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American Urologists' Concerns with Nonclinical Activities Moderating Burnout

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Walden University

College of Health Professions

This is to certify that the doctoral study by

Nichele Lynn Greer-Bennett

has been found to be complete and satisfactory in all respects,
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Review Committee
Dr. Kevin Broom, Committee Chairperson, Health Sciences Faculty
Dr. Albert Gale, Committee Member, Health Sciences Faculty
Dr. Ronald Hudak, University Reviewer, Health Sciences Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2022

Abstract

American Urologists' Concerns with Nonclinical Activities Moderating Burnout

by

Nichele Lynn Greer-Bennett

MHA, West Coast University, 2014

BS, Menlo College, 2002

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

Walden University

February 2022

Abstract

As burnout continues to increase in the healthcare field and specifically in the specialty of urology, gaining knowledge of certain risk factors associated with burnout can potentially help prevent further increases. Intervention programs may also be developed as a result of understanding these relationships. The purpose of this quantitative correlational analysis was to determine whether hours worked on nonclinical activities moderated the relationship between age and burnout as well as gender and burnout in American urologists. The theoretical foundations utilized in this research were the jobs demands resources model, which suggested that burnout occurs as a result of job demands and resources, and the aging and decision-making framework, which suggested that as a person ages, their decision-making abilities are affected. The two research questions were designed to determine whether hours worked on nonclinical activities moderated the relationships between age and burnout and gender and burnout. Two hierarchical logistic regressions were conducted with the raw data from the 2016 American Urological Association Census, to address the research questions. Block one consisted of the predictor variables (age and gender) and the moderator variable (number of hours worked on nonclinical activities). Block two consisted of the interaction terms multiplied by the moderator variables and added to the regression model. The analysis of this study showed moderation between the number of hours worked on nonclinical activities and gender and burnout. The implications for positive social change would come from informing urological leadership personnel of the risk factors associated with age and gender to assist with reducing burnout in urologists.

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Dedication

First and foremost, I would like to thank the "All Mighty" above for giving me the strength and patience to follow through with this journey. Next, I would like to dedicate this dissertation to my family, with whom I could not survive without. Although this has been a struggle, they've endured the challenge and helped me reach completion, cheering for me the whole way. To my husband Vernon, who, in his own way, stayed out of my way and tended to the kids, allowed me to complete this journey and reach this final level of education. To my kids, Nichele, Allen, and Niallana, thank you for ensuring that I had something to eat or drink during those long nights and early mornings of writing. I hope that through this journey, you all know that anything is achievable if you just put your mind to it. To my mom, I truly thank you for the lunches and dinners through this journey and for making sure the kids were fed and that they too looked in on me when you were not there. Lastly, to my sister Lessie, my BFF Kindra "the great," and friend Ivonne, thank you for being the cheerleaders in the background and for never allowing me give up or slack off. This journey definitely took a village and I'm glad to know that my family had my back throughout this whole process.

To my Dad smiling down on me from heaven, I did it, and I hope you're proud. I Love you always.

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I would like to acknowledge my Committee, Dr. Broom, Dr. Gale, and Dr. Hudak for enduring this process with me, correcting me when necessary, and getting me through the process. I would also like to acknowledge my Student Advisor Jen Rothamel for helping to move the process along during some of the longer wait periods. Thank you for also guiding me through some of the tough times.

I also would like to acknowledge two very dear friends that started this journey with me, Dr. Shavonda Greene (Dr. "V") and Carline Herisse. I really appreciate your friendship and thank you both for the discussions we've had, the residencies we've attended and for all of the family functions attended since we first met when pursuing our master's degrees. You women have been an inspiration to me, and I hope that I have been the same to you. I look forward to the next chapters in our lives and may GOD continue to bless the extraordinary women you are.

Table of Contents

List of Tables

Section 1: Foundation of the Study and Literature Review

Introduction

Over the past decade, physician burnout has become a significant issue for the healthcare industry (Grow et al., 2019). As a result, physicians are becoming disengaged toward their patients and more medical errors are occurring (Howell et al., 2019). Physician burnout in urology also continues to increase, threatens the workforce, and must be addressed at all levels (Marchalik et al., 2019). According to Chouhan et al. (2018) and Franc-Guimond et al. (2018), many urologists suffering from increased burnout are less than 45 years old and are leaving or retiring early, causing a decreased urological workforce. Templeton et al. (2019) noted that female physicians experiencing burnout are more susceptible to suicidal deaths than in other professions. Due to consequences associated with burnout such as those mentioned above, conditions must be improved and implemented to help decrease it (Marchalik et al., 2019).

To survive in today's "new normal" environment and to help a decreasing urological workforce, identifying root cause factors of burnout in urology is warranted. By understanding whether hours worked on nonclinical activities moderate relationships between burnout and age and gender, especially in the workplace among American urologists, administrators may create positive social change by targeting these factors, minimizing burnout in physicians, and creating more conducive working environments.

Problem Statement

Physicians, especially surgeons, endure demanding schedules, and the struggle to manage a viable work-life balance can lead to mental health symptoms as well as the

increased risk of burnout (Franc-Guimond et al., 2018). According to West et al. (2018), burnout symptoms such as emotional exhaustion and depersonalization manifest over time and ultimately affect the care given to patients (p. 516). Gonzalez (2017) noted how the Mayo Clinic, "cites urology as the surgical specialty with the highest rates of physician burnout" (p. 15). The specific problem is that it is unknown whether hours worked on nonclinical work activities strengthen or weaken relationships between age and gender in regard to burnout among American urologists (Chouhan et al., 2018). When burnout rates are excessively high, there are negative impacts in urology (Marchalik et al., 2019).

This research added to existing research on physician burnout and interventions by analyzing burnout, the relationship between age and gender, and the relationship between the number of hours worked on nonclinical activities and burnout in American urologists. To decrease burnout among urologists as well as in other specialties, an understanding of risk factors that may differ between genders may be warranted (Lu et al., 2020). Previous research has shown that it is necessary to understand the elements and relationships that contribute to burnout to develop programs to aid in decreasing burnout (Degheili et al., 2020).

Purpose of the Study

Physician burnout is on the rise, as noted in previous research studies (Franc-Guimond et al., 2018; Marchalik et al., 2019). The purpose of this quantitative correlational analysis was to analyze if hours worked on nonclinical activities moderate the relationship between age and burnout as well as gender and burnout in American

urologists. I explored two independent variables, one moderator, and one dependent variable in this study. Burnout was categorized by using the burnout indicator, a dichotomous dependent variable, while age and gender were the independent variables. Hours worked on nonclinical activities was the moderator. Early identification of burnout symptoms, which may contribute to medical errors, high turnover rates, and increased malpractice claims, as well as understanding why burnout symptoms are so high in urologists, may help healthcare administrators create action plans to decrease the issues (Marchalik et al., 2019). Because burnout among physicians in healthcare settings constitutes an occupational hazard as noted by Tawfik et al. (2018), organizations should improve physicians' health along with working conditions to help maintain patient safety and care, as well as reduce costs associated with such hazards. This research may develop a more robust intervention strategy for urologists experiencing burnout by contributing to an understanding of the factors that moderate the relationship between burnout and age and gender.

Research Questions and Hypotheses

To analyze the relationship between age and burnout and gender and burnout and whether the number of hours worked on nonclinical activities moderates the relationships, I developed the following research questions and hypotheses:

RQ1: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists?

$H1_0$: The number of hours worked on nonclinical activities does not moderate the relationship between gender and burnout among American urologists.

$H1_1$: The number of hours worked on nonclinical activities does moderate the relationship between gender and burnout among American urologists.

RQ2: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists?

$H2_0$: The number of hours worked on nonclinical activities does not moderate the relationship between age and burnout among American urologists.

