EXAMINING THE PREDICTORS AND OUTCOMES OF BURNOUT FOR PUBLIC MIDDLE SCHOOL TEACHERS ACROSS THE UNITED STATES

by

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(Under the Direction of Heather Padilla)

ABSTRACT

Teacher burnout is a critical public health problem. In 2022, 90% of teachers reported burnout as a serious issue. Teacher burnout contributes to poor educational outcomes for students and poor health and work outcomes for teachers. Previous literature on teacher burnout has underrepresented certain populations, such as public middle school teachers who teach a core classroom subject. Therefore, the purpose of this dissertation was to explore the factors that contribute to burnout and its consequences for public, core-classroom middle school teachers in the U.S. This cross-sectional design was conducted using survey data collected from a nonprobability sample of 200 public middle school teachers across the U.S., with burnout levels assessed using the Maslach Burnout Inventory-Educator Specific. In manuscript 1, the Job Demands-Resources (JD-R) model was applied as a theoretical framework for path analysis of job demands (e.g., workload, student misbehavior, work to nonwork and nonwork to work conflict) and job resources (e.g., administrative and coworker support, teaching efficacy) to predict burnout levels among teachers. Job demands, such as high workload, nonwork to work and work to nonwork conflicts, had positive associations with teacher burnout. The study also

explored sex differences, revealing that female teachers experienced higher workloads, more frequent work-life conflicts, and greater student misbehavior compared to male teachers, although burnout indicators did not differ between sexes. In manuscript 2, regression analyses were conducted to assess relationships between teachers' reported burnout and their productivity, job satisfaction, stress, and mental and physical health. Depersonalization predicted poor mental health and decreased productivity, while personal accomplishment predicted job satisfaction. Emotional exhaustion did not predict mental, physical, or workplace outcomes. Female teachers reported more days of poor mental health and stress than male teachers. Additionally, 6th and 9th grade teachers differed in their measures of mental and physical health, productivity, and stress. The findings here confirm the need for interventions at multiple levels to prevent burnout, support teacher well-being, and reduce burnout's negative consequences when it occurs.

INDEX WORDS: BURNOUT, MIDDLE SCHOOL, TEACHERS, JOB DEMANDS, JOB RESOURCES, MENTAL HEALTH, PHYSICAL HEALTH

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DEDICATION

I dedicate this dissertation and degree to my mother, grandmother, great grandmother, and all other incredible educators that helped raise me. I see you and the sacrifices you have made to educate future generations, even at cost to your own wellbeing. Thank you.

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CHAPTER 1

INTRODUCTION

Problem Statement

Teachers are valuable members of society that face extreme challenges at work. Teachers have a serious responsibility to both meet the national and state standardized testing requirements and to foster a healthy environment in which children ask questions and are challenged (Lee, 2019). Teaching is a very stressful job position; teachers report more job-related stressors compared to retail, healthcare, law, technology, construction, and other industries (Bottiani et al., 2019; Marken & Agrawal, 2022). Caught in the cross-section of political debates, child safety, parents' opinions, increasing workload, and low wages, U.S. teachers are at a high risk of experiencing job burnout and leaving the profession (National Education Association, 2022). Nationwide, teacher burnout has led to teacher shortages and schools with incomplete staff, creating increased workload and stress for the teachers who remain (Granziera et al., 2021). Previous research has investigated some predictors of teacher burnout among mixed samples of teachers across multiple grade levels, subjects, and specialty areas, but there is a lack of understanding of the specific factors that contribute to burnout among public middle school teachers that teach core subjects. Additionally, little is understood about the impact burnout has on both personal and workplace outcomes among this subpopulation of teachers.

Burnout is characterized by the World Health Organization as an “occupational phenomenon” that includes three major components: emotional exhaustion, depersonalization (cynicism), and a lack of personal accomplishment (WHO, 2019). Chronic burnout has been linked to a myriad of physical and mental health conditions including anxiety, depression, and cardiovascular disease (Bakker et al., 2023). Burnout is also a significant risk factor for negative workplace outcomes, including lower job performance and a higher likelihood of leaving the profession (Granziera et al., 2021).

Among U.S. teachers, previous research has identified several factors that contribute to teacher burnout, including work overload, lack of recognition, role ambiguity, student misbehavior, and lack of coworker and administrative support (Camacho et al., 2021; Camacho & Parham, 2019; Collie et al., 2018). However, authors have focused primarily on urban school settings, and little is understood about how geographic location, including suburban and rural school settings, may impact teachers’ burnout experiences. When investigating the outcomes of burnout, authors have previously focused on just personal outcomes (i.e., physical and mental health) or just professional outcomes (i.e., job satisfaction and turnover). Within the context of teaching, there is little understanding of how burnout impacts teachers’ overall well-being, including both personal and professional factors.

Theory

The Job Demands, Job Resources (JD-R) model guided this research. The JD-R model summarizes individuals’ workplace experiences into three major categories: job demands, job resources, and personal resources. Job demands are the physical,

psychological, social, or organizational aspects that require sustained physical, cognitive, and emotional effort and are therefore associated with specific physiological and psychological costs (Bakker et al., 2023). Job resources are the physical, psychological, social, or organizational aspects that have motivating potential, are functional in achieving work goals, regulate the impact of job demands, and stimulate learning and personal growth (Bakker et al., 2023). Personal resources are defined as self-evaluations of one's ability to control and impact their environment (Hobfoll et al., 2003). Personal resources can predict and influence how job demands and resources affect employee outcomes (Hobfoll et al., 2003). The JD-R model has been previously employed to understand the relationships between workplace and personal factors within teaching on burnout (Chan et al., 2021; Camacho et al., 2021; Demerouti et al.,2001; Granziera et al., 2021; Harris & Bostain, 2021). However, within the teacher burnout literature, little is understood about how personal factors, outside of personality factors (i.e., internal locus of control and perfectionism), impact teacher burnout. For example, very little research has explored possible relationships between work to life and life to work interference on teachers' burnout experiences. Therefore, this theoretical framework was be used as a guide for manuscript 1 to organize the job demands, job resources, and personal resources associated with teacher burnout. More specifically, job demands included workload, student misbehavior, and nonwork to work and work to nonwork conflict. Job resources included coworker support, administrative support, job autonomy, recognition for accomplishments, and teaching efficacy. In manuscript 2, associations between burnout and teachers' productivity, job satisfaction, stress levels, and mental and physical health will be explored.

Purpose and Design

The purpose of this dissertation was two-fold: (1) examine the relationships between risk and protective factors experienced by teachers on burnout and (2) assess the relationship of burnout and individual health and workplace factors among teachers. This was accomplished using a cross-sectional survey administered by Qualtrics Research Services. The survey assessed worker well-being and burnout using four robust and previously validated tools: the National Institute for Occupational Safety and Health (NIOSH) Well-Being Questionnaire (WellBQ), the Maslach Burnout Inventory Education Specific (MBI-ES), the Teacher Subjective Wellbeing Questionnaire (TSWQ), and Direct Behavior Rating–Single Item Scales (DBR-SIS) (Mind Garden, 2023; Miller et al., 2017; NIOSH, 2021; Renshaw et al., 2015). The WellBQ is a relatively new instrument that evaluates a wide variety of topics on the workplace characteristics and physical and mental wellbeing (NIOSH, 2022). The MBI-ES is an adapted version of the well-known MBI scale that evaluates Teachers' levels of emotional exhaustion, cynicism, and personal accomplishment (Maslach et al., 2001). The TSWQ is a two-factor tool that evaluates teacher wellbeing as a result of teaching efficacy and school connectedness. For purposes of this research, only the teaching efficacy scale will be used (Renshaw et al., 2015). Direct Behavior Rating–Single Item Scales (DBR-SIS) are evidence-based tools that allow for simple assessment of students' classroom behavior by capturing how often students are academically engaged, respectful, and disruptive (Miller et al., 2017). Two manuscripts (Chapters 3 and 4) were developed to report the findings of this study.

Across the literature, there is a significant gap in understanding how burnout persists among public, core-class, and non-special-education teachers. Additionally,

research focusing on predictors and outcomes of burnout within public, core-classroom middle school teachers have not been conducted before this project. Adding to this body of research enables public health and education professionals to better address the increasingly dire situation of shortages, high turnover, and job dissatisfaction among public school teachers. By understanding the most significant risk and protective factors for middle and teacher burnout, interventions can be developed to resolve these issues before they result in negative mental and physical health outcomes for teachers, poor workplace outcomes for schools, and poor educational performance of students.

CHAPTER 2

LITERATURE REVIEW

Burnout

Burnout is characterized as a combination of depersonalization (or cynicism), personal inefficacy, emotional exhaustion, and feeling overburdened by the emotional strain of chronic job stressors (Maslach et al., 2001). Burnout contributes to negative outcomes for both an individual's health as well as their work organization. Within the United States workforce, both work stressors and burnout are associated with negative mental and physical health outcomes, including depression, anxiety, and suicide ideation (Choi, 2018). Burnout is also a significant predictor of negative workplace outcomes, including absenteeism, job dissatisfaction, and turnover intentions (Maslach et al., 2001).

Between 1974 and 2019, no fewer than 13 definitions of burnout were published (Canu et al., 2021). Demerouti & Nachreiner (1998) defined burnout as chronic fatigue, exhaustion, and disengagement from work. In 2019, the World Health Organization (WHO) added burnout to the International Categorization of Diseases (ICD-11) as an "occupational phenomenon" (WHO, 2019). Using Maslach et al.'s (2001) three-dimensional conceptualization of burnout, the WHO defined burnout as a condition that leads to emotional exhaustion, depersonalization (cynicism), and a lack of personal accomplishment. However, burnout is not classified as a clinical or medical condition (WHO, 2019). Maslach et. al., (2001) initially argued that burnout was a response to

chronic emotional and interpersonal stressors at work. Significant empirical evidence gathered over multiple decades suggests that burnout is a serious public health and workplace health issue that can lead to adverse outcomes for individuals and organizations (Bakker et al., 2023).

Burnout & Health Outcomes

Internationally burnout has been linked to severe and long-lasting adverse health effects, including higher mortality. Experiencing chronic burnout has been linked to chronic headaches, fatigue, type 2 diabetes, generic cold and flu, cardiovascular disease, anxiety and depressive disorders, and suicide ideation (Bakker et al., 2023). The most alarming evidence for burnout's negative impact on health was reported in a longitudinal study conducted by Ahola et al. (2010), who followed more than 7,000 workers over ten years. Findings from this study suggest burnout contributed to increased mortality rates among employees under 45 years of age.

The mechanism of action linking burnout to mortality is not well understood; however, Ahola et al. (2010) argued that cardiovascular disease, stress hormones, or immune system impairment could be contributing factors. A systematic review of the health effects of chronic burnout suggests individuals suffer from long-lasting symptoms ranging from anxiety and depressive disorders, secondary traumatic stress, back and neck pain, sleep deprivation, and insomnia (Yang & Hayes, 2020). An examination into the consequences of burnout among physicians revealed those who experienced burnout also experienced mood disorders and increased alcohol abuse/dependence (Patel et al., 2018). Further, those who experienced burnout had a suicide rate 2.27 and 1.41 times higher

than the general population among female and male physicians, respectively (Patel et al., 2018).

Burnout & Workplace Outcomes

In addition to the individual health outcomes, when employees are experiencing burnout symptoms, they are less engaged in their work, less productive, and more likely to be physically absent or physically present but mentally absent (presenteeism) (Maslach et al., 2001). The most studied workplace outcomes related to burnout include turnover intentions, absenteeism, job satisfaction, organizational commitment, and job performance (Granziera et al., 2021). The negative impact of burnout on these work factors can harm a company's productivity, and lead to turnover, and occupational attrition leaving an organization short-staffed (Ryan et al., 2017).

A meta-analysis examining the impact of burnout on workplace outcomes found emotional exhaustion as the best predictor of absenteeism, depersonalization as the best predictor of turnover intentions, and personal accomplishment as the best predictor of job performance (Swider & Zimmerman, 2010). In certain professions, burnout may have much more serious consequences. For example, physician burnout is linked to an increased risk of malpractice, and patient safety concerns (Patel et al., 2018; Jun et al., 2021).

Teachers & Burnout

A teacher, defined very broadly, is someone who instructs students within a classroom setting; this can be either virtual or in-person school environments. A teacher has completed a necessary educator training course, either by achieving a four-year

degree in education or through a state-approved teacher preparation program and has passed state-level requirements to teach (All Education Schools, 2022). The Bureau of Labor Statistics defines a primary school teacher as someone who instructs and guides young students through basic subjects, evaluates their skills and abilities, communicates with parents/ guardians, and supervises children in their classroom and around the school (U.S. Bureau of Labor Statistics, 2023a). The Bureau of Labor Statistics defines a middle school teacher as instructing students in subjects and providing them with skills they may require for higher education or the workforce. Unlike primary school teachers, middle school teachers do not stay with the same grade level (i.e., age group) all day, and instead specialize in a subject (i.e., math, history, science) and then teach various levels of the subject based on the student's grade level (U.S. Bureau of Labor Statistics, 2023b). At each grade level, the expectations for teachers and students change and the workload also changes to meet those expectations.

