mail account if for any reason you are uncomfortable with completing the survey at work. The results of this study will assist in the further development of seminar topics relevant to radiologic technology program directors in their continuation or pursuit of a healthier and less stressful lifestyle. You may also forward this letter to your personal e-mail account for completion. If you have questions please contact Jesse Pennington by telephone at (931) 239-9930 or by e-mail penningj@goldmail.etsu.edu

Sincerely,

Mr. Jesse D. Pennington, RT (R) (CT) (ARRT)
722 West Oak Drive
Cookeville, TN 38501

Appendix H

Second Follow-Up Letter

Dear Radiologic Technology Program Director:

Requested previously, this is a second follow-up letter encouraging your participation as an RT program director in a national study. RT Program directors currently working in JRCERT accredited programs across the U.S. are still being asked to participate in this national stress and wellness research study. *The Relationship between Stress Levels and Wellness Practices of U.S. Radiologic Technology Program Directors* will explore the complexities of occupational stress and wellness relationships of radiologic technology program directors. Thank you if you have already completed the electronic survey, however if you have not yet taken the survey your participation is greatly needed for this study. Answering the multiple choice questions will only take a few minutes. The link to the electronic survey instrument is located in the box below.

I know your schedule is very busy however your participation is greatly needed for this study. The challenges faced by radiologic technology program directors can be very positive and rewarding; however the demands of the position can also create anxiety, stress, and an unhealthy lifestyle. Strict anonymity and confidentiality will be upheld, only group data will be reported after it has been statistically analyzed to complete the findings of the study.

Participation in this research is voluntary but your input is greatly needed for this study. The procedure for those participating is to simply complete the survey. By completing the survey the participants are giving their consent to participate in the stress and wellness research. The electronic survey instrument can be accessed by simply clicking on the web link located in the box below. Please feel free to forward this letter to your personal e-mail account if for any reason you are uncomfortable with completing the survey at work. The results of this study will assist in the further development of seminar topics relevant to radiologic technology program directors in their continuation or pursuit of a healthier and less stressful lifestyle. You may also forward this letter to your personal e-mail account for completion. If you have questions please contact Jesse Pennington by telephone at (931) 239-9930 or by e-mail penningj@goldmail.etsu.edu

Sincerely,

Jesse D. Pennington, RT (R) (CT) (ARRT)
722 West Oak Drive
Cookeville, TN 38501

Appendix I

Final Follow-Up Letter

Dear Radiologic Technology Program Director:

Requested previously, this is a final follow-up letter encouraging your participation as an RT program director in a national study. RT Program directors currently working in JRCERT accredited programs across the U.S. are still being asked to participate in this national stress and wellness research study. *The Relationship between Stress Levels and Wellness Practices of U.S. Radiologic Technology Program Directors* will explore the complexities of occupational stress and wellness relationships of radiologic technology program directors. Thank you if you have already completed the electronic survey, however if you have not yet taken the survey your participation is greatly needed for this study. Compilation of the results will soon be underway and your input is greatly needed. Answering the multiple choice questions will only take a few minutes. The link to the electronic survey instrument is located in the box below.

I know your schedule is very busy however your participation is greatly needed for this study. The challenges faced by radiologic technology program directors can be very positive and rewarding; however the demands of the position can also create anxiety, stress, and an unhealthy lifestyle. Strict anonymity and confidentiality will be upheld, only group data will be reported after it has been statistically analyzed to complete the findings of the study.

Participation in this research is voluntary but your input is greatly needed for this study. The procedure for those participating is to simply complete the survey. By completing the survey the participants are giving their consent to participate in the stress and wellness research. The electronic survey instrument can be accessed by simply clicking on the web link located in the box below. Please feel free to forward this letter to your personal e-mail account if for any reason you are uncomfortable with completing the survey at work. The results of this study will assist in the further development of seminar topics relevant to radiologic technology program directors in their continuation or pursuit of a healthier and less stressful lifestyle. You may also forward this letter to your personal e-mail account for completion. If you have questions please contact Jesse Pennington by telephone at (931) 239-9930 or by e-mail penningj@goldmail.etsu.edu

Sincerely,

Jesse D. Pennington, RT (R) (CT) (ARRT)
722 West Oak Drive
Cookeville, TN 38501

Appendix J

Stress Sources of U.S. Radiologic Technology Program Directors

Stress sources are ranked in descending order.

Stress Variable	n	Missing	Mean	SD
Accreditation Process	424	0	3.52	1.295
Multifaceted Work Demands	419	5	3.32	0.995
Balancing Work/Family	419	5	2.99	1.04
Personnel Negotiations	424	0	2.83	1.088
Time Management	419	5	2.8	1.213
Meeting Deadlines	419	5	2.76	1.049
College Funding Issues	419	5	2.7	1.195
Policy/Procedural Issues	419	5	2.69	1.002
Internal Budget Decisions/Balancing the Budget	419	5	2.68	1.022
Clinical Affiliate Contracts	424	0	2.63	1.175
Major Workplace Technological Changes	424	0	2.58	1.084
Retention Issues	419	5	2.53	1.152
Accelerating Technology	419	5	2.52	1.024
Accountability Issues	419	5	2.52	1.122
Conflicts among Faculty or Staff	419	5	2.51	1.219
Personnel Conflicts/Issues/Grievances	419	5	2.49	1.199
Financial Management	417	7	2.47	1.105
Interaction with Campus Administration	419	5	2.45	1.1
Annual Evaluations	424	0	2.44	1.007
Enrollment Requirements/Issues	419	5	2.34	1.279
Loss of Key Faculty Member	424	0	2.32	1.941
Personal Retirement Affairs	417	7	2.31	1.124
Failing Health of Family Member	417	7	2.2	1.684
Nationwide School/Campus Violence	424	0	2.11	1.019
Children Issues/Responsibilities	417	7	2.08	1.52

Stress Sources of U.S. Radiologic Technology Program Directors... Continued

Holidays	417	7	2.01	1.012
Stock Market Investments	417	7	2.01	1.042
Traffic Delays/Driving	419	5	1.99	1.037
Community Relations	419	5	1.96	0.892
Loss of Key Administrator	424	0	1.95	1.66
Inadequate Resources/Equipment	419	5	1.9	1.392
Mortgage or Other loans	417	7	1.87	1.408
Out-of-Town Meetings	419	5	1.83	0.947
Inadequate Campus or Department Facilities	419	5	1.82	1.425
Home Maintenance	417	7	1.81	1.208
Interaction with Competing Radiography Programs	419	5	1.8	1.323
Identity Theft/Security Concerns	417	7	1.77	0.905
Laying Off Staff or Faculty	424	0	1.73	1.992
Career Change	424	0	1.72	1.896
Vacation	417	7	1.68	0.844
Personal Injury or Illness	417	7	1.64	1.508
Inadequate Physical Department or Campus Maintenance	419	5	1.56	1.31
Relationship with Spouse/Significant Other	417	7	1.52	1.376
Current International Conflicts	417	7	1.49	1.279
Workplace Ethical Challenges	419	5	1.44	1.269
Death of Work Associate	424	0	1.31	1.855
Death of Family Member	417	7	1.31	1.825
Retirement in College Workforce	424	0	1.27	1.508
Diversity Issues	419	5	1.11	1.112
Death of a Friend	417	7	1.11	1.617
Home Construction or Renovation	417	7	1	1.325
Tenure Issues	419	5	0.53	1.049
Union Issues	419	5	0.51	1.038

Appendix K

Occasionally Occurring Workplace Activities Causing High Stress

Self-reported occasionally occurring workplace activities causing high stress are listed by administration, student, faculty, fiscal, accreditation, clinical affiliates, teaching, time management, personnel, facility, and other concerns.