$H2_1$: The number of hours worked on nonclinical activities does moderate the relationship between age and burnout among American urologists.

Theoretical Foundation for the Study

For this study, I utilized the jobs demands resources model (JD-R, Demerouti et al., 2001) and the aging and decision-making framework (Löckenhoff, 2018) as the theoretical frameworks. The JD-R model suggests that burnout occurs as a result of stress that is left untreated and that burnout symptoms could be decreased by treating or highlighting the well-being of the professional through the job or personal resources (Rupert et al., 2015). The aging and decision-making framework involves age decrements in core decision-making resources such as cognitive processing, compensatory processes, and growth in emotional processing (Löckenhoff, 2018).

The Job Demands Resources Model

The JD-R model indicates that burnout occurs as a result of job demands and job resources (Demerouti et al., 2001). Previous studies have shown how certain job characteristics help influence job burnout (Demerouti et al., 2001; Taris et al., 2005). Job demands constitute the physical, psychological, and organizational aspects of the job that

require physical or mental effort (Demerouti et al., 2001). Demerouti et al. (2001) further described job resources as “a) functional at achieving work goals, b) reducing job demands, c) stimulating personal growth and development” (p. 501). The job demand state of the JD-R model suggests a positive relationship between emotional exhaustion and burnout due to large workloads, which tends to eventually drain a person while increasing individual patient costs (Huang et al., 2016). Conversely, the job resources state of the JD-R model suggest a negative relationship between depersonalization and burnout, as the loss of connection one has within their job usually results in feelings of withdrawal and disengagement (Huang et al., 2016). Reports of females experiencing a greater susceptibility to burnout have suggested that burnout is stronger for females than males, as women tend to score higher on emotional exhaustion and men score higher on depersonalization; however, the relationship between gender and burnout remains to be clarified (Maslach et al., 2001; Mastenbroek et al., 2014).

Utilizing the JD-R model with this study may help to determine if burnout, the dependent variable, is affected positively or negatively by the independent variables gender and age, and whether depersonalization scores are increased.

Aging and Decision-Making Framework

As a person ages, changes in cognitive abilities occur, which may ultimately limit decision-making capacity and affect healthy aging (Löckenhoff, 2018). Research has also shown that as a person ages, processing speed and the working memory decline, which may increase task-irrelevant information and cause biases towards difficult responses (Löckenhoff, 2018). On the other hand, emotional aging works in favor of older adults, as

they are better prepared for challenges compared to their younger counterparts (Löckenhoff, 2018). With more of a focus on decision-making processes versus outcomes, many older adults are more sensitive to emotionally challenged trade-offs (Löckenhoff, 2018). Löckenhoff (2018) further noted how age effects are more noticeable in task-oriented components with higher computational demands as well as time pressures. This suggests the need for further research that track task characteristics and examine consequences between older and younger decision-makers (p. 145).

As physicians get older and technology advances, understanding the right time to leave the profession and not fall victim to consequences of aging requires an ability to recognize decreasing cognitive skills (Löckenhoff, 2018). Therefore, the framework for the independent variable age is consistent with the aging and decision-making framework.

Nature of the Study

The nature and approach of this study was a quantitative correlational analysis. This was achieved by gathering data and past research information to determine if the number of hours worked on nonclinical activities moderates the relationships between age, gender, and burnout in American urologists. For this study, burnout is defined as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among people who do "people work" of some kind (Maslach, 1982). Measuring burnout through the Maslach Burnout Inventory (MBI) in physicians by identifying burnout relationships may help decrease health issues and

increase the well-being of physicians, which may contribute to healthier working environments (Howell et al., 2019).

Literature Search Strategy

The keywords utilized in this search were: *peer-reviewed, physician burnout, emotional exhaustion, depersonalization, personal achievement, physician mental health, urology, urologists, urologist and burnout, burnout and interventions, age, gender, nonclinical work, quantitative,* and *quality of care*. The databases used were Ebsco, PubMed, ProQuest Central, Medline, Walden University Library, American Urological Association (AUA), and Google Scholar to access relevant data. The data searched were inclusive of the years 2017 to 2020. However, in the case where some information was not available, I used citations from more than 10 years ago to support the historical background of the study.

Literature Review

In the literature review, 23 physician burnout studies published from 2017 to 2020 were examined using the constructs of physician burnout as well as relationships between gender and age. The literature review was also based on causes or risk factors of burnout as well as intervention strategies to decrease burnout. For the review I discuss any gaps in the literature related to nonclinical work, gender relationships, age, and burnout factors in urologists.

Literature Review Related to Key Variables and/or Concepts

Physician burnout in the United States continues to be a major issue (Franc-Guimond et al., 2018; Marchalik et al., 2019). For some specialties including urology,

burnout continues to rise and, if not addressed, may lead to a shortage of urologists in the workforce (Franc-Guimond et al., 2018). Burnout not only affects the physicians themselves, but also affects patient care, causes medical errors, and may also lead to physician substance abuse (D'Onofrio, 2019; Smigelski et al., 2020). There are a variety of factors that influence burnout in urologists: gender, age, the reliance on technology, and hours worked have all been known to affect burnout in physicians (Chouhan et al., 2018; D'Onofrio, 2019; Franc-Guimond et al., 2018; Marchalik et al., 2019). The following literature review confirmed physician burnout problems in urology, and I concluded that interventions are needed to address burnout today to save the workforce of tomorrow.

Burnout and Nonclinical (Administrative) Tasks

Physician burnout has been on a steady increase over the past few years (Franc-Guimond et al., 2018; Marchalik et al., 2019). One of the main reasons for this increased burnout is more time spent on administrative or nonclinical tasks as a result of medical bureaucracy (Squiers et al., 2017). Squiers et al. (2017) further suggested that to change the current system that is causing an increase of burnout, it must be observed as a disease; otherwise, the profession is just treating the symptoms. Chouhan et al. (2018) agreed with Squiers et al. (2017) and added that insurance and lack of time to accomplish tasks resulted in burnout among urologists. The authors further noted that burnout in urologists contributed to higher rates of retirees and individuals leaving the workforce. Franc-Guimond et al. (2018) reported results that are consistent with findings in Squiers et al. (2017) and Chouhan et al. (2018), which are studies showing the relationship with

burnout and administrative work. These have also revealed that urologists are at risk of early retirement as well as substance abuse. Franc-Guimond et al. (2018) expanded the idea that the factors that contribute to burnout the most consist of administrative work, volume of workload, and lack of resources or management support. The findings observed by the authors also concluded that surgeons are more at risk for burnout than the general population. Kane's (2019) study was also consistent with Squiers et al. (2017), Chouhan et al. (2018), and Franc-Guimond et al. (2018), who found that urologists ranked among the highest reported burnout cases, citing charting and paperwork as main drivers for burnout in the specialty. Kane (2019) noted that paperwork was cited by 60% of urologists as being the main reason for burnout as well as working over 50 hours per week.

Marchalik et al.'s (2019) results were similar to Kane's (2019) regarding working an excessive number hours; however, their findings were based on urology residents and noted that residents who worked more than 80 hours per week were more prone to burnout. Marchalik et al. (2019) also observed that burnout during surgery has been understudied and underestimated. Not only did Templeton et al. (2019) reveal gender biases in burnout, they also found that female physicians associated burnout with the type of specialty, workload, work hours, administrative tasks, and lack of autonomy or control, further noting that corrections needed to be made systematically at the organizational level. D'Onofrio's (2019) study found that as many as 56% of physicians cited bureaucracy and charting paperwork as the main factors of burnout, while 39% cited working too many hours as factors of burnout. Gatty's (2019) study aligned with

Kane's (2019) approach and found that administrative tasks have taken away from patient care and that most clinicians are drawn to the profession to interact with patients, not to do large amounts of administrative work. Gatty (2019) also discussed how current workloads including administrative work, unnecessary rules, payment procedures, and staff shortages have contributed to burnout and a low sense of personal accomplishment.