Public school teachers make up a vast majority of the total population of K-12 educators. As of July 2023, there were approximately 3.125 million public school teachers in the United States, 74.3% of whom are female, White (79.3%), and between the ages of 30-49 (McCain, 2023). The critical distinction between public and private schools is the source of funding and, therefore, resources available to teachers. Public school funding traditionally comes from sales, property, or income taxes on those who live in the area a school serves; however, the laws vary between states (U.S. Department of Education, 2019). Therefore, public school funding is tied to the income of the local area, meaning that communities with low median income will have less school funding (Peter G. Peterson Foundation, 2022). Meanwhile, private schools do not receive federal

funding (i.e., tax revenue). Private schools are typically funded by tuition payments for each attendee (Peter G. Peterson Foundation, 2022). Although some scholarships or federal grants may help cover the cost of attendance for low-income students, this does not cover most of the school's revenue (Peter G. Peterson Foundation, 2022). The discrepancy in funding sources means that the standards public and private school teachers are held to can be vastly different, as public schools must meet federal guidelines and standards that limit what teachers can teach and discuss in their classrooms (U.S. Department of Education, 1997). However, private school teachers may have more autonomy in their classroom and must abide by a private governing body that may have different expectations than public school teachers (U.S. Department of Education, 1997).

Over the last 20 years, the landscape of American teaching has changed dramatically. With the introduction of the No Child Left Behind (NCLB) Act of 2001, each state across the US was required to create standards on which students would be tested, with a demanding accountability system for teachers accompanying it (Anderson, 2005). Provision of federal funds to public schools required students to meet “adequate yearly progress” and increased the expectations for teacher performance (Diorio, 2023). These high expectations and education accountability policies may contribute to higher stress for teachers and teacher burnout (Farber, 1991; McNeil, 2000; Smith, 1991). Although the NCLB Act was changed in 2015 under the Obama administration to Every Student Succeeds Act (ESSA), standards for students and teachers remain high (Diorio, 2023).

According to the Department of Education's definition based on the No Child Left Behind Act, a "core academic subject" is defined as "English, reading or language arts, mathematics, science, foreign languages, civics, and government, economics, history, and geography" (U.S. Department of Education, 2007). These courses, also called core classes, are more significant categories in middle schools. Educators at these levels must specialize in a subject, allowing students to move to different classrooms during the day to attend all subjects. In elementary schools, students typically remain in the same classroom all day with the same teacher for all their core subjects, then transition to elective courses such as art, music, and physical education (All Education Schools, 2022). However, in upper grades, including middle schools, students transition typically multiple times throughout the day, and teacher specialize in a single, or few, subject(s) (All Education Schools, 2022). Core differences in the organization of the school day may contribute to student behavior changes and workload differences throughout the day, increasing teacher stress (Bottiani et al., 2019).

Teaching is one of the most stressful job positions in the United States, with more teachers reporting high job-related stressors compared to retail, healthcare, law, technology, construction, and others (Bottiani et al., 2019; Marken & Agrawal, 2022). Teachers are at a greater risk than ever for experiencing job burnout and leaving the profession (National Education Association, 2022). As of January 2022, 90% of K-12 teachers reported burnout as a serious or somewhat serious issue (National Education Association, 2022). Forty-four percent of teachers in the K-12 education system reported feeling burned out (Marken & Agrawal, 2022).

Burnout often contributes to job turnover among teachers. Approximately 600,000 teachers left the profession since January 2020 (U.S. Bureau of Labor Statistics, 2022). From July 2020 to November 2021, the percentage of teachers leaving the profession earlier than planned nearly doubled, rising from 28% to 55% (National Education Association, 2022). Beginning the 2022-2023 school year, 18% of public schools had one teaching vacancy, and 27% had multiple teaching vacancies (National Education Association, 2022). Teacher shortages are more severe in low-income schools, with more than half of public schools in high-poverty neighborhoods (57%) experiencing at least one teaching vacancy (National Education Association, 2022). Vacancies in teaching positions often necessitate fewer teachers' coverage of more students, meaning that class sizes increase, workloads increase, and job stress increases potentially leading to increased risk for burnout (Granziera et al., 2021).

Predictors of Teacher Burnout

Examining literature published within the last twenty years, studies highlight a number of organizational challenges associated with teaching that may lead to burnout. In a study of 164 high school teachers, researchers identified organizational challenges that included work overload, obligation to respond to constant change, and role ambiguity (Collie, 2011). Examining data from the US National Center for Education Statistics Beginning Teachers Longitudinal study, other organizational factors such as exposure to emotionally demanding situations and emotional labor, especially within their first year of teaching, have been shown to predict emotional exhaustion, an aspect of burnout (Fitchett et al., 2018). Student misbehavior, problematic behavior by students’ parents, and poor support from colleagues and administration have also been associated with

reduced teacher well-being and burnout in a sample of urban teachers (93% female) (Camacho & Parham, 2019; Camacho et al., 2021). Studies on elementary school teachers have found that insufficient social support from coworkers and school administration significantly affects teachers' self-efficacy beliefs, increasing the likelihood of experiencing burnout (Berryhill et al., 2009). Heavy workload, job insecurity and time pressure have also been positively associated with elementary school teacher's burnout and poor well-being (Berryhill et al., 2009; Chan et al., 2021).

In addition to organizational factors, previous research has found that general life stress, and general day-to-day professional stressors, (Brady, 2022; Ray & Miller, 1994) is a significant yet often overlooked demand that may contribute to teacher burnout (Brady, 2022; Fiorilli et al., 2019). In both directions, nonwork to work and work to nonwork conflict can negatively impact employee wellbeing (NIOSH, 2022). Life stress can spill over into one's work, leading to adverse outcomes (Holmes & Rahe, 1967; Rahe et al., 1970). Additionally, the spillover of work responsibilities to family life and a lack of work/life balance may contribute to increased work stress and increased likelihood of turnover intentions and lower job satisfaction among teachers (Boamah et al., 2022).

Location

Teachers in urban schools often instruct greater numbers of students who are of lower socioeconomic status and disproportionately suffer from academic difficulties such as lower verbal skills and grade repetition (Brooks-Gunn & Duncan, 1997; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Basch, 2011; Korenman, Miller, & Sjaastad, 1995; Wadsworth & Achenbach, 2005). Previous research has argued that teachers in urban

settings experience higher levels of burnout compared to their suburban and rural counterparts; however, this hypothesis has not been tested in a diverse sample that included teachers across multiple geographic locations (Camacho et al., 2021). Schools in different areas have important differences such as school funding and resources that may contribute to experiences of burnout (Sielke, 2000).

Gender Differences

In studies examining burnout in teachers, female teachers often make up the majority of the sample. In some studies, more than 95% of the sample are females (Chan, et al., 2021; Camacho, et al., 2021; Camacho, et al., 2019). This is not surprising given that the profession is majority female. However, there is some evidence that suggests that there are important sex differences in experiences of burnout among teachers. In 2022, over half of female teachers reported being especially burned out compared to 44% of male teachers (Marken & Argwall, 2022). In contrast, in a study with a smaller sample of 31 teachers (61% female) the researchers found there were no sex differences in burnout scores, the lack of association was consistent across all levels of educational attainment and age (Jamaludin & You, 2019). In other studies, female teachers have reported higher levels of workload and emotional exhaustion compared to their male counterparts (Antoniou et al., 2006; Arvidsson et al., 2016; Sünbül, 2003; van Dick & Wagner, 2001; Wang et al., 2015). Therefore, while some research suggests that female teachers are experiencing burnout at higher levels than their male counterparts, the findings across the literature are mixed.

Additionally, we have evidence that suggests that female teachers may experience known predictors of burnout at higher levels. For example, in a sample of teachers from

lower grade levels, females reported higher levels of occupational stress than their male colleagues, particularly in interactions with students and coworkers (Antoniou et al., 2006; Griffith et al., 1999). Female teachers also reported more work-related discomfort and anxiety (Arvidsson et al., 2016; Griffith et al., 1999; Tamres et al., 2002). And female teachers reported higher levels of perceived stress (Agai-Demjaha et al., 2015; Antoniou et al., 2006; Chaplain, 2008; Greenglass et al., 2003; Rasku & Kinnunen, 2003) and rated their health worse than their male colleagues (Lagrosen & Lagrosen, 2020).

To this author's knowledge, the only papers that contain majority male samples (50% or higher) are subject-specific, such as investigations of burnout among only agriculture science teachers, which tend to be male-dominated (Croom, 2003). Additionally, a significant number of studies have examined burnout among physical education teachers, which is also a male dominated subject.

Subject & Grade Level Differences

Teacher expectations, teaching requirements, school and classroom context, and student development can differ across grades in K-12 education (All Education Schools, 2022). As such, research on teacher burnout has often focused on a single school level such as elementary school. While elementary school teachers often report higher levels of emotional exhaustion (Saloviita & Pakarinen, 2021). Some studies suggest teaching in the upper grades (6^{th}-12^{th} grade) was associated with experiencing more burnout than teachers in lower grades (Arvidsson et al., 2016). Additionally, it has been previously reported that upper grade teachers tend to experience higher levels of depersonalization and reduced personal accomplishment than elementary school teachers (Schwab & Iwanicki, 1982). However, in other studies using grade level taught as an important risk

factor for teacher stress, there is a negative relationship between grade level and stress (Malik,et al., 1991). One study conducted on public school teachers (36% taught elementary school) in the US found that teachers in middle school settings were most likely to report stress and teaching challenges when compared to elementary and high school teachers (Camacho, et al., 2019).

Most research focused on burnout among middle school teachers include teachers across both private and public schools, special education and neurotypical-classroom teachers, teachers in both core and non-core class settings, and rarely report differences in burnout experiences across these diverse sub-populations. Special Education Teachers (SETs) may teach at the elementary, middle, and high school levels but specifically instruct students with learning, mental, emotional, or physical disabilities (U.S. Bureau of Labor Statistics, 2023c). A significant number of studies have examined burnout among physical education teachers and SETs (Alsalhe et al., 2021; Bruncsting et al., 2014). Previous research has found SETs experience higher burnout rates than general education teachers. The unique challenges of teachers who work with neurodivergent and physically disabled students can be vastly different from that of a general educator teacher, and comparing their experiences to general education teachers is not appropriate or equitable (Hester et al., 2020; Hogue & Taylor, 2020; Robinson et al., 2019). Very little research has been done to understand how burnout presents among middle school teachers who teach in public, middle schools, in core-classroom settings to neurotypical students.

Outcomes of Teacher Burnout

Teacher burnout literature has examined a wide variety of outcome factors. Some authors evaluate burnout as the primary and final outcome resulting from job and personal factors (Berryhill, et al., 2009; Camacho, et al., 2021; Harris, et al., 2021). Other research evaluates burnout as a moderator or mediator between predictive factors and workplace and personal outcomes (Califf, et al, 2020; Fitchett, et al., 2016). A third group of research assesses burnout as the exposure variable to negative personal outcomes (Bianchi & Schonfeld, 2016). Despite the differences in how previous research has been conducted, higher demands placed on teachers have been linked to poor well-being, including higher levels of burnout, greater stress levels, and increased reports of depressive symptoms (Bianchi & Schonfeld, 2016). Additionally, higher burnout has been linked to lower organizational commitment, lower work engagement, and higher motivation to quit the profession (Hakanen et al., 2006; Lee, 2019; Leung & Lee, 2006; Skaalvik & Skaalvik, 2018).

Teachers who experience burnout may also negatively impact the students they teach and mentor while on the job. Education is one of the most significant predictors of health outcomes; those with more educational attainment and opportunity live healthier, longer lives (Mirowsky, 2017). Gaining foundational skills in reading, writing, math, and other base subjects increases children's knowledge, aids their development, and improves their lifelong health outcomes (Link & Phelan, 1995; Mirowsky, 2017). Creating a safe, supportive environment for children to learn is one of the most essential elements for a society to grow. Teacher well-being plays a critical role in creating a supportive and effective learning environment for students (Beltman, et al., 2011 Skaalvik & Skaalvik,

2018). Emotional exhaustion and job dissatisfaction have been shown to be significant predictors of teaching effectiveness and positive educational outcomes for students (Arens & Morin, 2016). Protecting and promoting teacher well-being is vital to maintaining education quality across all grade levels, especially in a challenging teaching context, such as policy changes, staff shortages, or disruptions to daily school life (Beltman et al., 2011). Addressing teacher burnout is vital in maintaining a healthy teaching workforce as well as fostering environments for the next generation to access excellent, health-promoting education.

