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Exploring the Burnout Experience of Radiology Physician Executives Working in an Academic Medical Institution: A mixed methods approach

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**Exploring the Burnout Experience of Radiology Physician Executives Working in
an Academic Medical Institution: A mixed methods approach**

BY

Julie Chapman-Greene

Submitted in partial fulfillment of the requirements for the degree of Doctor of

Philosophy in Health Sciences

Seton Hall University

2017

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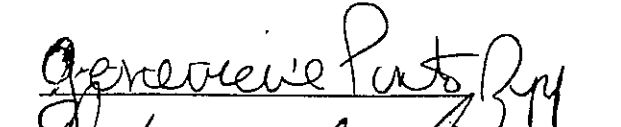
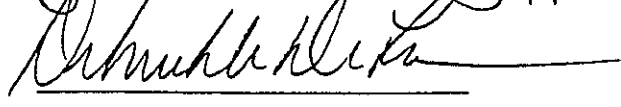
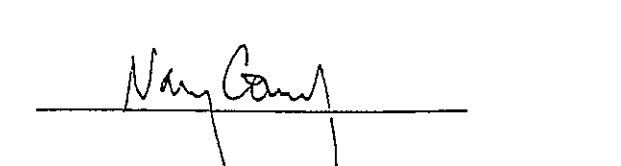
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Dissertation Dedication

I wish to dedicate my dissertation to the following persons who inspired me during my academic journey which culminated in a PHD degree.

To

Violet Lucina Chapman (Sat)

My late mother was my cheerleader who taught me that with a good education I could better my circumstance and improve the trajectory of my life for the benefit of my children and my children's children.

Leonora Pemberton (Grandma)

My late grandma taught me to pray and she took me to church to mold me in the scriptures at a very early age.

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ABSTRACT

Radiology Physician Executives (Radiology PEs) perform administrative duties and they have frequent and prolonged contact with patients, residents, fellows, faculty and staff. This study, using the Maslach Burnout Inventory Human Services Survey to measure burnout in a convenient sample of Radiology PEs working in accredited academic medical institutions, is the first one to evaluate burnout in this group. The purpose of this study was to explore the burnout experience of Radiology PEs by investigating their burnout rate, understanding their burnout experience and explore a theory on how Radiology PEs think about, perceive, experience and manage burnout. The study describes the development and use of a profile sheet to gather demographic data and information about the burnout experience Radiology PEs. Data collected from a web-based survey of a sample size of 141 Radiology PEs revealed that 2.13% (3) Radiology PEs had high burnout. The chi square test was used to examine years of experience and burnout. The regression model was used to predict the relationship between work factors and burnout and the Pearson correlation test was utilized to evaluate the relationship between administrative or family support and burnout. Each data set was not statically significant. The qualitative theme analysis found six emerging themes about the work environment and Radiology PEs' burnout. Findings indicated that the main reason for burnout is that Radiology PEs have too much to do; the main symptom of burnout was the negative effect of burnout on their emotional well-being. Radiology PEs' main burnout prevention strategy was reported to be maintaining regular activities. The personality type called "agreeableness" could have helped Radiology PEs' management of burnout. In addition, the study participants reported that old Radiology PEs and those who received support from colleagues and others at work were more

prepared to cope with factors that influence burnout. This study is the first step in developing a cohesive understanding of the burnout experience of Radiology PEs. The results are offered to help frame the direction of future research in the field and raise awareness of the need to improve Radiology PEs' work experience.

Keywords: Radiology Physician Executive, Burnout, Family Support, and Administrative Support

Chapter 1

INTRODUCTION

In the United States academic medical institutions are highly dynamic and complex organizations. Physicians in executive positions in academic medical centers are uniquely positioned to ensure that the organizations' mission and vision are accomplished. The physician executive's effectiveness is impacted by external factors that affect the healthcare industry as a whole. Two of the major external factors that influence physician executives' leadership are the state of the economy and legislative actions. The effects of the 2007-2009 economic downturn (Mao & Gu, 2007; Maeda, Henke, Marder, Karaca, Friedman & Wong, 2014) in the United States and the subsequent passing and implementation of the Affordable Care Act (Frean, Gruber & Sommers, 2016; Birk, 2016) are external factors that influenced how academic and non-academic health care institutions function.

The leadership of academic medical institutions is composed of physician executives serving at different levels in different capacities. Each group of physician executives such as deans, department chairs and program directors has a distinct job focus based on job title. Therefore, although all physician executives are trained medical doctors the duties and responsibilities of the physician executive are varied (Mirvis, Graney, Ingram & Tang, 2006). Deans are the leaders in academic medical institutions and are responsible for ensuring that the institution's academic and clinical vision, mission, and core values are fulfilled throughout the institution (Cooper, Stoflet & Wartman, 2003). On a departmental level, chairs are the leaders in their clinical departments with responsibility for the day-to-day operations of the department specific

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to the care of patients and to the education of residents/ fellows (Munro, 2006). Program directors, on the other hand, are principally responsible for the recruitment and training of residents and fellows within a specific board specialty in a clinical department.

Program directors' responsibility for the residents' training includes the supervision of all facets of residents' compensation, learning and discipline related to patient care (Marsh, Potts & Levine, 2014).

Physician executives are increasingly being recruited to leadership roles in healthcare. They occupy approximately 5% of hospital executive leadership positions and they are responsible for matters other than institutional matters besides patient care and residency or fellowship training (Harvin, Griffith & Weber, 2014). Physician executives' healthcare management responsibilities include making decisions related to cost management, faculty and staff management and compliance issues (Hariri, Prestipino, Harry & Rubash, 2007). Work environmental factors such as long work week, limited resources and poor, dilapidated environment sometimes adversely affect physician executives as they seek to fulfill their job duties (Maslach & Jackson, 1981). The demand for their time is occasionally extensive and rigorous. The demands of the job leave physician executives feeling burnt out and unable to carry out their job responsibilities effectively (Gabbe, Webb, Harrell, Spickard & Powell, 2008).

Some physician executives report that they feel burnt out as a result of the demands of their work. Maslach and Jackson (1981) describe burnout as a psychological problem characterized by feelings of chronic tiredness, being disconnected from one's work, and feeling dissatisfied with successes on the job. Understanding the burnout experience of deans, chairs and program directors may

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provide more insight into the scope and significance of physician executives' work in academic medical institutions. The burnout experience of physician executives may offer prevention strategies that may be utilized to alleviate burnout among other physician executives.

Burnout is difficult to define rigorously. While there are various definitions that classify burnout as feeling worn-out or tired (Farber, 2000), the etiology of the term as discussed by Maslach and Jackson (1981) defines burnout as a phenomenon comprised of three constructs: depersonalization, emotional exhaustion and reduced personal achievement. This definition of burnout as chronic stress, the loss of one's dignity, respect and will, is commonly used by social science researchers to describe and explain the burnout experience of physician executives. The burnout phenomenon as defined by Maslach and Jackson (1981) recognizes that personal factors, social conditions and the work environment can promote burnout and be impacted by burnout. To that end, they suggest that a reduction in the intensity and frequency of burnout is possible. Subsequent research by Glembiewski, Munzenrider and Stevenson (1985) also agree that burnout can be reduced. This group further suggested that burnout levels could range from an ideal level to an unacceptable level. A burnout rate ranging from 0% to 5% is ideal, while a burnout level between 5% and 10% is acceptable and a burnout level beyond 10% necessitates intervention (Glembiewski and coauthors (1985).

Several researchers have documented the level of burnout in the general population as well as in various groups of physicians. Shanafelt and coauthors (2012) reported that approximately thirty percent of the workforce experiences burnout.

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Moreover, health care professionals such as physicians (Goldberg, Boss, Chan, Goldberg, Mallon, Moradzadeh, Goodman & McConkie, 1996; Gunderson, 2001), and nurses (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004) also experience burnout. In fact, Shanafelt and coauthors (2012) found that 30% of physicians in the United States experience burnout. Indeed, burnout is also a problem for physician executives as well. Researchers report varying rates of burnout, ranging from zero percent in radiation oncology program chairs (Kusano, et al., 2014) to thirty-eight percent in orthopedic surgery chairs (Saleh et al., 2008).

The nature of burnout in the lives of physician executives has been studied in relation to the professional, personal and social facets of their lives. Mirvis, et al. (2006) suggest that burnout not only adversely impacts physician executives but it also influences their families and organization's efficacy. In a series of studies conducted on burnout on healthcare professionals, researchers concluded that there are physical and behavioral symptoms characteristic of burnout. The symptoms of burnout include: job turnover, absenteeism, low morale, sleeplessness, fatigue, drugs and alcohol use, spousal and family difficulties (Freudenberger, 1975; Pines & Maslach, 1978; Maslach & Jackson, 1981). Based on the known negative outcomes that are associated with physicians executives who experience burnout, a reduction in burned out among physician executives could benefit the organization, the individual physician, and the family. Information gained from researching burnout among physician executives may not only be vital to the organization but to the individual as well.

Research has also shown that the characteristics and dynamics of the work environmental factors influence burnout among physician executives. Mirvis, Graney,

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Ingram, & Tang (2006) reported that although physician executives duties and titles may vary, work environmental factors such as the demand of the job and inadequate resources adversely affect physician executives. The demands of their job leave them feeling burnt out and unable to carry out their job responsibilities (Gabbe, Webb, Harrell, Spickard & Powell, 2008). Keeping this discussion of burnout in mind, understanding the burnout experience of deans, chairs and program directors is very important given the scope and significance of their work in academic medical institutions. Knowledge of the burnout experience of physician executives could help to influence prevention strategies to alleviate burnout among physician executives.

Statement of the Problem

Research into the burnout experience of physician executives is a burgeoning field of interest in social science research although the concept of burnout has been investigated for decades (Freudenberger, 1975; Pines & Maslach, 1978; Maslach & Jackson, 1981). Additionally, the healthcare industry is experiencing an increase in physicians joining the leadership ranks of healthcare delivery systems such as academic medical institutions. The influx of physicians in leadership roles in healthcare is fascinating because increasingly physician executives are experiencing burnout, although the rates vary across the spectrum of physician executives working in healthcare. Researchers are interested in burnout because it is affecting institutions and the provisions of healthcare.

While the burnout rates for some physician executives specialties are well-documented in the literature, other research opportunities can be explored to expand

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upon what is known about physician executives' experience with burnout by examining Radiology PEs' experience with burnout.

Theoretical Perspectives

For decades, researchers studied burnout from the prospective of different social science theories. There are four theories related to work, individual characteristics and chronic stress in the workplace that may be used to attempt to understand and explain burnout. Job Demand-Resources (JD-R) model (Demerouti, et al., 2001), Conservation of Resources theory (COR) (Westman, Hobfoll, Chen, Davidson & Laski, 2005; Gorgievski & Hobfoll, 2008), Equity theory (Devereux, Hastings & Noone, 2009) and the Five-Factor Model (FFM) (Digman, 1990) are four different theories used here to examine and explain the burnout process. None of these theories completely explains the development of burnout although the theories emphasize different and, in some cases, overlapping influences on burnout. Together these four theories offer a fuller understanding of the development of burnout. Each of the above theories have been studied in relation to burnout, specifically aspects of burnout that are related to emotional exhaustion, depersonalization and reduced personal achievement.

While the COR theory has several elements that can be used to explain characteristics of the work environment and employee expectations it does not explain the role individual characteristics in the burnout process. COR theory clarifies the role of employee motivation and stress in the burnout process. For instance, the theory emphasizes the impact of stress on both the individual and the organization. The COR theory also suggests that the lack of social support is closely associated with burnout. For instance, according to one of the core principles of the COR theory stress on the job

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is produced when there is significant anticipated or actual loss of resources (Westman, et al., 2005). Examples of job resources are involvement in decision-making, salary, tools, skills, or equipment needed to complete the work. Employees become disengaged from their work and simultaneously focus more on the lost resource(s), or the reason for their stress than on their accomplishments on the job. Similarly, the JD-R theory rationalizes that burnout on the job happens when resources are limited and in turn limited resources create work conditions that drain and demoralize employees (Demerouti, et al., 2001). The drained and demoralized employees in turn are unable to perform their duties effectively. The JD-R theory also suggests that the heavy demands of the work environment compounded with limited job resources can cause employees to become disengaged. Taken as a whole, both theories help to explain how limited resources or the loss of resources can lead to chronic stress related to work thus both theories complement each other.

Another principle of the COR theory related to burnout on the job is comparable to the Equity theory. The second principle of COR theory contributes to the discussion of burnout on the job because it states that organization leaders need to invest in resources to safeguard the resources on hand, regain lost resources and acquire new resources (Westman, et al., 2005; Gorgievski & Hobfoll, 2008). The COR theory recommends that organizations have a sustaining reserve of resources. The organization's leaders would manage the extra of resources to ensure that if there is a stressful or challenging event the organization has enough resources to safeguard organization's success and stability. In contrast, the Equity theory indicates that there is quality in the outcomes and inputs of the relationships that employees have with each

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other and with their organizations (Devereux, et al., 2009). Factors that an employee puts into his/her work include the employees themselves, time, hard work, commitment, and personal sacrifice. On the other hand, what the employees receive for their work is called outcomes – recognition, job security, and sense of achievement. Therefore, the employees will believe that the relationship between them and their job is equitable and understand that the benefits that they receive from their job, or colleagues are equivalent to the contributions that they make. When there is an imbalance in that relationship the employee and, or the organization may try to resolve the disparity or the employee may leave the job, or remain on the job and become burnt out. Chronic imbalance in the relationship between an employee and an organization may cause the situation to be exhausting for the employee and the employee may become withdrawn and demoralized. The COR theory and the Equity theory complement each other by suggesting that the optimization of the work environment rests with the correct balance of resources and relationships on the job (Westman, et al., 2005; Gorgievski & Hobfoll, 2008, Devereux, et al., 2009). Burnout may develop because of a sustained inequality between the obligations of the job and the tangible and intangible benefits that the employee receives for his/her work.

Additionally, a principle of the COR theory and a tenet of the JD-R theory suggest that burnout may be recurrent and inevitable if the demands of the job are great. The third principle to the COR theory postulates the idea that the nature of stress and motivation in the workplace is cyclic and the loss of resources has a greater affect than the procurement of resources (Westman, et al., 2005, Gorgievski & Hobfoll, 2008). Therefore, high demand work environments are at risk for tremendous loss in human

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capital when there is no investment in resources. Investment in resources restores lost resources. Additional resources accelerate the rate at which an employee becomes motivated and on the job an employee engagement is needed to reduce the burnout process. Although the JD-R theory does not directly address maintenance resources it does, like COR, propose that a demanding work environment can lead to employee exhaustion and a feeling of detachment from his/her work (Demerouti, et al., 2001; Westman, et al., 2005; Gorgievski & Hobfoll, 2008). Variations in job demands such as workload and deadlines can change the dynamics of the workplace including burnout outcomes on the job.