Administrative tasks include the use of the electronic health records (EHR), and Brown (2019) discussed how EHR compliance is one of the main factors causing burnout in physicians and the reason physicians feel unable to adhere to patient care. Yester (2019) reported results consistent with Brown's (2019) study and further showed how the EHR has added more nonclinical work, therefore adding strain to physicians resulting in negative impacts to patient care.

The EHR, which is supposed to be a supportive tool for physicians, has been met with resistance due to the complexities and hours associated with maintaining it. Khairat et al. (2019) found a relationship between EHR performance, efficiency, and satisfaction and a urologist's age, gender, professional role, and years of experience. The authors found that EHR complaints were due to time spent looking through patient information and not enough focus on the actual patient. Khairat et al. (2019) further explained that 44%-65% of the time was spent on computers, while only 24% was spent communicating with patients. As physicians become increasingly frustrated with the use and information overload of the EHR, increased medical errors are likely to occur (Khairat et al., 2019). To overcome the obstacles and barriers of administrative work, including the use of EHR, interventions must be implemented to help decrease burnout in physicians.

Gender

Differences in gender may affect the way burnout is perceived and may also contribute to certain burnout symptoms. Lu et al. (2020) suggested that the major factor of burnout is a lack of control over work-life balance. The authors further described that female physicians suffered more from gender bias in the workplace compared to male physicians, who suffered from guilt and second victim syndrome. Likewise, Lebares et al. (2018) found that female physicians were often held to different standards; however, unlike Lu et al. (2020), male physicians exhibited higher depersonalization, whereas females misused alcohol at a greater rate and had higher rates of anxiety. Consistent with Lu et al. (2020) and Lebares et al. (2018), Verweij et al. (2017) expanded on the idea that males are better supported by colleagues than their female counterparts, who also reported more negative interferences from the home. Chouhan et al.'s (2020) study was specific to urologists and agreed with Verweij et al. (2017), finding that females experienced more burnout than males due to lack of personal time. Throughout burnout studies, a consistent pattern has formed in terms of gender, which continues to challenge the work environment. Female physicians must work much harder to level the playing field formed by their male colleagues (Templeton et al., 2019). This quest to work on equal levels has added work-related stressors and has contributed to fewer controlled work environments, as noted by Templeton et al. (2019). The increased chance of burnout in female physicians appeared in findings from West et al. (2018), Kane (2019), Verweij et al. (2017), Lu et al. (2020), and Chouhan et al. (2020).

The physician profession is dominated by males, and to succeed, women must overcome obstacles that their male counterparts do not necessarily have to endure (Verweij et al., 2017). As a result of trying to compete and be equal to males, females exhibit higher rates of burnout that must be addressed, and interventions must be implemented to retain the physician workforce (Templeton et al., 2019).

Age

To decrease burnout, the problem must be addressed at the organizational level (Tawfik et al., 2018). Tawfik et al. (2018) concluded that burnout, fatigue, and work unit safety grades were independently associated with medical errors, suggesting that further research is necessary to address the issues and implement preventative measures. Squiers et al. (2017) and Smigelski et al. (2020) found that burnout affects the physician at all phases including education, training, and career practice. However, the authors further noted that not only does burnout affect the physician, but it also impacts the patient in terms of increased medical errors. Chouhan et al. (2018) and Franc-Guimond et al. (2018) found that burnout affects an increasingly large number of urologists and leads to early retirement and an overall decreased workforce; interventions are necessary. Many urologists suffering from burnout symptoms are less than 45 years old (Franc-Guimond et al., 2018). Chouhan et al. (2018) further found higher numbers of urologist burnout, which affected their interactions with patients. However, as Olsen (2017) noted, age affects physical and cognitive functioning, and credentialing bodies should require regular physical examinations to assess the health of aging physicians.

Along with aging, cognitive factors such as mental health awareness, services for mental health, and attention to emotional well-being must also be addressed to decrease burnout (Olsen, 2017). Marchalik et al. (2019) found a lack of mental health services was predictive for burnout due to emotional exhaustion and depersonalization. Because mental health treatment has a stigma for many physicians, many are reluctant to seek services (Marchalik et al., 2019). Shanafelt et al. (2019) evaluated the prevalence of burnout and work-life satisfaction over 2011-2017 and concluded that because burnout is an issue in the United States, symptoms of depression in physicians continues to worsen. Agreeing with Shanafelt et al. (2019), Templeton et al. (2019) added that female physicians experiencing burnout are more likely to die by suicide than in other profession. D'Onofrio (2019) also added that physicians work extra hours to try to keep up with the productivity requested, which causes increased turnover rates, withdrawal from clinical practice, and withdrawal from more invasive procedures. For surgeons, this also leads to increased malpractice claims and a higher risk of substance abuse. West et al. (2018) also noted that burnout affects physicians through increased substance abuse, depression, and/or suicidal ideation as well as poor self-care. Consistent with D'Onofrio (2019) and West et al. (2018), Brown (2019) reported that burnout is 80% attributed to the chaotic physician environment and 20% to personal factors. Brown (2019) also noted 3 things physicians need to know when facing burnout: (a) they are not alone, (b) they are not to blame, (c) they are not powerless.

Physician burnout will continue to increase and become more of an issue for organizations if interventions and solutions are not implemented (West et al., 2018).

Urologists are at risk of reducing their workforce because of burnout and the factors leading to burnout (Anaissie et al., 2020). Unfortunately, the information on urologist burnout and subsequent solutions are general and sparse. The literature reviewed in this study confirms the problems associated with burnout while also offering solutions. However, as noted in the review, further research is needed to understand burnout regarding the relationship between gender and age, particularly in the field of urology, to implement successful programs.

Definitions

In this study, I defined terms as follows:

Active practicing urologists: Urologists who treat patients with urologic conditions and who work at least 25 clinical hours per week (AUA, 2017).

American practicing urologists in the United States: Practicing urologists with primary practice locations in at least one of the 50 U.S. states or the District of Columbia (AUA, 2017).

Burnout: A syndrome of emotional exhaustion, depersonalization, and reduced sense of personal accomplishment that can occur among people who do "people work" of some kind (Maslach, 1982). Burnout is also known as a common problem in the United States and has been studied many times (Yester, 2019; Marchalik et al., 2019; D'Onofrio, 2019). If burnout is not treated properly, it can negatively affect employees and increase turnover rates (D'Onofrio, 2019).

Certified urologists: Urologists who are certified either by the American Board of Urology (ABU) or by the American Osteopathic Board of Surgery (AUA, 2017).

Depersonalization: Characterized by a detached and cynical response to the recipient of one's service or care (Maslach, 1982). Also defined as showing a detachment towards patients (Busireddy et al., 2017).

Emotional exhaustion: Feelings of being overextended and exhausted by the emotional demands of work (Maslach, 1982). Busireddy et al. (2017) defined emotional exhaustion as feeling overwhelmed by job demands and the depletion of emotional resources (p. 294).

Maslach Burnout Inventory: An instrument to measure burnout utilizing three dimensions incorporated with burnout: emotional exhaustion, depersonalization, personal achievement (Maslach, 1982).

Nonclinical activities: Activities not related to a medical clinic or involving observable aspects of patient care such as observing an illness or disease in the office. Also includes administrative duties, attending professional events, and completing continuing education requirements (Collins Online English Dictionary, n.d.).

Practicing urologists: Urologists who maintain current medical licensures and treat patients with urologic conditions (AUA, 2017).