Administration Concerns:

- Complete change in institutional assessment practices.
- Re-distribution of clerical support staff.
- Administration cutting full faculty hours during summer semester, without due notice. The notification was given on the day classes began. Faculty had never been cut in 23 years; this placed severe stress on all parties considering the only full time faculty is the program director and clinical coordinator. One faculty member was cut to half time and this placed a strain on the working relationship.
- Changing administrative expectations.
- Demands on program directors, more classroom time expected with additional duties to the college and PD position.
- Union and reorganization negotiations.
- Lost a faculty 12 month contract - replaced with 10.5 month. They are no longer hiring 12 month contracts individuals.
- Requirements to serve in multiple college committees.
- Lots of pressure to keep retention high creates too much hand holding of the students, their personal responsibility drops.
- Unsupportive administration.
- Assuming new responsibilities in an already overloaded position.
- Administration demands-meetings and committees.
- Administration.
- Administration.
- College meetings where content conflicts with accreditor views.
- Expectations of administration to do more with less.
- Job duties expanded to take on additional workloads from other non-academic areas such as Student Services advising.
- Lack of administrative financial support.
- Low pay rate for faculty.
- Several years ago, I had a Dean that I constantly had conflicts with. She was the nursing director as well, and associated radiology accreditation and assessment with that of the nursing dept. Well, they are different in many ways but she could never get this concept through her head and she caused many a sleepless night for me because of her blatant stupidity.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

- Administrative work due to no administrative assistant. Expecting program directors to teach full loads while being responsible for administrative assistant duties. No orientation to workplace routine.
- Inconsistent leadership within institution.
- Feeling that institution doesn't support program, threat of program closing.
- Program closing, must find new employment.
- Loss of control of course requirements/grading scale and methods.
- How much we are responsible for and are required to do.
- Underhanded administration.
- Consistent projects that need to be completed for administration. i.e., master plan of education for college, etc.
- Changes to annual contract. Going from 12 month to 10 month with the expectation of completing same amount of work with less salary.
- Constant data collection pertaining to accountability with college.
- Administrations that do not support the program.
- New campus wide evaluation system.
- Appeal process of student's dismissal.
- Increased counseling duties that disrupt administrative duties of program.
- New college president, vice-president, and dean; repetition in being asked to do the same task over and over again; micromanagement.
- Additional demands of committees/college activities.
- Change in leadership/boss Very high stress.
- Meetings and committee assignments.
- Constant reports through university assessment department.
- The college of health science administration.
- Campus committees.
- Meetings.
- Planning and reporting each spring on faculty professional plans and accomplishments (full 3/4-1 inch of documentation) submitted to dean.
- Threats to close the program.
- Forced changes to the RT curriculum; no control over the admissions process.
- Lack of support from college administration.
- Office visit from dean; don't trust her.
- We are on our second interim chancellor. Relations with her are tenuous.
- Facing administrative restructuring.
- Inconsistent administration (College Pres).
- College Committee work.
- Impending changes that will affect faculty in the future.
- Meeting deadlines and demands of administration.
- Workplace support.
- Administration not understanding education.
- Salaried employee having to work 50 plus hours weekly; no support from administration.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

- Institutional Driven Program Review.
- Administrators who do not understand how JRCERT accreditation standards affect how we run our program.
- College required committee work.
- Workload evaluations.
- Pressure for scholarship outcomes, mainly research and grant funding.
- Unequal treatment among faculty within and across divisions.
- Lack of administration support and lack of administration willing to listen to concerns.

Student Concerns:

- Student entitlement attitude.
- Death of student.
- Students with personal problems that impact on their success in program.
- Managing Student inappropriate action or behavior at clinical sites.
- Disciplinary actions with students.
- Student discipline (possible dismissal from program).
- Student issues.
- Student issues involving course failure and student refusal to accept the situation.
- Student issues involving student not accepted into the program and refusal to accept.
- Student disciplinary issues.
- Student entitlement not willing to take enough ownership in learning process.
- Fear of students not finding job.
- Students who enroll into the program who are not passionate about the RT profession.
- This generation of students is not a very motivated one.
- Trying to make sure students have fair and equitable clinical sites.
- Student evaluations on me and faculty.
- Student issues.
- Challenging students.
- Student conduct (professionalism) issues.
- Low enrollment college wide.
- Program attrition.
- Students dropping out of program due to financial issues.
- Student discipline issues.
- Student issues.
- Student issues.
- Helping students deal with personal situations that adversely affect academic/clinical performance.
- Student Issues.
- Student issues.
- Attitudes and actions of students.
- Death of a student.
- Academic failure of a student.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

- Student issues and demands.
- Student issues such as a student with disabilities demanding extraordinary accommodations of all faculty.
- Unstable students threatening behaviors.
- Complacency regarding standards.
- Lack of cooperation and students complaining about everything and yet nothing at all.
- Student selection.
- Overload of advisee's per faculty member with most of those in the nursing program.
- Discipline of student.
- Dismissal of a student.
- Major disciplinary action taken against a student.
- Releasing a student from the program.
- Recent shooting death of student.
- Students Incidents (e.g. behavioral problems, lack of adherence to policy, technical practice errors, etc. particularly in the clinical setting).
- Failing students.
- Loss of a student in the program through a tragic death.
- Student conflicts.
- Dealing with difficult students.
- Students who expect their program faculty to take care of their college administrative issues, or find and hand everything to them.
- Student retention rates.
- Student conflicts.
- Student incidents (performing exam on wrong patient, mismarking images, etc.)
- Students pressing the limits (dress code, denial, entitlement).
- Student issues.
- Termination of students not performing well.
- Student failures.
- Clinical incidents with students.
- Student academic dishonesty.
- Student issues affecting attendance and performance.
- Students with mental health issues.
- Student dismissals and appeals.
- Extreme student issues and law suits from disgruntled students.
- Student advisement/dismissal.

Faculty Concerns:

- Faculty member temporarily on FMLA requiring overload.
- Short-term adjunct faculty.
- Faculty members not performing as expected.
- Grade inflation of pre-requisite courses.
- Faculty member on medical leave.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress...Continued

- Faculty and staff major illness.
- Low pay rate for faculty.
- Faculty absence due to medical leave.
- Discord between faculty.
- Complacency regarding standards.
- Responsible for ALL faculty evaluations.
- Faculty.
- Working with faculty to plan and accomplish their annual goals.
- Scheduling of available adjuncts to teach courses.
- Discipline of faculty.
- Illness of a faculty member.
- ****Office politics.
- Recurring issues with RT faculty assistant. We simply cannot find a person that is a good fit.
- Faculty load.
- Needing to “write up” a staff member for any reason.
- Prolonged illness or leave of absence of program faculty, causing workload shifts.
- Illness of program faculty.

Fiscal or Budget Concerns:

- Budget reductions.
- Program budget discussions.
- Budget constraints.
- Lack of administrative financial support.
- Low pay rate for faculty.
- Budget cuts.
- Lack of adequate resources.
- Not having the enough clerical staff or college staff.
- Layoffs within the radiology department throughout the organization has caused everyone stress, tension, and concerns about job security.
- Budgetary issues.
- Program closing, must find new employment.
- Falling number of job openings for graduates and lack of applicants to program.
- Changes to annual contract. Going from 12 month to 10 month with the expectation of completing same amount of work with less salary.
- Having to “budget” to get items necessary for educating students --- energized labs etc...
- Managing budgets.
- 7% pay-cut, retroactive to July 2012.
- Converted from biweekly to monthly pay date.
- Working second job on Saturday/Sunday as CT Tech due to pay cut.
- Current economical uncertainty of work force needs. Don’t anticipate any changes in the near future until there is a change in leadership in the White House.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

Accreditation Concerns:

- Annual reporting of job placement, program completion- poor percentages.
- SACS.
- Program review.
- ARRT requirement that beginning in 2015 applicants for credentialing exam must have minimum of AS degree. We are a certificate program and dealing with that issue is the major stress factor in my career right now.
- College meetings where content conflicts with accreditor views.
- Articulation with university.
- Multiple external agency influence of program .
- State requirements; curriculum requirements; SACS; and JRCERT trying to do all three and teach!
- Constant data collection pertaining to accountability with accrediting agencies.
- College wide issues and accreditation provides more stress than the radiology program.
- State and national paperwork submission.
- State regulatory compliance.
- Institution has a “show cause” accreditation status.
- Constant changes to accreditation or certification standards etc. As soon as you feel you have figured it out something changes. Differences of opinions from accreditation staff. What pleases one is an issue for another.
- High volume of applicants for limited openings/poor employment post-grade.
- Ongoing program assessment.