Interventions

Interventions focused on reducing teacher burnout most often focus on teachers creating mindfulness practices and techniques for improving resilience (Harris, et al, 2021). Other interventions focused primarily on social and emotional competence, arguing that by improving a teacher's ability to respond well in challenging classroom situations, they will experience less emotional exhaustion (Jennings et al., 2017). In a meta-analysis evaluating the effectiveness of teacher burnout interventions, Iancu et al (2018) found that overall, current interventions are primarily focused on resilience, mindfulness, and other mental coping strategies have limited effectiveness (Iancu et al., 2018b). Only mindfulness interventions moderated the relationship between exhaustion and personal accomplishment for teachers (Iancu et al., 2018b). Current interventions designed to reduce burnout in middle school teachers are slim (n=2), and reported below average effect sizes (Iancu et al., 2018b). Better understanding the factors that contribute to teacher burnout and the individual health and organizational outcomes that result when

burnout does occur can inform intervention strategies designed to prevent burnout from occurring and also mitigate negative effects of burnout when it occurs.

Theoretical Basis

Job Demands, Job Resources Model

The Job Demands, Job Resources model (JD-R) is a stress theory frequently used in workplace research to understand how job demands and resources influence job performance through employee well-being and how employees use certain work behaviors to influence the demands and resources they experience (Bakker & Demerouti, 2017; Bakker et al., 2014). The JD-R model originated from various aspects of the burnout and engagement literature (Demerouti et al., 2001). The creators of the JD-R model, Bakker et al. (2014), note that this framework takes knowledge from various theories of job stress and work motivation, including the two-factor theory (Herzberg, 1966), job characteristics theory (Hackman & Oldham, 1976), the job demands–control model (Karasek, 1979), the effort-reward imbalance model (Siegrist, 1996), and conservation of resources theory (Hobfoll et al., 2018).

Job demands are the physical, psychological, social, or organizational aspects that require sustained physical, cognitive, and emotional effort and are therefore associated with specific physiological and psychological costs (Bakker & Demerouti, 2017). While some job demands (i.e., workload and social support) may be universal and included in most occupations, the JD-R allows for more job-specific demands (i.e., student behaviors in the context of teaching). Job resources are the physical, psychological, social, or

organizational aspects that have motivating potential, are functional in achieving work goals, regulate the impact of job demands, and stimulate learning and personal growth (Bakker & Demerouti, 2017). Within the JD-R framework, job resources can also be adapted to reflect the specific experiences of a particular work environment (i.e., administrator support for teachers). JD-R theory constitutes multiple propositions and potential pathways for understanding the relationships between job demands and resources with personal factors that impact burnout and work engagement. One of the essential propositions within this theory is the buffering hypothesis, which argues that the presence of job resources buffer (or reduce) the impact of job demands on the strain experienced by an employee (Bakker et al., 2005). Job resources such as skill variety, feedback, and opportunities for recovery can lessen the impact of various job demands (i.e., workload, cognitive demands, and emotional demands) on employees' psychological distress, burnout, and adverse health outcomes (Bakker et al., 2005; De Jonge & Huter, 2021; Lavoie-Tremblay et al., 2014).

Beyond the demands and resources people experience at work, personal demands and resources are important in the relationship between job-related factors and adverse health outcomes like burnout. Defined as self-evaluations of one's ability to control and impact upon their environment (Hobfoll et al., 2003), personal resources can predict and influence how job demands and resources affect employee outcomes. For example, self-efficacy (a personal resource) may influence a teacher's opinion of the school climate (a job resource), which in turn may increase their feelings of commitment to their school/ occupation (Collie et al., 2011).

Within the teacher burnout literature, the application of personal characteristics primarily focuses on personality factors, such as internal locus of control, resilience, and mindfulness (Harris & Bostain, 2021). There is a lack of understanding about how other personal experiences, such as work-to-life and life-to-work interference impact the relationships between job factors and teacher burnout.

JD-R & Teacher Wellbeing

The JD-R model has received substantial empirical support for the hypothetical causal relations between job characteristics, burnout, professional well-being, and personal well-being (Lesener et al., 2019). The JD-R model is flexible and can include a wide variety of job characteristics and settings (e.g., workplace safety, role ambiguity, task stress, teaching autonomy, school climate.). Researchers have increasingly employed the JD-R model to help explain why teachers experience burnout (Demerouti et al.,2001; Granziera et al., 2021). Job demands that have been identified to negatively impact teacher well-being (i.e., burnout and mental health) across all grade levels (K-12th grade) include increased workload, student misbehavior, time pressure, and role ambiguity (Chang, 2009; Roeser et al., 2013; Skaalvik & Skaalvik, 2017). Identified job resources that protect and increase teacher well-being include coworker and administrative support, recognition/ appreciation, job control, and teaching efficacy in samples of K-12th grade teachers (Chang, 2009; Eddy et al., 2020; Greenglass & Burke, 2003; Huk et al., 2019; Kokkinos, 2007; Roeser et al., 2013; Wang et al., 2015). Additional job characteristics commonly used in the adaptation of the JD-R for samples of elementary school teachers

include job autonomy, school climate, and task-related stress (Bakker & Demerouti, 2017; Chan et al., 2021; Demerouti et al., 2001; Lesener et al., 2019).

The most recent update and publication by Bakker, et al. (2023) notes that adding more personal factors and the relationship between work and home to the JD-R framework would expand the understanding of the impact of burnout on teacher wellbeing. In two studies, a cross sectional survey and a diary study, social support was identified as a personal resource that predicted teacher well-being (Granziera et al., 2021). In studies of teachers across the globe, researchers have examined self-efficacy as a personal resource and found strong associations with greater work engagement, decreased negative perceptions of job demands, increased job satisfaction and commitment, and subjective well-being (Collie et al.,2018; Dicke et al., 2018; Simbula et al., 2012; Vera et al., 2012). Based on the JD-R model, when teachers can access greater personal and job resources, they may manage job demands better, which can decrease their likelihood of experiencing emotional exhaustion, and enhance their well-being at work (Granzieria et al., 2021).

Addressing Gaps

There are several gaps in the current literature that this project aimed to address. In previous research examining the relationships between work and personal factors on teacher burnout, the samples predominantly included teachers in elementary schools, both public and private; teachers across multiple subjects outside of common core (i.e., art, physical education, music); and teachers that work exclusively with students who have special needs (Boamah et al., 2022; Bottiani at al., 2019; Dexter & Wall, 2021; Gill at al.,

2020; Hester et al., 2020; Lee et al., 2019; Ryan et a., 2017). Within the body of literature that focuses on public, K-12, core class-room teachers, authors rarely investigated the impacts of burnout on both individual and workplace outcomes, and did not include work-to-life and life-to-work interference as risk factors for burnout (Berryhill et al., 2009; Califf & Brooks, 2020; Camacho et al., 2021; Chan at al., 2021; Fitchett et al., 2018). Therefore, it is vital to expand the teacher burnout literature to include teachers who teach a core subject in public middle schools in both urban and rural settings to understand the relationships between job demands, job resources, and personal factors on burnout, including work-life conflict. Additionally, additional research is needed to understand how burnout contributes to individual health and work outcomes among this subpopulation of teachers.

Purpose of the Study

The study described in the following chapters examined both the factors predicting teacher burnout, as well as how burnout impacts personal and work outcomes. Survey data was collected from current teachers using a non-probability sampling method. Manuscript one reports the relationships between teachers' job demands and job resources and burnout (emotional exhaustion, depersonalization, and lower personal accomplishment). Thus, a structural equation model was created based on the JD-R theoretical framework to evaluate the impact of identified job demands and resources on teacher burnout. Manuscript two summarizes the relationships between teachers' burnout and individual health and work organization outcomes. Thus, a regression analyses was

used to examine relationships between burnout and productivity, job satisfaction, mental and physical health.

CHAPTER 3

EXAMINING THE PREDICTORS OF BURNOUT AMONG PUBLIC MIDDLE SCHOOL TEACHERS ACROSS THE UNITED STATES[1].

[1]Ashby, E.L. To be submitted to a peer reviewed journal.

Abstract

Burnout among U.S. schoolteachers has reached critical levels. This study examined the predictors of burnout in a sample of public, core-classroom middle school teachers using the Job Demands-Resources (JD-R) model as a framework. A cross-sectional survey design was used to collect data from a non-probability sample of teachers in the U.S. Structural equation modeling assessed whether job demands (workload, student misbehavior, work-life conflict) and job resources (administrative support, coworker support, teaching efficacy, and recognition) predicted burnout, and if these relationships differed based on teacher sex. A sample of 200 middle school teachers across the United States participated in the study. Job demands including workload, student misbehavior, and work to nonwork and nonwork to work conflict were positively associated with increased burnout. In contrast, job resources including administrative and coworker support did not predict burnout in this sample. Female teachers reported higher workloads, more frequent work to nonwork conflicts, and reported more student misbehavior than male teachers. However, there were no significant differences between male and female teachers' emotional exhaustion, depersonalization, or personal accomplishment and no sex differences between job demands and burnout. The study highlights the unique stressors middle school teachers face and suggests that reducing job demands, such as workload and student misbehavior, may be key to preventing burnout in this population. Future research should further explore how grade level and other job resources influence burnout among middle school teachers.

Introduction

Teacher Burnout

Teaching is known to be one of the most stressful job positions in the United States, with more teachers reporting high job-related stressors compared to retail, healthcare, law, technology, construction, and others (Bottiani et al., 2019; Marken & Agrawal, 2022). Experiencing constant job-related stress can contribute to teachers feeling burned out and leaving the profession in high numbers (National Education Association, 2022). Burnout among US teachers is reaching critical levels. As of January 2022, 90% of teachers reported burnout as a serious or somewhat serious issue (National Education Association, 2022).

Burnout is characterized as a combination of depersonalization (or cynicism), personal inefficacy, emotional exhaustion, and feeling overburdened by the emotional strain of chronic job stressors over time (Maslach et al., 2001). When teachers experience burnout and leave the profession, that often leaves vacancies, meaning higher workloads and more stress for the teachers who remain, perpetuating a cycle of burnout (Granziera et al., 2021).

Predictors of Teacher Burnout

Sex Differences

As of July 2023, there were approximately 3.125 million public school teachers in the United States, 74.3% of whom were female, White (79.3%), and between the ages of 30-49 (McCain, 2023). Research on teacher burnout, especially in public schools, almost always contains overwhelmingly female samples, typically above 75% (Camacho et al.,

2021; Camacho & Parham, 2019; Chan et al., 2021; Jennings et al., 2017). The overrepresentation of female teachers, especially in the burnout literature, has limited the understanding of male teachers' experiences. Nonetheless, studies have identified teacher sex as a risk factor for experiencing increased burnout, with female teachers often reporting higher levels of emotional exhaustion than (Beer & Beer, 1992; Bermejo Toro & Prieto Ursúa, 2014; Peris-Ramos, et. al., 2024). While there have been some direct comparisons between male and female teachers, they have produced mixed findings on the risk and protective factors. Overall, female teachers have reported significantly higher levels of job-related stress than their male colleagues particularly in interactions with students and coworkers (Kreuzfeld & Seibet, 2022). One study, with a larger (44%) population of male teachers across all grade levels, found that male teachers reported lower workload, less commitment to their work, and less emotional exhaustion when compared to females (Kreuzfeld & Seibt, 2022). Currently, there are no studies comparing male and female experiences of burnout in public middle school teachers.

Work-related Factors

Previous studies have reported relationships between work factors and burnout. In a study of full-time elementary (n = 1203), middle/ junior high (n = 410), and secondary teachers (n = 1431), role conflict, work overload, classroom climate, and social support were positively correlated with emotional exhaustion, depersonalization, and reduced personal accomplishment (Byrne, 1994). In other studies, work overload, responding to constant change, and role ambiguity have been found to be positively associated with job burnout and decreased well-being among teachers (A. Dexter, 2021; Collie, et al., 2018). Similarly, heavy workload has also been shown to increase burnout and contribute to

poor well-being in a sample of mostly female teachers (80%) (Berryhill et al., 2009; Chan et al., 2021).

Student misbehavior and poor coworker and administrative support have previously been shown to reduce teachers' well-being and contribute to burnout in a sample of predominantly female teachers (96%) (Camacho & Parham, 2019; Camacho et al., 2021). Additionally, in a study of 806 teachers (Fernet, Guay, Senécal & Austin, 2012), students' disruptive behavior, and principals' leadership behavior were indirectly related to all three components of burnout. Other studies have found that insufficient social support from coworkers and school administration significantly decreases teachers' self-efficacy beliefs, leading to a higher likelihood of experiencing burnout (Berryhill et al., 2009).

Workplace health research has also found that life stress can spill over into one's work life, leading to adverse outcomes (Tsukerman, et al., 2020). The spillover of familial responsibilities to work and a lack of work/life balance is a factor that has been linked to increased work stress, increased likelihood for turnover intentions, and lower job satisfaction among teachers (Boamah et al., 2022). However, the inclusion of work/life balance or conflict factors as job demands or resources in the context of teacher burnout has seldom been explored (Bakker, et al., 2023).