Reduced personal achievement: The self-evaluation that a person is no longer effective when working with clients or patients and fulfilling their job responsibilities (Maslach, 1982).

Urologists: Physicians who are specially trained for the diagnosis and treatment of genitourinary and adrenal gland diseases in patients of any age and of either sex (AUA, 2017).

Assumptions

One assumption for this study was that the MBI provides the most logical means of measuring burnout through the variables emotional exhaustion, depersonalization, and personal achievement, and that those conditions are related to each other. A second assumption was that the 2016 Census data from the AUA is representative of all 12,186 practicing urologists in the United States and that all the data is accurate and results in a sample that is representative of urologists. A third assumption was that the data contained in the dataset included honest responses to the burnout survey questions. These assumptions were necessary to analyze the relationships between age, gender, and burnout among urologists.

Scope and Delimitations

The scope of this study was based on the 2016 Census data from the AUA, which surveyed American urologists across the nation using different variables that included burnout. No formal or primary data collection was performed by me with any participants in this study. The focus was descriptive and ended with a conclusion that was based on the number of hours worked on nonclinical activities, urologist burnout, age, and gender, as the literature suggests a gap in analyzing these variables. The data analyzed in this study were solely secondary, and there was no opportunity for primary data to be utilized.

The generalizability of this study is limited to a matrix sample of 1,102 participating urologists who answered the MBI questions during the period of May, 2016, through September, 2016 (AUA, 2016).

Significance, Summary, and Conclusions

By conducting an analysis of the relationships between American urologists experiencing burnout, their age and gender, along with hours worked on nonclinical activities, this study potentially contributes to health disciplines by aiding in the knowledge of risk factors involved and may also contribute to interventions. With urologists having some of the highest rates of burnout, it is crucial to understand relationships to help decrease the numbers (Marchalik et al., 2019). Large numbers of urologists experience burnout, which has the potential to affect their interaction with patients as well as lead to premature retirement if not properly addressed (Chouhan et al., 2020). As Chouhan et al. (2020) further noted, with the increase of women in urology, additional studies will be necessary to investigate gender relationships to various aspects of practice. This study may contribute to understanding gender relationships that exist in urology and may allow for more personalized targeting of treatment needs among urologists. It may even contribute to physicians as a whole and therefore affect positive social change in the medical community.

When analyzing the literature, common themes appeared. One theme that emerged from the literature was that gender differences exist and many female physicians find it harder than male physicians to achieve work-life balances (Lu et al., 2020). Another theme consistent in the literature was the increased number of nonclinical or administrative tasks that have contributed to factors causing physician burnout (Franc-Guimond et al., 2018). The consistent messages in the themes mentioned above concluded with negative consequences when not properly addressed in a timely manner

(Tawfik et al., 2018). Marchalik et al. (2019) also discussed the mental health consequences that could occur if factors were not addressed.

It is currently known that urologist burnout is on the rise and must be addressed quickly to arrest the trend (Chouhan et al., 2020). However, as mentioned by Chouhan et al. (2020), the data regarding burnout in urology are sparse, and not many articles exist pertaining directly to the factors and relationships contributing to burnout. This study fills the existing gap in the current literature by analyzing risk factors that moderate burnout relationships between gender and age in urologists and providing additional knowledge in the healthcare administration discipline. Analyzing gender and age relationships with burnout and whether time spent on nonclinical tasks moderate those relationships among American urologists will not only aid in the development of interventions from a practical standpoint but will also increase the knowledge in how to address other risk factors associated with burnout.

Section 2: Research Design and Data Collection

Introduction

The purpose of this study was to determine using quantitative correlational analysis if a relationship exists between age, gender, and burnout, and if hours worked on nonclinical activities moderated the relationships in American urologists. The findings determined which risk factors to identify where the most help was needed. Also, by determining which factor created most risk, administrators may be able to proactively target specific characteristics aimed at decreasing burnout among urologists. In this section, I presented the research design, methodology, and threats to validity to help address the gap in the literature.

Research Design and Rationale

In this study, the goal was to determine if a relationship existed between the dependent variable burnout and the independent variables age and gender with American urologists and if hours worked on nonclinical activities, which is the independent variable, moderated the relationships. The most appropriate research design for this study was a correlational design as defined by Lappe (2000), where "the aim is to describe the relationship among variables rather than to infer cause and effect relationships" (p. 81). Due to the lack of research on gender-specific and age-related burnout issues with urologists, this research was necessary to fill the gap in the current literature (Chouhan et al., 2020). The correlational research design and analysis for this study were consistent with previous studies and align with the research questions in this study. The goal of this study was to determine whether there is an association between the dependent variable

burnout and the independent variables age and gender and whether the number of hours worked on nonclinical activities moderates that relationship with urologists. This study may aid in determining whether age and gender contribute to risk factors of burnout in urologists and may aid in the implementation of intervention practices in the healthcare field. The research questions in this study addressed the relationship between the dependent variable of burnout and the independent variables of gender and age.

The data set that I utilized was obtained by emailing and by speaking with a representative from the AUA and describing the type of data needed for the study. A use agreement was received via email that was signed and purchased for a limited use duration and returned to the representative for record keeping. The following research questions and hypotheses guided this study:

RQ1: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists?

$H1_0$: The number of hours worked on nonclinical activities does not moderate the relationship between gender and burnout among American urologists.

$H1_1$: The number of hours worked on nonclinical activities does moderate the relationship between gender and burnout among American urologists.

RQ2: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists?

$H2_0$: The number of hours worked on nonclinical activities does not moderate the relationship between age and burnout among American urologists.

$H2_1$: The number of hours worked on nonclinical activities does moderate the relationship between age and burnout among American urologists.

Methodology

Study Population

The target population for this study were practicing urologists in the United States holding a valid medical license. The study utilized either urology or pediatric urology as the specialty. A total of 5,281 respondents completed the 2016 annual census and 2,301 were U.S. practicing urologists (AUA, 2016). From the 2,301 U.S. practicing urologists who completed the 2016 census, about half, or 1,102, were randomly assigned and responded to the MBI survey (AUA, 2016). The data were obtained with a signed terms and conditions agreement along with the dataset file from the AUA. The AUA conducts a national census from which the data for 2016 was derived (AUA, 2016). I analyzed the data set using a logistic regression to determine if a relationship exists between the dependent variable burnout and the independent variables age and gender. I also performed a moderation analysis to determine if the moderator variable hours worked on nonclinical activities moderates the relationships.

Sampling Procedures

The AUA used MBI questions randomly assigned to half of their respondents to determine burnout indicators in urologists (AUA, 2016). The population files and the Census surveys were linked using poststratification factors to adjust for the contribution of each respondent (AUA, 2017). According to the AUA 2016 Census data, samples were weighted to justify for nonresponses within the data (AUA, 2017).

The AUA then utilized a matrix sample of 1,102 practicing urologists who answered the MBI questions from May, 2016, through September, 2016 (AUA, 2016). Scores higher than or equal to 27 in the emotional exhaustion categories or higher than or equal to 10 in the depersonalization categories indicated burnout in this sample of urologists (AUA, 2016). Practicing urologists are defined as those having valid medical licenses reported in National Provider Identifier as either urologists or pediatric urologists (AUA, 2016). According to the AUA (2016), the data in the weighted sample is representative of the 12,186 practicing urologists in the United States.

The data in this dataset was acquired directly from the AUA located in Linthicum, MD, by emailing and speaking with a representative from the organization and describing the type of data needed for the study. A terms and conditions agreement for limited time use of the data was received via email, signed, and returned to the representative for record keeping (see Appendix). This data was the best data source for the study, as it was derived directly from the study site. Data contained in the dataset that were not relevant to the study were not included in the analysis.