The Five-Factor Model (FFM) (Judge, Heller & Mount, 2002), focuses on an individual's mental, emotional and behavioral characteristics. Within the FFM theory the nature of one's personality is conceptualized by five different traits that are useful for describing a burnout in relation to emotional exhaustion, depersonalization and personal achievement. Each of the five traits describes personal qualities that fall along a spectrum and the qualities on the spectrum are correlated with their respective trait (Ghorpade, Lackritz & Singh, (2007). The five traits that comprise the FFM theory are described as follows: openness, conscientiousness, extraversion, agreeableness, and neuroticism. The openness trait is evident in open-minded and intellectually curious individuals (Digman, 1990). The conscientiousness trait is evident in individuals who are achievement-oriented, hardworking and efficient. The extraversion trait is evident in individuals who are positive, optimistic, cheerful and enthusiastic (Digman, 1990). The agreeableness trait is evident in individuals who are supportive, warm, compliant and

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highly adaptable. Individuals with the neuroticism trait are anxious, depressed, fearful and insecure (Digman, 1990).

The application of FFM in the literature is dissimilar from the COR theory, the JD-R theory and Equity theory. As we think about the traits associated with the FFM theory we realize that personality is not specific to the work environment; it transcends the workplace. While the employee can leave the limited work resources in the workplace, or the inadequate work environment at work, he/she cannot switch his/her personality on and off depending on whether or not he/she is on the job or not. One's personality trait is a key factor to explore as one seeks to explain the employee's individual approach to burnout on the job.

In general, several studies have shown an association between each of the five traits and burnout. Swider & Zimmerman's (2010) conducted a meta-analysis of more than 100 studies on personality and burnout. Most of those studies reviewed suggest that an individual's vulnerability to burnout varies by personality type. Although the FFM has not been studied in relation to the burnout experience of physician executives specifically, it is evident that the FFM theory does explain each of the burnout constructs- (33% of burnout variation) emotional exhaustion, (21% of burnout variation) depersonalization and (27% of burnout variation) reduced personal achievement (Alarcon, Eschleman & Bowling, 2009).

As we move forward to understand burnout we must acknowledge that the burnout experience varies among individuals with differing personality traits. An employee who is open-minded, or optimistic or confident is different for that of an employee who is fearful, or anxious or irritable. In addition, personality traits can predict

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changes in burnout overtime (Alarcon, Eschleman & Bowling, 2009). In fact, the literature suggests that neuroticisms and extraversion are negatively associated with the emotional exhaustion, a construct of the burnout phenomenon (Zellers, Perrfwe & Hochwarter, 2000 and Ghorpade, Lackritz & Singh, 2007). Likewise, neuroticisms and agreeableness are associated with depersonalization and extraversion, while neuroticisms are associated with decreased personal achievement (Swider & Zimmerman, 2010). An individual who is enthusiastic or cheerful is less vulnerable to burnout than an employee who is nervous or if the employee is extraverted he/she may be more likely and prepared to deal with chronic stress on the job or limited resources on the job (Zellers, Perrfwe & Hochwarter, 2000).

In conclusion, the burnout phenomenon requires an integrated model of different theories to decipher and clarify how burnout develops. The COR theory (Gorgievski & Hobfoll, 2008), the JD-R theory (Demerouti, et al., 2001) the Equity theory (Devereux, et al., 2009) and the FFM theory (Digman, 1990) each help to explain burnout by describing different elements of the work environment as well as distinctive personality traits to predict and explain the burnout process. The COR theory, and the JD-R theory explain that limited job resources and excessive job demands can lead to burnout. However, Equity theory emphasizes the association between employees' contributions to the job and the benefits that the employees receive in return. The Equity theory may be helpful in explaining the individual's relationship with clients, colleagues and the organization as a whole. The FFM theory on the other hand is useful in demonstrating that the nature of personality, which is individual and portable, can help to predict and clarify the burnout process. Individuals who are optimistic and resourceful can work to

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prevent an escalating loss of resources and ultimately help to prevent the onset of burnout. When combined the above-mentioned theories allow for predictions about burnout in a dynamic work environment. Thus, leaders are able to meet the challenge of burnout in the workplace when they recognize the signs and symptoms of burnout that result from limited resources and very demanding caseloads and insecure individuals. These four theories, summarized in Table 1, also optimize the main elements of the MBI-HSS, the tool that is often use by social science researchers to measure burnout. Therefore, these theories may be used to explain the development of burnout among radiology physician executives.

Table 1
Summary the Main Focus of the of Four Theories Used to Examine and Explain Burnout

Theory	Theory Focus and Summary Principles
<p>Job Demand-Resources Model (JD-R)</p> <p>Demerouti, et al., 2001.</p>	<p>Focus</p> <ul style="list-style-type: none"> - Work - Personal Resources and - Work demand <p>Main Principles</p> <ul style="list-style-type: none"> - Heavy demands on the job compounded with limited resources can cause disengagement. - Job demands and job stresses impact individual motivation - Heavy demands of the work environment compounded with limited job resources may cause employees to become disengaged
<p>Conservation of Resources Theory (COR)</p> <p>Westman, et al., 2009.</p>	<p>Focus</p> <ul style="list-style-type: none"> - Employee expectations - Work resources and - Personal motivation <p>Main Principles</p> <ul style="list-style-type: none"> - Stress on the job may develop if there is prolonged loss of resources - Stress on the job may develop if there is a significant anticipated loss of resources. - Employee motivation changes with limited resources, or the loss of resources. - Stress and motivation in the workplace is cyclic - The loss of resources have a greater affect than the procurement of resources - A demanding work environment can lead to employee exhaustion and a feeling of detachment from his/her work - Optimization of the work environment rests with the correct balance of resources and relationships on the job
<p>Equity theory</p>	<p>Focus</p> <ul style="list-style-type: none"> - Individual contribution to the organization - Organization's reward for the individual

<p>Devereux, et al., 2009.</p>	<ul style="list-style-type: none"> - Equity in the input and outcome on the job. <p>Main Principles</p> <ul style="list-style-type: none"> - Balance between individual output and organizational reward may lead to: <ul style="list-style-type: none"> - Greater individual effort or - Greater organizational effort. - Imbalance between individual output and organizational reward may lead to: <ul style="list-style-type: none"> - Individual dissatisfaction due to limited, or - Discontinued employment due to limited reward or - Increased effort to compensate for the reward
<p>Five-Factor Model (FFM)</p> <p>Digman, 1990.</p>	<p>Focus</p> <ul style="list-style-type: none"> - An individual's personality profile that includes mental, emotional and behavioral characteristics. <p>Main Principles</p> <ul style="list-style-type: none"> - Openness = open-minded/ intellectually curious - Conscientiousness = hardworking / efficient - Extraversion = optimistic, cheerful - Agreeableness = supportive, warm - Neuroticism = anxious, depressed

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Definition of Terms

Radiology Physician Executive

In academic medical centers it is normal to have physicians in leadership positions such as deans, department chairs and program directors. While the dean has overall governance for the whole institution the departmental chairs are responsible for the providing leadership at the department level. Likewise, program directors are in charge of the graduate medical education of the residents and fellows in their departments. In the case of the radiology department, the chair and the program directors are physician executives. In this study a physician with the job title of chair or program director in a department of radiology at an academic medical institution is defined as a radiology physician executive.

Burnout

Burnout is characterized by high depersonalization, high emotional exhaustion and low personal accomplishment (Maslach, & Jackson, 1981)

Family Support

Family support is a relationship-focused principle that strengthens the ever-evolving journey with families. (U.S. Department of Health and Human Services, 2016)

Therefore, members of a family can positively affect one's mood and feeling through either engagement, motivation and assistance or any combination of engagement, motivation and assistance.

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Administrative Support

“Administrative professionals who provide complete support for their executives become an extension of their executive” (Perrine, 2010). So, members of one’s professional staff provide support when he/ she who positively affect one’s mood and feeling through either engagement, motivation and assistance or any combination of engagement, motivation and assistance.

Purpose of the Study

The purpose of this research study is to explore the burnout experience of radiology physician executives by:

- Investigating the burnout rate for radiology physician executives.
- Understanding radiology physician executives’ burnout experience.
- Building a theory of how radiology physician executives think about, perceive, experience and manage burnout.

Research Questions

The four research questions for this study are as follows:

1. Is there a difference in the proportion of burnout radiology physician executives between those who have less than 5 years of experience and those who have 5 or more years of experience?
2. Can role perception, years of experience and hours of work predict radiology physician executives’ burnout levels?
3. What is the relationship between radiology physician executives’ administrative support and family support and their burnout levels?

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4. What themes do radiology physician executives reveal when they describe burnout management strategies in connection with their burnout experience?

The corresponding alternate hypotheses to the above research questions are:

- HA1: There is a difference in the proportion of radiology physician executives with less than 5 years of experience compared to the proportion of radiology physician executives with five or more year years of experience.
- HA2: Work factors such role perception, years of experience, and hours of work have an influence on the burnout level of radiology physician executives.
- HA3a: There is a relationship between radiology physician executives' administrative support and their burnout experience.
- HA3b: There is a relationship between radiology physician executives' family support and their burnout experience.

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Chapter II

REVIEW OF THE LITERATURE

The objective of this chapter is to examine what is known and unknown about the burnout experience of physician executive and to identify gaps in the literature. There is a limited body of knowledge on the burnout experience of physician executives. To a large extent the literature discussion predominantly focuses on burnout rates of deans, departmental chairs and program directors. In particular, two research studies were conducted on deans and their experience with burnout (Mirvis, Graney, Ingram, Tang & Kilpatrick, 2006; Gabbe, Webb, Moore, Harrell, Spickard & Powell, 2008), while seven studies examine burnout rates among departmental chairs by specialty. In addition, three research studies investigated the burnout rates of program directors by clinical specialty (Anderson, et al., 2000; De Oliveira, Almeida, Ahmad, Fitzgerald & McCarthy, 2011, and West, Halvorsen, Swenson & McDonald, 2013). For instance, researchers investigated and confirmed the prevalence of burned out chairs of obstetrics and gynecology (Gabbe, Melville, Mendel & Walker, 2002), otolaryngology (Johns & Ossoff, 2005), ophthalmology (Cruz, et al., 2007), radiation oncology (Kusano, Thomas, Bonner, DeWeesew, Formenti, Hanh, Lawrence & Mittal, 2013), anesthesiology (De Oliveria, Amed, Stock, Hater, Almaeida, Fitzgerald & McCarthy, 2011), orthopedic (Saleh, Quick, Sime, Novicoff & Einhorn, 2009), and pediatric chairs (McPhillips, Stanton, Zuckerman & Stapleton, 2007).

A comparison of the burnout rates for all three groups of physician executives suggests that chairs experience a higher rate of burnout than deans and a rate of burnout that is similar to program directors. The following literature analysis examines

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the burnout prevalence based on the role of the physician executive and demographic factors, symptoms of burnout, risk factors, burnout interventions burnout measures and theoretical perspectives.

Burnout prevalence Among Academic

Deans

The research on deans of academic medical institutions and burnout is limited as two articles about the burnout experience of deans were found. Two pivotal investigations on the prevalence and incidence of burnout in deans appear to contradict one another. The contradictory findings are directly related to the researchers' definition and evaluation of burnout. The study performed by Mirvis et al. (2006) to determine the prevalence and degree to which the elements of burnout impacted deans roles as physician executives in US academic medical institutions concluded that there is a high rate of burnout among deans in academia. Although the study focused on deans of academic medical institutions, deans of other health related professional schools were surveyed using a variation of the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) as part of its six-part survey instrument. The survey included demographic and job related questions as well as questions about burnout, symptoms of stress, job stress, job satisfaction, and vulnerability to stress. Analysis and report of the study findings clearly indicate that the data obtained from deans were evaluated separately. The results of Mirvis and coauthors' study (2006) suggest that burnout is highly prevalent among deans of academic medical institutions. When each aspect of burnout was evaluated using the MBI-HSS the researchers found that 22.2% of deans reported a high level of burnout compared to 11.1% reporting intermediate level burnout and

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66.7% reporting low-level burnout. Another study finding in Mirvis et al. (2006) was that 42.9% of the deans surveyed reported a high prevalence of depersonalization on the burnout spectrum, while 25.4% reported a high prevalence of emotional exhaustion and 27% reported decreased personal accomplishment. High levels of burnout in deans of academic medical institutions can adversely impacts leadership and ultimately the mission of the team.

Conversely, the researchers who investigated the burnout experience of deans in academic medical institutions in the United States and Canada found that the incidence and prevalence of burnout was negligible (Gabbe, et al., (2008). Although the study included subjects from Canada, a country that practices socialized medicine, the study is worth considering because it is a seminal study on the topic of burnout experience of deans in academic medical institutions. Gabbe, et al. (2008) study sought to evaluate burnout levels among deans and document whether or not there is any relationship between deans' personal and professional support system(s) and the amount of time that they spend working.

Like Mirvis, et al.'s (2006) study, Gabbe and co-investigators, (2008) used the MBI- HSS to survey the study subjects and found that only 2% of the deans experienced burnout in all three aspects of the burnout phenomenon. When each aspect of the burnout phenomenon is examined separately, the deans surveyed appear to experience high burnout on depersonalization (24%), emotional exhaustion (40%), and personal accomplishments (18%). Gabbe and co-investigators' (2008) findings about the different burnout concepts that comprise the burnout phenomenon are

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comparable to those of Mirvis, et al. (2006), whose study suggests that there is a high prevalence of burnout among deans of academic medical institutions.

Burnout prevalence among Chairs

Upon review of the literature, on department chairs working in US academic medical institutions and burnout there is additional evidence to support the idea that physician executives experience burnout. Researchers investigated the burnout experience of department chairs by clinical specialties. Researchers investigated and confirmed the prevalence of burned out chairs of obstetrics and gynecology (Gabbe, Melville, Mendel & Walker, 2002), otolaryngology (Johns & Ossoff, 2005), ophthalmology (Cruz, Pole & Thomas, 2007), radiation oncology (Kusano, Thomas, Bonner, DeWeesew, Formenti, Hanh, Lawrence & Mittal, 2013), anesthesiology (De Oliveria, Amed, Stock, Hater, Almaeida, Fitzgerald & McCarthy, 2010), orthopedic (Saleh, Quick, Sime, Novicoff & Einhorn, 2009), and pediatric chairs (McPhillips, Stanton, Zuckerman & Stapleton, 2007). The researchers used the MBI-HSS survey or variations of the survey to measure the burnout experience of department chair, by specialty. However, the researchers did not use a uniformed definition of burnout. Instead, burnout was defined either as multidimensional phenomenon (high emotional exhaustion, high depersonalization and low personal accomplishment), or high depersonalization or high emotional exhaustion. The varied definition of burnout makes it difficult to compare burnout across medical specialty. Nevertheless, some comparison is possible.

Gabbe and co-investigators (2002) investigated burnout and obstetrics and gynecologic chairs used the multidimensional definition of the burnout phenomenon

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along with an adaptation of the MBI-HSS. However, only twelve questions from the MBI-HSS survey were used in this study. The purpose of the study was to determine the prevalence of burnout among obstetrics and gynecologic chairs (n=119), while documenting their risk for burnout. The researchers found that burnout was experienced by 4% of the department chairs, while 8% did not experience burnout. However, 88% of the obstetrics and gynecologic chairs surveyed reported a moderate level of burnout.