School Setting

Studies on teachers and burnout often contain blended samples including public and private schools teacher who teach at various grade levels and classroom settings (Fitchett et al., 2016; Fitchett et al., 2018). Additionally, several studies focus on sub-

populations of teachers, particularly special education teachers, physical education teachers, administrators, music teachers, and English as a foreign language teachers, (Gerceker, 2018; Gilmour, et al., 2023; Hassan, et al., 2024; Msila, 2017; Ozturk, 2021; Richards, et al., 2022; Sayman, et al., 2018).

When studies examine burnout in public school teachers, they typically include convenience samples of teachers in all grade levels, with a majority focusing on elementary (k-5th grade) teachers (Berryhill et al., 2009; Chan et al., 2021; Fitchett et al., 2018; Oakes et al., 2021). When included in studies, middle school teachers only represent 26%- 35% of the sample (Califf & Brooks, 2020; Camacho et al., 2021). Unlike primary school teachers, middle school teachers do not stay with the same grade level (i.e., age group) all day, and instead specialize in a subject (i.e., math, history, science) and then teach various levels of the subject based on the student's grade level (U.S. Bureau of Labor Statistics, 2023b). Therefore, their demands and job-based experiences may be unique compared to those of elementary teachers. Indeed, one study of 92 teachers and another study of 490 teachers in elementary, middle, and high school settings found that teaching at higher grade levels was associated with greater burnout (Beer, 1992; Arvidsson, et al.,2019). Other studies have focused on middle school teachers' coping strategies, interventions using self-care strategies, or special education teachers (Braun, et al., 2019; Carpenter, et al., 2023; Herman, et al., 2020). There is a need to further examine public middle school teachers' experiences of burnout and unique factors that may contribute to these experiences.

Job Demands, Job Resources Model

The Job Demands, Job Resources (JD-R) theoretical framework has been previously applied and validated in a variety of workplace settings (Bakker, et al.,2023). Researchers have increasingly utilized this framework to understand why teachers experience burnout (Demerouti et al., 2001). Previous literature has identified a variety of workplace and personal factors that impact burnout in teachers (Chan et al., 2021; Camacho et al., 2021; Demerouti et al.,2001; Granziera et al., 2021; Harris & Bostain, 2021). Time pressure, student behavior issues, and stress have been previously identified as significant job demands for teachers (Skaalvik & Skaalvik, 2017). While teaching autonomy and teaching efficacy have been identified as significant job resources for teachers (Chan, et al., 2021). Previous research suggests that work to nonwork conflict as well as nonwork to work conflict contributes to burnout in a variety of workplace settings but has not been specifically tested in teachers (Reichl, et al., 2014).

Purpose

The purpose of this study was to use the JD-R model as a framework to examine job demands, job resources, and burnout in a nationwide sample of middle-school teachers. More specifically, this study assessed the level of burnout experienced by US middle school teachers, examined the relationships between job demands and resources and teacher burnout and explored any differences in the relationships based on teacher sex. Therefore, the hypotheses guiding this project were (1) greater job demands would predict higher levels of burnout, (2) higher job resources would predict lower levels of

burnout, and (3) experiences of these factors, and relationships between these factors would differ by sex.

Methods

Study Design

This study used a cross-sectional design to test hypothesized relationships between predictor and outcome variables at a specific point in time (Wang & Cheng, 2020). Hypothesized relationships were tested using structural equation modeling informed by the Job Demands, Job Resources model (Bakker, et al., 2023).

Sample and Data Collection

The study sample included public middle school (grades 6^{th}-9^{th}) classroom teachers who taught a core subject in a general education classroom in the United States to neurotypical students. Qualtrics Research Services obtained a non-probability sample of teachers using existing pools of research panel participants (Miller et al., 2020) and administered the internet-based survey. For purposes of this study middle school was defined as 6^{th}-9^{th} grades and core subjects were defined as math, social studies, science, and language arts. Special needs teachers (SETs), those who taught a non-core subject (e.g., art, music, physical education), or taught in lower grades were excluded. The final cost to acquire 200 teachers' responses was approximately $48 per participant. Participant incentives were provided by Qualtrics. All participants provided informed consent to participate. All study procedures and protocols were approved by the University of Georgia IRB (study # STUDY00005886) and in accordance with recognized ethical guidelines.

Measurement

Survey Instrument

The survey contained 70 items assessing job demands, job resources, burnout, well-being, and demographics. All survey items were from previously validated tools, the Maslach Burnout Inventory (MBI-ES), the National Institute for Occupational Safety and Health Worker Well-Being Questionnaire (NIOSH WellBQ), the Teacher Subjective Wellbeing Questionnaire (TSWQ), and Direct Behavior Rating–Single Item Scales (DBR-SIS) (Mind Garden, 2023; Miller et al., 2017; NIOSH, 2021; Renshaw at al., 2015). To reduce the length of the survey, several items were removed from the full NIOSH WellBQ and only those of interest to this project and research questions were kept. Similarly, only the teaching efficacy scale was used from the TSWQ.

For purposes of this study, four job demands were assessed: nonwork to work conflict, work to nonwork conflict, workload, and student misbehavior. Five job resources were assessed job autonomy, coworker support, administrator support, recognition for accomplishments, and teaching efficacy. The measures are detailed in the sections below. Table 1 summarizes the variables assessed.

Table 1

Predictor and Outcome variables.

Factor	Latent Variable	IV/ DV	Scale	Citation
Workload	Job Demands	IV	NIOSH WellBQ	NIOSH (2022)
Student misbehavior		IV	Direct Behavior Rating–Single Item Scales	Miller, et al (2017)
Work-nonwork conflict		IV	NIOSH WellBQ	NIOSH (2022)
Nonwork-work conflict		IV	NIOSH WellBQ	NIOSH (2022)
Job autonomy	Job Resources	IV	NIOSH WellBQ	NIOSH (2022)
Administrator Support		IV	NIOSH WellBQ	NIOSH (2022)

Recognition		IV	NIOSH WellBQ	NIOSH (2022)
Coworker support		IV	NIOSH WellBQ	NIOSH (2022)
Teaching efficacy		IV	Teacher Subjective Wellbeing Questionnaire	Renshaw et al (2015)
Emotional Exhaustion	Burnout	DV	Maslach Burnout Inventory	Maslach & Jackson (1981)
Personal Accomplishment		DV	Maslach Burnout Inventory	Maslach & Jackson (1981)
Depersonalization		DV	Maslach Burnout Inventory	Maslach & Jackson (1981)

Job Demands

Workload. Workload was assessed using one statement "I never seem to have enough time to get everything done on my job." Participants selected from the following response options: (1) Strongly disagree, (2) Somewhat disagree, (3) Somewhat agree, and (4) Strongly agree.

Student Misbehavior. Student misbehavior was assessed using three items. An example item is, "Please indicate which option represents the percentage of total time your students are academically engaged on an average day." Participants selected an option from a sliding scale from 0% (Never) - 100% (Always). Higher values indicate more reported experience of student misbehavior, and reported scores for each participant are between 0-100 for each question.

Work to Non-work Conflict. Work to Non-work Conflict was assessed using one question "How often do the demands of your job interfere with your personal life?" Participants selected from the following response options: (1) Never (2) Almost never (a few times a year or less) (3) Rarely (once a month or less) (4) Sometimes (a few times a month) (5) Often (once a week) (6) Very often (a few times a week) (7) Always (every day).

Non-work to work conflict. Non-work to work conflict was assessed using one question, "How often do the demands of your personal life interfere with your work on the job?" Participants selected from the following response options: (1) Never (2) Almost never (a few times a year or less) (3) Rarely (once a month or less) (4) Sometimes (a few times a month) (5) Often (once a week) (6) Very often (a few times a week) (7) Always (every day).

Job Resources

Job Autonomy. Job autonomy was assessed using one statement "I am given a lot of freedom to decide how to do my own work." Participants selected from the following response options: (1) Strongly disagree, (2) Somewhat disagree, (3) Somewhat agree, and (4) Strongly agree.

Administrator Support. This was assessed with a single item, "I can count on my administrators for support when I need it." Participants selected from the following response options: (1) Strongly disagree, (2) Somewhat disagree, (3) Somewhat agree, and (4) Strongly agree.

Recognition. This construct was assessed using five items. An example item is "I receive recognition for a job well done." Participants selected from the following response options: (1) Strongly disagree, (2) Somewhat disagree, (3) Somewhat agree, and (4) Strongly agree.

Coworker Support. This type of support was assessed using the statement, "I can count on my coworkers for support when I need it." Participants selected from the following response options: (1) Strongly disagree, (2) Somewhat disagree, (3) Somewhat agree, and (4) Strongly agree.

Teaching Efficacy. Teaching efficacy was assessed using four items. An example item is, “I am a successful teacher.” Participants selected from the following response options: (1) Never (2) Rarely (3) Sometimes (4) Almost Always.

Outcome Variables

Burnout

The Maslach Burnout Inventory Educator Survey (MBI-ES) assessed the three subscales of burnout – emotional exhaustion, cynicism, and personal accomplishment among teachers, the (Maslach & Jackson, 1981). The MBI-ES contains 22 items measuring across the three subscales. These are described in more detail below.

MBI-ES Subscales

Emotional Exhaustion. Emotional exhaustion was assessed by nine items. Example items from this subscale include “I feel emotionally drained from my work” and “I feel fatigued when I get up in the morning and have to face another day on the job.” Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day.

Depersonalization. Depersonalization was assessed by five items. Example items from this subscale include “I've become more callous toward people since I took this job” and “I feel I treat some students as if they were impersonal objects.” Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day.

Personal Accomplishment. Personal Accomplishment was assessed by eight items. Example items from this subscale include “I have accomplished many worthwhile things in this job” and “I feel very energetic.” Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day.

To ensure consistent comparison with previous data (Mind Garden, 2023), SUM scores were calculated as follows:

Emotional Exhaustion (Braun et al.) = Items 1 + 2 + 3 + 6 + 8 + 13 + 14 + 16 + 20 *Note: Higher scores indicate higher degrees of burnout.*

Depersonalization (Braun et al.) = Items 5 + 10 + 11 + 15 + 22 *Note: Higher scores indicate higher degrees of burnout.*

Personal Accomplishment (Braun et al.) = Items 4 + 7 + 9 + 12 + 17 + 18 + 19 + 21 *Note: Lower scores indicate higher degrees of burnout.*

In prior studies, the MBI-ES has demonstrated reliability (r = .93–.94) and validity, including correlation with perceived teaching ability (r = .28), career optimism (r = .58), and role stressors (r = .43–.73) among U.S. schoolteachers (e.g., McLean et al., 2019; Renshaw et al., 2015; Richards et al., 2016).

Demographics

For demographics, respondents reported their assigned sex at birth (female, male, or decline to respond), race (White, Black/ African American, American Indian, Alaskan

Native, Native Hawaiian, Other Pacific Islander, Asian, or prefer not to answer), education level (teachers' certificate or above teachers' certificate), years of teaching experience (0-5, 6-10, 11-15, 16-20, 21-25, 26-30, 30+), grade level taught (6th, 7th, 8th, 9th grade), Hispanic identity (yes, no, decline to respond), and the zip code where their school was located. Using the RUCA coding system, zip codes were assigned a number 1-10, with numbers 1-3 indicating an urban location and 4-10 indicating a rural location (USDA, 2020).

Testing for Normality

All continuous variables were assessed for normality. The three outcome variables, emotional exhaustion, depersonalization, and personal accomplishment, were not normally distributed, as assessed by a visual inspection of their histograms. There was a significant positive skewness for emotional exhaustion and depersonalization, and significant negative skewness for personal accomplishment. Due to the lack of normality, data transformation was performed. For emotional exhaustion and depersonalization, a logistic transformation was used to address the extreme positive skew present for both variables. For personal accomplishment, a reciprocal logistic transformation was used to address the significant negative skewness present. For all analyses, the transformed variables were used.

Data Analysis Plan

Prior to conducting data analyses, aggregate scores of multi-item constructs were calculated. Per the MBI-ES guidelines, sum scores of each subscale were calculated for each individual participant to provide their overall emotional exhaustion,

depersonalization, and personal accomplishment scores. Descriptive statistics were calculated for the sample. Frequencies were calculated for demographic characteristics. Due to the mixture of ordinal (all predictors) and continuous (outcomes) variables, Spearman's correlations were used to assess relationships between variables. Mann-Whitney U and T-tests were run to determine if there were differences between male and female teachers. For the ordinal outcome variables, all assumptions for the non-parametric test were met. Distributions of the scores for each predictor variable (i.e., supervisor support, coworker support, workload, recognition, job autonomy, work to non-work and non-work to work conflict, teaching efficacy, and student misbehavior) for males and females were similar, as assessed by visual inspection. For the continuous outcome variables, t-tests examined differences in the teachers' emotional exhaustion, depersonalization, and personal accomplishment. Due to the lack of normal distribution in the outcome variables, the transformed versions were used, allowing all assumptions for t-tests to be met.