Clinical Affiliate Concerns:

- Clinical sites failing to follow standards.
- Trying to make sure students have fair and equitable clinical sites.
- Clinical Instructor's incidental lack of cooperation.
- Loss of a clinical site.
- Complacency regarding standards.
- Dealing with clinical affiliates attitudes toward students.
- Recruiting clinical affiliates.
- Competition with other programs.
- Attempted suicide of affiliation coworker.
- Having issues with a clinical site. Clinical instructor comparing programs with a shared site.
- Student - clinical technologist relationships.
- Clinical incidents with students.
- Increased clinical education site requirements.

Teaching Concerns:

- Taking on new/additional courses.
- Teaching load.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

- Any changes related to education.
- Grade inflation of pre-requisite courses.
- Loss of control of course requirements/grading scale and methods.
- Course load.
- Teaching 9 hours per semester.
- Classroom visits.
- Changes in curriculum from quarter system to semester system.
- Curriculum Updates.
- Increased class sizes.

Time Management Concerns:

- Lack of office time.
- Workload.
- Too much to do.
- 15-18 hrs per day.
- Juggling all of the PD responsibilities without sufficient time to deal with it all.
- Overload of reports due at the same time.
- Students who are always breaking the rules take up huge amounts of time.
- Increased counseling duties that disrupt administrative duties of program.
- End of semester activities--didactic and clinical grades and evaluations, graduation time crunch.
- Amount of work that needs to be completed by deadline.
- I am in a hospital based program, where the school parts are done by myself and or clinical coordinator. We do everything.

Personnel Concerns:

- Interpersonal relationships not working well.
- Staff member performance issues.
- Personnel you have to work with on a daily basis. No one wants to work anymore, but rather collect a paycheck with the least amount of effort possible.
- Loss of secretarial help. High Stress.
- Change in secretarial staff.

Facility or Laboratory Concerns:

- Moving to a new building with no help.
- Renovation within our building causing moderate stress to our faculty and students.
- Relocation to a new campus.
- Lab equipment repair and up-keep.
- Lab renovations.

Other Concerns:

- Typical stress associated with PD decision making.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress...Continued

- Fear of losing job.
- Surveys.
- My main stress comes from the corporate level's lack of support, not showing interest in our campus' point of view.
- Serving on hiring committees for new institution personnel.
- Having to go through channels to get things done.
- Husband had cancer...chemo & radiation...he could not work for 6mos. I kept working...very hard transferred the program to the local community college...everything takes forever...problems with who will pay for everything...still operate program from hospital. I am losing retirement \$ b/c I am not old enough after 39 yrs of service to get full-retirement! Will have to work 11 more yrs to recover some of the \$. Part-time instructor not hired by college. Working short according to the college...Now a person short...3 person program too. Since I am not employed yet at the community college my boss at the college says that is the health systems issue not the college stress of changing everything! Curriculum & college rules...the college has rules but does not enforce them. Can't interview or really be involved in the selection process. It is strictly academics. Had a student admitted to the program that never began clinical b/c the academics was too time-consuming...she had a chronic medical condition & knew about it long before the program.
- Assessment.
- Personal loss.
- Curriculum changes.
- Scheduling classes.
- Recruiting.
- Multiple programs to oversee.
- Policy enforcer.
- Scholarly activity.
- Earning a graduate level degree.
- Too damn much change!
- Consolidation or mergers of colleges who both have RAD Tech program.
- College Committee work.
- Workers being undependable.
- Excessive silly meetings.
- Serve as financial aid administrator as well as program director to a radiologic technology program and that aspect of financial aid I would categorize as "high stress".
- Lack of collegiate communication.
- Admission criteria changes for degree requirement.
- Maintaining currency with imaging technology to reflect clinical practices.
- Internal program evaluations.
- Changing from certificate to associate degree.
- Waiting for Registry Scores.
- Staff family members enrolled in program.

Self-Reported Occasionally Occurring Workplace Activities Causing High Stress... Continued

- New Registry guidelines.
- Increased workloads.
- Interruptions in work schedule (i.e. unscheduled meetings, student issues, clinical site issues).

Appendix L

Frequently Occurring Workplace Activities Causing Moderate to High Stress

Self reported frequent occurring workplace activities causing stress listed by administration, faculty, personnel, student, time management, fiscal or budget, and other concerns.

Administration Concerns:

- Administration's unending demands.
- Release time as compared to other colleagues.
- Lack of trust in your administration.
- Institutional meetings.
- Unfair allocations of resources.
- Mandatory service such as evening dean rotations.
- Committee/council loads - I have 6 presently.
- Pressure to attend conferences/workshops with great budgetary restrictions.
- Mandatory open house.
- Mandatory hospital professional development involvement.
- Outside the program (college) required demands.

Faculty, Personnel, and Student Concerns:

- The endless conflicts among program faculty make me want to quit.
- Lack of Employees.
- Poor work ethic of support personnel (e.g. secretary, lab assistant).
- Not enough qualified applicants to make full class.
- I kept working students threatening legal action program transferred from hospital to community college community college slow with requests everything changed.
- Extra work with 1/2 person short last semester & now we are a person short (3 person program)...been trying to hire someone since June.

Time Management Concerns:

- Lack of office time.
- Lack of time for clinical visits.
- Administration piles on too many meetings and there is just not enough time to be the PD and teach like is needed.
- Too much to do in a work week, it's an ongoing issue here!
- Balancing teaching load with administrative load.

Fiscal or Budget Concerns:

- Summer layoffs.
- Lack of equipment.

Self-Reported Frequently Occurring Workplace Activities Causing Moderate to High Stress...

Continued

Other Concerns:

- Ethics versus maturity.
- Meetings versus job.
- Attendance (4/yr).
- Weather conditions in a rural setting. Some of my students drive 4 hours for class. I have to cancel and rearrange assignments and face time coursework.
- We are undergoing a major renovation project and will have to vacate our lab for the summer semester---taking our classes off campus.
- Decreased job demand while held to JRCERT standard.
- Again, the ARRT requirement beginning in 2015 is my greatest stressor.
- Responsibility with clinical affiliates.
- Implementing Union contract issues when hiring part time faculty... we cannot hire the best because of the union's implementation of rules allowing mediocrity to prevail.
- Husband had cancer...was out of work for 6mos.
- We are a hospital based program and the associate degree requirement is very stressful. Will see how our much our applicant pool will shrink this year due to our entrance requirement changes.

Appendix M

Personal or National Activities and Events Causing Moderate to High Stress

Self-reported regularly occurring personal and or national activities causing moderate to high stress are listed by, national, family member, career, personal, and home concerns.

National Concerns:

- Re-election of President Obama.
- Taxes.
- Son in military in Afghanistan
- Our national government and the elected official's inability to accomplish things that obviously need to be accomplished is very stressful. The funding cuts in healthcare organizations are constant, and results in lots of stress. Whose job is safe?????
- Listening to other colleagues discuss national activities is extremely stressful to me!!! I don't care to hear their opinions!!!
- The re-election of Obama and his healthcare bill, extreme stress.
- National healthcare issues, will Social Security and Medicare exist when I reach the appropriate age???
- I worry more about the debt of the nation (16 TRILLION DOLLARS AND RISING), what will this do to everyone's financial security and retirement?
- Terrible direction in which this country is headed; federal government shredding the Constitution; terrorist activities not being responded to.
- The presidential election of 2012; but the outcome is even more STRESSFULL!!!!!!!!!!!!!!!
- Politics.
- Financial management of our country.
- Politics and national debt.

Family Member Concerns:

- Maintaining household of family member in addition to own household.
- Poor relationship with in-laws.
- Concern for grandchildren.
- Child may be moving home with her child.
- Children's problems/ issues.

Career Concerns:

- Balancing time spent between volunteering with outside organizations and home life.
- A pay-cut, along with our conversion to a monthly paycheck, has greatly impacted my relationship w/money.
- Massive student loan debt from earning a master's degree to be in the position of program director, with not enough compensation.
- Recession is still active here; job hiring freezes; not replacing open positions, etc...
- Professional association officer duties.

Self-Reported Personal or National Activities and Events Causing Moderate to High Stress...

Continued

Personal Concerns:

- Twice my identity has been stolen this past year!!
- Pet.