Johns and Ossoff (2005) defined burnout among otolaryngology chairs (n=120) as a multidimensional phenomenon, that is high emotional exhaustion, high depersonalization and low personal accomplishment. According to the researchers, 3% of otolaryngology chairs experienced high burnout, while, 81% experienced moderate burnout and 16% experienced low burnout. The study findings document that otolaryngology chairs are likely to be affected by burnout. Leaders in academic medical institutions need to know the risk factors for otolaryngology chairs' burnout and take preventive actions to reduce otolaryngology chairs' risk for burnout.

In addition, Cruz, et al. (2007) researched burnout among ophthalmology chairs in the USA and Canada. Although the study includes and does not segregate data obtained about Canadian ophthalmology chairs who worked in socialized medical system, the study is worth consideration as it is an important article. The purpose of the study about the prevalence of burnout among ophthalmology chairs (n=101) was to determine the incidence of burnout among ophthalmology chairs and document the factors that contributed to burnout. The incidence of high burnout rate among ophthalmology chairs was 9%, while 80% reported a moderate level of burnout. The study of on burnout among ophthalmology chairs shows that ophthalmology chairs have

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a higher rate of burnout than that of otolaryngology chairs. Unfortunately, if the burnout rates among ophthalmology chairs remain unchecked the performance of the chair would be compromised and patient care could be jeopardized. (Maslach & Jackson, 1981).

The only study that looked at burnout in radiation oncology chairs also used the complete burnout tool, the MBI-HSS to evaluate radiation oncology chairs' experience with burnout. The researchers not only sought to determine the prevalence of burnout in radiation oncology chairs, but also to identify the cause of burnout in radiation oncology chairs. Study findings indicate that 75% of the radiation oncology chairs (n=66) experienced a moderate level of burnout (Kusano, et al., 2013). However, there were limitations to the study including the use of a convenient sample thereby limiting generalizability.

Compared to other studies on burnout among department chairs by specialty, radiation oncology chairs appear to experience lower burnout rates as none of the department chairs reported high burnout level. However, 75% reported moderate level burnout and 25 percent reported low-level burnout. Meanwhile, the combined high and moderate burnout rates for department chairs of other specialties are as follows: otolaryngology (84%), obstetrics and gynecology (92%), ophthalmology (91%) and anesthesiology (90%). Similarly, Kusano, et al. (2013) found that radiation oncology chairs were satisfied with their jobs and a sense of control over their work. However, 25% of the department chairs indicated that they would resign from their position in a few years. When department chairs leave their jobs before they experience high-level burnout the decision not only benefits the individual but also to the academic medical

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center. It is better for the physician executives to their jobs before their health and well-being, as well as the quality of their clinical service deteriorate.

De Oliveria, et al. (2011) investigated the prevalence of burnout as well as the effect of work stress on anesthesiology department chairs. Based upon the researchers' findings they suggest that burnout among anesthesiology department chairs (n=100) is high. Twenty percent of anesthesiology department chairs reported that they experienced high burnout on the MBI-HSS, while 30% reported that they experienced moderate burnout.

The only study that was completed on orthopedic chairs' experience with burnout defined burnout as emotional exhaustion and the researchers used a variation of the MBI-HSS to measure burnout. Saleh, et al., (2009) evaluated emotional exhaustion as an indicator of burnout in orthopedic chairs (n=194). The researchers looked at the prevalence of burnout and the effect of the department chairs' perception of family support and personal actions on their burnout experience. However, because leaders of academic medical institutions know the effects of burnout on patient care and residency training they can use the information about the high rate of emotional exhaustion among orthopedic chairs to prevent burnout in that group of physician executives.

Burnout prevalence among Program Directors

Little research was completed to assess burnout among pediatric chairs. McPhillips, et al. (2007) defined burnout as either high depersonalization or high emotional exhaustion. Moreover, the researchers used the MBI-HSS and two other survey tools to find out the factors that are associated with pediatric chairs job satisfaction and their burnout experience. More specifically, the MBI-HSS was used to

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measure burnout and the Approaches to Work Questionnaire (aAWQ) instrument was used to evaluate and document work style, while the Workplace Climate Questionnaire (aWCOQ) was used to evaluate workload. The researchers surveyed 144 current and former pediatric chairs and concluded that 20% of the department chairs experienced burnout.

Like deans and department chairs, there have been several studies on burnout in the physician executive rank of program director. Therefore, this part of this literature review involves an analysis of the studies on the prevalence of burnout on program directors working in US academic medical institutions. Program directors, like deans and department chairs, are believed to be at risk for burnout because of their responsibility as administrator, clinician, educator, and researcher. The program director's duties require him or her to spend much of his time working in close proximity with others and that require a significant amount of personal interactions that can be rather stressful (Gaiser & Troxell, 2011). In addition, the program directors are expected to manage their program in full compliance with ACGME guidelines and board specific requirements base on medical specialty (Marsh, Potts, & Levine, 2014). Studies that examined burnout among program directors showed that over time the program directors experience burnout. A discussion of four important studies that looked at burnout among program directors in radiation oncology internal medicine, general surgery, and anesthesiology is below.

Although job turnover rates among program directors in internal medicine is reported to be high (Beasley, Kern & Kolodner, 2001) the results of the study by West and coauthors (2013) suggests that burnout among this group of program directors is

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comparatively low. The study by West et al. (2013) investigated burnout and distress among program directors (n=282) working in internal medicine in America and determined that 28.7% of internal medicine program directors experienced burnout. Moreover, the study showed that on the burnout dimension of emotional exhaustion and depersonalization internal medicine program directors had a prevalence rate of 27% and 28.7% respectively. These researchers did not evaluate the third concept of the burnout phenomenon – personal achievement - as did some researchers who evaluated burnout among department chairs.

An important study on burnout among general surgery program directors (Anderson, Mirvis & Dean, 2000) looked at the prevalence and perception of burnout in that cohort (n=191). Unlike the internal medicine study, this study looked at the phenomenon of burnout as a three-dimensional construct with each of the three subscales being categorized at low, moderate and high. According to Anderson et al. (2000), 25% of general surgery program directors reported a high level of emotional exhaustion, 13% reported a high level of depersonalization, and 17% of the program directors reported feeling a low level of personal accomplishments.

Anesthesiology program directors were also studied to identify the prevalence of burnout in the group and to predict the prevalence of burnout among anesthesiology program directors. Like the previous researchers, De Oliveira et al. (2011) evaluated all three aspects of the burnout phenomenon and found that the group reported a high level of emotional exhaustion (median score 34) and depersonalization (median score 36), while they reported a low level of personal accomplishment (median score 8) on the MBI- HSS. The study findings predicted a high prevalence of burnout among

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anesthesiology program directors (n=100). The incidence of burnout among anesthesiology program directors was 21%, while the burnout rate was predicted to be 52%. The incidence of burnout is high compared to burnout in program directors in general surgery and internal medicine. Now that the burnout rates for physician executives are explained above a discussion about the demographic characteristic of physician executives is necessary to frame the discussion about physician executives' experience with burnout.

Demographic factors and burnout prevalence

While the research discussed above suggested that physician executives with different job responsibilities and academic titles have differing rates of burnout other researchers have examined the association between certain demographic factors and physician executives' burnout experience. The demographic factors that may impact burnout among physician executives are age, work hours, years in the role, academic rank, spouse/ family support, gender, and ethnicity. These demographic factors are thought to be associated with burnout in physician executives. Therefore, the following passage discusses the literature on the association between demographic characteristics and burnout in physician executives and highlights the degree to which the researchers agree.

Some researchers determined that age and hours of work per week are associated with burnout among physician executives. For example, Anderson, et al. (2000) have shown that in the case of general surgery, program directors who were 50 years or younger and had been in their position for 6 years, or less, or had less than 8 years in all as a program director were tend to report higher incidence of burnout. In

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addition, Gabbe, et al. (2002) concluded that obstetrics and gynecologic chairs department chairs who reported burnout were the younger department chairs and they were more likely to be new department chairs. Gabbe, et al. (2008) also found that burnout rates among deans correlated with a decrease in the dean's age. Similarly, McPhillips et al., (2007) reported that department chairs with less than 5 years of experience as department chairs worked long hours and were more likely to experience burnout.

Although some researchers determined that age and hours of work per week are associated with burnout among physician executives, other researchers suggested that these factors do not relate to physician executive experience with burnout. Mirvis, et al. (2006) suggested that the typical dean was 59 years, and worked an average of 65.7 hours per week, while the study by Gabbe et al. (2008) concluded that deans were slightly older, 60 years and worked approximately 70 hours per week. Yet, Mirvis' et al. (2006) did not find a significant relationship between age, hours worked and the burnout experience of deans. Both Mirvis's et al. (2006), and Saleh et al. (2009) found no relationship between years of experience as a department chair and burnout experience. Likewise, De Oliveria et al. (2010) did not find any significant relationship between the number of years the department chair held his position, nor the number of hours a department chair worked, nor the age and gender of anesthesiology department chairs. Subsequent research by De Oliveria, et al. (2011) and more recently, West, et al. (2013) also did not find a significant association between age and burned out program directors.

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Researchers have not properly investigated physician executives' academic rank and burnout. In spite of this, Anderson, et al. (2000) concluded that program directors with a rank of assistant professors reported a higher emotional exhaustion score than the other academic ranks.

Of the demographic characteristics noted in the studies on burnout among physician executives, family and or spousal support seems to be an associating factor. For instance, Gabbe, et al. (2008) found that older deans with good family support, long years of service as dean were less likely to experience burnout. In addition, Saleh, et al. (2009) reported that orthopedic chairs believed that their families were supportive. In the same way, De Oliveria et al. (2010) found that spousal support helped to reduce the incidence of burnout. The latter findings by De Oliveira et al. (2010) are consistent with that of Gabbe et al. (2002) in that they both concluded that spousal or family support might significantly help to reduce burnout among department chairs. A low level of burnout among physician executives is desirable because those who experience burnout cannot function effectively.

Although there is no research focused on the prevalence of burnout among female and ethnic physician executives, a few researchers commented on the burnout experience of females and ethnic minority physician executives. For example, Mirvis, et al. (2006) reported that women and Hispanics scored high on one of the burnout subscales – depersonalization. The females' depersonalization rates were significantly higher than their male counterparts. However, Mirvis, et al. (2006) did not find any significant difference in the burnout experience of Hispanics and non-Hispanics. More recently, West, et al. (2013) claimed that the female internal medicine program directors

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reported higher rates of burnout than the male internal medicine program directors. Female program directors may experience higher burnout rates than their male colleagues because of their responsibility in the home and the challenge that they have finding a balance between their professional life and their personal life (Gabbe, et al. 2002). The research by Mirvis, et al. (2006) and West, et al. (2013) suggests that female and ethnic minority physician executives may have a different experience with burnout than male Caucasian physician executives. Follow-up research about gender, ethnicity, and burnout may prove interesting and improve the literature on burnout and physician executives. However, the design of the study would have to account for the small number of members from these two group that are represented in the role of physician executives.

Symptoms of burnout

In a series of studies conducted on burnout in healthcare professionals researchers concluded that there are physical and behavioral symptoms characteristic of burnout. Symptoms of burnout include job turnover, absenteeism, low morale, sleeplessness, fatigue, drugs and alcohol use and spousal and family difficulties (Freudenberger, 1975; Pines & Maslach, 1978; Maslach & Jackson, 1981). More than half of the physicians in the United States experience symptoms of burnout due to the challenges that they experience on the job. Examples of the symptoms of burnout experienced by physicians include those already identified above as well as clinical depression, headaches, anxiety, anger and digestive problems (Spickard, Gabbe & Christensen, 2002; Grenny, 2006).

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The symptoms associated with the burnout experience of physician executives received some attention in the literature. Physician executives, like physicians, report symptoms of burnout, while performing their very demanding roles. The burnout symptoms manifest themselves in different ways in physician executives. Mirvis and colleagues (2006) established that physical and emotional symptoms of burnout, such as depression, sleeplessness, heart disease and diminished work satisfaction were associated with a high rate of burnout among deans. The symptoms of burnout manifested in program directors of internal medicine appear to be significantly greater than that of other physician executives. West and coauthors (2013) cited that symptoms of depression and other personal distress are greater for physician executives than practicing physicians and physicians in training.

Spousal and family discord is symptomatic of burned out physician executives. For example, Gabbe, et al. (2008) studied the emotional consequence of burnout on physician executives and found that deans not only experienced low rate of burnout but deans also reported that they have the support of their families and spouses. Ninety-one percent of the deans surveyed said that their spouse or another important person in their lives is consistently supportive of them. An earlier study by Gabbe and colleagues (2002) which looked at the burnout experience among physician executive, specifically OB/GYN chairs, indicated that chairs with good family and spousal support were less prone to burnout.

Early research on burnout and helping professionals has shown that the lack of job satisfaction is not highly correlated with burnout (Maslach & Jackson, 1981). However, in the past 15 years a few researchers like Beasley and colleagues (2001)

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and De Oliveria, et al. (2011) suggest that job turnover is another symptom of burned out physician executives. In the case of Beasley et al. (2001) physician executives, who reported high burnout rates were likely to leave their jobs. Although the job turnover trend observed in the above mentioned was not significant, a more recent study reinforced the idea that job turnover may be symptomatic of burnout. De Oliveria, et al. (2011) found that program directors who reported risk factors for high burnout were more likely to be dissatisfied with their jobs and as a result, they planned to resign from their position.

Risk factors associated with burnout

The burnout phenomenon as defined by Maslach and Jackson (1981) recognizes that personal factors, social conditions and the work environment can promote burnout among health professionals. The literature on burnout and physician executives focuses on the work environment as the main variable that contributes to burnout. For example, Mirvis, et al. (2006) reported that stress on the job and personal stress are significantly correlated with high level of burnout reported in the deans in their study. However, job stress was more closely associated with intermediate and high burnout levels. These qualities are associated with the depersonalization aspect of the burnout phenomenon and the implication for patient care is negative. A dean with a high level of burnout is likely to distance himself from his coworkers and from situations that he perceives to be stressful.

Gabbe et al. (2002) also found that work-related factors contribute to burnout among obstetrics and gynecology chairs. Four examples of the work related factors that they discovered is associated with burned out gynecology chairs are hospital and

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departmental deficits, billing audits, faculty resignation, collective bargaining issues, and the firing of faculty, staff and residents. However, the department chairs reported that they relied on the support of the family and spouses to help them deal with their job related stress (Gabbe et al., 2000). Likewise, Johns and Ossoff's, (2005) investigation about otolaryngology chairs' burnout experience provided further evidence that hospital and departmental deficit, loss of faculty, billing audits, and loss of staff are associated with burned out physician executives. The findings from these studies may be useful to leaders in academic medical institutions who want to recruit physician executives, and/or to develop programs to reduce burnout in physician executives.

Other factors beside the organization's fiscal problems and human resources issues contribute to the burnout of physician executives. For instance, although Cruz, et al. (2007) researched the common causes of burnout among ophthalmology chairs revealed that departmental and budget deficits were positively associated with burned out ophthalmology chairs, the researchers identified additional risk factors for burnout. Their study findings suggest that faculty recruitment, Accreditation Council for Graduate Medical Education (ACGME) review concerns, departmental and budget deficits and compliance issues are risk factors for burnout.