Structural Equation Modeling

A structural equation model (SEM) was created to assess the relationships between theorized antecedents, organized into job demands and job resources based on the JD-R framework, and burnout subscales. Job demands, job resources, and burnout operated as latent variables in the model, and regression analyses was used to indicate any relationships between those variables. Creation and assessment of the model was conducted in R. SPSS 27 software was used to calculate correlations and assess the data for outliers, skewness, and kurtosis.

Creating Parcels

Examining correlations between each factor revealed that several multi-item constructs had highly correlated items. To simplify the models and reduce multicollinearity, parcels were created. The four items measuring the construct of teaching efficacy were parceled together to create a single, manifest variable. The three items measuring the construct of student misbehavior were parceled together to create a single factor. When models were re-run with teaching efficacy and student misbehavior parceled, model fit improved, and models were simplified. Additionally, several factors that were highly correlated with one another (i.e., administrative support and coworker support, work to non-work conflict and non-work to work conflict) were parceled together to create two factors (i.e., workplace support and work/life conflict), removing any risk of multicollinearity and simplifying the model.

Path Analyses

A path analysis of the hypothesized model was used to assess model fit and calculate the relationships between variables. Confirmatory factor analysis (CFA) was conducted for each latent factor to assess model fit and ensure the data collected from the sample fits the hypothesized categories. Each CFA was nested into the larger models. Path analysis examined the direct and indirect effects of the identified job demands and job resource variables on teacher burnout. Separate models will be run with sex and geographic location as potential moderators. Figure 1 illustrates the hypothesized model.

Model fit Indices

Absolute model fit was assessed by examining the Chi-square, CFI, GFI, RMSEA, and SRMR. Statistical significance of the chi-square value was used to indicate poor model fit. RMSEA (root mean square error of approximation) of less than .03 is ideal. A CFI (comparative fit index) value ≥ .95 and a TLI (Tucker-Lewis Index) value close to 1 indicates a good model fit. An SRMR (Standardized root mean square residual) score ≤ .08 indicates a good model fit.

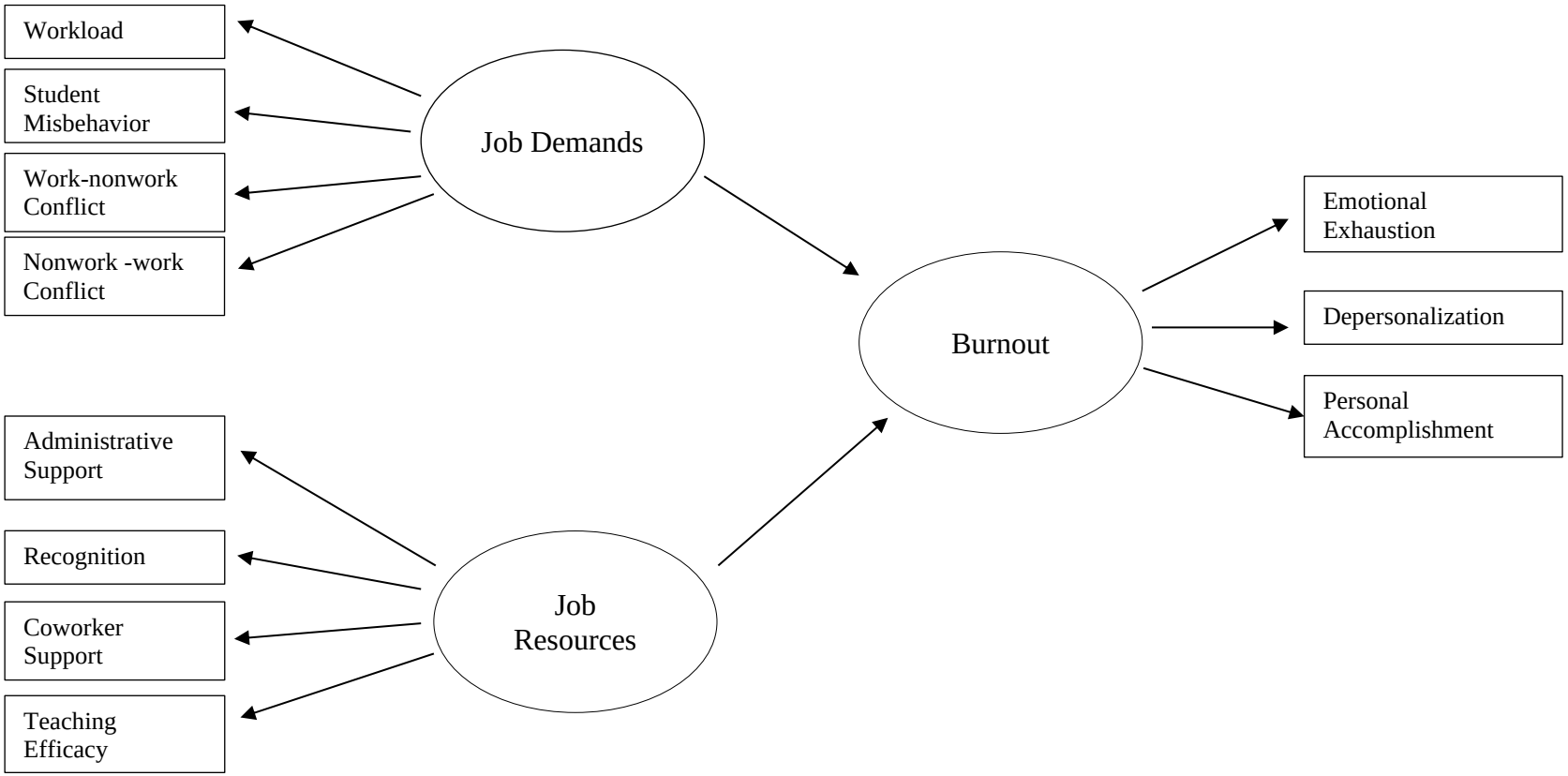


Figure 1. Full Hypothesized Model

Results

Sample Demographics

A total of 200 responses to the survey were received. Teachers in this sample were majority White (71%), male (59%), and between the ages of 31- 45 years (56%). Half of the sample taught 9th grade and 63% reported teaching for 10 years or less. Participants represented 40 states in the U.S., with the largest percentage of participants (16.5%) teaching in California. None reported teaching in Alaska, Idaho, Kansas, Maine, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, and Wyoming. Based on the RUCA coding system, a vast majority of the teachers in this sample reported teaching in a metropolitan area (82%), while 14% taught in a rural area. Table 2 summarizes demographic variables.

Table 2

Demographic characteristics of sample.

Variable	Response Options	Percentage (n)
Age (in years)		
	20-30	25.0% (50)
	31-40	42.0%% (84)
	41-50	25.5% (50)
	51+	7.0% (16)
Grade Level Taught		
	Sixth	10.5% (21)
	Seventh	18.0% (36)
	Eighth	21.5% (43)
	Ninth	50.0% (100)
Years of experience		
	0-5	27.0% (54)
	6-10	36.0% (72)
	11-15	15.5% (31)
	16-20	14.0% (28)
	21+	7.5% (15)
Race/ Ethnicity		
	White	71% (142)
	Black	25.5% (50)

	Asian	3.5% (7)
	Hispanic or Latino	3.0% (6)
Sex		
	Male	59.0% (118)
	Female	41.0% (82)
Geographic area		
	Urban	82.0% (164)
	Rural	14% (28)
	Not enough data	3.5% (7)

Descriptive Statistics and Correlations

Mean scores and standard deviations are reported in Table 3. Participants reported a mean emotional exhaustion score of 20.50 (range: 9-62), depersonalization score of 8.58 (range: 5-30), and a personal accomplishment score of 44.13 (range: 9-56). The mean of the subscales indicates a moderate level of burnout in the sample.

Table 3

Means and standard deviations (N = 200)

Variable	**Mean**	**Std. Deviation**	**Min**	**Max**
Supervisor Support	3.71	0.70	1	4
Coworker Support	3.29	0.61	1	4
Job Autonomy	3.27	0.65	1	4
Workload	2.25	1.06	1	4
Recognition	3.25	0.72	1	4
Work to Non-work Conflict	2.78	1.54	1	7
Non-work to Work Conflict	2.50	1.35	1	7
Teaching Efficacy*	1.47	0.43	1	4
Student Misbehavior**	2.36	1.42	0	100
Emotional Exhaustion***	20.5	11.70	9	62
Depersonalization****	8.58	4.95	5	30
Personal Accomplishment*****	44.13	8.49	9	56

* Average from aggregate score (possible max per person = 100)
**Average from aggregate score (possible max per person = 63)
***Average from aggregate score (possible max per person = 35)
****Average from aggregate score (possible max per person = 56)

Spearman's correlations are reported in Table 4. For emotional exhaustion, there was a negative relationship with administrative support (r= -.152). For depersonalization,

there were negative relationships with workload (r= -.274), work to non-work conflict (r= -.235), non-work to work conflict (r= -.219), and student misbehavior (r= -.177). Supervisor support (r= -.147) was negatively correlated with personal accomplishment. Several predictor variables also had statistically significant correlations though none crossed the threshold of 0.8, which is widely considered the cut off point for multicollinearity (Shrestha, 2020).

Table 4

Bivariate Spearman's correlations.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Supervisor Support													
2. Coworker Support	.234**												
3. Job Autonomy	.357**	.269**											
4. Workload	-.219**	-.055	-.152*										
5. Recognition	.352**	.299**	.237**	-.308**									
6. Work to Non-Work Conflict	-.326**	-.087	-.160*	.518**	-.277**								
7. Non-Work to Work Conflict	-.157*	-.031	-.059	.365**	-.235**	.730**							
8. Teaching Efficacy	.048	.304**	.105	-.031	.356**	-.064	-.142*						
9. Student Misbehavior	-.257**	-.091	-.073	.496**	-.385**	.617**	.611**	-.073					
10. Emotional Exhaustion	-.152*	.001	.083	-.118	-.102	-.030	-.066	-.028	.074				
11. Depersonalization	-.071	.037	.010	-.274**	-.001	-.235**	-.219**	-.031	-.177*	.386**			
12. Personal Accomplishment	-.147*	-.075	-.071	.052	-.022	.076	.117	.030	.076	-.005	-.266**		
13. Sex	-.108	-.039	-.079	.245**	-.099	.367**	.383**	.056	.305**	-.076	-.087	-.025	
14. Years of Experience	-.109	.223**	-.042	.116	.032	.018	-.153*	.181*	-.025	.012	-.100	.061	.099

* Indicated significance at the .05 level
** indicates significance at the .01 level

Sex Differences

Mean workload (U = 6173.5, z = 3.457, p = <.001), work to non-work (U = 6875, z = 5.175, p = <.001), non-work to work conflict (U = 6945.5, z = 5.405, p = <.001) and student misbehavior (U = 6529.5, z = 4.301, p = <.001) were significantly different between male and female teachers. Female teachers reported higher workload, non-work to work conflict, work to non-work conflict, and reported more frequent student misbehavior than their male counterparts. Differences in the distributions of male and female teachers across grade levels was significant, with more females teaching lower grades and more males teaching higher grade levels (t (198) = 3.388, p< .001).

Supervisor support (U = 4354, z = -1.516, p = .129), coworker support (U = 4648.5, z = .788, p = .430), job autonomy (U = 4439.5, z = -1.116, p = .265), teaching efficacy (U = 5148.5, z = 1.688, p = .091), recognition (U = 4327, z = -1.399, p = .162) scores were not different between male and female teachers. Also, there were no differences that reached statistical significance in mean emotional exhaustion scores (*t* (198) = .993, p= .322), depersonalization scores (*t* (198) = .527, p= .599), or personal accomplishment scores (*t* (198) = .182, p= .856), between male and female teachers. Mean differences between male and female teachers are shown in Table 5.

Table 5.