I used the Statistical Package for Social Sciences (SPSS) statistical software to examine the relationships in this study. Using the dependent variable burnout, the independent variables gender and age, and the moderator variable number of hours worked on nonclinical activities, I conducted a binary logistic regression.

Power Analysis

The sample size for this study was determined using a rule of thumb for a binary logistic regression. For a logistic regression, the minimum sample size to aim for is

approximately 10 participants per predictor variable; however, 20 participants per predictor variable is preferred (Hosmer et al., 2013). LeBlanc and Fitzgerald (2000) indicated that a minimum of 30 participants per predictor variable should be used in logistic regression analysis. Therefore, using the more conservative estimates, the sample size estimate for this research with three predictor variables should contain at least 90 participants. The sample size of the dataset consisted of 1,102 participants, which is well above the necessary samples for the logistic regression analysis.

Instrumentation

This study used the MBI for the sample of practicing urologists. Because the MBI is one of the most commonly used tools for measuring burnout and has been used in research for many years, it was an appropriate tool for measuring burnout in health professionals (Maslach, 1982; Mindgarden, 2019; Worley et al., 2008). The MBI is defined by three subscales, emotional exhaustion (EE), depersonalization (DP), and professional accomplishment (PA), and each has a number of questions associated with each category: EE-9, DP-5, and PA-8 for a total of 22 questions with a 7-point Likert-type scale (Brady et al., 2020). Higher scores on the side of EE or DP and lower scores on PA are an indication of burnout (Brady et al., 2020). On the opposite side, any scores in EE or DP that are low and PA scores that are higher would not indicate burnout and, on the contrary, would suggest a higher indication of job satisfaction (Maslach, 1982).

Operationalization of Variables

Two independent variables, one moderator, and one dependent variable were explored in this study. Burnout was categorized by using the burnout indicator, a

dichotomous dependent variable, while age and gender were the independent variables. Hours worked on nonclinical activities was the moderator, and the goal was to assess whether the moderator variable, hours worked on nonclinical activities, moderates the relationship between the independent and dependent variables.

Burnout was measured using the MBI and questions that were randomly assigned to the respondents (AUA, 2017). Burnout was defined as scoring high in either of two categories, emotional exhaustion (score > = 27) or depersonalization (score > = 10; AUA, 2017). The moderator variable, number of hours worked on nonclinical activities, was categorized as a continuous variable. The independent variable age was categorized as ordinal and therefore dummy coded into five groups: < = 34 years old, 35-44 years old, 45-54 years old, 55-65 years old, and > = 66 years old, where the base group was 35-44 years old. The independent variable gender was categorized by male or female. Based on the categorical variables, the goal was to determine whether the number of hours worked on nonclinical activities moderates the relationship between age and burnout and gender and burnout.

Data Analysis Plan

The raw survey data from the 2016 AUA Census was uploaded into SPSS version 27.0 for analysis. The data was cleaned to account for non-responses to the variables of interest – gender, hours worked on nonclinical activities, and burnout. Frequencies and percentages were used to examine the nominal-level variables. Means and standard deviations were used to examine the trends in the continuous-level data. The two proposed research questions for the study are listed below:

Research Questions and Hypothesis

RQ1: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists?

$H1_0$: The number of hours worked on nonclinical activities does not moderate the relationship between gender and burnout among American urologists.

$H1_1$: The number of hours worked on nonclinical activities does moderate the relationship between gender and burnout among American urologists.

RQ2: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists?

$H2_0$: The number of hours worked on nonclinical activities does not moderate the relationship between age and burnout among American urologists.

$H2_1$: The number of hours worked on nonclinical activities does moderate the relationship between age and burnout among American urologists.

Statistical Analysis

To address the research questions, two hierarchical logistic regressions were conducted. A hierarchical logistic regression is appropriate when testing predictive relationships on a dichotomous outcome variable in steps (Tabachnick & Fidell, 2013). In block one, the predictor variables (age and gender) and moderator variable (number of hours worked on nonclinical activities) were entered into the model. In the second block, the interaction terms, age* number of hours worked on nonclinical activities and gender* number of hours worked on nonclinical activities, were added to the regression model. Due to the ordinal nature of age, the variable was dummy coded prior to entry into the

regression model. The dichotomous dependent variable corresponded to burnout, which had two possibilities based on scoring on the MBI: burnout or nonburnout.

Prior to analysis, the assumption for absence of multicollinearity was verified. Absence of multicollinearity was tested with examination of variance inflation factors (VIFs). Stevens (2009) indicates that VIFs below 10 indicate that there is a low association between the predictor variables, indicating that the assumption for absence of multicollinearity is met.

An χ^2 test was conducted to examine the collective predictive effect of the factors of burnout. Individual Wald tests were conducted to examine the predictive relationships of the predictor variables and interaction terms on burnout. A significant interaction term, age* number of hours worked on nonclinical activities and gender* number of hours worked on nonclinical activities, indicated whether moderation was present in the model. Statistical significance was evaluated at the generally accepted level, $\alpha = .05$.

Threats to Validity

A potential threat to external validity would be that the population utilized in the dataset was selected from a specific group of healthcare professionals, which may not be representative of all healthcare professionals including different specialties. Since this study was specific to urologists, it may not be generalizable to other specialties not included.

Internal threats to validity involve attrition, mortality, and instrumentation and could refer to the dropout rate of participants within the study (Shadish et al., 2002). As with anything in life, over time, things as well as people tend to change and may

influence the outcome of the study (Shadish et al., 2002). Instrumentation could influence the internal validity, in that the focus could have answered the questions in a manner that, rather than being truthful, does not reflect negatively. As Burkholder et al. (2016) explained, “the validity of a research instrument depends in part on the intended purpose and whether it’s used for that purpose” (p. 107).

Ethical Procedures

This study involved an analysis on the secondary data and key variables collected within the AUA 2016 Census data and the answers to the MBI survey. A signed terms and conditions agreement (Appendix) was obtained from an appropriate representative at the AUA to use the dataset provided for the study. Participants within the selected dataset elected to answer and return the responses to the AUA, as mentioned by the representative. The Census data did not present any ethical concerns, as participants are not identified within the dataset and there is no risk of exposing any participant information. The approval from the Institutional Review Board was obtained from Walden IRB before performing any statistical analysis. The IRB approval number for this study is 05-28-21-0975721. Once the data has been utilized and the study completed, the data that is stored on a desktop and a personal hard drive will be destroyed 5 years from the conclusion of this study.

Summary

The research design was a quantitative correlational analysis which attempted to answer the two research questions within the study. In this chapter, the methodology for the proposed study was described. A hierarchical logistic regression was conducted to

address the research questions regarding whether the number of hours worked on nonclinical activities moderate the relationship between gender and age on burnout among American urologists. This chapter also described any internal and external threats to validity, as well as the ethical procedures for obtaining and collecting the data and the variables.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this quantitative correlational analysis was to analyze whether hours worked on nonclinical activities moderates the relationship between age and burnout as well as gender and burnout in American urologists. The following research questions were addressed in this analysis:

RQ1: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists?

$H1_0$: The number of hours worked on nonclinical activities does not moderate the relationship between gender and burnout among American urologists.

$H1_1$: The number of hours worked on nonclinical activities does moderate the relationship between gender and burnout among American urologists.

RQ2: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists?

$H2_0$: The number of hours worked on nonclinical activities does not moderate the relationship between age and burnout among American urologists.

$H2_1$: The number of hours worked on nonclinical activities does moderate the relationship between age and burnout among American urologists.

In this section, I presented the findings of the data analysis. Frequencies and percentages are used to summarize the demographic trends of the sample. In addition, I used means and standard deviations to examine the trends in the continuous variables. I used logistic regressions to address the research questions and hypotheses. Statistical

significance was evaluated at the generally accepted level, $\alpha = .05$. The results were utilized to conclude whether statistical significance was achieved or if the null hypothesis failed to be rejected.