Moreover, Anderson et al.'s (2000) study of the perception of burnout among general surgery program directors found that program directors enjoyed teaching residents and thought that it was their most important and enjoyable duty. Simultaneously, they ranked teaching as their least stressful duty. The researchers also examined the relationship of 16 main duties for program directors and found that only 4 of the 16 were affected by burnout. The four tasks that the program directors perceived

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to be highly related to burnout are teaching residents, performing administrative functions, scheduling the ACGME program requirement and balancing administrative roles. The level of burnout experienced by the program directors may have influenced their perception of the various tasks.

The study by De Oliveira et al. (2011) also added to the body of knowledge on the factors associated with burnout among program directors. Like Anderson et al.'s (2000) research on general surgery program directors, De Oliveira and coauthors' (2011) study concluded that issues related to the training of residents are associated with burnout among anesthesiology program directors. In addition, De Oliveira et al. (2011) found that conflicts with department chairs, compliance issues, and support from family and spouse are associated with the burnout experience of anesthesiology program directors.

The literature is also composed of research that suggests that physician executives also need to find the right balance between their work and the personal life. McPhillips et al. (2007) reported that a heavy workload and lack of support in the work place contributed to the burnout experience of pediatric chairs. Likewise, when researchers examined program directors' efforts to find a balance between their work and their personal life they discovered that some physician executives struggle to find the right balance between their work and their profession life. For example, West, and coauthors (2013) studied burnout among internal medicine program directors the majority of the program directors (62.3%) reported that they are able to find a balance between the work and home life. However, 27.9% reported that their job responsibility prevailed, while 9.8% reported that their home responsibilities prevailed.

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Burnout interventions

The etiology of burnout as discussed by Maslach and Jackson (1981) suggests that intervention can reduce the intensity and frequency of burnout. Subsequent research by Glembiewski, Munzenrider and Stevenson (1985) provides support for the idea that burnout can be reduced. Glembiewski and coauthors (1985) further suggested that burnout levels might range from ideal to unacceptable. They proposed that a burnout level below 5% is ideal, while a level between 5% and 10% is acceptable and a level beyond 10% necessitates intervention. A reduction in burned out physicians benefits the individual, the organization and the family (Mirvis, et al., 2006).

The literature also contains a several recommendations to reduce burnout among physician executives. Gabe, et al. (2002) suggest that mentoring may benefit physician executives, while Johns et al. (2005) too offered some activities such as physical exercise and time with family as ways to reduce burnout level. Saleh et al. (2009) on the other hand suggests that physician executive practice self- management. Through self-management, the physician executives can use relaxation techniques to help them to cope with stress, anger and other emotions that they may feel because of the burden of the work. All of the above ideas may be helpful in reducing burnout among physician executives. However, the literature on burnout intervention strategies for physician executives is limited.

A study by Gabbe and coauthors (2008) looked at mentoring as a strategy to decrease burnout among obstetrics and gynecology chairs. The purpose of their study was to investigate whether, or not mentoring helps to reduce burnout among obstetrics and gynecology chairs (n=27). The randomized year-long study allowed for 24 of the

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chairs to be assigned a mentor. The remaining 13 chairs had no mentors. Some of the mentors resided within the same communities as their mentees, while other mentors lived long distances away from the mentees. Few chairs, (4%) showed signs of being burned out. The study findings indicated that there was no significant difference in the use of mentors to help department chairs. The researchers may have made other conclusions if the design of the study was different. The outcome of the study could have been different if the participants had mentors who live within their communities. Mentoring as an intervention may provide a framework to alleviate burnout among physician executive if the mentors and mentees are focused on working on the issues caused the mentee to feel burned out.

Burnout measures

According to Maslach and Jackson, (1981) burnout, unlike stress, is a phenomenon that can be long lasting and severe. Burnout negatively affects the care and attention that professionals who work with people can give. Although there are a few instruments that are used to measure stress and/or burnout among health professionals, researchers routinely use the Maslach Burnout Inventory – Human Services Survey (MBI-HSS) to measure burnout among health professions such as physicians. The MBI-HSS is seen by social scientists as the best tool to measure burnout in health professions context because it has good validity and reliability (Maslach & Jackson, 1981).

The validity and reliability of the MBI-HSS makes it very adaptable and variable in its use measure burnout in the workplace. There is no consensus on how to measure burnout. However, the Maslach Burnout Inventory – Human Survey (MBI-

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HSS) is one of the more widely used tool across countries to measure burnout. The Maslach inventory is used worldwide and analysis of its validity and reliability in Hungary, China, Venezuela and other countries shows that its constructs/ factors have a similar structure across countries (Maslach & Jackson, 1981).

The MBI-HSS measures three distinct aspects of burnout with a focus on the professional and his/her work environment. Depersonalization, emotional exhaustion and reduced personal accomplishments are the three aspects of burnout that the survey measures through 22 questions (Maslach, Jackson & Leiter, 1996). The validity of the depersonalization construct has an alpha level of 0.71, the emotional exhaustion construct has an alpha level of 0.90 and the personal achievement construct has an alpha level of 0.79. In addition the test-retest reliability of the MBI-HSS is significant beyond the .001 level (Maslach & Jackson, 1981).

The MBI-HSS uses a variety of questions to measure each construct of the burnout phenomenon with minimal overlapping of ideas. The emotional exhaustion construct is measured with nine items that focus on the emotional and psychological stress that someone experiences beyond what one considers tolerable. On the other hand, the depersonalization construct is measured with five items that focus on the distance, or disconnection that one feels toward others. Personal achievement/reduced personal accomplishment, the third construct that measures burnout on the MBI-HSS survey, consists of eight items that evaluates ones sense of proficiency and feeling of accomplishment. Computation of points for each of the three constructs of the burnout phenomenon varies. A low score on emotional exhaustion, depersonalization and personal achievement is categorized as less than or equal to 18 points, less than or

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equal to 5 and less than or equal to 33 respectively. In contrast, a moderate score on emotional exhaustion, depersonalization and personal achievement ranges from 19-29 points, ranges from 6-9 points and ranges from 34-39 points in that order. Lastly, a high score on emotional exhaustion, depersonalization and personal achievement is categorized as greater than or equal to 27 points, greater than or equal to 10 and greater than or equal to 40 in turn (Maslach & Jackson, 1981).

Based on the research conducted in the past thirty years, the MBI-HSS appears to be the preferred research tool to use to measure burnout among physician executives. However, some researchers have emphasized either emotional exhaustion or depersonalization as independent definitions of burnout others have considered all three aspects of burnout as a way to compare and to evaluate the risk for burnout. Although the MBI-HSS survey is the preferred tool for measuring burnout among various groups of physician executives, researchers sometimes modify the survey when using it to investigate burnout among some groups of physician executives. For example, Saleh, et al. (2009) did not consider all three constructs of the burnout phenomenon when measuring burnout among orthopedic chairs. Instead the researchers evaluated emotional exhaustion as an indicator of burnout. The use of varied definition of burnout makes it difficult to compare burnout across study groups. Nevertheless, some comparison is possible.

Although the MBI-HSS is often used to measure burnout among health professionals, there is another tool that may be sensitive to the burnout phenomenon. The tool is called the Copenhagen Psychosocial Questionnaire (COPSOQ); it was developed in 2005 in Norway. Unlike the MBI-HSS, the Copenhagen Psychosocial

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Questionnaire seems to define and equate burnout with the lack of energy. The tool is not based on any particular theory. However, the questions in the COPSOQ survey incorporate elements of theories related to occupational health and wellness (Kristensen, Hanerz, Høgh & Borg, 2005). An example of a question on the personal construct is "How often do you feel worn out?" Options to answer the questions on the COPSOQ range from "always" to "never". The COPSOQ is comprised of 44 questions categorized into 3 distinct constructs – personal burnout, work-related burnout and individual/employee-related burnout. The three constructs cover the work environment stressors associates with burnout. The validity of the components of the COPSOQ is as follows: personal burnout has an alpha level of 0.80, work-related burnout has an alpha level of 0.78 and client-related burnout has an alpha level of 0.83. The tool has been tested for validity across populations in in several countries and it was translated in eight languages. The COPSOQ has good reliability and validity (Kristensen, Hanerz, Høgh & Borg, 2005).

Some researchers believe that the COPSOQ is too limited in scope. They explain that it is not a comprehensive measure of workplace related burnout. It does not specifically measure the three constructs of burnout (depersonalization, emotional exhaustion and personal achievement) identified by Maslach and Jackson (1981) as essential dimensions of burnout. So, the MBI-HSS may offer better insight in measuring burnout in the healthcare. Moreover, the COPSOQ has never been used in the United States to evaluate burnout in physicians, particularly among physician executives because it is a tool that was developed relatively recently and the COPSOQ's simple definition of burnout as tiredness is not consistent with the researchers' interpretation of

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burnout. On the other hand, American researchers who study the burnout experience of physician executives routinely use the MBI-HSS. The use of the MBI-HSS will allow for the comparison of burnout rates for physician executives across studies.

Gaps in the literature

Analysis of the body of knowledge that exists on the burnout experience of physician executives working in academic medical environments revealed several gaps. The existence gaps in the literature present several opportunities for further research. Although researchers propose that intervention is necessary to reduce burnout levels in physician executives the literature on burnout interventions is not substantial. Gabbe et al. (2008) performed the only randomized study on mentoring and physician executives' burnout experience. The researchers examined the efficacy of using mentoring to reduce burnout levels among physician executives. However the intervention did not cause any significant change in the study participants' burnout rates. The study limitations suggests that mentoring could be further explored as a strategy to reduce burnout among physician executives considering that mentoring can be focused on the issues that are associated with burnout.

Another gap in the literature relates to the notion that administrative support for physician executives may help to reduce their burnout rates. Although a few researchers commented on the potential benefit of physician executives getting administrative support to reduce burnout levels, no study has been completed to explore this idea. The absence of research on this issue is an opportunity for future research.

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An additional gap in the literature pertains to women and ethnic minorities and burnout. Although none of the studies about physician executives and burnout focused on ethnicity and gender burnout rates for females and Hispanics appear higher when they are compared to their colleagues. Further research on the influence of gender and ethnicity could contribute to what is known about burnout in general and offer insight as to why discrepancies may be seen across genders and ethnic groups.

Finally, another gap observed in the literature centers around the association between physician executives' personality and their burnout experience. One question that could be studied is whether or not a physician executive's personality makes him/her more susceptible to burnout. Understanding this phenomenon may help physician executives to regulate their own behavior in the workplace in order to minimize burnout.

The absence of research in the areas discussed above presents the opportunity for the PI to explore the burnout experience of radiology physician executives. Therefore, this research study proposed to investigate these gaps in the literature in connection with one group of physician executives – physician executives working in a radiology department in an accredited academic medical institution. This research project used a mixed methods research design to get a richer understanding of the burnout experience of radiology chairs. To that end, the full MBI-HSS will be used as well as a demographic sheet. This study seeks to not only document the incidence of burnout among radiology physician executives, a group of physician executives that was not studied for burnout, but it will also investigate how support administrative support, family support, work factors and their personality influence their burnout

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experience. The study findings may provide suggestions that could helping physician executives meet the demands associated with their roles within the academic medical institutions. In conclusion, there are new facets of the burnout phenomenon to be investigated. The findings of future research may be useful to academic medical institutions.

Summary

A comparison of the burnout rates for all three groups of physician executives suggests that chairs experience a higher rate of burnout than deans and a rate of burnout that is similar to program directors. Although each group of physician executives has a distinct job title, patient care and residency training are at the core of their responsibilities. Not addressing burnout among physician executives can result in ineffective leadership, poor patient outcomes, subpar residency training, high job turnover rates and overall poor job satisfaction among physician executives.

If leaders in healthcare know about the burnout experience of physician executives they will be better prepared to provide good patient care and proper residency/ fellowship training. While there are several factors that influence the burnout experience of physician executives the literature specifically identifies hospital and department deficits, residency training, the work environment and human resource problems as the main factors that contribute to the burnout phenomenon experienced by physician executives. On the other hand, the effects of burnout on physician executives can be both personal and professional with some struggle with health issues such as depression. Therefore, the information gained from researching burnout

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among physician executives is not only vital to the organization but the individual as well.

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Chapter III

METHODS

Participants

The study participants were radiology physician executives who work in US accredited academic medical institution/ medical school, and who were adults over the age of 21. The following is a list of the inclusion and exclusion criteria for this study.

Inclusion Criteria:

- Sitting (current) chair or interim chair in a department of radiology in one of the 141 academic medical institutions/ medical schools in the US.
- Sitting program director or interim program director of an accredited radiology residency or fellowship program in the US.
- Licensed as a medical doctor in the US.

Exclusion Criteria:

- Those not currently working as a department of radiology chair or interim chair in one of the 141 academic medical institution/ medical school in the US.
- Those who are vice chairs for a department of radiology in the US.
- Those not currently working as a program director or interim program director of an accredited radiology residency or fellowship program in the US.
- Those not holding licensure as a medical doctor in the US.
- Those who are not proficient in the English language (reading and writing).

Design

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This is a cross-sectional study that employed convergent mixed-method research design. The data was collected at one period in time using an electronic survey. Both qualitative and quantitative strategies were used to collect and analyze study data (Curry, et al. 2013; Feters, Curry & Creswell, 2013). Data analysis involved determining relationships. No experimentation was involved. More specifically, the study used both a quantitative component (MBI-HSS) and a qualitative component (Profile Sheet) to answer the research questions, forming a triangulated approach to the data review. The MBI-HSS was used to measure physician executives' burnout levels and the profile sheet was used to obtain a well-developed understanding of the participants' burnout experience through the participants' sharing of their perspectives, perceptions, ideas and experiences about burnout.

Variables

Study variables consisted of several independent variables (ordinal, nominal and Interval) and one dependent, as follows:

- Role perception - Clinician /Administration/Researcher/Teacher
- Years of experience
- Hours worked per week
- Hours worked nights and weekend
- Institution mentoring program
- Professional association mentoring program
- Administrative support
- Family support

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The dependent variable studied is burnout, which was defined as a composite of emotional exhaustion, depersonalization and reduced personal achievement that was rated on a Likert scale. Burnout level or burnout rate is the composite score that was calculated from the total assessed interval score reported for each of three burnout constructs named above (Maslach & Jackson, 1981).

Measurements

The survey instrument consisted of two parts, the first part being the MBI- HSS, which was used to survey the burnout experience of Radiology PEs. The MBI-HSS is perceived by social scientists to be the best tool to measure burnout in health professions because it has good construct validity and test-retest reliability (Maslach & Jackson, 1981). The MBI-HSS measures three distinct aspects of burnout with a focus on the professional and his/her work environment. Depersonalization, emotional exhaustion and reduced personal accomplishments are the three aspects of burnout that the survey measures through 22 questions (Maslach, Jackson & Leiter, 1996). The validity for the depersonalization construct has an alpha level of 0.71, the emotional exhaustion construct has an alpha level of 0.90 and the personal achievement construct has an alpha level of 0.79. In addition the test-retest reliability of the MBI-HSS is significant beyond the 0.001 level (Maslach & Jackson, 1981).