Sex differences

	Males (n= 118)	Females (n= 82)	
Variable	Mean	Mean	P Value
1. Supervisor Support	3.78	3.61	.129
2. Coworker Support	3.31	3.26	.430
3. Job Autonomy	3.31	3.21	.265
4. Workload	2.06	2.51	<.001**
5. Recognition	3.31	3.17	.162
6. Work to Non-Work Conflict	2.34	3.41	<.001**
7. Non-Work to Work Conflict	2.07	3.11	<.001**
8. Teaching Efficacy	3.45	3.49	.091
9. Student Misbehavior	2.06	2.78	<.001**
10. Emotional Exhaustion*	20.94	19.85	.322
11. Depersonalization*	8.58	8.57	.599
12. Personal Accomplishment*	44.49	43.61	.856

*indicates t-test results, all other results are Mann-Whitney

Path Analysis

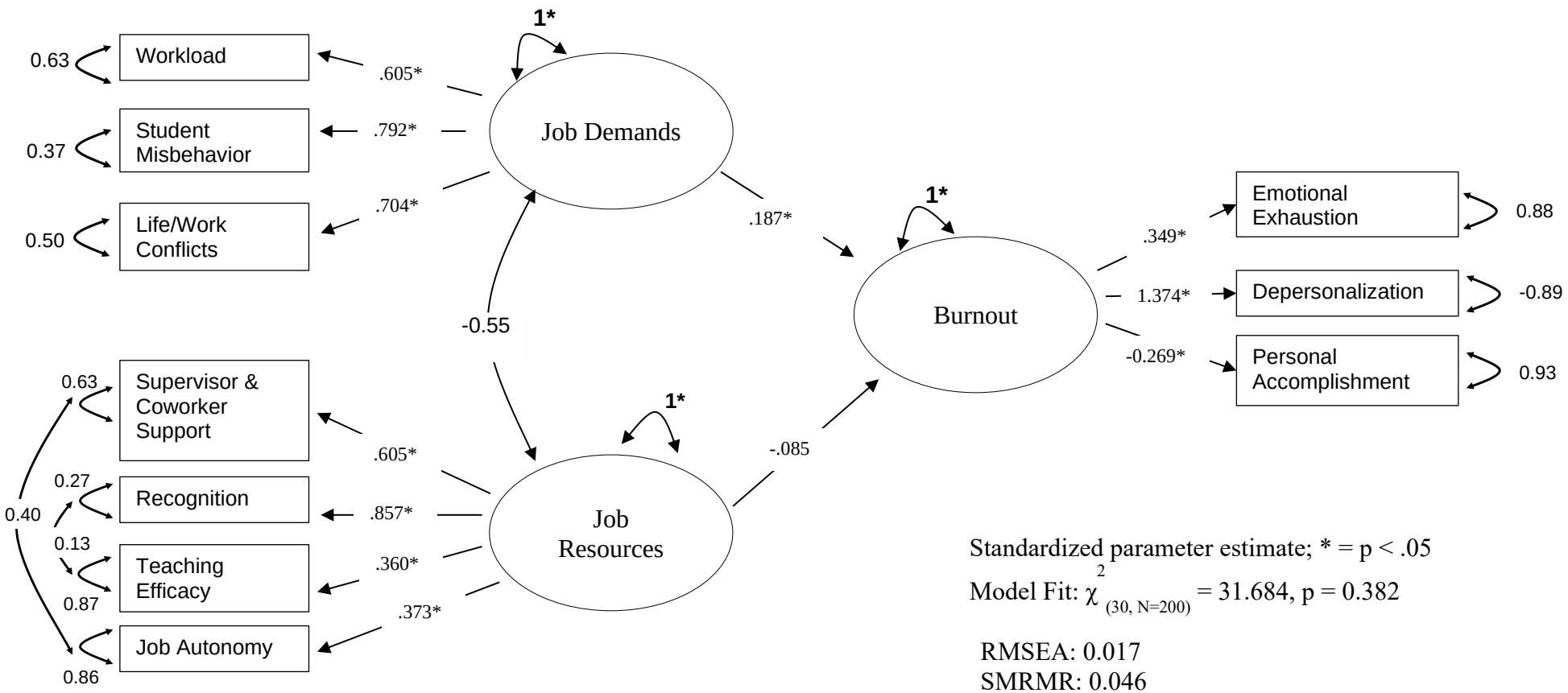
Confirmatory Factor Analysis

All latent variables were first fit with confirmatory factor analyses to ensure the theoretical model fit this data set. For job demands, the data and proposed factors had perfect model fit (RMSEA: 0.000, SMRMR: 0.00, CFI: 1.00, TLI: 1.00). For job resources, there was good model fit (RMSEA: 0.000, SMRMR: 0.024, CFI: 1.000, TLI: 1.000). Lastly, for the burnout subscales, the model produced perfect fit for this data set (RMSEA: 0.000, SMRMR: 0.00, CFI:1.00, TLI: 1.00). For the proposed demands and resources, all factors had strong loadings and strong model fit (RMSEA: 0.017, SMRMR: 0.046, CFI: 0.996, TLI: 0.994). Support (alpha= 0.605, p< .001), recognition (alpha= 0.857, p< .001), job autonomy (alpha= 0.373, p< .001), and teaching efficacy (alpha= 0.360, p< .001) all had positive loadings onto job resources. Workload (alpha= 0.605, p< .001), student misbehavior (alpha= 0.792, p< .001), and work/life factors (alpha= 0.704, p< .001) all had positive loadings onto job demands. Lastly, emotional exhaustion (alpha= 0.349, p= .002) and depersonalization (alpha= 1.374, p< .001) had positive loadings onto burnout while personal accomplishment (alpha= -0.269, p= .006) was a negative loading onto burnout.

Final Full Model

Results from the structural equation model are shown in Figure 2. All factors loading to job resources (i.e., administrator support, coworker support, recognition, and teaching efficacy) were positive and significant. All factors loading to job demands (i.e.,

workload, student misbehavior, and work/nonwork conflicts) were positive and significant. Regression coefficients indicated that job demands had a positive association with burnout (alpha= .187, p= .05) indicating that for every unit increase in teacher's job demands, their burnout scores increased. Separate models were tested examining geographic location and sex as a moderator of burnout. Testing the impact of geographic location (urban school location vs. rural school location) was underpowered due to lack of sample size, and there were no significant interaction effects for male versus female teachers, so no moderation analyses are reported.



Standardized parameter estimate; * = $p < .05$

Model Fit: $\chi^2_{(30, N=200)} = 31.684$, $p = 0.382$

RMSEA: 0.017
SMRMR: 0.046
CFI: 0.996
TLI: 0.994

Figure 2. Path Analysis Results

*indicates significance at the .05 level

Discussion

The primary purpose of this project was to examine the relationships between job demands and resources on burnout among public, middle school, core classroom teachers in the U.S. Using a non-probability sampling technique, 200 teachers responded to the survey. Compared to previous teacher burnout literature, where samples are overwhelmingly female, the sample in this study was majority (59%) male (Berryhill et al., 2009; Camacho et al., 2021; Camacho & Parham, 2019). This majority male sample differs both from previous literature and from the national statistics of public-school teachers (McCain, 2023). Additionally, the teachers in this sample taught only in middle or junior high settings, a unique and typically underrepresented group of teachers in the burnout literature (Bottiani, et al., 2019). However, the population of teachers in this sample were like previous studies in the overrepresentation of urban school settings (Bottiani et al., 2019).

Overall, the teachers in this sample had moderate levels of burnout, which is consistent with other groups of public-school teachers (Jennings et al., 2017). However, compared to baseline testing of the MBI-ES, teachers in this sample had lower than average emotional exhaustion (n= 20.58, and n= 21.25, respectively) and higher than average personal accomplishment scores (n= 44.13, and n = 33.54, respectively; Mind Garden, 2023).

Burnout was associated with workload, work to non-work and non-work to work conflict, and perceived student misbehavior in this sample of teachers. These findings

support the hypothesis that increased demands are associated with increased burnout. These findings are consistent with previous studies including teachers at all grade levels (Corrente, et al., 2022; Gooden, et al., 2023; Napoles, 2022; Yang, 2021). However, teachers' experiences of being recognized for their work, supported by both administrators and coworkers, teaching efficacy, and reported job autonomy did not predict burnout levels. Therefore, the hypothesis that increased resources would predict lower levels of burnout was not supported in this study.

The observed relationship between job demands and burnout is consistent with other research applying the JD-R model in a teaching context (Chan, et al., 2021). However, the lack of relationship found between the job resources and burnout in this sample is inconsistent with previous findings (Bottiani, et al., 2019; Brady, et al., 2022). Other job resources were not included here that should be explored in future research including school connectedness (Chan, et al., 2021). Other factors that previous research identified as significant predictors of teacher burnout such as parent relationships and personality traits (i.e., perfectionism, internal locus of control, and resilience) were not included in this study (Bianchi & Schofield 2016; Richards, et al., 2016). Additionally, research is needed to clarify the job resources that may be important in decreasing middle school teachers' burnout.

Sex Differences

In this study, female teachers reported higher work to nonwork and nonwork to work conflict, workload, and student misbehavior compared to male teachers. Despite the differences in several predictor variables, there was no difference in female and male

teachers' emotional exhaustion, depersonalization, or personal accomplishment. This finding differs from previous research that reported female teachers experience burnout at greater rates when compared to male teachers (Kreuzfeld & Seibet, 2022). Additionally, there were no sex differences in the observed relationship between job demands and burnout.

Strengths

This study has several strengths. The study used non-probability sampling and included teachers in multiple states of the US, atypical of teacher burnout research, which often relies on a convenience sample. The findings from this study expand the teacher burnout literature by examining an often-underrepresented group of teachers – public, middle school teachers. Additionally, this sample included a higher proportion of male teachers than most studies on teacher burnout, which allowed for a comparison between male and female teachers' experiences. To the author's knowledge, the use of the NIOSH WellBQ has not been applied in the context of teacher burnout at the time of this study. Thereby, increasing the crossover between education and workplace health research.

Limitations

Despite its strengths, the findings from this study must be interpreted considering several limitations. First, this study is cross-sectional, limiting the ability to understand how the relationships between factors may change over time, and does not allow for any conclusions about the temporality of these relationships. Additionally, this was overwhelmingly a sample of teachers teaching in urban areas and lacked representation from teachers in rural areas. Previous research has shown that teachers in urban settings

experience higher levels of burnout compared to their suburban and rural counterparts; overall less is known about teachers' experiences in rural areas. Future research that oversamples teachers in rural areas could provide additional information, particularly, considering that rural schools receive different levels of school funding that may impact resources available to teachers (Sielke, 2000).

Implications & Conclusion

The landscape of teaching in the United States continues to shift, ever impacted by changing political landscapes, standards, and technology. Understanding the factors that contribute to and mitigate burnout among teachers is critical for protecting the health and wellbeing of this workforce and the children they serve. Middle school teachers, who work with students in a transitional phase of development, often experience significant stress and burnout due to the complexities of managing adolescent behavior, academic expectations, and emotional needs (Hakanen, et al., 2006). Previous interventions for teachers have primarily focused on mindfulness training and resilience to reduce stress levels and mitigate burnout (Jennings, et al., 2017). However, the relationships identified between job demands and burnout in this sample of middle school teachers suggests that interventions for middle school teachers should include strategies to reduce workload, student misbehavior, and work to nonwork conflict. Although this study did not find that job resources significantly predicted teacher burnout in this sample, other studies have found relationship between school connectedness, teaching autonomy, teaching efficacy, administrative support, social emotional learning, mindfulness, and resilience which suggests that interventions that increase these resources may decrease burnout

(Arvidsson, 2019; Bakker, 2023; Bottiani, et al., 2019; Camacho, et al., 2021; Camacho, et al., 2019; Chan, et al., 2021; Fitchett, et al., 2018).

Overall, the findings from this paper can be used to inform future research directions and intervention development. Teacher professional organizations can use the results of this study to inform interventions and programs that could be disseminated to schools to address burnout in middle school teachers. Programs addressing teacher's coping strategies could benefit from adding elements focused on helping teachers with work and life conflict. Middle school teachers' experiences are vastly underrepresented in the larger teacher burnout literature, and future research should prioritize this population to expand our understanding of their unique experiences and the best way to prevent their burnout.

CHAPTER 4

EXAMINING THE HEALTH AND WORKPLACE OUTCOMES OF BURNOUT AMONG PUBLIC MIDDLE SCHOOL TEACHERS IN THE UNITED STATES

[1]Ashby, E.L. To be submitted to a peer reviewed journal.

Abstract

Burnout among teachers has become an issue of national attention. Previous research demonstrates that chronic burnout can have serious, negative consequences on employee's well-being as well as their productivity and job satisfaction. Exploring these relationships, especially within the same study, has seldom been conducted. Therefore, the purpose of this study was to report on the status of burnout and its impacts on the mental, physical, and workplace well-being of middle school teachers in the United States. Using a nonprobability sample of 200 teachers across 40 states, the research investigates the relationships between burnout and job satisfaction, productivity, and mental and physical health. Depersonalization was a predictor of poor mental health and decreased productivity, while personal accomplishment predicted job satisfaction. Emotional exhaustion did not predict mental, physical, or workplace outcomes. This study uniquely focuses on middle school teachers in a public-school setting who only teach a core subject, a group often underrepresented in burnout literature. It also explored sex differences, finding that female teachers reported more days of poor mental health and stress than their male counterparts. However, no differences were found in burnout levels between sexes. Grade level differences were also assessed, with 6th and 9th grade teachers reporting more differences in experiences of mental and physical health, productivity, and stress than other grade levels. The findings confirm the need for interventions at both the school and profession levels to support teacher well-being and reduce burnout's negative consequences on individual health and organizational outcomes. Future research should focus on more diverse samples, including rural teachers and those from minority backgrounds.