Home Concerns:

- Neighbor's house was robbed next door has heightened my awareness of security in my neighborhood---another stressor.

Appendix N

Feelings, Characteristics, and Symptoms

	N		Mean	Std	Range
	Valid	Missing			
Sense of Fulfillment	414	10	3.84	0.843	4
Sense of Satisfaction	414	10	3.84	0.865	4
Sense of Achievement	414	10	3.81	0.822	4
Neck or Back Pain	414	10	3.54	1.142	4
Irritability	414	10	3.46	0.819	4
Impatience	414	10	3.45	0.883	4
Exhilarated	414	10	3.29	0.83	4
Easily Fatigued	414	10	3.28	1.185	4
Forgetfulness	414	10	3.16	1.013	4
Overeating	414	10	3.09	1.226	4
Headaches	414	10	3.02	1.087	4
Negative Feelings	414	10	2.95	0.942	4
Tendency to be Controlling	414	10	2.91	1.121	4
Upset Stomach	414	10	2.64	1.093	4
Rapid, Pounding Heartbeat	414	10	2.54	1.099	4
Heartburn	414	10	2.52	1.252	4
Depressed	414	10	2.37	1.065	4
Powerlessness	414	10	2.31	1.081	4
Nervous Mannerisms	414	10	2.31	1.097	4
Feelings of Hopelessness	414	10	2.19	1.081	4
Alienation	414	10	2.16	1.035	4
Consuming Alcohol to Relieve Stress	414	10	2.13	1.344	4
Aggressiveness	414	10	2.11	0.951	4
Mouth Dryness	414	10	1.93	1.173	4
Sweaty Palms	414	10	1.86	0.983	4
Under Eating	414	10	1.6	0.974	4
Smoking Cigarettes to Relieve Stress	414	10	1.3	0.976	4

Appendix O

Frequently Occurring Feelings, Characteristics, and Symptoms of Stress

Self-reported frequent feelings, characteristics, and symptoms of stress are grouped together by mental or emotional symptoms and physical symptoms.

Mental or Emotional symptoms:

- Suicidal thoughts – occasionally; wanting to quit job – occasionally.
- In laws illness; rental property declining.
- Exercising and dieting. As I am getting older, I am trying to be more active and healthier. That is more stressful. Trying to fit in going to the gym.
- Emotional upheaval.

Physical Symptoms:

- Bruxism (grinding of the teeth and typically includes the clenching of the jaw).
- Extreme neck and shoulder pain and heart palpitations requiring medical attention has occurred within the past 2 years.
- Diarrhea.
- Twitching eye.
- Dizziness and diarrhea.
- Lip chewing.
- Muscle pain

Insomnia – 7

- Not sleeping well.
- Can't sleep, my mind is racing; sleep too much because the list of things to do is too long.
- Insomnia occurs often-weekly.
- Sleeplessness... ALWAYS.
- Some loss of sleep, dwelling on work issues.
- Inability to get to sleep or stay asleep, thinking of work.
- Insomnia

Appendix P

Wellness Practices of U.S. Radiologic Technology Program Directors

Wellness practices of U.S. radiologic technology program directors are ranked in descending order.

Wellness Variable	N	Missing	Mean	SD	Range
Use of Seatbelt When Traveling	409	15	4.89	0.554	4
Actively Listen to Others	409	15	4.47	0.671	3
Find Humor/Laugh	409	15	4.41	0.79	3
Get at Least 6 Hours of Sleep per Night	409	15	4.41	0.898	4
Set Priorities	409	15	4.39	0.713	3
Maintain Positive Outlook	409	15	4.37	0.747	3
Experience Love and Joy	409	15	4.37	0.885	4
Listen/Play Music and/or Sing	409	15	4.29	0.991	4
Find Beauty and Meaning in Nature or Surroundings	409	15	4.25	0.904	4
Obtain Regular Physical Exams	409	15	4.23	1.232	4
Maintain a High Self-Esteem	409	15	4.15	0.871	4
Assume Leadership Roles in Family Activities	409	15	4.14	0.959	4
Participate in Activities with Immediate Family	409	15	4.02	0.966	4
Interpret Most Stressful Issues at Work Professionally Rather Than Personally	409	15	4.02	0.949	4
Quiet Time at Home (Such As Dinner or Movie and Popcorn)	409	15	3.99	0.984	4
Preserve a Strong Support Network of Friends	409	15	3.91	1.107	4
Engage in Thought Provoking Discussions	409	15	3.79	0.908	4
Celebrate Others Successes	409	15	3.79	0.995	4
Actively Engage in Maintaining Long-Term Friendships	409	15	3.76	1.179	4
Generally Consume Three Balanced Meals a Day	409	15	3.74	1.277	5
Read Newspaper/Journals or Other Current Publications	409	15	3.72	1.057	4
Complete Home Maintenance Activities for 30 Minutes or More	409	15	3.62	1.067	4
Use of Sun Block When Exposed To Sun	409	15	3.59	1.391	4
Decisions Guided by Spiritual Beliefs	409	15	3.59	1.394	4
Generally Consume a Low-Fat Diet	409	15	3.56	1.149	4

Wellness Practices of U.S. Radiologic Technology Program Directors... Continued

Travel (Get Away) for Leisure (Select Regularly If Two or More Times per Year)	409	15	3.53	1.367	4
Read for Pleasure	409	15	3.44	1.356	4
Engage In Professional Development Activities as Appropriate	409	15	3.43	1.074	4
Aerobic Activities (Such as Walking, Running, Hiking, Biking, Jogging, Aerobics) for at least 30 min 3 Times per Week.	409	15	3.41	1.293	4
Avoid Eating Prepackaged and Convenience Foods	409	15	3.31	1.302	4
Drink at Least 8 Cups of Water Daily	409	15	3.23	1.381	4
Make Time for Visiting Others Such as Parents, or Elderly Relatives or Friends	409	15	3.23	0.964	4
Volunteer/Help Others	409	15	3.09	1.05	4
Practice Spiritual Renewal Activities	409	15	2.93	1.417	4
Participate In Leisure Activities (Such As Golf) With Friends	409	15	2.73	1.099	4
Read Spiritual Books and Materials	409	15	2.69	1.348	4
Practice Mental Revitalization through Decision Making, Research, Conferences, Etc.	409	15	2.65	1.13	4
Participate in Board Games, Cards, Puzzles	409	15	2.65	1.218	4
Involved in Community/Civic Activities Outside Of Workplace	409	15	2.57	1.109	4
Practice Weight Bearing Activities (Such as Free Weights, Machines, Push Ups)	409	15	2.52	1.425	4
Assume Active or Leadership Role in Spiritual Activities	409	15	2.43	1.343	4
Attend Concerts, Plays, or Art Series	409	15	2.13	0.737	4
Practice Meditation/Visualization	409	15	1.99	1.167	4
Participate in Sports Such as Canoeing, Kayaking, Skiing, and/or Rowing	409	15	1.83	1.079	4
Write for Pleasure	409	15	1.78	1.015	4
Draw, Paint, or Other Forms of Art/Craft	409	15	1.7	0.983	4
Attend/Participate in Dance	409	15	1.55	0.839	4
Deep Sea or Fresh Water Fish	409	15	1.46	0.854	4
Practice Yoga	409	15	1.39	0.862	4
Participate in Competitive Sports (Such as Tennis, Racquetball, Volleyball, Basketball)	409	15	1.38	0.761	4