The MBI-HSS uses a variety of questions to measure each construct of the burnout phenomenon with minimal overlapping of ideas. The emotional exhaustion construct is measured with nine items that focus on the emotional and psychological stress someone experiences beyond what one considers tolerable. The depersonalization construct is measured with five items that focus on the distance, or disconnection that

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one feels toward others. Personal achievement/reduced personal accomplishment, the third construct that measures burnout on the MBI-HSS survey, consists of eight items that evaluate the sense of proficiency and feeling of accomplishment. Computation of points for each of the three constructs of the burnout phenomenon varies. A low score on emotional exhaustion, depersonalization and personal achievement is categorized as less than or equal to 18 points, less than or equal to 5 and less than or equal to 33 respectively. In contrast, a moderate score on emotional exhaustion, depersonalization and personal achievement ranges from 19-29 points, ranges from 6-9 points and ranges from 34-39 points in that order. Lastly, a high score on emotional exhaustion, depersonalization and personal achievement is categorized as greater than or equal to 27 points, greater than or equal to 10 and greater than or equal to 40 in turn (Maslach & Jackson, 1981).

The second part of the survey is the Profile Sheet. The questions on the Profile Sheet were formulated based on gaps in the literature. The Principle Investigator (PI) used the Profile Sheet to explore and understand theories related to the burnout experience of the radiology physician executives. The Profile Sheet consists of 25 questions – including demographic questions, questions about the professional attributes of the participants and some open-ended questions about their perceptions of their work environment. A copy of the Profile Sheet is attached. (Appendix D) The data obtained from the Profile Sheet was coded to identify common themes or patterns related to the radiology physician executives' experience with burnout. Frequency rates of the themes are reported.

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Procedures

Radiology physician executives were identified from an on-line and open database called FREIDA-an acronym for Fellowship and Residency Electronic Interactive Database Access by the American Medical Association (AMA). The database compiles basic contact information such as names, email addresses of more than 9,600 residency and fellowship graduate medical education programs accredited by the ACGME and more than 100 specialty programs-radiology is one such specialty program. The access to FREIDA is free and open to all. However, all users need to create an AMA account to search the database. Membership to AMA is not required but more features such as to ability to save searches are available to AMA members. Online searches of the webpages for accredited medical institutions were surveyed for email addresses of radiology physician executives whose email address was not available in FREIDA.

The PI also verified the institutions' accreditation-status through the official website of the Liaison Committee on Medical Education which accredits medical education programs for medical doctors in the US and Canada. The PI confirmed the existence of a radiology department in each of the 141 accredited medical schools in the US to corroborate the existence of a radiology department in each medical school. Upon verifying the presence of a radiology department in the respective medical schools, the PI recorded the email address for the radiology physician executives at the department level as well as the departmental sub-specialty level such as Pediatric Radiology, Neuroradiology and Interventional Radiology. The PI surveyed those radiology

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physician executives whose email addresses were obtained to achieve the desired sample size.

The sample size was determined by performing G* Power analysis (Faul, Erdfelder, Lang & Buchner, 2007), a prior power analysis for all hypotheses. The desired sample size was 88 subjects.

Figure 1

Summary of Prior Power Analysis

Hypotheses	Effect Sizes	1- β err prob	Sample Sizes
H1	0.3	0.8	88 participants
H2	0.2	0.8	77 participants
H3	0.3	0.8	84 participants

The alpha level for each hypothesis = $\alpha \leq 0.05$.

The PI requested and obtained permission from Mind Garden Inc. to use the MBI-HSS as part of the Institutional Review Board (IRB) applications to both Seton Hall University's IRB and subsequently the IRB at Rutgers The State University of New Jersey, where the PI is employed. Both IRBs approved the PI's request for permission to launch the study about the burnout experience of radiology physician executives who were identified via an online search using FREIDA cross-referenced with the email address that was available on the respective medical school's website.

The PI also purchased the English version of SurveyMonkey - the Gold plan for a year in July 2015. The PI formulated the survey, launched it and collected the

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participants' responses on SurveyMonkey. This electronic medium was used because it guaranteed the participants' privacy and anonymity, it was accessible and it was convenient to use by both the PI and the study participants.

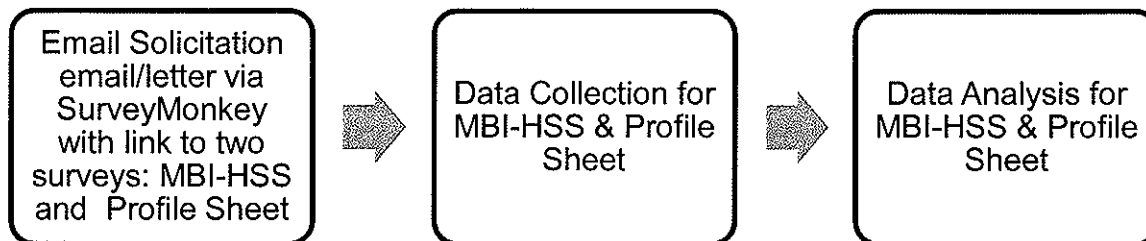
The study was launched in September 2015 and the participants were recruited via an email-letter of solicitation. A copy of the solicitation email-letter is attached. The email-letter of solicitation introduced the PI to the participants, described the study and requested their participation in the study. The solicitation letter which is in the body of the email had a link embedded that directed the participants, if they wished to complete the survey on SurveyMonkey, an online software entity where the surveys are housed. The participants completed the research at their convenience in a quiet location with access to the Internet and a computer.

The PI used SurveyMonkey to send automatic email reminders to the potential study participants weekly for eight months. The PI did not debrief the study participants. The participants' anonymity and confidentiality of the data was protected and maintained throughout the duration of the research project. The information collected from the participants was coded for anonymity and the data was entered into a computer with password protection for confidentiality and analyzed. The summary methodology process is shown in Figure 2 below.

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Figure 2

Summary Procedure



Data Analysis

The MBI-HSS survey was scored to determine the burnout rate of radiology physician executives. The PI analyzed the data gathered in the MBI-HSS by utilizing the IBM Statistical Package for the Social Sciences version 19.0 (SPSS). Central tendency was calculated for all measured variables.

Pearson's Chi Square was conducted to determine if there is a difference in the burnout rate for radiology physician executives with less than 5 years of experience from those with more than 5 years of experience. Burnout was calculated based on a composite score of high emotional exhaustion, high depersonalization and reduced personal achievement. Therefore, participants with a score of 27 or greater for emotional exhaustion and a score of 13 or higher for depersonalization and a score of 39 or higher met the criteria for burnout and those who did not meet the specified criteria did not experience burnout.

A Multiple Regression was performed to determine the strength and direction of the relationship between work factors and the burnout level of radiology physician executives. The three predictor variables analyzed are role perception (researcher,

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clinician, administrator, teacher and other), years of experience and hours of work.

Burnout was evaluated as a continuous variable (total emotional exhaustion score plus total depersonalization score plus total reduced personal achievement score.).

Pearson Correlation analysis was applied to analyze if there is an association between administrative support, family support and the burnout of radiology physician executives. The independent variables are administrative support and family support and the dependent variable is burnout as characterized by total emotional exhaustion, plus total depersonalization score, plus total reduced personal achievement score as a continuous variable. Administrative support was measured by whether or not the radiology physician executives reported satisfaction with their administrative support. Family support was measured by whether or not the radiology physician executives reported that they have the support that they need from their family. Both independent variables were measured using a 1- 5-point Likert scale that ranged from strongly agree to strongly disagree.

In addition to testing the above-mentioned three hypotheses, the data from the demographic portion of the Profile Sheet was used in two ways. The quantitative data from the Profile Sheet was analyzed using summary statistics such as frequencies, measures of central tendency, statistical dispersion and the shape of the distribution. The process to abstract and analyze the textual data in this research project was conducted according to established ways to analyze and present qualitative data (Burnard, Gill, Stewart, Treasure & Chadwick, 2008). The qualitative data from the remainder of the Profile Sheet, such as the open-ended questions, were reviewed to determine patterns or categories. The responses were categorized based on "context

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text” and what is published in the literature on burnout. The themes are reported in table format – showing categories, frequencies and percentages. For instance, the PI examined the response of each participant to each question to confirm or refute known themes evidenced in the literature on burnout. Further data analysis entailed examining the data from the open-ended questions on the Profile Sheet for common and core themes and their frequencies of presentation. The themes were transcribed and coded. Peer review of the transcribed and coded outcome from the open-ended questions on the Profile sheet was checked for validity and reliability. The observed themes from the open-ended questions were discussed further in relation to the literature.

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Chapter IV

Results

The findings of the present study are reported in this chapter in five main sections. Descriptive statistics are presented in the first part of the results; which include the response rate, demographic profile of the participants, and prevalence of Radiology PEs' burnout. The second section of the results includes the inference statistics that describe the Radiology PEs' burnout difference with five years of experience or less. The third set of results relates to analysis about work factors predicting Radiology PEs' burnout. The fourth portion of the results section of this paper describes Radiology PEs' burnout in relation to administrative and family support. The fifth section of this results chapter outlines the responses to the open-ended questions.

Descriptive Statistics

Response Rate

492 Radiology PEs were approached via SurveyMonkey using email addresses obtained from FREIDA, cross referenced with the contact information publically available on the websites of the accredited medical institutions in the United States. The PI sent emails with an embedded link to the survey to 492 Radiology PEs working in accredited academic medical institutions in the United States. 141 of the 492 potential subjects completed the survey. Fifty-eight potential participants did not complete the survey for the following reasons – the participants automatically opted out of the electronic survey (27 Radiology PEs); the email with survey bounced (24 Radiology PEs), and other potential participants (7 Radiology PEs) contacted the PI and did not complete the survey. The list of concerns raised by the potential participants who

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contacted the PI include the following: concerns about the storing of the study's data (1 Radiology PE), suggestion that the PI seek the endorsement of the Society of Chairs of Academic Radiology Department (1 Radiology PE), reported an issue with the survey link (1 Radiology PE), promised to complete the survey (1 Radiology PE), reported that he was not the department chair (2 Radiology PEs) and requested the removal of his name from the email list (1 Radiology PE).

In this study of the 492 potential participants 141 completed the survey; therefore, the response rate was 28.7%. In comparison with the response rate for similar web-based surveys, the response rate for this study is acceptable (Cook, Heath, & Thompson, 2000; Nulty, 2008; Carley-Baxter, Hill, Roe, Twiddy, Baxter & Ruppenkamp, 2009).

Demographic Profile

Data from 141 participants was analyzed. The participants' demographic characteristics included ethnicity, gender, marital status, age, years working as a physician executive, years of experience, hours worked per week and hours worked on weekend and nights. Table 2 shows that the participants self-identified as White (95, 69%), other (16, 11%), Asian (10, 7%), Hispanic (7, 5%), Black (5, 4%), Native American (3, 2%) and Middle Eastern (3, 2%). Most of the participants were married (124, 89%) and the majority of the participants were male (79, 57%).

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Table 2

Socio-Demographic Data Table of Participants (139)

Variables	Frequency	Percent
Ethnic group		
White	95	68
Other	16	12
Asian	10	07
Hispanic	07	05
Black	05	04
Native American	03	02
Middle Eastern	03	02
Gender		
Male	79	57
Female	52	43
Marital status		
Married	124	89
Unmarried	015	11

Table 3 below reveals that overall, Radiology PEs who responded to the survey were on average 54 years of age with their ages ranging from 30 to 80 years. On average the Radiology PEs had 10 years in their current jobs and had been in their jobs for periods as short as four months to as long as 25 years. The participants' years of experience as Radiology PEs ranged from four months to thirty-three years, with an average of 13 years of experience. The participants who responded tended to work between 55 to 120 hours per week with an average of 53 hours per week. On the other hand, the participants' hours of work on evenings and weekends ranged from 0 to 30 hours per weekend. They worked an average of 10 hours during the evenings and on weekends.

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Table 3
Work Factors Data Table of Participants

Variable	Mean	Std. Deviation	N
Age	54	11	135
Work Years			
Years in current job	10	08	122
Years of experience	13	09	131
Work Hours			
Work Week	53	15	124
Weekend & Nights	10	06	116

Prevalence of Radiology PEs Burnout

Hypothesis 1 analysis

The first research question sought to calculate the prevalence of burnout in Radiology PEs working in academic medical institutions in the United States. Using values from the Maslach Burnout Inventory Manual Health Human Survey (Maslach et al., 1996) the data was assessed to determine how many of the 141 participants were burnt out – low burnout, moderate burnout and high burnout. Table 4 also shows that of the 141 participants the overall burnout rate for Radiology PEs is 14.18% (20 participants). However, only 2.13% (3 participants) had a high burnout level, while 1.42% (2 participants) had a moderate burnout level and 10.63% (15 participants) had a low level of burnout. Table 4 also shows the means and standard deviations of the MBI-HSS subscales. From an overall sample size of 141, the mean and standard deviation for emotional exhaustion was determined to be 27.7 and 13.3. The mean for the depersonalization subscale was 9.1 and the standard deviation was 5.4. For the personal achievement subscale the mean was 43.3 and the standard deviation was 10.3.

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Table 4

Prevalence of Burnout in Radiology Physician Executives (n -141)

<u>Composite Burnout Scores</u>	<u>Frequency</u>	<u>Percent</u>
Overall Burnout Rates (Low-High)	20	14.18%
High Burnout	3	2.13%
Moderate Burnout	2	1.42%
Low Burnout	15	10.63%

<u>MBI – HSS Burnout Subscales</u>	<u>Means</u>	<u>Standard Deviation</u>
Emotional Exhaustion	27.7	13.3
Depersonalization	9.1	5.4
Personal Achievement	43.3	10.3

Table 5 shows additional analyses of the MBI-HSS subscales that were performed using values provided in the Maslach Burnout Inventory Manual (Maslach et al., 1996). The calculation of frequencies and percentages by levels (low, moderate and high) for each of the three subscales: emotional exhaustion, depersonalization, personal accomplishment were measured and reported in Table 5. On the emotional exhaustion subscale 20.6% (29) participants rated their emotional exhaustion as low; 33.3% (47) participants reported their emotional exhaustion level as moderate, while 46.1% (65) participants) rated high on the emotional exhaustion subscale. The frequencies and percentages on the depersonalization subscale were also calculated resulting in 35.7% (50) of the participants rating low on the depersonalization subscale, 40% (56) of the participants rating moderate and 24.3% (34) participants having high depersonalization respectively. The frequencies and percentages for the personal accomplishment subscale were also calculated. On the personal achievement subscale, 75% (107) participants scored low, 12.8% (18) participants scored moderate and 10.7% (15) participants scored high on the personal achievement subscale.

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Table 5

Frequency and Percent of MBI - HSS Subscales for Radiology Physician Executives

Subscales	Frequency	Percent
Emotional Exhaustion		
Low Level (≤ 16)	29	20.6
Moderate Level (17-26)	47	33.3
High Level (≥ 27)	65	46.1
Depersonalization		
Low Level (≤ 6)	50	35.7
Moderate Level (7-12)	56	40
High Level (≥ 13)	34	24.3
Personal Achievement		
Low Level (≥ 39)	107	75.9
Moderate Level (38-32)	18	12.8
High Level (≤ 31)	15	10.7

Radiology PEs' and Five Years of Experience or Less**Hypothesis 2 analysis**

The alternative hypothesis for this research question predicted that there is a difference in the burnout rate of Radiology PEs with less than 5 years of experience compared to the burnout rate of Radiology PEs with five or more year years of experience. In order to identify the association between the independent variable, a categorical variable (years of experience less than five years/ years of experience greater than five years) and the dependent variable (each burnout subscale) a Pearson Chi-Square test of independence was performed. The Pearson Chi-Square test showed that there is no statistically significant relationship between PEs' emotional exhaustion and two groups of years of experience (less than or equal to five years and greater than five years) (Pearson Chi-Square = 0.01. $\alpha = 0.91$). An alpha level of

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significance of 0.05 was used for this statistical test. Seventeen of the 131 participants who had more than less five years of experience and 52.9% (9) were not burned out on the emotional exhaustion subscale, while 47.1% (8) were burned out. 114 of the participants with more than five years of experience 52.9 % (71) were not burned out and 45.8% (60) were burned out.