Introduction

Burnout and Teacher Well-being

Burnout negatively impacts teacher well-being. Teacher well-being is defined as positive evaluations of and healthy functioning in their work environment (Collie et al., 2018). Teacher well-being includes a range of outcomes, such teachers' affective responses to their work (Skaalvik & Skaalvik, 2017), teachers' emotional attachment to their work as well as their mental and physical health (Meyer & Allen, 1991). Protecting and promoting teacher well-being is vital to maintaining a healthy teacher workforce, not only protecting individual well-being, but also maintaining education quality across all grade levels (Beltman et al., 2011). Poor teacher well-being, including higher levels of burnout, greater stress levels, and increased reports of depressive symptoms, has a direct impact on job performance (Bianchi & Schonfeld, 2016). Higher burnout has been linked to lower organizational commitment, lower engagement, and higher motivation to quit the profession Hakanen et al., 2006; Lee, 2019; Leung & Lee, 2006; Skaalvik & Skaalvik, 2018). Emotional exhaustion and job dissatisfaction have also been shown to predict teaching effectiveness and positive educational outcomes for students (Arens & Morin, 2016)

Mental & Physical Health Consequences

A growing body of research demonstrates a link between chronic burnout and poor mental and physical health for teachers. Burnout represents a risk factor not only for depression but also for cardiovascular and other chronic diseases (Nil et al., 2010). In a sample of 609 teachers (76.2% female) across K-12 grade levels, burnout mediated the relationship between workplace factors and teacher depression, and results showed

female teachers reported higher rates of depression and emotional exhaustion than their male counterparts (Capone et al., 2019). In a recent systematic review, Madigan, et al (2023) found teacher burnout to be linked with a range of health problems, including specific conditions (i.e., gastroenteritis) and biomarkers indicating negative biochemical processes (i.e., cortisol levels). Within the same review, authors noted that research on teacher burnout has neglected to gather data on certain chronic conditions, such as cardiovascular disease (Madigan et al., 2023). Exploring these relationships is relatively new to the body of teacher burnout literature. While studies have looked at either mental OR physical health, treating them as separate and unrelated areas, they have not been examined together within the same sample in a holistic approach, especially with middle school teachers (Beer & Beer, 1992; Bianchi & Schonfeld, 2016; Madigan et al., 2023).

Middle School Teachers

Across various grade levels within the K-12 structure, teacher burnout literature has predominantly focused on elementary teachers, or used samples with combined grade levels (Bianchi & Schonfeld, 2016; Camacho & Parham, 2019; Fitchett et al., 2016). Research focused solely on middle school teachers is needed to shed light on their unique experiences. For those who teach a core subject in a public school, middle school teachers' experiences are often lumped into larger samples of both elementary and high school teachers (Califf & Brooks, 2020; Camacho et al., 2021; Camacho & Parham, 2019; Fitchett et al., 2016). Within combined samples, researchers found that teaching in a middle school, compared to elementary or high school, was a significant predictor of workload and emotional exhaustion (Camacho & Parham, 2019). Middle school teachers were one of the occupational groups presenting the highest stress levels in the workplace;

in 2019, 46% of middle school teachers nationwide expressed working under high demands (e.g., dealing with students' emotional issues) with no resources or support from leaders (Bottiani et al., 2019; García-Carmona et al., 2019). During the COVID-19 pandemic, shifting job demands and role ambiguity significantly impacted middle school teachers' stress and put them at significant risk for emotional and physical harm, more so than their high school counterparts (Lang & Valk, 2023; Ramos et al., 2023). Additionally, at time of preparing this manuscript, exploring differences in burnout between middle grade levels (i.e., 6th versus 7th grade teachers) has never been conducted.

Sex Differences in Burnout

Previous research has found that female teachers experience higher burnout rates (55%), particularly emotional exhaustion, when compared to male teachers (44%) (Marken & Agrawal, 2022). In a sample of 470 teachers (58.7% male), male teachers were found to have higher reported quality of life than women in several domains, including less emotional exhaustion, less stress, and less neuroticism (Redondo-Flórez et al., 2020). Specific to middle school teachers, sex differences in the relationship between burnout and mental and physical health has not been investigated.

While relationships between burnout and personal outcomes (i.e., physical and mental health) or professional outcomes (i.e., job satisfaction and turnover) have been examined in populations of teachers, these relationships of burnout to well-being have not been examined in middle school teachers (Agyapong et al., 2022). Nor have all these elements (personal and professional outcomes) been explored within the same study. Addressing teacher burnout is vital in maintaining a healthy teaching workforce as well as fostering environments for the next generation to access excellent education. Most

practitioners support the idea that recovery from burnout improves physical and mental health among affected employees (Edú-Valsania et al., 2022). Thus, identifying teachers who are experiencing burnout and offering resources to recover could have benefits for teachers, schools, and students.

Aims

Therefore, the purpose of this study is to investigate whether burnout is associated with the well-being of middle school teachers. To this author's knowledge, the comparison of burnout, mental health, physical health, and workplace outcomes across teachers in different middle school grade levels has not been previously conducted. Teacher well-being includes certain workplace factors, as well as mental and physical health status. The research questions and hypotheses guiding this project are:

1. Does burnout in middle school teachers predict workplace outcomes of job satisfaction and productivity?

   Hypothesis 1a: In middle school teachers, higher levels of burnout will predict lower levels of job satisfaction.

   Hypothesis 1b: In middle school teachers, higher levels of burnout will predict lower levels of productivity.

2. Does burnout in middle school teachers predict mental and physical well-being?

   Hypothesis 2a: In middle school teachers, higher levels of burnout will predict lower levels of mental health.

   Hypothesis 2b: In middle school teachers, higher levels of burnout will predict lower levels of physical health.

3. Are there sex or grade level differences in the relationship between burnout and workplace and health outcomes?

   RQ (1): Do the observed relationships between burnout, job satisfaction, productivity, and mental and physical health differ by teacher sex?

   RQ (2): Do the observed relationships between burnout, job satisfaction, productivity, and mental and physical health differ by grade level taught?

Methods

Sample & Data Collection

The methodology of this study was described in detail in the preceding manuscript of this dissertation. It is summarized here with additional information specific to this study. The study sample was limited to middle school and junior high (grades 6th-8th or 6th-9th) public school teachers who taught a core subject in a general education classroom to neurotypical students. Special needs teachers (SETs), those who taught a non-core subject (e.g., art, music, physical education), or taught in lower grades were excluded. Qualtrics Research Services obtained a non-probability sample of teachers from existing pools of research panel participants (Miller et al., 2020). The survey was administered electronically using the Qualtrics survey platform. The final cost to acquire 200 teachers' responses was approximately $48 per participant including participant incentives provided by Qualtrics. All participants provided informed consent. Study procedures and protocols were approved by the University of Georgia IRB (study # STUDY00005886) and in accordance with recognized ethical guidelines.

Survey Instrument

The survey contained 70 items and included questions on participant's demographics, burnout, job satisfaction, productivity, stress, and measures of mental and physical health (Mind Garden, 2023; Miller et al., 2017; NIOSH, 2021; Renshaw at al., 2015). For demographics, respondents reported their assigned sex at birth (female, male, or decline to respond), race (White, Black/ African American, American Indian, Alaskan Native, Native Hawaiian, Other Pacific Islander, Asian, or prefer not to answer), education level (teachers' certificate or above teachers' certificate), years of teaching experience (0-5, 6-10, 11-15, 16-20, 21-25, 26-30, 30+), grade level taught (6th, 7th, 8th, 9th grade, or multiple grades), Hispanic identity (yes, no, decline to respond), and the zip code where their school was located. Using the RUCA coding system, zip codes were assigned a number 1-10, with numbers 1-3 indicating an urban location and 4-10 indicating a rural location. The measures for the predictors and outcomes are summarized in Table 6.

Table 6.

Predictor and Outcome Variables.

Variable	Construct	IV or DV	Scale	Citation
Emotional exhaustion	Burnout	IV	MBI-ES	Maslach & Jackson (1981)
Personal accomplishment	Burnout	IV	MBI-ES	Maslach & Jackson (1981)
Depersonalization	Burnout	IV	MBI-ES	Maslach & Jackson (1981)
Job satisfaction	Work outcome	DV	NIOSH WellBQ	NIOSH (2022)
Productivity	Work outcome	DV	NIOSH WellBQ	NIOSH (2022)
Stress	Health outcome	DV	NIOSH WellBQ	NIOSH (2022)
Physical health	Health outcome	DV	NIOSH WellBQ	NIOSH (2022)
Mental health	Health outcome	DV	NIOSH WellBQ	NIOSH (2022)

Burnout

Maslach Burnout Inventory Educator Survey (MBI-ES), an adaptation of the MBI, assessed emotional exhaustion, cynicism, and personal accomplishment among teachers (Maslach & Jackson, 1981). The MBI-ES contains 22 items across the three subscales. The subscales and example questions are listed below. These factors are the predictor variables of interest.

MBI-ES Subscales

Emotional Exhaustion. Emotional exhaustion was assessed by nine items. Example items from this subscale include "I feel emotionally drained from my work" and "I feel fatigued when I get up in the morning and have to face another day on the job." Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day. Scores were summed across all items and interpreted as low levels < 20, moderate levels 21-30, and high levels > 31 (Maslach & Jackson, 1981).

Depersonalization. Depersonalization was assessed by five items. Example items from this subscale include "I've become more callous toward people since I took this job" and "I feel I treat some students as if they were impersonal objects." Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day. Scores were summed across all items and were interpreted as low < 5, moderate 6-10, and high > 11 (Maslach & Jackson, 1981).

Personal Accomplishment. Personal accomplishment was assessed by eight items. Example items from this subscale include “I have accomplished many worthwhile things in this job” and “I feel very energetic.” Answers were in Likert scale format with the options (1) Never (2) A few times a year or less (3) Once a month or less (4) A few times a month (5) Once a week (6) A few times a week (6) Every day. Scores were summed across items and interpreted as low > 42, moderate 41-36, and high < 35 (Maslach & Jackson, 1981).

To ensure consistent comparison with previous data (Mind Garden, 2023), SUM scores were calculated as follows:

Emotional Exhaustion (Braun et al.) = Items 1 + 2 + 3 + 6 + 8 + 13 + 14 + 16 + 20 *Note: Higher scores indicate higher degrees of burnout.*

Depersonalization (Braun et al.) = Items 5 + 10 + 11 + 15 + 22 *Note: Higher scores indicate higher degrees of burnout.*

Personal Accomplishment (Braun et al.) = Items 4 + 7 + 9 + 12 + 17 + 18 + 19 + 21 *Note: Lower scores indicate higher degrees of burnout.*

In prior studies, the MBI-ES has demonstrated reliability (r = .93–.94) and validity, including correlation with perceived teaching ability (r = .28), career optimism (r = .58), and role stressors (r = .43–.73) among U.S. schoolteachers (e.g., McLean et al., 2019; Renshaw et al., 2015; Richards et al., 2016). The MBI is considered the gold standard for measuring burnout and is used in over 90% of the studies on the syndrome (Shirom et al., 2005).

Outcome Variables

Job Satisfaction. Job satisfaction was assessed using one question from the National Institute for Occupational Safety and Health Worker Well-Being Questionnaire (NIOSH WellBQ) to measure worker well-being (NIOSH, 2022). Participants were asked to select a response to complete this statement, "Overall, I am ____ with my job" using the following response options: (1) Not at all satisfied (2) Not too satisfied (3) Somewhat satisfied (4) Very satisfied. An average score was computed.

Productivity. Productivity was assessed using four questions from the NIOSH WellBQ. An example item is, "In the past month how often did you not work at times when you were supposed to be working?" Participants selected from the following response options: (1) Never (2) Almost never (one time a month) (3) Rarely (once a week or less) (4) Sometimes (a few times a week) (5) Often (once a day) (6) Very often (a few times a day) (7) Always (every hour). An average was calculated for the four items (NIOSH, 2022).

Stress. Stress was assessed using four questions from the NIOSH WellBQ (NIOSH, 2022). An example item is, "How often do you experience stress with regard to your health?" Participants selected from the following response options: (1) Never (2) Almost never (a few times a year or less) (3) Rarely (once a month or less) (4) Sometimes (a few times a month) (5) Often (once a week) (6) Very often (a few times a week) (7) Always (every day). An average was calculated for the four items.

Mental Health

All measures of physical health were assessed using the questions from the WellBQ (NIOSH, 2022).

Depression and anxiety. Using items from the Poor Mental Health section of the WellBQ that were originally from the Patient Health Questionnaire for Depression and Anxiety (PHQ-4), we measured depression and anxiety. Participants were asked four questions about their experiences over the past 2 weeks. An example item was, "Over the last 2 weeks, how often have you been bothered by little interest or pleasure in doing things?" Participants selected from the following response options: (1) Not at all (2) Several days (3) More than half the days (4) Nearly every day.

Days of poor mental health. Participants were asked the question, "Now, thinking about your mental health, which includes stress, depression, anxiety, and problems with emotions, during the past 30 days, for how many days was your mental health not good?" and responded by entering a number between 0-30.