Appendix Q

Difference by Gender in the Wellness Practices

Group Statistics

	S3 Q6: Gender	N	Mean	Std. Deviation	Std. Error Mean
S2 Q1: Aerobic Activities (Such as Walking, Running, Hiking, Biking, Jogging, Aerobics) for at Least 30 Minutes Three Times per Week.	Male	122	3.45	1.361	.123
	Female	284	3.39	1.260	.075
S2 Q2: Practice Mental Revitalization through Decision Making, Research, Conferences, Etc.	Male	122	2.56	1.053	.095
	Female	284	2.68	1.155	.069
S2 Q3: Read Newspaper/Journals or Other Current Publications	Male	122	3.79	1.046	.095
	Female	284	3.69	1.061	.063
S2 Q4: Participate in Activities with Immediate Family	Male	122	3.90	1.086	.098
	Female	284	4.07	.900	.053
S2 Q5: Complete Home Maintenance Activities for 30 Minutes or More	Male	122	3.31	1.021	.092
	Female	284	3.75	1.061	.063
S2 Q6: Read Spiritual Books and Materials	Male	122	2.51	1.427	.129
	Female	284	2.77	1.303	.077
S2 Q7: Generally Consume a Low-Fat Diet	Male	122	3.29	1.153	.104
	Female	284	3.67	1.127	.067
S2 Q8: Drink at Least 8 Cups of Water Daily	Male	122	3.05	1.354	.123
	Female	284	3.30	1.391	.083
S2 Q9: Avoid Eating Prepackaged and Convenience Foods	Male	122	3.25	1.257	.114
	Female	284	3.33	1.323	.078
S2 Q10: Use of Sun Block When Exposed To Sun	Male	122	3.19	1.479	.134
	Female	284	3.75	1.317	.078
S2 Q11: Use of Seatbelt When Traveling	Male	122	4.84	.647	.059
	Female	284	4.92	.511	.030
S2 Q12: Practice Spiritual Renewal Activities	Male	122	2.75	1.433	.130
	Female	284	3.00	1.403	.083
S2 Q13: Participate In Leisure Activities (Such As Golf) With Friends	Male	122	2.65	1.171	.106
	Female	284	2.75	1.062	.063
S2 Q14: Make Time for Visiting Others Such as Parents, or Elderly Relatives or Friends	Male	122	3.07	.942	.085
	Female	284	3.31	.963	.057
S2 Q15: Find Humor/Laugh	Male	122	4.33	.807	.073
	Female	284	4.43	.784	.046

Difference by Gender in the Wellness Practices... Continued

S2 Q16: Get at Least 6 Hours of Sleep per Night	Male	122	4.25	1.001	.091
	Female	284	4.47	.846	.050
S2 Q17: Volunteer/Help Others	Male	122	3.16	1.128	.102
	Female	284	3.05	1.015	.060
S2 Q18: Generally Consume Three Balanced Meals a Day	Male	122	3.77	1.211	.110
	Female	284	3.71	1.310	.078
S2 Q19: Participate in Sports Such as Canoeing, Kayaking, Skiing, and/or Rowing	Male	122	2.06	1.201	.109
	Female	284	1.73	.995	.059
S2 Q20: Practice Weight Bearing Activities (Such as Free Weights, Machines, Push Ups)	Male	122	2.57	1.437	.130
	Female	284	2.49	1.415	.084
S2 Q21: Participate in Competitive Sports (Such as Tennis, Racquetball, Volleyball, Basketball)	Male	122	1.51	.929	.084
	Female	284	1.33	.674	.040
S2 Q22: Maintain Positive Outlook	Male	122	4.21	.805	.073
	Female	284	4.43	.713	.042
S2 Q23: Engage In Professional Development Activities as Appropriate	Male	122	3.57	1.143	.103
	Female	284	3.37	1.041	.062
S2 Q24: Engage in Thought Provoking Discussions	Male	122	3.81	.939	.085
	Female	284	3.78	.896	.053
S2 Q25: Maintain a High Self-Esteem	Male	122	4.03	.979	.089
	Female	284	4.20	.818	.049
S2 Q26: Find Beauty and Meaning in Nature or Surroundings	Male	122	4.19	.921	.083
	Female	284	4.27	.899	.053
S2 Q27: Set Priorities	Male	122	4.18	.803	.073
	Female	284	4.48	.654	.039
S2 Q28: Actively Listen to Others	Male	122	4.45	.682	.062
	Female	284	4.47	.669	.040
S2 Q29: Decisions Guided by Spiritual Beliefs	Male	122	3.42	1.487	.135
	Female	284	3.67	1.344	.080
S2 Q30: Experience Love and Joy	Male	122	4.17	1.066	.096
	Female	284	4.45	.785	.047
S2 Q31: Preserve a Strong Support Network of Friends	Male	122	3.57	1.212	.110
	Female	284	4.05	1.030	.061
S2 Q32: Interpret Most Stressful Issues at Work Professionally Rather Than Personally	Male	122	3.91	.971	.088
	Female	284	4.07	.939	.056
S2 Q33: Assume Leadership Roles in Family Activities	Male	122	4.13	.995	.090
	Female	284	4.14	.947	.056

Difference by Gender in the Wellness Practices... Continued

S2 Q34: Assume Active or Leadership Role in Spiritual Activities	Male	122	2.46	1.397	.127
	Female	284	2.42	1.323	.078
S2 Q35: Obtain Regular Physical Exams (Select Always if Yearly Exams are Maintained)	Male	122	3.86	1.433	.130
	Female	284	4.39	1.105	.066
S2 Q36: Involved in Community/Civic Activities Outside Of Workplace	Male	122	2.52	1.137	.103
	Female	284	2.59	1.100	.065
S2 Q37: Actively Engage in Maintaining Long-Term Friendships	Male	122	3.60	1.238	.112
	Female	284	3.82	1.151	.068
S2 Q38: Celebrate Others Successes	Male	122	3.59	.969	.088
	Female	284	3.87	.995	.059
S2 Q39: Deep Sea or Fresh Water Fish	Male	122	1.63	.972	.088
	Female	284	1.38	.786	.047
S2 Q40: Practice Meditation/Visualization	Male	122	2.06	1.145	.104
	Female	284	1.95	1.167	.069
S2 Q41: Read for Pleasure	Male	122	3.16	1.460	.132
	Female	284	3.54	1.292	.077
S2 Q42: Listen/Play Music and/or Sing	Male	122	4.20	1.028	.093
	Female	284	4.34	.965	.057
S2 Q43: Write for Pleasure	Male	122	1.83	1.050	.095
	Female	284	1.76	1.001	.059
S2 Q44: Practice Yoga	Male	122	1.27	.772	.070
	Female	284	1.44	.893	.053
S2 Q45: Draw, Paint, or Other Forms of Art/Craft	Male	122	1.57	.936	.085
	Female	284	1.75	.983	.058
S2 Q46: Attend/Participate in Dance	Male	122	1.39	.698	.063
	Female	284	1.62	.888	.053
S2 Q47: Participate in Board Games, Cards, Puzzles	Male	122	2.34	1.140	.103
	Female	284	2.76	1.221	.072
S2 Q48: Attend Concerts, Plays, or Art Series	Male	122	2.20	.749	.068
	Female	284	2.10	.731	.043
S2 Q49: Travel (Get Away) for Leisure (Select Regularly If Two or More Times per Year)	Male	122	3.32	1.410	.128
	Female	284	3.62	1.341	.080
S2 Q50: Quiet Time at Home (Such As Dinner or Movie and Popcorn)	Male	122	3.89	1.006	.091
	Female	284	4.03	.974	.058

Independent Samples Test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. 2-tailed	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
S2 Q1: Aerobic Activities (Such as Walking, Running, Hiking, Biking, Jogging, Aerobics) for at Least 30 Minutes Three Times per Week.	Equal variances assumed	1.842	.175	.429	404	.668	.060	.140	-.215	.335
	Equal variances not assumed			.416	214.131	.678	.060	.144	-.224	.344
S2 Q2: Practice Mental Revitalization through Decision Making, Research, Conferences, Etc.	Equal variances assumed	3.385	.067	-1.032	404	.303	-.126	.122	-.365	.114
	Equal variances not assumed			-1.071	249.902	.285	-.126	.117	-.357	.105
S2 Q3: Read Newspaper/Journals or Other Current Publications	Equal variances assumed	.326	.569	.815	404	.415	.093	.114	-.132	.318
	Equal variances not assumed			.820	232.069	.413	.093	.114	-.131	.317
S2 Q4: Participate in Activities with Immediate Family	Equal variances assumed	7.820	.005	-1.658	404	.098	-.172	.104	-.377	.032
	Equal variances not assumed			-1.539	195.660	.125	-.172	.112	-.393	.048
S2 Q5: Complete Home Maintenance Activities for 30 Minutes or More	Equal variances assumed	.642	.423	-3.891	404	.000	-.442	.114	-.665	-.219
	Equal variances not assumed			-3.952	237.487	.000	-.442	.112	-.662	-.222