A Pearson Chi-Square analysis for the second part of the analysis determined that there is no statistically significant relationship between years of experience (less than or equal to five years and greater than five years) and Radiology PE's depersonalization (Pearson Chi-Square = 1.25. $\alpha = 0.26$). 12.98% (17) of the 131 participants had less than five years of experience and 64.7% (11) were not burned out on the depersonalization subscale, while 35.3% (6) were burned out. Alternatively, 87.0% (114) of the participants who had more than five years of experience 75.6 % (99) were not burnt out, while 24.4% (32) were burned out.

A Pearson Chi-Square analysis for the third part of the analysis showed that there is no statistically significant relationship between years of experience (less than or equal to five years and greater than five years) and Radiology PEs' personal accomplishment (Pearson Chi-Square = 2.17 $\alpha = 0.14$). A percentage, 12.98% (17), of the 131 participants had less than five years of experience and 82.4% (14) were not burned out on the personal accomplishment subscale, while 17.6% (3) were burnt out. In contrast, 114 of the participants who had more than five years of experience 93% (106) were not burned out, while 17.6% (8) were burnt out. Post hoc analysis using the Chi-square – Goodness of Fit Contingency Tables revealed a small effect size for each

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emotional exhaustion (0.01), depersonalization (0.01) and personal accomplishment (0.13) respectively.

Work Factors Predicting Radiology PEs' Burnout

Hypothesis 3 analysis

The alternate hypothesis for this research question predicted that work factors such as role perception, years of experience, and hours of work have an influence on Radiology PEs' burnout level. The independent variables in this hypothesis are role perception (categorical variable), years of experience (ratio variable) and hours of work (ratio variable). In order to get a continuous variable on both axes, dummy coding for categorical variables was used to obtain a higher level of measurement. Burnout was the dependent variable in the study and it was treated as a categorical variable by the following subscales – emotional exhaustion, depersonalization and personal accomplishment. A multiple regression analysis was used to determine the strength and direction of the relationship between the variables. The alpha level used for these analyses was 0.05.

The first part of the analysis of the predictors revealed that the regression model for emotional exhaustion is non-significant. The model summary details were $R = 0.19$, $R^2 = 0.03$, adjusted $R^2 = 0.01$ and a standard error of estimate value of 12.94. Further statistical results showed that work factors were not predictive of emotional exhaustion. The calculations revealed a significance level of 0.24, a sum of squares of 710.78 and a mean square of 236.93. The regression equation for emotional exhaustion = $27.199 - 0.94^* (\text{role binary}) - 0.23^* (\text{years of experience}) + 0.07^* (\text{total week hours worked})$.

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The second part of the analysis of the predictors revealed that the regression model for depersonalization is non-significant. The model summary details were $R = 0.18$, $R^2 = 0.03$, adjusted $r^2 = 0.01$ and a standard error of estimate value of 5.5. Additional statistical results showed that work factors were not predictive of depersonalization. The significance level was 0.28; the sum of squares was 117.99 and the mean square was 39.33. The regression equation for depersonalization = $7.08 - 0.07^* (\text{role binary}) - 0.06^* (\text{years of experience}) + 0.05^* (\text{total week hours worked})$.

The third part of the analysis of the predictors and personal accomplishment revealed that the model summary details were $R = 0.20$, $R^2 = 0.040$ adjusted $R^2 = 0.02$ and a standard error of estimate value of 9.18. Added statistical calculations showed that work factors were not predictive of personal accomplishment. The significance level was 0.18; the sum of squares was 419.59 and the mean square was 139.86. The regression equation for personal accomplishment = $36.56 + 0.45^* (\text{role binary}) + 0.11^* (\text{years of experience}) + 0.096^* (\text{total week hours worked})$. Post hoc analysis using the F test Goodness of Fit Contingency Tables revealed a small effect size and low power for each subscale: emotional exhaustion (0.04), depersonalization (0.01) and personal accomplishment (0.03) respectively.

Radiology PEs' Burnout and Administrative and Family Support

Hypothesis 4a analysis

The PI theorized that there is a relationship between Radiology PEs' administrative support (independent variable) and their burnout experience (dependent variable). Using the Pearson Correlation to determine if there is an association between the variables resulted in the finding that the correlation analysis showed that there is no

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significant relationship between administrative support and emotional exhaustion, $r = -0.07$, $n = 139$, $p = 0.44$; nor between administrative support and depersonalization, $r = 0.05$, $n = 139$, $p = 0.58$; nor between administrative support and personal accomplishment, $r = -0.02$, $n = 139$, $p = 0.83$. Post hoc analysis using the t test Correlation revealed a small effect size for emotional exhaustion ($r = 0.03$, $1-\beta = 0.06$, $n = 139$), depersonalization ($r = 0.01$, $1-\beta = 0.05$, $n = 139$) and personal accomplishment ($r = 0.01$, $1-\beta = 0.05$, $n = 139$) respectively.

Hypothesis 4b analysis

Finally, the PI hypothesized that there is a relationship between Radiology PEs' family support (independent variable) and their burnout experience (dependent variable). Using the Pearson Correlation test to determine if there is an association between the variables again resulted in the finding that there is no significant relationship between family support and emotional exhaustion, $r = -0.12$, $n = 133$, $p = 0.47$; nor between family support and personal accomplishment, $r = -0.06$, $n = 13$, $p = 0.58$. However, the correlation analysis indicated that there is a negative significant relationship between family support and depersonalization, $r = -0.18$, $n = 133$, $p = .004$. Post hoc analysis using the t test Correlation revealed a small effect size and low power for each correlation between independent and burnout subscale: emotional exhaustion ($r = 0.11$, $1-\beta = 0.27$, $n = 139$), depersonalization ($r = 0.07$, $1-\beta = 0.12$, $n = 139$) and personal accomplishment ($r = 0.02$, $1-\beta = 0.55$, $n = 139$) respectively.

Responses to Open-Ended Questions

Of the 141 Radiology PEs who completed the survey, 80 responded to the open-ended questions. However, all 80 participants did not answer each of the open-ended

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questions. The number of participants who completed the open-ended questions varied from question to question with the number of responders ranging from 62 to 80. The qualitative results of the open-ended questions included in this chapter are focused on six burnout themes which include: reasons for burnout, symptoms of burnout, strategies to prevent burnout, personality characteristics related to burnout, the perception on the influence of age on burnout and work changes to reduce burnout.

Reasons for burnout

Eighty Radiology PEs completed the survey question about the reason why Radiology PEs experience burnout. Some participants gave multiple responses; hence 108 reasons were tallied from the 80 responders. Table 6 shows the list of reasons for burnout reported by 80 participants in five categories with thirty-five (32.41%) responses about work overload. An example of the statements that the study participants made about work overload is "too much to do and too little time." Twenty-six (24.07%) participants reported that they do not feel that they were supported by their organization. One quotation from the study participants stated, "...non MD Hospital administrators try to control MDs instead of help them do their job..." Twenty-five (23.15%) participants reported that emotional exhaustion is a reason for Radiology PEs' burnout. A common response from the participants to illustrate emotional exhaustion is, "a lot of emotional demands." Thirteen (12.04%) Radiology PEs reported that conflict with their institution's vision was a reason for feeling burned out. One quotation to epitomize that reason is, "too much expected – not enough support." Nine (8.33%) participants reported that the lack of on-the-job training is a reason for burnout. For example participants felt, "unprepared to deal with some issues."

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Table 6

Reasons Why Radiology PEs are Burnout

Reasons for Burnout	Proportion (n)	Sample Responses
Work Overload	32% (35)	"too much to do and too little time"
No Perceived Organizational Support	24% (26)	"...non MD Hospital administrators that try to control MDs instead of help them do their job..."
Emotional Exhaustion	23% (25)	" a lot of emotional demands"
Conflict with Institution Vision	12% (13)	"Too much expected - not enough support"
Lack of on the Job Training	8% (9)	"Unprepared to deal with some issues"
Total	100% (108)	

Symptoms of burnout

Seventy-five participants completed the open-ended question about the symptoms of burnout that Radiology PEs experience. Table 7 illustrates a summary of the five categories of burnout symptoms reported by the participants. The total number of responses related to the symptoms of burnout was 162 because some participants suggested more than one reason for burnout. The two main symptoms of burnout for Radiology PEs are the negative effect on emotional well-being (64, 40%) and fatigue (43, 27%). Correspondingly, 27 participants (17%) reported that symptoms of burnout include negative effect on physical health. Twenty-two participants (14%) cited reduced enthusiasm for the job, while 6 participants (4%) reported that social relationship problems are symptomatic of burnout.

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Table 7

Burnout Symptoms

Burnout Symptoms	Proportion (n)	Sample Responses
Negative Effect on Emotional Well Being	40% (64)	"Quick temper"; "Bad behavior"; "Reactive behavior"
Fatigued	27% (43)	"Feeling drained at the end of day"
Negative Effect on Physical Health	17% (27)	"Weight gain"; "alcohol, drugs,"
Reduced Enthusiasm for the Job	14% (22)	"Disinterest in a good job or the patients"
Social Relationship Problems	4% (6)	"Decreased involvement in family life"
Total	100% (162)	

Preventing burnout

Seventy-three participants completed the question about how to prevent burnout and some participants provided multiple responses; hence a total of 135 burnout strategies were analyzed. As can be seen in Table 8, there are five main themes reflecting burnout prevention strategies that Radiology PEs use to help them cope including the following: maintaining regular activities; arranging breaks or time off from work; obtaining support from others; personal achievements; and mentoring and supporting others. By far the largest category of comments related to maintaining regular activities outside of the workplace. The following quotation illustrates the theme that maintaining regular exercise helps to prevent burnout: "Try and keep up some hobbies". Fifty-two of the 135 comments (39.52%) were about the importance of maintaining regular activities, while 38 comments (28.15%) suggested that burnout can

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be prevented by arranging breaks or time off from work. Twenty-seven (20.00%)

comments described how obtaining support from others helps to prevent burnout.

Another strategy reported to be useful is personal achievements (9, 6.67%) and likewise mentoring and supporting others (9, 6.67%).

Table 8

Ways Radiology PEs Prevent Burnout

Burnout Prevention Strategies	Proportion (n)	Sample Responses
Maintain Regular Activities	39% (52)	"Try and keep up some hobbies"
Arrange Breaks or Time Off	28% (38)	"Take breaks away from work"
Obtain Support From Others (including friends & Staff)	20% (27)	"I have good friends and mentors who help me"
Reach Personal Accomplishment	7% (9)	"learn to say no, focus on priorities"
Mentor and Support Others	7% (9)	"I have good friends who I mentor."
Total	100% (135)	

Personality traits and burnout

Seventy-three participants reported their personality traits help them to successfully cope with burnout. Table 9 reflects the personal attributes categorized based on the Five Factor Model theory classification of personality characteristics (Digman, 1990) paired with the participants' responses, frequency, and proportion. Thirty-one participants (41.89%) reported that their agreeableness trait helps them to cope with burnout. Additionally, 19 participants (25.68%) reported that their extraversion trait and 18 participants (24.32%) reported that their conscientiousness

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trait helped them to cope with burnout, while 5 participants (6.76%) reported that their openness trait helped them to cope with burnout.

Table 9

Personality traits and burnout

Personality Traits	Synonyms	Proportion (n)	Sample Responses
Agreeableness	Supportive, Warm, Adaptable, Confident, Friendly & Cooperative	41.89% (31)	"Keeping in mind the big picture and not letting the day to day stresses overwhelm me"
Extraversion	Cheerful, Optimistic, Positive, Sociable; Energetic & Assertive	25.68% (19)	"I'm an optimist"; "Start out each day as a new day and do not let past problems drag you down."
Conscientiousness	Hard Working, Efficient, Dependable, Organized, Obsessive & Self-disciplined	24.32% (18)	"Driven, but able to put work away."
Openness	Open minded, Intellectually Curious, Creative, Adventurous, Imaginative & Independent	6.76% (5)	"Enjoy things outside of work"; "I have other interest so I don't focus on problems at work 100% of the time."
Total		100% (73)	

Age and burnout

As is revealed in Table 10, sixty-two Radiology PEs responded to the question about whether or not age influences burnout. The majority of the participants (26, 41.94%) reported that age influences burnout, while 21 participants (33.87%) reported that age has no influence on burnout. In addition, 12 participants (19.35%) indicated

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that age may influence burnout, while 3 participants (4.84%) reported that age both does and does not influence burnout. In addition, 26 of 35 (74.29%) participants commented that being older is beneficial to Radiology PEs, while 9 (25.71%) of the 35 participants commented that being does not help to prevent burnout.

Table 10

Age as an influence on burnout (N = 62)

Does age influence burnout?	Proportion (n)
Yes	41.94% (26)
No	33.87% (21)
Maybe/Unsure	19.35% (12)
Both Yes and No	4.84% (3)
Total	100% (62)
Is being older beneficial?	Proportion
Yes	74.29% (26)
No	25.71% (9)
Total	100% (35)

Two advantages of age emerged as per Table 11: older Radiology PEs are: older Radiology PEs are more experienced (16, 61.54%) and better equipped to cope (10, 38.46%). Conversely, disadvantages of age included 6 of 9 (66.67%) responders suggesting that older Radiology PEs have less energy and strength, and the remaining 3 (33.33%) commenting that older Radiology PEs experience cognitive decline.

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Table 11*Age and its influence on burnout (N=62)*

Reasons Favoring Older Radiology Physician executives	Proportion (n)	Sample Responses
More Experienced	61.54% (16)	It is experience, which comes with age"; "Older and wiser; have seen it all before."
Better Equipped to Cope	38.46% (10)	As we get older, we get better equipped to cope." "When I was younger, my level of frustration was higher."
Total	100% (26)	
Reason Against Older Radiology Physician Executives	Proportion (n)	Sample Responses
Less Energy and Strength	66.67% (6)	"the older I get the easier it is for me to burn out"
Cognitive Decline	33.33% (3)	"as the decision executive ages, cognitive decline exacerbates Burnout"
Total	100% (9)	

Work environment changes and burnout

Seventy-two participants completed the open-ended question concerning the types of environmental changes in the workplace that would be helpful in dealing with burnout. There was a wide range of suggestions for change and only one of the six categories of suggestions were related to the physical work environment. As shown in Table 12, most of the suggestions for change were related to support on the job (37, 35.58%), while the other five categories for improvement were: promoting reciprocal relationship with individuals and the institution (24, 23.08%); infrastructure-IST, exercise facility (14, 13.46%); arrange for breaks and time off (16, 15.38%); separation of duties-clinical from administrative (8, 7.69%) and mentoring (4, 4.81%).