Data Collection of Secondary Data Set

The secondary data set was acquired from the AUA located in Linthicum, MD, from their Annual Census data in 2016; it was acquired with a signed use agreement. The population consisted of active practicing urologists in the United States reported by the authorizing representative at the AUA. The AUA used the MBI questions randomly assigned to half of their respondents to determine burnout indicators in urologists (AUA, 2016). The AUA then utilized a matrix sample of 1,102 practicing urologists, who answered the MBI questions from May, 2016, through September, 2016 (AUA, 2016). The data in the weighted sample was representative of the 12,186 practicing urologists in the United States as of 2016 (AUA, 2016). In this study, the goal was to determine if hours worked on nonclinical activities moderates the relationships between burnout and age and burnout and gender; therefore, the sample population was appropriate for this study.

Results Section

The findings of the data analysis were presented in this section.

Descriptive Statistics

A total of 1,102 participants consented to respond to the survey questionnaire and all the participants completed the full survey. The sample consisted of 968 males (87.84%) and 134 females (12.16%). Many participants were aged 55 to 65 years

(number of participants [*n*] = 329 or 29.85%). A large number of participants had low levels of emotional exhaustion (*n* = 710 or 64.43%), depersonalization (*n* = 439 or 39.84%), and personal achievement (*n* = 824 or 74.77%). A total of 431 participants (39.11%) were identified to have burnout and 671 participants (60.89%) were identified to not have burnout. Frequencies and percentages are presented in Table 1.

Table 1

Frequency Table for Nominal Variables

Variable	*Participants* (1,102)	*%*
Gender		
Male	968	87.84
Female	134	12.16
Age group		
34 years old or under	32	2.90
35 to 44 years old	296	26.86
45 to 54 years old	290	26.32
55 to 65 years old	329	29.85
Over 66 years old	155	14.07
Categories of "Emotional Exhaustion" section		
Low-level	710	64.43
Moderate	201	18.24
High-level	191	17.33
Categories of "Depersonalization" section		
Low-level	439	39.84
Moderate	251	22.78
High-level	412	37.39
Categories of "Achievement" section		
Low-level	824	74.77
Moderate	181	16.42
High-level	97	8.80
Burnout		
None	671	60.89
Burnout	431	39.11

The summary statistics of minimum, maximum, mean, and standard deviations were examined for the numeric variables of interest. Participants spent between 0 and 75 hours working on nonclinical activities per week, with mean (*M*) = 9.27 hours and standard deviation (*SD*) = 9.34. On average, a typical work week would consist of 56 hours. The summary statistics can be found in Table 2.

Table 2

Summary Statistics Table for Variables

Variable	Participant	Min	Max	*M*	*SD*
Best estimate of total number of patient visits/encounters in a typical week	1102	1.00	201.00	74.83	35.05
Number of minutes you spend with a patient in a typical office visit	1102	2.00	60.00	15.44	6.24
Percent of patient visits/encounter by female patients	1102	0.00	99.00	33.11	18.28
Number of work hours worked on clinical activities per week	1102	0.00	100.00	47.80	15.44
Number of work hours worked on nonclinical activities (e.g., administration, teaching, research, etc.) per week	1102	0.00	75.00	9.27	9.34
The number of years you have practiced urology	1102	1.00	53.00	19.11	11.80

Emotional exhaustion scores ranged from 0 to 42, with $M = 15.29$ and $SD = 10.45$. Depersonalization scores ranged from 0 to 42, with $M = 9.31$ and $SD = 8.11$. Personal achievement scores ranged from 0 to 48, with $M = 42.07$ and $SD = 5.94$. The summary statistics can be found in Table 3.

Table 3

Summary Statistics Table for Burnout Variables

Variable	*Participants*	*Min*	*Max*	*M*	*SD*
Emotional exhaustion scores	1102	0.00	42.00	15.29	10.45
Depersonalization scores	1102	0.00	42.00	9.31	8.11
Personal Achievement scores	1102	0.00	48.00	42.07	5.94

Statistical Analysis Findings

I conducted a series of Pearson correlations to examine the two-way associations between the predictor and outcome variables. A total of 21 correlations were examined. Twenty of the 21 Pearson correlations indicated significant two-way associations based on an alpha of .05. The only nonsignificant association was between gender and burnout (r = -.01, p = .500). Statistics can be found in Table 4.

Table 4

Pearson Correlations for Variables of Interest

Variable	1)	2)	3)	4)	5)	6)	7)
1) Gender (female)	1.00						
2) Age (35 to 44)	.22**	1.00					
3) Age (45 to 54)	.04**	-.29**	1.00				
4) Age (55 to 65)	-.11**	-.32**	-.30**	1.00			
5) Age (65+)	-.18**	-.33**	-.30**	-.34**	1.00		
6)Number of hours spent on nonclinical activities	.07**	.05**	.10**	.02*	-.15**	1.00	
7) Burnout	-.01	.05**	.08**	.05**	-.15**	-.04**	1.00

*Correlation is significant at .05 level (2-tailed); **Correlation is significant at .01 level.(2-tailed)

RQ1: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists?

$H1_0$: The number of hours worked on nonclinical activities does not moderate the relationship between gender and burnout among American urologists.

$H1_1$: The number of hours worked on nonclinical activities does moderate the relationship between gender and burnout among American urologists.

To address RQ1, I conducted a hierarchical logistic regression to assess whether the number of hours worked on nonclinical activities moderates the relationship between gender and burnout. Gender was inputted into the regression model as a dichotomous variable: 0 = male and 1 = female. Number of hours worked on nonclinical activities was a continuous variable in the study. Burnout was a dichotomous variable coded 0 = none and 1 = burnout. Using a hierarchical regression method, gender and the number of hours worked on nonclinical activities was entered into the first step of the model. In the second step, an interaction term was added to the model: gender* number of hours worked on nonclinical activities. Please note that that some variables had correlations with each other that were significantly different than zero, but they did not approach the level of having any meaningful correlation.

The findings of the first step of the hierarchical logistic regression were statistically significant, $\chi 2(2) = 15.30$, $p < .001$, and Nagelkerke $R^2 = .002$, suggesting a collective model fit. Approximately 0.2% of the variance in burnout could be explained by the predictor variables. Upon further examination of the predictor variables, the number of work hours worked on nonclinical activities was a significant predictor in the

model (Wald = 14.56, $p < .001$, $OR = 0.99$), such that with every one-hour increase in number of work hours worked on nonclinical activities, the odds of burnout decreased by approximately 1%.

The findings of the second step of the hierarchical logistic regression were statistically significant, Step 2: $\chi 2(3) = 21.28$, $p < .001$, and Nagelkerke $R^2 = .002$, suggesting that collectively, there was a relatively low predictive relationship between gender, number of work hours worked on nonclinical activities, interaction term, and burnout. Approximately 0.2% of the variance in burnout could be explained by the predictor variables and interaction term. Upon further examination of the interaction term, gender* number of hours worked on nonclinical activities (Wald = 5.71, $p = .017$, $OR = 0.98$), was statistically significant, suggesting that there was evidence of moderation. The odds ratio slightly decreased for the interaction term, indicating that women who spent more time on nonclinical activities tended to have lower odds of burnout. The results for each regression are shown in Table 5.