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

	Equal									
	variances	2.312	.129	-1.786	404	.075	-.259	.145	-.545	.026
S2 Q6: Read Spiritual	assumed									
Books and Materials	Equal									
	variances not			-1.723	211.591	.086	-.259	.151	-.556	.037
	assumed									
	Equal									
	variances	.103	.749	-3.082	404	.002	-.379	.123	-.620	-.137
S2 Q7: Generally	assumed									
Consume a Low-Fat	Equal									
Diet	variances not			-3.054	224.407	.003	-.379	.124	-.623	-.134
	assumed									
	Equal									
	variances	.858	.355	-1.674	404	.095	-.250	.149	-.544	.044
S2 Q8: Drink at Least 8	assumed									
Cups of Water Daily	Equal									
	variances not			-1.693	235.000	.092	-.250	.148	-.541	.041
	assumed									
	Equal									
	variances	1.392	.239	-.570	404	.569	-.080	.141	-.358	.197
S2 Q9: Avoid Eating	assumed									
Prepackaged and	Equal									
Convenience Foods	variances not			-.582	240.305	.561	-.080	.138	-.353	.192
	assumed									
	Equal									
	variances	5.918	.015	-3.817	404	.000	-.565	.148	-.856	-.274
S2 Q10: Use of Sun	assumed									
Block When Exposed	Equal									
To Sun	variances not			-3.644	207.177	.000	-.565	.155	-.871	-.259
	assumed									
	Equal									
	variances	6.133	.014	-1.321	404	.187	-.079	.060	-.198	.039
S2 Q11: Use of	assumed									
Seatbelt When	Equal									
Traveling	variances not			-1.203	188.716	.230	-.079	.066	-.210	.051
	assumed									

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q12: Practice Spiritual Renewal Activities	Equal variances assumed	.919	.338	-1.632	404	.104	-.249	.153	-.550	.051
	Equal variances not assumed			-1.618	224.793	.107	-.249	.154	-.553	.054
S2 Q13: Participate In Leisure Activities (Such As Golf) With Friends	Equal variances assumed	3.923	.048	-.864	404	.388	-.102	.119	-.336	.131
	Equal variances not assumed			-.831	210.441	.407	-.102	.123	-.346	.141
S2 Q14: Make Time for Visiting Others Such as Parents, or Elderly Relatives or Friends	Equal variances assumed	.778	.378	-2.325	404	.021	-.241	.104	-.444	-.037
	Equal variances not assumed			-2.345	233.733	.020	-.241	.103	-.443	-.038
S2 Q15: Find Humor/Laugh	Equal variances assumed	.777	.379	-1.229	404	.220	-.105	.086	-.274	.063
	Equal variances not assumed			-1.215	223.080	.226	-.105	.087	-.276	.065
S2 Q16: Get at Least 6 Hours of Sleep per Night	Equal variances assumed	7.004	.008	-2.246	404	.025	-.218	.097	-.408	-.027
	Equal variances not assumed			-2.102	198.815	.037	-.218	.104	-.422	-.013
S2 Q17: Volunteer/Help Others	Equal variances assumed	4.643	.032	.937	404	.350	.106	.114	-.117	.330
	Equal variances not assumed			.898	208.881	.370	.106	.119	-.127	.340

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q18: Generally Consume Three Balanced Meals a Day	Equal variances assumed	2.233	.136	.402	404	.688	.056	.139	-.217	.328
	Equal variances not assumed			.414	246.560	.679	.056	.134	-.209	.321
S2 Q19: Participate in Sports Such as Canoeing, Kayaking, Skiing, and/or Rowing	Equal variances assumed	2.327	.128	2.860	404	.004	.329	.115	.103	.554
	Equal variances not assumed			2.655	195.559	.009	.329	.124	.084	.573
S2 Q20: Practice Weight Bearing Activities (Such as Free Weights, Machines, Push Ups)	Equal variances assumed	.005	.942	.525	404	.600	.081	.154	-.222	.383
	Equal variances not assumed			.522	226.100	.602	.081	.155	-.224	.386
S2 Q21: Participate in Competitive Sports (Such as Tennis, Racquetball, Volleyball, Basketball)	Equal variances assumed	13.641	.000	2.198	404	.028	.181	.082	.019	.342
	Equal variances not assumed			1.940	177.973	.054	.181	.093	-.003	.365
S2 Q22: Maintain Positive Outlook	Equal variances assumed	.449	.503	-2.740	404	.006	-.220	.080	-.378	-.062
	Equal variances not assumed			-2.610	206.145	.010	-.220	.084	-.386	-.054
S2 Q23: Engage In Professional Development Activities as Appropriate	Equal variances assumed	4.047	.045	1.657	404	.098	.192	.116	-.036	.420
	Equal variances not assumed			1.596	211.121	.112	.192	.120	-.045	.430

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q24: Engage in Thought Provoking Discussions	Equal variances assumed	.005	.944	.339	404	.735	.033	.098	-.160	.227
	Equal variances not assumed			.332	219.738	.740	.033	.100	-.164	.231
S2 Q25: Maintain a High Self-Esteem	Equal variances assumed	.439	.508	-1.784	404	.075	-.168	.094	-.353	.017
	Equal variances not assumed			-1.662	197.036	.098	-.168	.101	-.367	.031
S2 Q26: Find Beauty and Meaning in Nature or Surroundings	Equal variances assumed	.406	.525	-.879	404	.380	-.086	.098	-.279	.107
	Equal variances not assumed			-.870	224.169	.385	-.086	.099	-.281	.109
S2 Q27: Set Priorities	Equal variances assumed	3.660	.056	-3.977	404	.000	-.302	.076	-.451	-.153
	Equal variances not assumed			-3.666	192.990	.000	-.302	.082	-.465	-.140
S2 Q28: Actively Listen to Others	Equal variances assumed	.018	.894	-.288	404	.773	-.021	.073	-.164	.122
	Equal variances not assumed			-.286	225.478	.775	-.021	.073	-.166	.124
S2 Q29: Decisions Guided by Spiritual Beliefs	Equal variances assumed	4.594	.033	-1.646	404	.100	-.247	.150	-.543	.048
	Equal variances not assumed			-1.581	209.743	.115	-.247	.157	-.556	.061

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q30: Experience Love and Joy	Equal variances assumed	12.512	.000	-2.966	404	.003	-.282	.095	-.469	-.095
	Equal variances not assumed			-2.633	179.824	.009	-.282	.107	-.493	-.071
S2 Q31: Preserve a Strong Support Network of Friends	Equal variances assumed	10.819	.001	-4.008	404	.000	-.472	.118	-.704	-.240
	Equal variances not assumed			-3.757	199.519	.000	-.472	.126	-.720	-.224
S2 Q32: Interpret Most Stressful Issues at Work Professionally Rather Than Personally	Equal variances assumed	.001	.972	-1.529	404	.127	-.157	.103	-.359	.045
	Equal variances not assumed			-1.509	222.546	.133	-.157	.104	-.362	.048
S2 Q33: Assume Leadership Roles in Family Activities	Equal variances assumed	.333	.564	-.059	404	.953	-.006	.104	-.211	.198
	Equal variances not assumed			-.058	219.149	.954	-.006	.106	-.215	.203
S2 Q34: Assume Active or Leadership Role in Spiritual Activities	Equal variances assumed	1.684	.195	.275	404	.784	.040	.146	-.246	.326
	Equal variances not assumed			.269	218.239	.788	.040	.149	-.253	.333
S2 Q35: Obtain Regular Physical Exams (Select Always if Yearly Exams are Maintained)	Equal variances assumed	31.390	.000	-4.065	404	.000	-.534	.131	-.792	-.276
	Equal variances not assumed			-3.670	185.545	.000	-.534	.145	-.821	-.247