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Table 12*Work environment changes and burnout table (N=72)*

Job Changes	Proportion (n)	Sample Responses
Support on the job	35.58% (37)	"More executive and staff support process"
Promoting Reciprocal Relationship with Individuals and the institution	23.08% (24)	"Increase in respectful, meaningful interaction between Hospital Administration and Medical Staff."
Infrastructure (IST, Exercise facility)	13.46% (14)	"It sounds silly, but the physical environment at my work - ugly torn carpet, broken chairs, poor temp controls/ventilation, horrible ergonomics - sends a message that the hospital does not care about us as people."
Arrange for Breaks and Time Off	15.38% (16)	Flexible work schedules; Shorten the workday"
Separation of Duties (Clinical from Administrative)	7.69% (8)	"Protected time for teaching and research"
Mentoring	4.81% (5)	"Better trained staff. Get rid of unions to make it easier to eliminate trouble makes and hire more user friendly staff."
Total	100% (104)	

To improve the reliability and validity of the open-ended analysis, the PI applied peer checking with another researcher. They each independently reviewed and categorized the data by participants for each open-ended question. They collaborated and reviewed each other's work to produce a final set of agreed upon coding

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categories. Inter-relator reliability and validity was reached for all open-ended questions.

Summary findings

A total of 141 of 492 eligible Radiology PEs completed the electronic survey - a composite of the MBI- HSS and the Profile sheet created by the PI. Characteristics of the study participants include the fact that most of them were married (89%), white (69%), and males (57%) and they were on average 54 years old. The Radiology PEs reported an average of 10 years of experience with their years of experience ranging from 4 months to 33 years. The average participant worked full time (53 hours per during week) and 10 hours on the evenings and weekends.

Data was analyzed using descriptive statistics, Pearson Chi-Square, Regression Analysis, Pearson Correlations and thematic content analysis. The sample size for this study is 141 with a response rate of 28.66 %. The rate of high burnout for this sample is low; it was calculated to be 2.13% (3). The statistical model used to measure the difference in the burnout level of Radiology PE's with less than five years of work experience and those with five or more years was not significant. The regression model used to predict the strength and direction of the relationship between work factors and Radiology PEs' burnout was non-significant. There was no significant relationship found between administrative support and Radiology PEs' burnout. In addition, there is no statistically significant relationship between family support and Radiology PEs' burnout.

The open-ended questions provided a greater insight and understanding into the quantitative findings by revealing six factors related to the burnout experience of

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Radiology PEs. When the participants were asked about the reasons for burnout, the majority of them reported that work overload and no perceived organizational support were the main reasons for burnout. When the participants were questioned about the symptoms of burnout that they experience because of the work environment they revealed that they experience reduced emotional wellness. When surveyed about burnout prevention strategies the participants reported that maintaining regular exercise was critical to preventing burnout. When questioned about the personal characteristics that contribute to success on the job, agreeableness was identified as the most germane personality trait. The question about whether or not age influenced burnout revealed that most participants perceive age to have an influence, with the majority believing that being older is helpful. When asked what work environmental changes would help them to cope with burnout the majority of the participants said support on the job. These findings about the burnout experience of Radiology PEs can be incorporated into a preliminary schema to help explain and understand how personal factors and work factors mitigate to contribute to or prevent burnout in Radiology PEs.

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Chapter V

DISCUSSION

Maslach and Jackson (1981) state that a high level of burnout increases the potential for professionals like physician executives to experience challenges in their workplace and in their personal lives. Most studies on the burnout rate of physician executives focused mainly on the rate of burnout and also their work environmental factors by medical specialty. This current research study is the only one to investigate the burnout rate of Radiology PEs in academic medical institutions in the United States. The purpose of this study was to determine the prevalence of burnout in Radiology PEs, to understand their burnout experience and to recognize the factors that influence burnout. The most important finding of this study is the low incidence of burnout (2%) among Radiology PEs working in academic medical institutions in the United States. The present study used mixed methods design to investigate the burnout experience of Radiology PEs by examining Radiology PEs' demographic characteristics, and themes that emerged from the qualitative portion of the study.

There is some variability in the literature on the burnout rate of physician executives. Maslach and Jackson (1981) infer that health professionals whose jobs require them to have sustained contact with their clients are likely to experience burnout. Radiology PEs' jobs are not client-intensive in comparison with other medical specialties such orthopedic surgery PEs or otolaryngology chairs. This study concluded that the burnout rate for Radiology PEs is low. The overall rate of burnout for Radiology PEs was 14% (20) of which 2% (3) reports high burnout, 1% (2) reported moderate burnout and 11% (15) reported low burnout. The low rate of high burnout in this group is comparable

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to several groups of physician executives, such as radiation oncology chairs who experience 0% burnout (Kusano, 2013), medical school deans who report a 2% burnout rate (Gabe et al., 2008), otolaryngology chairs who report a rate of 3% (John & Ossoff, 2005), obstetrics and gynecologic chairs who report a 4% burnout rate (Gabe, et al., 2002) and pediatric chairs who report a rate of 4% (McPhillips et al., 2007). All of those studies report a burnout rate that is considered ideal. According to Glembiewski et al.'s (1985) burnout criteria: ideal ($0 \leq 5\%$), tolerable ($5 \geq 10$) or indicative of the need for intervention ($10\% \leq$). Radiology PEs' burnout rate appears to be consistent with that of other physician executives in diagnostic medical specialties such as those cited above. Although the burnout rate for Radiology PEs is low, knowing the burnout rate for Radiology PEs is the first part of the strategy to reduce the impact of burnout in this group.

Additional quantitative analysis of the factors associated with or predictive of burnout revealed no significant findings. While there is no significant relationship between or significant difference in the burnout constructs due to these independent variables in this study, the independent variables were identified from the literature and were frequently studied in the past with inconsistent results. Despite the fact that no significant relationship was found between the various independent variables and the dependent variable studied, it is worth noting that this study revealed a significant relationship between some of the independent variables and aspects of the burnout phenomenon. The factors associated with burnout rate in this group may be other variables not investigated in this study, or other factors not mentioned in the literature as well.

Hypothesis two stating that the burnout experience of Radiology PEs with less than 5 years of experience would be different from those with more than 5 years of experience

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was not supported. The participants' years of experience as Radiology PEs ranged from 4 months to 33 years, with an average of 13 years of experience. While this is a sufficiently broad range of years of experience it is possible that the sample size was too small to detect a relationship, or a significant difference between the burnout scores. Another possible explanation may be related to one of the principles of Equity theory (Digman, 1990), which describes the fluid balance between the contributions of the individual to the organization and the organization's reward for the individual's efforts. Thus it would be reasonable for Radiology PEs' perception of their organizations' reward at the time of the study to be sufficient across the board so as to not necessarily show an association between the variables.

A review of the literature suggests that there are conflicting findings on whether or not a physician executive with limited work experience is more susceptible to burnout than one with five or more years of experience. McPhillips et al., (2007) reported that department chairs with less than 5 years of experience chairing worked long hours and were more likely to experience burnout. Similarly, Gabbe et al. (2002) concluded that obstetrics and gynecologic department chairs were more likely to be burned out than new department chairs. On the other hand, Mirvis' et al. (2006), found no relationship between years of experience and deans' burnout experience. Likewise, Saleh et al. (2009) found no significant relationship between department chairs and burnout. However, this study's findings indicate the presence of burnout in Radiology PEs, which was unknown prior to this study. Knowing the prevalence of burnout in Radiology PEs may lead to further research on the topic.

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Also, the PI investigated whether Radiology PEs' role, years of experience and number of hours work are predictors of their burnout. The findings of this research suggest that none of those work factors are significantly predictive of burnout levels for Radiology PEs, which was surprising because long hours of work and expansive responsibilities are reasonably assumed to be exhaustive. However, Mirvis's et al. (2006) also did not find a significant relationship between hours worked and the burnout experience of deans. Similarly, De Oliveria et al. (2010) did not find any significant relationship between the number of years the department chairs held their position, and the number of hours department chairs worked. However, Gabbe, et al.'s (2008) study of the burnout rate of deans determined that the number of hours worked work per week is associated with burnout among deans. Taken as a whole, these work factors may not be the best predictors of burnout for this study population. Some researchers suggested that these factors do not relate to physician executives' experience with burnout.

Prior to this study, administrative support was never researched in relation to the burnout experience of Radiology PEs. The PI hypothesized that both administrative support and family support are associated with the burnout experience of Radiology PEs; however, the research findings did not reveal any significant association. The association between administrative support and Radiology PEs' burnout experience was not significant, which again could be due to the small sample size, whereas a larger sample size could have yielded a more robust finding.

This study also did not find a significant association between family support and burnout; however, this research indicated that family support has a weak negative association with depersonalization – a burnout construct. The COR theory (Gorgievski &

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Hobfoll, 2008) posits that individuals who experience prolonged stress on the job may also feel disconnected from their job. It therefore suggests that as family support increases Radiology PEs' felt less disconnected from their work. The study findings may not have shown a significant relationship with the two other burnout constructs because the incidence of high burnout in the group was very low. Additionally, the fact that the participants could turn to their family for support may have helped them not only cope with stress on the job but also helped them not to stress about their work to the extent of feeling emotionally exhausted and demoralized.

The literature on the association between physician executives' family support and burnout suggests that an increase in family support may be associated with a decrease in burnout. Gabbe et al., (2002) concluded that spousal or family support might significantly help to reduce burnout among department chairs. Gabbe, et al. (2008) also found that older deans with good family support were less likely to experience burnout. Saleh et al. (2009) reported that orthopedic chairs believed that their families were supportive. Similarly, De Oliveria et al. (2010) also found that spousal support helped to reduce the incidence of burnout. Therefore, this study's finding about the negative association between family support and burnout also may be indicative of the importance of good family support as a major influencing factor of burnout. Physicians working in a major leadership role in their institution usually have a very demanding job. Thus, being able to talk to family members about their work may contribute to physician executives feeling more accomplished on the job.

The qualitative portion of the study captured other aspects of the burnout experience of Radiology PEs not recognized by the quantitative portion and it provided

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substantial insight into the Radiology PEs' experience with burnout. The study findings on six major themes are comparable to other studies on burnout and physician executives and the findings of this study fit well within the theories commonly associated with burnout. The following discussion of the major themes that emerged from this study are explained in connection with employment theories and what is published in the literature on burnout.

One of the themes that emerged in this study pertains why Radiology PEs experience burnout. This study revealed that participants think that having "too much to do" is the main reason that Radiology PEs get burned out. The link between burnout and having too much to do is can be explained with the JD-R theory (Demerouti et al., 2001), which expounds that the perceived excessive demands of the job can lead to the lack of motivation in employees and ultimately cause burnout. Within the framework of the COR theory (Gorgievski & Hobfoll, 2008) the stressors associated with an employee's work can negatively affect motivation. In healthcare, burned out Radiology PEs may become so demotivated from having too much to do that their lack of motivation may adversely affect their performance. The adverse effects related to the physical and/ or mental exhaustion of the radiology PE may be manifested throughout their tenure as Radiology PEs.

The second theme that emerged in the study was about perceived symptoms of burnout. Radiology PEs believed that burnout has a negative effect on their work and on their emotional well-being. The participants used phrases such as "reactive behavior" and "quick tempered" to describe the negative impact of burnout on their emotional state. Attributes such as these can be harmful to the interdependent relationship that exists between the physician executive and his or her patients, residents and clinical and non-

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clinical team. Burnout could jeopardize the physician executive's provision of patient-centered care.

The third theme that developed from the study is the importance of regular activity in preventing burnout. Their perception that maintaining regular activities, such as "try and keep up some hobbies," may serve as a buffer to burnout. Such stress relieving actions, in part, may be related to the idea of having too much to do and when the Radiology PE has too much to do he/ she has little or no time to engage in regular activities to relieve stress. This study finding is consistent with McPhillips et al. (2007) which also suggests that physician executives need and must find a balance between their professional and personal life to prevent burnout. Other authors such as Johns, et al. (2005) and Sharafait (2012) also found that satisfaction with work-life balance may help to alter the effects of burnout on physician executives. Moreover, the COR theory (Gorgievski & Hobfoll, 2008) states that stress on the job due to significant or anticipated loss can lead to burnout, so engagement in hobbies and other relaxing activities are likely to reduce the stress associated with persistently overextension of oneself.

The fourth theme that emerged from the study is related to the concept that Radiology PEs' personality is associated with their burnout experience. The FFM personality theory (Digman, 2009) suggests that an individual's susceptibility to burnout is based on personality type and in this study the majority of the participants' self-description puts them in the agreeableness personality category of the FFM. The majority of the Radiology PEs reported that they "[kept] in mind the big picture and [did] not [let] the day-to-day stresses overwhelm [them]". Those Radiology PEs whose personality trait was categorized as agreeableness may been able to find meaning, purpose and value in

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their work and that may have helped them to avoid getting burnt out. Perhaps the burnout rate was so low for this group of physician executives because of their intrinsic motivation and approach to work. Kusano (2013) too speculated that personality types may have contributed to the low rate of burnout for radiology oncology chairs.

The fifth theme that developed from the study involves age and its association with Radiology PEs burnout experience. On one hand, the study participants perceive that older Radiology PEs are more experienced and prepared to cope with factors that influence burnout; on the other hand, age was also perceived to be a hindrance by those participants who associated age with cognitive decline. While age may be perceived as a safeguard against the demands of the job that that could lead to burnout, old age may also be counterproductive. Though this study suggests that old Radiology PEs may be better able to cope with burnout, an interesting theme for further research is an evaluation of how age relates to actual differences in burnout experiences.

The sixth and final theme that emerged from this study is that Radiology PEs want support from their colleagues, with the participants reporting that support from their colleagues and others at work is helpful in reducing or preventing burnout. This finding is consistent with that of McPhillips et al. (2007), which suggests that the lack of support in the workplace is associated with burnout among physician executives. Equity theory (Digman, 1990) suggests that burnout in the work place is offset when there is a balance between the individual and organization's contributions; therefore, support from peers and subordinates could help to relieve the organization's factors that contribute to Radiology PE's burnout.

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Recommendations for Practice

The findings and conclusions of the present study suggest that the burnout rate for Radiology PEs is low; however, while no intervention is necessary, academic medical institutions should review the work environment of Radiology PEs to ensure that factors associated with burnout are addressed and not in conflict with the provision of patient-centered care and residency / fellowship education. The organization could also promote initiatives that could increase Radiology PEs' engagement.

In addition, burnout assessment could become a routine part of Radiology PEs' performance evaluation. Leaders of academic medical institutions could use Radiology PEs' burnout scores during performance evaluation to recommend individual change, provide support, as well as implement changes to the work environment that lessen the demands of the job. Individual Radiology PEs could use their own burnout assessment score to help them to adopt strategies to prevent burnout. These recommendations are consistent with those of Maslach and Jackson, (1981) who operationalized the burnout phenomenon examined in this research study.