Table 5

Hierarchical Regression with Gender and Number of Hours worked on Nonclinical Activities Predicting Burnout

Variable	*B*	*SE*	Wald	*p*	*OR*
Step 1					
Gender (reference: Male)					
Female	-0.03	0.07	0.16	.688	0.97
Number of hours worked on nonclinical activities	-0.01	0.00	14.56	<.001	0.99
Step 2					
Gender (reference: Male)					
Female	0.17	0.11	2.55	.111	1.18
Number of hours worked on nonclinical activities	-0.01	0.00	8.62	.003	0.99
Gender* Number of hours worked on nonclinical activities	-0.02	0.01	5.71	.017	0.98

Note. Overall model fit: Step 1: $\chi^2(2) = 15.30$, $p < .001$, and Nagelkerke $R^2 = .002$, Step 2: $\chi^2(3) = 21.28$, $p < .001$, and Nagelkerke $R^2 = .002$; *B* – These are the odds ratios for the predictors; *SE* - This is the standard error around the coefficient for the constant; *Wald* test in the context of logistic regression is used to determine whether a certain predictor variable X is significant or not; the *p*-value for each term tests the null hypothesis that the coefficient is equal to zero; *OR* is the odds ratio that represents the constant effect of a predictor X, on the likelihood that one outcome will occur.

RQ2: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists?

$H2_0$: The number of hours worked on nonclinical activities does not moderate the relationship between age and burnout among American urologists.

$H2_1$: The number of hours worked on nonclinical activities does moderate the relationship between age and burnout among American urologists.

To address research question two, a hierarchical logistic regression was conducted to assess whether number of hours worked on nonclinical activities moderates the

relationship between age and burnout. Age was originally an ordinal item on the survey and was dummy coded into four separate variables with 34 and younger as the reference group: 35-44 vs 34 and younger, 45-54 vs 34 and younger, 55-65 vs 34 and younger, and 66+ vs 34 and younger. Number of hours worked on nonclinical activities was a continuous variable in the study. Burnout was a dichotomous variable coded 0 = none and 1 = burnout. Using a hierarchical regression method, age and number of hours worked on nonclinical activities was entered into the first step of the model. In the second step, four interaction terms were added to the model: age* number of hours worked on nonclinical activities. Please note that that some variables had correlations with each other that were significantly different than zero, but they did not approach the level of having any meaningful correlation.

The findings of the first step of the hierarchical logistic regression were statistically significant, $\chi 2(5) = 396.34$, $p < .001$, and Nagelkerke $R^2 = .044$, suggesting that although significant, there is a relatively low relationship between age, number of work hours worked on nonclinical activities, and burnout. Approximately 4.4% of the variance in burnout could be explained by the predictor variables. Upon further examination of the predictor variables, the number of work hours worked on nonclinical activities was a significant predictor in the model (Wald = 45.74, $p < .001$, $OR = 0.99$), such that with every one-hour increase in the number of work hours worked on nonclinical activities, the odds of burnout decreased by approximately 1%.

The findings of the second step of the hierarchical logistic regression were statistically significant, Step 2: $\chi 2(9) = 416.45$, $p < .001$, and Nagelkerke $R^2 = .046$,

suggesting that collectively, there was a significant but relatively low predictive relationship between age, number of work hours worked on nonclinical activities, interaction term, and burnout. Approximately 4.6% of the variance in burnout could be explained by the predictor variables and interaction term. Upon further examination of the interaction terms, none of the interactions between age and the number of hours worked on nonclinical activities were statistically significant. Therefore, moderation was not supported. The results for each regression are shown in Table 6.

Table 6

Hierarchical Regression with Age and Number of Hours worked on Nonclinical Activities Predicting Burnout

Variable	*B*	*SE*	Wald	*p*	*OR*
Step 1					
Age (reference: 34 and younger)					
35-44	0.75	0.11	47.61	<.001	2.12
45-54	0.89	0.11	66.52	<.001	2.44
55-65	0.75	0.11	48.63	<.001	2.13
66+	-0.06	0.11	0.26	.608	0.95
Number of hours worked on nonclinical activities	-0.02	0.00	45.74	<.001	0.99
Step 2					
Age (reference: 34 and younger)					
35-44	0.85	0.16	29.95	<.001	2.34
45-54	0.84	0.16	28.57	<.001	2.32
55-65	0.71	0.15	21.61	<.001	2.04
66+	-0.21	0.16	1.77	.184	0.81
Number of hours worked on nonclinical activities	-0.02	0.01	1.72	.190	0.98
35-44*Number of hours worked on nonclinical activities	-0.01	0.02	0.47	.495	0.99
45-54*Number of hours worked on nonclinical activities	0.01	0.02	0.15	.696	1.01
55-65*Number of hours worked on nonclinical activities	0.01	0.02	0.14	.711	1.01
66+*Number of hours worked on nonclinical activities	0.02	0.02	2.20	.138	1.02

Note. Overall model fit: Step 1: $\chi^2(5) = 396.34$, $p < .001$, and Nagelkerke $R^2 = .044$, Step 2: $\chi^2(9) = 416.45$, $p < .001$, and Nagelkerke $R^2 = .046$; *B* – These are the odds ratios for the predictors; *SE* - This is the standard error around the coefficient for the constant; *Wald* test in the context of logistic regression is used to determine whether a certain predictor variable X is significant or not; the *p*-value for each term tests the null hypothesis that the coefficient is equal to zero; OR is the odds ratio that represents the constant effect of a predictor X, on the likelihood that one outcome will occur.

Summary

In this study, a hierarchical logistic regression was performed in two steps to answer the two research questions. In Step 1 of RQ1, the results showed significance in the collective model but there was no real relationship between gender and burnout. In Step 1 of RQ2, significance was indicated in all variables: age, burnout and the number of hours worked on nonclinical activities, which therefore showed a relationship between age and burnout in American urologists. In Step 2 of RQ1, the null hypothesis was rejected, and the alternative hypothesis was accepted. However, in Step 2 of RQ2, the null hypothesis was not rejected and therefore, moderation was not supported. Step 2 of the hierarchical logistic regression in research question 1 showed a slight moderation, which suggested that female urologists have lower odds of burnout compared to their male counterparts. On the other hand, in Step 2 of RQ2, the null hypothesis was not rejected, which showed that moderation could not be supported between age and the number of hours worked on nonclinical activities.

Based on the results of this information, hours worked on nonclinical activities tends to lower the effects of burnout in urologists, although not by a large number. The findings show that overall, it may be better to spend more time away from clinical activities to help decrease burnout over time.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this quantitative correlational analysis was to analyze if hours worked on nonclinical activities moderated the relationship between age and burnout as well as gender and burnout in American urologists. Two independent variables, one moderator, and one dependent variable were explored within this study.

The results and findings showed statistical significance in the answers to the research questions. RQ1 asked: To what extent does the number of hours worked on nonclinical activities moderate the relationship between gender and burnout among American urologists? The findings in Step 1 showed significance in the collective model but no real relationship between gender and burnout. Variance was very weak with approximately 0.2% of the variance in burnout, which was explained by the predictor variables. For every hour worked on nonclinical activities, burnout was decreased by 1%. The interaction results of Step 2 also showed significance and suggested that female urologists have lower odds of burnout compared to their male counterparts.

RQ2 asked: To what extent does the number of hours worked on nonclinical activities moderate the relationship between age and burnout among American urologists? The findings in Step 1 showed a statistically significant relationship between age, burnout, and the number of hours worked on nonclinical activities. Approximately 4.4% of the variance in burnout was explained by the predictor variables, and for every hour worked on nonclinical activities, the odds of burnout were decreased by 1%. However, in Step 2, the interaction results did not show moderation between age and

number of hours worked on nonclinical activities, and therefore, it could not be supported.