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q36: Involved in Community/Civic Activities Outside Of Workplace	Equal variances assumed	.311	.577	-.625	404	.533	-.075	.120	-.312	.161
	Equal variances not assumed			-.616	222.513	.538	-.075	.122	-.315	.165
S2 Q37: Actively Engage in Maintaining Long-Term Friendships	Equal variances assumed	3.855	.050	-1.769	404	.078	-.226	.128	-.476	.025
	Equal variances not assumed			-1.719	215.010	.087	-.226	.131	-.484	.033
S2 Q38: Celebrate Others Successes	Equal variances assumed	.000	.993	-2.616	404	.009	-.280	.107	-.490	-.069
	Equal variances not assumed			-2.644	234.938	.009	-.280	.106	-.488	-.071
S2 Q39: Deep Sea or Fresh Water Fish	Equal variances assumed	12.306	.001	2.738	404	.006	.251	.092	.071	.431
	Equal variances not assumed			2.518	192.033	.013	.251	.100	.054	.447
S2 Q40: Practice Meditation/Visualization	Equal variances assumed	.537	.464	.849	404	.396	.107	.126	-.140	.354
	Equal variances not assumed			.856	233.224	.393	.107	.125	-.139	.352
S2 Q41: Read for Pleasure	Equal variances assumed	3.388	.066	-2.655	404	.008	-.387	.146	-.673	-.100
	Equal variances not assumed			-2.529	206.107	.012	-.387	.153	-.688	-.085

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q42: Listen/Play Music and/or Sing	Equal variances assumed	2.453	.118	-1.249	404	.212	-.133	.107	-.343	.076
	Equal variances not assumed			-1.218	216.670	.225	-.133	.109	-.348	.082
S2 Q43: Write for Pleasure	Equal variances assumed	.275	.600	.612	404	.541	.067	.110	-.149	.284
	Equal variances not assumed			.600	219.677	.549	.067	.112	-.154	.288
S2 Q44: Practice Yoga	Equal variances assumed	9.704	.002	-1.787	404	.075	-.166	.093	-.349	.017
	Equal variances not assumed			-1.894	263.107	.059	-.166	.088	-.339	.007
S2 Q45: Draw, Paint, or Other Forms of Art/Craft	Equal variances assumed	.270	.603	-1.758	404	.079	-.184	.105	-.391	.022
	Equal variances not assumed			-1.793	239.754	.074	-.184	.103	-.387	.018
S2 Q46: Attend/Participate in Dance	Equal variances assumed	12.607	.000	-2.593	404	.010	-.234	.090	-.412	-.057
	Equal variances not assumed			-2.851	288.180	.005	-.234	.082	-.396	-.073
S2 Q47: Participate in Board Games, Cards, Puzzles	Equal variances assumed	.969	.325	-3.276	404	.001	-.424	.130	-.679	-.170
	Equal variances not assumed			-3.367	244.247	.001	-.424	.126	-.673	-.176

Difference by Gender in the Wellness Practices: Independent Samples Test...Continued

S2 Q48: Attend Concerts, Plays, or Art Series	Equal variances assumed	1.352	.246	1.334	404	.183	.106	.080	-.050	.263
	Equal variances not assumed			1.321	224.244	.188	.106	.080	-.052	.265
S2 Q49: Travel (Get Away) for Leisure (Select Regularly If Two or More Times per Year)	Equal variances assumed	.934	.334	-2.011	404	.045	-.297	.147	-.586	-.007
	Equal variances not assumed			-1.971	219.212	.050	-.297	.150	-.593	.000
S2 Q50: Quiet Time at Home (Such As Dinner or Movie and Popcorn)	Equal variances assumed	1.431	.232	-1.375	404	.170	-.14644	.10651	-.35582	.06293
	Equal variances not assumed			-1.358	222.774	.176	-.14644	.10786	-.35901	.06612

Appendix R

Wellness Practices of U.S. Radiologic Technology Program Directors

Self-reported wellness practices are listed alphabetically. Identical responses are grouped together with the number of responses indicated.

- Babysit my grandchildren (2).
- Church activities.
- Church activities: serving, attending, Life Groups (5 couples) twice monthly.
- Cooking new recipes on weekends.
- Cooking: experimenting in the kitchen.
- Gardening and yard work.
- Gardening (3)
- Gardening: Roses and gardening is a pleasure worth pursuing. Regularly!
- Hiking: gives the benefits of aerobic exercise, being outdoors and the quietness of the woods and mountains. Exercise is the BEST stress reliever for me- I go to the gym at 6 am every weekday morning for cardio, strength or yoga. It's what keeps me sane in this sometimes crazy busy job.
- Indoor cycling instructor at local YMCA.
- Outdoor activities: camping, hiking, photographing wildlife and nature.
- Outdoors activities: Hunting to be alone in nature.
- Play with the dogs.
- Running races.
- Shopping.
- Sitting on the pier looking out at the bay (water)! Floating on the water on a float with a friend. Jet skiing.
- Soaking in the bath tub! Daily.
- Sudoku.
- Swimming - no cell phones in the pool! Very relaxing!
- Yard work, planting.
- Zoo

Appendix S

Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors

Self-reported favorite relaxation activities are listed alphabetically. Identical responses are grouped together with the number of responses indicated.

- Acting in plays.
- After my shower, and before eating breakfast, laying in my bed, low light, soft music, and relax, take slow deep breaths, and think nice thoughts.
- Alcoholic Beverage: Drinking, watching movies, playing computer games.
- Alcoholic Beverage: Having a beer or 4.
- Alcoholic Beverage: Having a glass of wine and reading.
- Alcoholic Beverage: Wine and roses
- Antiquing.
- Auctions.
- Baths: soaking in a long hot bath. (3)
- Beach (7)
- Beach trip or mountains.
- Beach: Sitting or laying on the beach. (2)
- Beach: Looking at the ocean or lakes.
- Beach: Walking on a beach.
- Being with loved one.
- Bicycling. (9)
- Bicycling: Indoor cycling.
- Boating on our lake, reading, talking with friends or spouse.
- Boating. (5)
- Bonsai.
- Books.
- Camping in our travel trailer, watching a view of the sky from our campfire.
- Camping. (8)
- Canoeing or Kayaking. (4)
- Car: Vantage car restorations.
- Cards: Playing cards/games with family and/or friends.
- Cards: Solitaire on smart phone.
- Children: Days at the park with son.
- Children: Playing with my children.
- Cleaning and organizing my home.
- Computer: Computer games. (2)
- Computer: Computing.
- Computing: Internet surfing. (4)
- Concerts: Attending concerts. (3)

Self-Reported Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Cooking and or baking. (14)
- Crafting. (3)
- Creating x-ray art.
- Creative activities.
- Crocheting. (2)
- Crossword puzzles. (2)
- Dancing. (4)
- Decorating or creating designs for events/party planning
- Decorating.
- Dog: Time petting, playing or walking dog(s). (15)
- Drive in the country, a four day weekend.
- Drive with family.
- Driving. (2)
- Eating Out: Dinning out. (3)
- Eating Out: Eating out with family and friends.
- Eating Out: Going out to a dinner and movie.
- Eating: Dinner with family and/or friends (2)
- Exercising: Exercising or working out at the gym: Weight lifting and cardio 3-5X per week.
- Exercising: Exercising or working out. (10)
- Exercising: Weight lifting or training. (3)
- Family and Friends: Spending time with family and friends. (5)
- Family: Spending any type of time with my immediate family...could be leisure or home chores.
- Family: Spending time with family around a campfire.
- Family: Spending time with family. (12)
- Family: Talking with my family members daily.
- Fishing: Deep sea fishing.
- Fishing: Fishing. (10)
- Fishing: Saltwater fishing.
- Flying Flight Simulator.
- Friends: Being with friends at a local bar.
- Friends: Hanging out or going out with friends. (5)
- Furniture making.
- Games.
- Games: Board games with family.
- Games: Games with son.
- Games: Jigsaw puzzles.
- Games: Playing brain games on I-phone.
- Games: Playing video games.