Study Limitations

It is important to note that there are several limitations to this study. One limitation is that research cannot address causality because of the cross-sectional study design. The second limitation relates to the reliance on self-report and the administration of the survey in an environment that was not controlled. The participants may have chosen to give responses that made them look or feel good. A third limitation is the self-selection of the study participants. Radiology PEs may have elected not to participate in the study for various reasons. Those who were burned out may have been too busy or reluctant for

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other reasons to participate in the study. The fourth limitation of the study relates to the fact that the sample did not include Radiology PEs from different settings, as it could be beneficial to study the burnout experience of Radiology PEs working in non-accredited radiology programs. The fifth limitation is that it did not fully examine the role of personality in the burnout process. The sixth limitation exists with the tool used in this study. Although the MBI – HSS is the only tool used to measure burnout among physician executives in the United States it has its limitations, for instance, not measuring personality and specific work environmental characteristics. Therefore, future research may include the use of another tool with good psychometric properties to measure the independent variables being studied in conjunction with the MBI-HSS. Alternatively, another instrument to measure burnout with good psychometric properties may be used to predict burnout.

Recommendations

Recommendations for future research on the topic of burnout and Radiology PEs could include changes in the methodology and the variables studied. The first suggestion for future research is to conduct a longitudinal study to establish causality by assessing the dynamic elements and their influence on Radiology PEs' burnout. The second recommendation is to research other independent variables or to examine in full the independent variables such staff ratio, staff shortage, work hours, budget and management training, workload, mentoring relationships and mentoring programs in relation to Radiology PEs' burnout experience. The third suggestion for future research is to further investigate the relationship between Radiology PEs' personality and their burnout experience because, while this study found that personality type is associated

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with aspects of burnout, it did not fully researched the relationship so the results cannot suggest whether or not personality type is predictive of burnout in Radiology PEs, or exactly how personality type impacts the development of burnout. The fourth recommendation for future research is to examine and understand the characteristics and role of family support using other research methods. The present study found a significant negative correlation between family support and personal accomplishment, which could help to frame the connection between Radiology PEs' burnout experience and their family relationships; however, the study design should create an environment where Radiology PEs can shed light on the connection between family support and their burnout experience.

Conclusion

Understanding the burnout experience of Radiology PEs is important to the provision of quality health care and outstanding graduate medical education in academic medical institutions. Prior to this study only twelve studies were conducted on the burnout experience of physician executives based on medical specialty, each of which reported a different rate of burnout and the factors associated with the rates. Likewise, determining the rate of burnout for Radiology PEs was essential because it presented another opportunity to provide new burnout rates for physician executives in general.

The PI developed the framework for this study with prior studies on the subject of burnout and physician executives in mind. All of the articles referenced in this document used the similar concept of burnout and the MBI- HSS tool to define, explain and operationalize burnout. This study used the same definition and research tool to allow for comparison across studies. While this study was not grounded in theory specific to

BURNOUT OF RADIOLOGY PHYSICIAN EXECUTIVES

physician executives, the literature discussion drew upon employment theories commonly used in the literature to explain burnout. Although the employment theories referenced in this document helped to provide a theoretical framework for explaining burnout, the primary purpose of this study was to uncover the complexities of the burnout experience of Radiology PEs working in academic medical institutions in the United States. The methodology used was a convergent mixed methods design. The study was a snapshot of Radiology PEs' burnout rate in 2015 and it was decidedly exploratory.

While the mixed methods design was systematic and rigorous, the model used was not able to detect whether there is a difference between the burnout level of Radiology PE's who had less than five years of work experience and those who had five or more years. Studying burnout in Radiology PEs revealed a low rate of burnout for this group. The regression model used to predict the strength and direction of the relationship between work factors and the burnout level of Radiology PEs and the differences were shown to be non-significant. There was no significant relationship found between administrative support and Radiology PEs burnout; however, the study found a negative significant relationship between family support and depersonalization, one of the concepts of burnout.

In addition to describing the burnout rate of Radiology PEs, this study offers thematic concepts generated from participants' responses based upon their burnout experience. The following themes emerged from the qualitative suspect of the study:

- Having too much to do is perceived as a reason for PEs burnout.
- Negative effect on emotional well-being is believed to be the main symptom of burnout among Radiology PEs.

BURNOUT OF RADIOLOGY PHYSICIAN EXECUTIVES

- Maintaining regular activities is perceived to be a key strategy to prevent burnout.
- Agreeableness is reported to be the personality type that helps Radiology PEs to manage burnout.
- Older Radiology PEs are reported to be more experienced and prepared to cope with factors that influence burnout.
- Support from colleagues and others at work is believed to be helpful in reducing or preventing burnout.

The themes derived from this study illustrate the current burnout experience of individuals who are practicing Radiology PEs in academic medical institutions in the United States. Sharing these study findings with Radiology PEs may help to them to understand the dangers associated with burnout and motivate them to take action that could reduce their likelihood of experiencing burnout. On an organizational level understanding burnout is an important step to impact in a positive way the recruitment, training and the deployment of Radiology PEs.

While the information gained from this study is preliminary, the findings make a valuable contribution to the literature about physician executives' burnout experience. The field has only begun to explore the interrelatedness of Radiology PEs' personality and burnout. The results of this study may be helpful in shaping a cohesive understanding of the burnout experience of Radiology PEs and future studies could be built on these insights. Additionally, the qualitative aspect of this study suggests that more research is needed to better triangulate the phenomenon of burnout and Radiology PEs now that the

BURNOUT OF RADIOLOGY PHYSICIAN EXECUTIVES

prevalence of burnout in Radiology PEs is known. This study can help to shape the direction of future research in healthcare in general and with Radiology PEs in particular.

The phenomenon of burnout remains a problem for healthcare workers, including Radiology PEs, in the rapidly evolving health care system. The symptoms of burnout, such as decreased productivity, fatigue, depression, and drugs and alcohol abuse are known to have negative influences on Radiology PEs' work-life balance. Therefore, there is value in providing information to Radiology PEs and health care organizations about burnout prevention and reduction. Burnout prevention could be a primary focus of leaders in healthcare because a physician executive who is experiencing burnout is unable to provide good patient care and make effective decisions related to the training of residents or the management and development of his or her team.

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Appendix A – Solicitation Letter

Solicitation Email/Letter

Solicitation Letter: Exploring Burnout in Radiology Physician Executives

Dear Radiology Physician Executive,

My name is Julie Chapman-Greene, MPH and I am a Doctoral Candidate in the Department of Interprofessional Health Sciences and Health Administration at Seton Hall University in New Jersey.

I am researching the burnout experience of radiology physician executives in order to document and understand the burnout experience of physician executives in the workplace. As such, you have been selected from the American Medical Association directory to complete a survey about your experience with burnout. My research is being conducted under the tutelage of Dr. Genevieve Pinto Zipp, Professor, at Seton Hall University.

You will be asked to complete two confidential on-line questionnaires. The surveys will ask demographic questions as well as questions about your perception of your work environment. One of the surveys is a profile sheet with demographic and semi-structured questions. The purpose of those questions is to understand your experience with burnout in your work environment. The other survey, Maslach Burnout Inventory Human Services Survey (MBI- HSS) will be used to survey your burnout experience specifically. The MBI-HSS is seen by social scientists as the best tool to measure burnout in health professions context because it has good validity and reliability (Maslach & Jackson, 1981).

Please approach the surveys and your answers from your individual point of view to candidly express your thoughts regarding the above-mentioned topics. I anticipate that it will take you approximately 20 minutes to complete the surveys. I hope that the information obtained from this research study will provide radiology physician executives with a better understanding of the issues affecting their burnout experience and suggest potential strategies to reduce burnout amongst radiology physician executives.

Your participation in the research study is entirely voluntary. You may decide not to participate at any time. If you decide not to participate, you will not be penalized or lose any benefits that you are otherwise entitled.

You will not be identified by name, employer, or description in any reports or publications about this study. SurveyMonkey "allows authors to disable the storage of email addresses and disable IP address collection for all collection methods so that they can collect anonymous survey responses." The information in this study will be kept strictly confidential. All data will be stored in a locked cabinet at the primary investigators home for a period of three years. There after the research data will be destroyed.

There are no foreseeable risk factors or discomfort, or any proposed or foreseeable direct benefits to you anticipated by participating in this research study. However, the results of this study will bring needed attention to the need for burnout risk management and prevention strategies

amongst radiology physician executives nationwide and may provide the impetus for making suggestions necessary to implement changes.

There will be no monetary or any kind of compensation for participation in this study.

There are no alternate ways to participate in this study.

You are asked to complete the surveys in a quiet place of your choice. Your participation is voluntary and you may decide to take a break while completing the surveys or you may decide not to participate at any time during the study. By accessing the link below, you are indicating that you are at least 18 years old, have read and understood this information presented above and agree to voluntarily participate in this research study

To begin the surveys click on this link to the surveys: <https://www.surveymonkey.com>. To end your participation in study at any time close the survey window.

You have the right to ask questions concerning this study at any time. If you have any questions concerning this study you may contact Dr. Mary Ruzicka, Chair of the Institutional Review Board, in the Office of the Institutional Review Board at Seton Hall University, at (973) 313-6314.

I thank you for taking the time to complete these surveys. Your completion of these surveys is indicative of your voluntary consent to participate in this research project.

Sincerely,

Julie Chapman-Greene, Doctoral Candidate
Department of Interprofessional Health Sciences and Health Administration
School of Health and Medical Sciences
Seton Hall University
400 South Orange Avenue
New Jersey 070

Appendix B – Approval for remote Use of Mind Garden Instrument


Approval for Remote Online Use of a Mind Garden Instrument

Effective date is October 19, 2015 for:
Julie Chapman-Greene

You submitted your statement for remote online use at 11:35 pm EDT on October 18, 2015.



Remote online use of the Mind Garden instrument stated below is approved for the person on the title page of this document.

Question	Answer
Your name:	Julie Chapman-Greene
Email address:	chapmaju@shu.edu
Repeat email address:	chapmaju@shu.edu
Phone number:	
Company/institution:	Seton Hall University
Your project title:	Exploring Burnout Amongst Physician Executives
Mind Garden Sales Order or Invoice number for your purchase of reproduction licenses:	USNXAJFNC
The name of the Mind Garden instrument you will be using:	MBI

Guidelines

You have agreed to the following guidelines:

Question	Answer
I have paid for my reproductions licenses and I will compensate Mind Garden, Inc. for every time the form is accessed or the participant logs in to access the survey. I understand that an administration or license is considered "used" when a respondent views one or more items/questions.	I agree to this condition.
I will put the instrument copyright statement (copyright date and copyright holder, including "Published by Mind Garden, Inc. www.mindgarden.com") on every page containing questions/items from this instrument and I will allow Mind Garden to verify the appearance in one of two ways: I will include info@mindgarden.com on my list of survey respondents or I will send screenshots of the survey so that Mind Garden can verify that the copyright statement appears.	I agree to this condition.
I will remove this online survey at the conclusion of my data collection and I will personally confirm that it cannot be accessed.	I agree to this condition.
Once the number of administrations reaches the number purchased, I will purchase additional licenses or the survey will be closed to use.	I agree to this condition.
I will not send Mind Garden instruments in the text of an email or as a PDF file to survey participants.	I agree to this condition.

Your comments and method of putting the instrument online

Question	Answer
Please specify the name of and web address for the remote online survey website you will be using and describe how you will be putting this instrument online:	I purchase the use of SurveyMonkey to distribute the MBI and a survey that I developed. (I am learning how to add the MBI via a link in the invitation email that I drafted on SurveyMonkey.) I am the only person who has access to my Surveymonkey account - www.surveymonkey.com.

Question

Answer

Please include any other comments or explanations you would like to provide about your remote online use of a Mind Garden instrument:

I plan to send reminder emails with the link to the MBI and my survey. I am doing this work to fulfill my dissertation requirement.

Your signature and date

Question

Answer

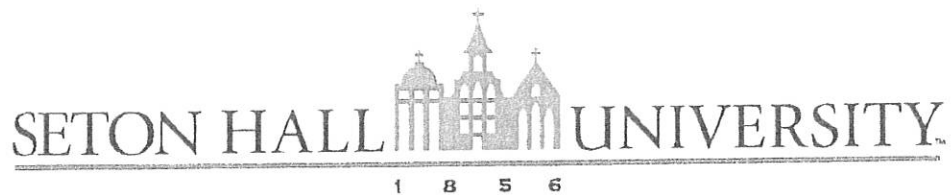
Your name (as electronic signature):

Julie Chapman-Greene

Date:

10/18/15

Appendix C— IRB Approval



July 21, 2015

Julie Chapman-Greene
[REDACTED]
[REDACTED]

Dear Ms. Chapman-Greene,

The Seton Hall University Institutional Review Board has reviewed the information you have submitted addressing the concerns for your proposal entitled "Using Mixed Methods to Explore and Understand the Burnout Experience of Physician Executives Working in Academic Radiology Departments." Your research protocol is hereby accepted as revised and is categorized as exempt.

Please note that, where applicable, subjects must sign and must be given a copy of the Seton Hall University current stamped Letter of Solicitation or Consent Form before the subjects' participation. All data, as well as the investigator's copies of the signed Consent Forms, must be retained by the principal investigator for a period of at least three years following the termination of the project.

Should you wish to make changes to the IRB approved procedures, the following materials must be submitted for IRB review and be approved by the IRB prior to being instituted:

- Description of proposed revisions;
- *If applicable*, any new or revised materials, such as recruitment fliers, letters to subjects, or consent documents; and
- *If applicable*, updated letters of approval from cooperating institutions and IRBs.

At the present time, there is no need for further action on your part with the IRB.

In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.

Sincerely,

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

Office of Institutional Review Board

Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079 • Tel: 973.313.6314 • Fax: 973.275.2361 • www.shu.edu



OFFICE OF INSTITUTIONAL
REVIEW BOARD
SETON HALL UNIVERSITY

March 23, 2016

Julie Chapman-Greene

~~William Street~~
~~Maplewood, NJ 07040~~

Dear Ms. Chapman-Greene,

The IRB hereby approves the requested amendment to your research protocol, "Using Mixed Methods to Explore and Understand the Burnout Experience of Physician Executives Working in Academic Radiology Departments" to include program directors working in accredited radiology residency and fellowship programs to the study.

Sincerely,



Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

cc: Dr. Genevieve Pinto Zipp

Please review Seton Hall University IRB's Policies and Procedures on website (<http://www.provost.shu.edu/IRB>) for more information. Please note the following requirements:

Adverse Reactions: If any untoward incidents or adverse reactions should develop as a result of this study, you are required to immediately notify in writing the Seton Hall University IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Amendments: If you wish to change **any** aspect of this study, please communicate your request in writing (with revised copies of the protocol and/or informed consent where applicable and the Amendment Form) to the IRB Director. The new procedures cannot be initiated until you receive IRB approval.

Completion of Study: Please notify Seton Hall University's IRB Director in writing as soon as the research has been completed, along with any results obtained.

Non-Compliance: Any issue of non-compliance to regulations will be reported to Seton Hall University's IRB Director, your sponsor and any federal regulatory institutions which may oversee this research, such as the OHRP or the FDA. If the problem is serious, approval may be withdrawn pending further review by the IRB.

Renewal: It is the principal investigator's responsibility to maintain IRB approval. A Continuing Review Form will be mailed to you prior to your initial approval anniversary date. **Note:** No research may be conducted (except to prevent immediate hazards to subjects), no data collected, nor any subjects enrolled after the expiration date.