Interpretation of the Findings

The problem addressed in this study was to determine whether hours worked on nonclinical activities moderated the relationship between burnout, gender, and age. The findings in this study showed a collective relationship between burnout, gender, and hours worked on nonclinical activities. However, current literature discussed how time spent on nonclinical tasks added to the increased levels of burnout in urologists (Franc-Guimond et al., 2018; Marchalik et al., 2019). However, the findings in this study contradicted what others have found. As found in Step 1 of the research questions, for every hour worked on nonclinical activities, burnout was decreased by 1%. These findings suggested that the more work was done outside of clinic, the lower the chances of becoming burned out, especially with female urologists compared to male urologists.

The hierarchal logistic regressions used to answer the research questions showed a statistically significant relationship between burnout, age, and number of hours worked on nonclinical activities. However, the hierarchal logistic regression could not support moderation in the relationship between burnout, age, and the number of hours worked on nonclinical activities, and therefore I could not reject the null hypothesis in Step 2 of RQ2. The results suggested that although age had a statistically significant relationship to burnout and the number of hours worked in nonclinical activities in American urologists, moderation was not statistically significant and could not be supported. On the other hand, although significance between gender and burnout was low, moderation was

statistically significant between gender and the number of hours worked on nonclinical activities.

The JD-R model suggested that burnout occurs as a result of job demands as well as job resources (Demerouti et al., 2001). As observed in these findings, nonclinical activities such as teaching, research opportunities, and other activities outside of the clinic may help reduce burnout in urologists by not triggering stress or other psychological conditions, as noted by the JD-R model (Demerouti et al., 2001). The nonclinical activities that help stimulate personal growth, reducing job demands, and help to achieve work goals also help to decrease burnout symptoms and increase personal achievement (Demerouti et al., 2001).

The aging and decision-making framework suggested that as a person ages, their cognitive abilities suffer changes that could limit their abilities (Löckenhoff, 2018). However, the findings did not determine that age was a contributor to moderating the relationship between hours worked on nonclinical activities and burnout. Although this study utilized age as groups rather than continuous numbers, the age groups were closely related, except for the groups less than 34 years old and higher than 66 years of age, which consisted of 2.9% and 14% of the participants, respectively. All age groups had a statistically significant relationship between burnout and hours worked on nonclinical activities, except the group 66 years and above, which was not statistically significant.

The results of this study support the findings that relationships exist between age, and burnout, and the number of hours worked on nonclinical activities. The results also support the JD-R model, which showed that job demands contribute to burnout.

However, contrary to current literature, the findings in this study showed that hours worked on nonclinical activities like teaching and research could help reduce burnout in American urologists.

Limitations of the Study

There were several limitations that existed in this study. The data set was limited to American urologists and may not be a general representation of other healthcare professionals. Limiting the study to only urologists limits the generalizability of other specialties that could contribute, provide different characteristics, and widen the scope of participants.

Another limitation with this dataset was that a possible relationship may exist between burnout and the number of patients seen each week by urologists. This may or may not contribute to the outcome of the findings and was not investigated within the scope of this study. This could also be a threat to internal validity, in that the possible relationship could have an effect on the variance of data with the variables utilized.

An additional limitation with this dataset was the ratio of female participants to male participants. By having such a small proportion of female participants, this also limits the generalizability of female physicians and the outcomes associated with the lower numbers. Although the findings in this study showed that women have lower odds of burnout, the smaller number of participants could have had a significant effect on the outcome and could have distorted the overall results.

Age groups of participants were utilized rather than the actual ages, which limited true data in the dataset. Because age was not listed as a continuous variable, it limits the

actual outcomes and could also limit the data associated with the correct ages. Certain ages may not have been represented within the groups or could have been heavily skewed by utilizing the groups rather than the actual ages.

Demographics in this dataset were also limitations, in that the majority of the participants were White male urologists. Although this dataset did contain some demographic information, it was not distributed widely enough across all ethnicities and therefore could limit the generalizability of representing a broader scope of participants. It could also be a threat to external validity, as a more diverse group of participants may experience higher burnout ratios and experience more relevant relationships than those presented within this dataset.

The internal threat to validity involved the instrumentation. The MBI survey that was used in the dataset has subjective questions that could have different outcomes based on each participant's perception. Different factors related to the participants regarding the questions could have different outcomes based on how each participant felt the day they answered the questions. Also, due to the nature of the self-reported survey, some participants could answer questions based on what they thought the preparer wanted to hear instead of answering truthfully.

Recommendations

Based on the limitations previously discussed, there could be a variety of directions this study could yield to build upon the findings. For future research analysis, a more diverse group of urologists could be utilized to gain a broader perspective of the burnout issues really affecting urologists. As previously mentioned, most of the

participants were White and male, which suggested that further research could utilize more women to gauge the issues in a broader scope with a larger sample of female urologists. With the ratio of female urologists that were utilized within this study, the overall outcome could yield different results if the sample were larger; therefore, it may be beneficial to have more women participate in future research.

Another way the findings of this study could be extended is by studying the relationship to specific nonclinical activities such as entering data in the electronic health records and entering data specific to insurance billing to identify if these administrative duties have more of an impact on burnout in urologists and/or other physicians. As noted in previous studies, administrative tasks tend to add to the levels of burnout in urologists (Franc-Guimond et al., 2018; Marchalik et al., 2019).

It was also noted that future research could be extended by studying the relationship between burnout and workload, as some of the results in this study suggested a possible relationship due to some of the numbers that did not align with the others.

Finally, exploring a more diverse group of individuals in the samples might yield more information on burnout with urologists and provide more data on those groups that may be more prone to burnout that were not mentioned in this study due to lack of the specific data in the dataset.

Implications for Professional Practice and Social Change

The findings within this study showed a relationship between age and burnout but not gender and burnout. The findings showed the number of hours worked on nonclinical activities does moderate the relationship by decreasing gender burnout by 1% for every

hour worked on nonclinical activities. This study revealed that female urologists tended to have lower rates of burnout compared to their male counterparts. The findings of this study contribute to positive social change by showing administrators that hours worked on nonclinical activities (excluding administrative work) correlates to decreased burnout in American urologists, less medical errors, and less turnover ratios which relates to an overall increased quality of care in the communities served.

As more and more physicians enter the field, administrators must start being creative about the ways they ensure that physicians balance work and life to help decrease burnout cases within organizations and not to risk patient safety as a result. Allowing physicians to teach, do research, and spend time away from clinical work on a weekly or monthly basis could prove to be a win-win for all parties involved. Healthcare administrators could also recognize and support their physicians on a regular basis to increase job satisfaction and also aid in decreasing burnout.

Conclusion

Burnout in physicians continues to be a major issue within the healthcare community. The goal of this study was to determine whether the number of hours worked on nonclinical activities moderated the relationship between gender and burnout and between age and burnout in American urologists. The literature review showed that burnout in urologists has become a huge issue and continues to reduce the workforce (Franc-Guimond et al. 2018; Marchalik et al., 2019). This study sought to fill the gap of understanding gender and age relationships and moderating factors. By performing a hierarchical logistic regression on the two research questions, it was determined that a

statistically significant but relatively low relationship existed between the collective model of number of hours worked on nonclinical activities, gender and burnout, and the number of hours worked on nonclinical activities and age and burnout. The findings also showed moderation between hours worked on nonclinical activities and gender and burnout. Although not a strong moderation, the findings also showed that female urologists have lower odds of burnout. This study was able to generate knowledge about the relationships between gender, age and burnout and moderation to the number of hours worked on nonclinical activities, showing that burnout could be decreased in urologists. Further research using larger samples of women, more participants with diverse ethnic backgrounds, the use of actual ages, and specifying the nonclinical activity could assist in validating the results of this study.

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EDUCATION AND RESEARCH, INC.
1000 Corporate Boulevard
Linthicum, Maryland 21090
Phone: 1-855-919-3282 / Fax 410-689-3980

AUA Census Summary Files

Practicing Urologists Burnout File

2016

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Doctoral Candidate in Healthcare Administration
Walden University

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