Self-Reported Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Games: Playing word games on my I-pad.
- Games: Solitaire on Smart phone.
- Gardening and yard work. (6)
- God: Bible reading, listening, or study. (3)
- God: Church activities such as singing in the choir.
- God: Praying. (2)
- God: Reading the Bible.
- God: Sitting alone and just thinking/ talking to God.
- Golfing. (15)
- Grandchildren: Activities or time with grandchildren, such as swimming or playing outside. (6)
- Grandson: Spending time playing with grandson. (2)
- Hiking. (12)
- Home repairs or remodeling. (2)
- Home: Being home outside in the yard.
- Home: Being home with husband and dog.
- Horseback riding. (3)
- Hot tub in the back yard
- Hunting. (5)
- Husband: Time alone with husband. (3)
- Jogging. (2)
- Kids: Playing outside with kids.
- Kids: Spending time with my kids.
- Knitting. (5)
- Ladder ball.
- Lake: Going to the lake with family or friends. (2)
- Massages. (4)
- Meaningful conversations.
- Meditation. (4)
- Model building.
- Motorcycle riding. (3)
- Movie Theater. (3)
- Movie Theater: Going to the movie theater and watching new release home videos.
- Movie Theater: Going to the Movie theater with family. (3)
- Movie Theater: Going to the movie theater. (2)
- Movies (31)
- Movies and shows.
- Movies on the weekends.
- Movies or TV watching.
- Movies watching - Non-violent ones.

Self-Reported Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Movies with family.
- Movies with hubby.
- Music. (6)
- Music: Listening to music - Jazz in particular.
- Music: Listening to music while I travel.
- Music: Listening to music while in the car.
- Music: Listening to music. (17)
- Music: Live music.
- Music: Playing in community band.
- Music: Playing music. (2)
- Music: Playing the piano.
- Ocean: Snorkeling, enjoying the ocean.
- Outdoors: Backpacking.
- Outdoors: Being on the lake in the sun.
- Outdoors: Being outside in the summer.
- Outdoors: Being outside.
- Outdoors: Outdoor games.
- Outdoors: Outdoors activities. (4)
- Outdoors: Sitting on my deck.
- Outdoors: Sitting outside and reflecting.
- Outdoors: Walking in the woods. (3)
- Outdoors: Walking outdoors.
- Outdoors: Working outside.
- Painting.
- Pets.
- Pets: Playing with my pets.
- Photography. (3)
- Pilates.
- Pool time.
- Pool: Sitting by a pool.
- Reading a book for leisure.
- Reading a good book on the couch in the winter or working in my flower gardens in the summer.
- Reading about my hobbies.
- Reading at the beach.
- Reading before bed.
- Reading for pleasure. (7)
- Reading Melody Beattie devotional books.
- Reading news.
- Reading novels.

Self-Reported Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Reading the newspaper and eating breakfast.
- Reading. (121)
- Relaxing around the house.
- Relaxing at home. (2)
- Relaxing in silence.
- Relaxing with my family. (2)
- Resting.
- Running. (8)
- Sailing. (2)
- Scrap booking. (3)
- Sewing. (3)
- Sewing: Needlecrafts.
- Sewing: Quilting.
- Sex.
- Shooting.
- Shopping for antiques.
- Shopping. (7)
- Singing karaoke with friends at a local bar.
- Singing.
- Sit & look outside.
- Sitting quietly.
- Skiing. (3)
- Sleeping. (4)
- Sleeping: Naps.
- Sleeping: Sleeping in the recliner.
- Spa days.
- Spa massage.
- Spending time alone. (2)
- Sports: Attending sporting events. (2)
- Sports: Attending to college football games.
- Sports: Baseball
- Sports: Coaching basketball.
- Sports: Coaching my children.
- Sports: Disc or Frisbee golf.
- Sports: Kung fu.
- Sports: Volleyball.
- Sports: Watching sports.
- Stained glass as a hobby.
- Sudoku and word jumble. (2)
- Swimming. (7)

Self-Reported Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Theater: Live Theater or plays.
- Traveling to see my children.
- Traveling. (15)
- TV watching after kids are asleep.
- TV watching game shows.
- TV watching Star Trek.
- TV watching the Young and the Restless
- TV watching Wednesday night prime time television for 2 hours.
- TV watching with my family or spouse. (2)
- TV watching. (31)
- Vacation: Going to bay house, sitting & looking out over the bay, floating on the water, fishing, on the boat, playing cards, dancing.
- Vacationing. (3)
- Video games. (2)
- Visiting family. (2)
- Visiting friends. (8)
- Visiting historic sites.
- Visiting with family or friends at a gathering.
- Visiting with my loved one.
- Walking while listening to Christian music.
- Walking with my husband and the dog 2 miles or more each day.
- Walking with spouse.
- Walking. (31)
- Walking: Long walks.
- Walking: Trail or nature walks. (2)
- Watching the birds and other animals.
- Wife and kids: Spending time with my wife and kids.
- Wife: Being with wife.
- Wife: Spending time with wife.
- Wood working.
- Writing. (3)
- Yoga. (8)
- Zumba.

Appendix T

Ranked Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors

Self-reported favorite relaxation activities with multiple responses are listed with similar categories grouped and ranked.

- Reading. (137)
- Movies and Plays (53)
- TV watching. (38)
- Walking. (37)
- Music. (31)
- Pets. (18)
- Traveling. (16)
- Family activities. (15)
- Golfing. (15)
- Cooking and or baking. (14)
- Exercising (23)
- Outdoors Activities. (14)
- Visiting family or friends. (13)
- Fishing: Fishing. (12)
- Hiking. (12)
- Sports activities: Watching, attending, participating, coaching. (12)
- Beach activities (11)
- Bicycling. (10)
- Camping. (9)
- Computer: Computing, games, or surfing.
- God: Faith activities. (8)
- Running. (8)
- Shopping. (8)
- Eating Out: Dinning out. (7)
- Relaxing or resting. (7)
- Swimming. (7)
- Boating. (6)
- Gardening and yard work. (6)
- Grandchildren: Activities or time with grandchildren, such as swimming or playing outside. (6)
- Time with spouse. (6)
- Family and Friends: Spending time with family and friends. (5)
- Friends: Hanging out or going out with friends. (5)
- Hunting. (5)
- Knitting. (5)
- Sewing. (5)

Ranked Favorite Relaxation Activities of U.S. Radiologic Technology Program Directors...

Continued

- Canoeing or Kayaking. (4)
- Dancing. (4)
- Driving. (4)
- Massages. (4)
- Meditation. (4)
- Sleeping. (4)
- Baths: soaking in a long hot bath. (3)
- Cards: Playing cards/games with family and/or friends. (3)
- Concerts: Attending concerts. (3)
- Crafting. (3)
- Horseback riding. (3)
- Husband: Time alone with husband. (3)
- Motorcycle riding. (3)
- Photography. (3)
- Pool Activities. (3)
- Scrap booking. (3)
- Skiing. (3)
- Vacationing. (4)
- Writing. (3)
- Crocheting. (2)
- Crossword puzzles. (2)
- Grandson: Spending time playing with grandson. (2)
- Home repairs or remodeling. (2)
- Jogging. (2)
- Lake: Going to the lake with family or friends. (2)
- Sailing. (2)
- Singing. (2)
- Sleeping. (2)
- Spa. (2)
- Spending time alone. (2)
- Sudoku and word jumble. (2)
- Video games. (2)

VITA

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ASRT Chairman, Resolutions and Bylaws Committee,
2011 - 2012
ASRT Chairman, CT Steering Committee, 2011-2012
ASRT Vice Chairman, CT Steering Committee, 2010-2011
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ASRT Grass-roots Network Committee, 2011-2012
ASRT Resolutions and Bylaws Committee, 2010- 2011
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ASRT Radiography Chapter Delegate (1st Alternate), 2009
- 2010
ASRT Leadership Academy for Educators, 2008
ASRT Scanner Design Focus Group, 2008

Tennessee Society of Radiologic Technologists (TSRT) 2006-
Present

TSRT Board of Directors, Secretary / Treasurer, 2010-2011
TSRT Board of Directors, Secretary / Treasurer, 2009-2010
TSRT Guest Speaker, Communication Illusions and
Principles for Health Professionals, 2010
TSRT Exhibit Chairman, Nashville Meeting, 2008
TSRT Sergeant at Arms, Nashville Meeting, 2008
TSRT Student Bowel Committee, 2006 - Present

Association of Educators in Imaging and Radiologic
Sciences (AEIRS) 2011

International Society of Radiographers & Radiologic
Technologists (ISRRT) Peer Review for World Congress,
2011

Honors Awards:

Phi Kappa Phi Honor Society, 2011

Morehead State University Presidential List, 1989

Morehead State University Leadership Award, 1989