Physical Health

All measures of physical health were assessed using the questions from the WellBQ (NIOSH, 2022).

Days of poor physical health. Participants were asked the question, "Now, thinking about your physical health, which includes physical illness and injury, during the past 30 days, for how many days was your physical health not good?" and responded by entering a number between 0-30.

Chronic disease. Participants were asked to indicate if they have ever had the following conditions: arthritis, musculoskeletal disorders, asthma, lung disease, cancer, depression, diabetes, heart disease, or high blood pressure. A sum score of the nine items was created using the codes (0) for never, (1) for in the past, and (2) for has currently.

Testing for Normality

Prior to beginning analyses, all continuous variables were assessed for normality. The three outcome variables, emotional exhaustion, depersonalization, and personal accomplishment scores were not normally distributed, as assessed by a visual inspection of their histograms. There was a significant positive skewness for emotional exhaustion and depersonalization, and significant negative skewness for personal accomplishment. Due to the lack of normality, data transformation was performed. For emotional exhaustion and depersonalization, a logistic transformation was used to address the extreme positive skew present for both variables. For personal accomplishment, a reciprocal logistic transformation was used to address the significant negative skewness present. For all analyses, the transformed variables were used.

Data Analysis Plan

Descriptive statistics were calculated. Spearman's correlations were computed and examined due to the inclusion of both continuous and ordinal variables. Mean values were computed overall and by sex and grade level to assess differences. Due to the lack of normal distribution for several variables, Mann-Whitney U Tests were used to examine mean differences between male and female teachers. To assess grade level differences for the variables of interest, a one-way analysis of variance (Purvanova & Muros) was used to compare means across the four different grade levels' teachers – 6^{th}, 7^{th}, 8^{th}, and 9^{th} grades for all variables except job satisfaction. To assess differences in job satisfaction levels, the non-parametric version of the one-way ANOVA test, the Kruskal-Wallis H test, was used.

Job satisfaction is an ordinal variable, so an ordinal logistic regression was conducted to assess the relationship between burnout and job satisfaction. All assumptions for ordinal logistic regression were met, including the assumption of proportional odds, for each outcome variable, as assessed by a full likelihood ratio test comparing the fit of the proportional odds model to a model with varying location parameters.

Multiple linear regressions were performed using the subscales of burnout as the predictor for the continuous outcomes (i.e., productivity, stress, poor mental health, and poor physical health). All assumptions for linear regression were met when using transformed versions of the predictor variables to meet the normal distribution assumption. All data was analyzed using SPSS 28.

Results

Descriptive Statistics

This sample has been described in detail in the preceding manuscript. Briefly, a total of 200 responses were received. Teachers in the sample were predominantly White (71%), male (59%), taught for 10 years or less (63%), and between 31-45 years old (56%). Seventeen percent of participants reported teaching in California. No teachers indicated they taught in Alaska, Idaho, Kansas, Maine, Montana, Nebraska, North Dakota, South Dakota, Wisconsin, or Wyoming. Based on the RUCA coding system, most of the teachers in this sample taught in a metropolitan area (89%), while 4% taught in a small town, and 3.5% taught in a rural area.

Spearmen's correlation results are reported in Table 7. Emotional exhaustion and personal accomplishment were not statistically correlated with any of the outcome variables. However, depersonalization scores were correlated with number of days experiencing poor mental health and productivity. Several predictor variables also had statistically significant correlations though none crossed the threshold of 0.8, which is widely considered the cut off point for multicollinearity (Shrestha, 2020).

Table 7.

Spearman's correlations.

Variable	1	2	3	4	5	6	7	8	9
1. Emotional exhaustion									
2. Depersonalization	.478**								
3. Personal accomplishment	-.081	-.369**							
4. Job satisfaction	.001	-.012	.016						
5. Productivity	-.009	-.134**	.023	-.046					
6. Stress	-.038	-.106	.076	-.223**	.639**				
7. Depression and Anxiety	-.008	-.076	.087	-.216**	.520**	.762**			
8. Days of Poor Mental Health	-.044	-.126*	.059	-.243**	.422**	.625**	.611**		
9. Days of Poor Physical Health	-.001	-.058	-.073	-.239**	.399**	.503**	.474**	.725**	
10. Chronic Disease	.016	-.070	.051	-.121	.245**	.565**	.565**	.506**	.392**

* indicates significance at .05

Burnout

Overall, the reported burnout was moderate based on mean scores. The mean score for emotional exhaustion was 20.50 (moderate=21.00-30.00), personal accomplishment was 44.13 (moderate=41.00-36.00) and depersonalization was 8.58 (moderate=6.00-10.00). There are no significant differences between male and female

teachers for emotional exhaustion (U= 4408.5, p = .284), depersonalization (U= 4357.5, p=.218) or personal accomplishment (U= 4693.5, p= .719).

Productivity, Job Satisfaction & Stress

Teachers self-reported their average productivity scores as 2.1 (range: 1-7). Higher scores indicate lower levels of productivity. Females reported lower levels of productivity (higher scores) than men (U= 6853, p<.000). Mean scores of job satisfaction were 3.3 (range: 1-4). There are no significant differences between males and females for job satisfaction (U = 4682.5, p = .656). Average stress scores were 2.5 (range: 1-7). Females reported higher levels of stress than men (U= 6325.5, p<.000).

Mental & Physical health

Teachers in this sample reported an average of 2.65 days of poor mental health in the last 30 days. Depression and anxiety scores using the PHQ-4 averaged 1.5 (range: 3-12). There were significant differences between males and females in days of poor mental health (U= 5758.5, p= .011). Women reported more days per month of poor mental. There were no differences in depression and anxiety between males and females (U= 5236, p= .296).

For physical health, teachers reported an average of 1.96 days of poor physical health in the last 30 days. On average, participants scored 10.3 on the chronic disease scale (range: 9-20). Women reported more days per month of poor physical health (U= 5595, p= .032), and had higher chronic disease scores ((U= 5602, p= .035). Mean values for all variables and by sex are reported in Table 8.

Table 8.

Means and Std. Deviations Males & Females

Variable	Total sample (n=200)	Females (n=82)	Males (n=118)
Emotional exhaustion	20.49 ± 11.69	19.85± 11.94	20.94± 11.53
Depersonalization	8.58± 4.95	8.57± 5.47	8.58± 4.58
Personal accomplishment	44.13± 8.49	43.61± 9.49	44.49± 7.74
Job satisfaction	3.34±. 58	3.32± .58	3.35± .59
Productivity*	2.11± .58	2.53± 1.13	1.81± 1.12
Stress*	2.491± .29	2.86± 1.29	2.22± 1.23
Depression and Anxiety	1.47± .60	4.61± .64	4.29± .56
Days of Poor Mental Health*	2.655±. 27	3.54± 2.40	2.03± 1.90
Days of Poor Physical Health*	1.96± 3.98	2.70± 4.66	1.44± 3.34
Chronic Disease*	10.28± 2.14	10.63± 6.20	10.04± 4.43

*indicates significant difference between groups at .05

Grade Level Differences

There were no differences in emotional exhaustion ($F(3, 196) = .702$, $p = .552$), depersonalization ($F(3, 196) = 1.613$, $p = .188$), personal accomplishment ($F(3, 196) = .221$, $p = .881$) by grade level. Median job satisfaction ($H(3) = 9.032$, $p = .029$) was significantly different across grade levels. Post hoc comparisons demonstrated differences in job satisfaction occurred between 6th and 7th grade teachers ($p < .05$), 6th and 8th grade teachers ($p < .05$), and 9th grade teachers and 7th grade teachers ($p < .05$). There were significant differences between grade levels for productivity ($F(3, 196) = 4.272$, $p = .006$) stress ($F(3, 196) = 3.642$, $p = .014$), number of days experiencing poor physical health ($F(3,196) = 9.095$, $p < 0.001$) and in chronic disease scores ($F(3, 196) = 4.275$, $p = .006$). However, there were no differences observed between grade levels for depression and anxiety using the PHQ-4 ($F(3, 196) = 1.432$, $p = .235$). Post-hoc tests using the Bonferroni correction revealed that there are differences between the 6th grade and 9th grade teachers for poor physical health and mental health, productivity, and stress. Table 4 summarizes the means and standard deviations for all variables of interest based on grade level taught.

Regression

The ordinal logistic regression model examining burnout as a predictor for job satisfaction resulted in several cells with zero frequency, indicating that goodness of fit measures were not appropriate to report. The results of the PLUM procedure indicate the final model predicted job satisfaction over and above the intercept-only model, $\chi 2(91) = 119.5$, $p = .024$. The GENLIN procedure indicated that only an increase in personal accomplishment was associated with an increased odds of having higher job satisfaction.

The linear regression models indicated that burnout significantly predicted productivity ($F(3, 196) = 2.547$, $p = .047$) and the number of days of poor mental health ($F(3, 195) = 2.427$, $p = .049$). However, burnout did not predict stress ($F(3, 196) = 1.249$, $p = .293$) nor depression and anxiety ($F(3, 195) = .881$, $p = .452$). Similarly, the models indicated that burnout did not predict days of poor physical health ($F(3, 195) = 1.270$, $p = .286$) nor chronic disease diagnoses ($F(3, 195) = .820$, $p = .484$). The results of the multiple linear regressions are shown in Table 5. Separate regression models were run with sex and grade level as moderators. There were no significant interaction effects for either variable in this sample.

Table 9.

Grade Level Means and Std. Deviations

		Emotional Exhaustion	Deperson.	Personal Accomplishment	Job Satisfaction	Productivity	Stress	Depression and Anxiety	Chronic Disease	Days of Poor Physical Health	Days of Poor Mental Health
6th (n=21)	Mean	21.57 ± 11.93	9.00 ± 5.51	44.48 ± 8.31	3.05 ± .80	2.65 ± 1.43	3.07 ± 1.16	1.50 ± .60	1.90 ± 1.94	4.76 ± 6.00	5.90 ± 7.84
7th (n=36)	Mean	19.94 ± 10.56	7.31 ± 3.88	45.08 ± 7.21	3.50 ± .561	2.13 ± .95	2.47 ± 1.37	1.35 ± 58	1.50 ± 2.23	1.49 ± 1.80	2.80 ± 5.22
8th (n=43)	Mean	18.44 ± 11.03	7.98 ± 5.26	43.98 ± 10.03	3.42 ± .698	2.41 ± 1.32	2.79 ± 1.61	1.62 ± .80	1.97 ± 2.80	3.47 ± 6.40	4.00 ± 7.24
9th (n=100)	Mean	21.35 ± 12.33	9.21 ± 4.98	43.78 ± 8.33	3.30 ± .461	1.85 ± 1.06	2.23 ± 1.07	1.45 ± .48	.78 ± 1.65	.89 ± 1.39	1.33 ± 2.59

Table 10.

Multiple Linear Regression Results

Model	B	Std. error	t score	P Value
Productivity				
Emotional Exhaustion	.490	.398	1.23	.220
Depersonalization	1.26	.467	2.69	.008*
Personal Accomplishment	-.063	.217	-.291	.771
Stress				
Emotional Exhaustion	.124	.442	.270	.780
Depersonalization	.773	.519	1.49	.138
Personal Accomplishment	-.151	.241	-.626	.532
Depression and Anxiety				
Emotional Exhaustion	.268	.616	.435	.664
Depersonalization	.654	.722	.906	.366
Personal Accomplishment	-.333	.335	-.992	.322
Days of Poor Mental Health				
Emotional Exhaustion	.903	1.801	.502	.617
Depersonalization	4.186	2.117	1.977	.049*
Personal Accomplishment	-.203	.980	-.207	.836

Days of Poor Physical Health				
Emotional Exhaustion	1.344	1.360	.988	.324
Depersonalization	2.467	1.599	1.543	.125
Personal Accomplishment	-1.166	.740	-1.575	.117
Chronic Disease				
Emotional Exhaustion	.710	.732	.970	.333
Depersonalization	1.149	.858	1.339	.182
Personal Accomplishment	-.095	.398	-.238	.813

Discussion

Overall Findings

The purpose of this project was to examine burnout and its impacts on the mental and physical health, and workplace outcomes among American middle school teachers. Using a non-probability sampling technique, 200 teachers participated in this study. Participating teachers in this sample were majority (59%) male, which differs both from previous literature and from the national statistics of public-school teachers (Berryhill et al., 2009; Camacho et al., 2021; Camacho & Parham, 2019; McCain, 2023). Differing from prior research on teachers, this sample included only teachers who taught in middle or junior high settings, a unique and typically underrepresented group of teachers in the burnout literature (Bottiani, et al., 2019). However, the population of teachers in this sample were mostly from urban areas and had less than 10 years of experience which is similar to previous studies (Bottiani et al., 2019; Fitchett et al., 2018)).

Overall, the levels of burnout measured in this study were moderate, consistent with the levels reported in previous research (Jennings et al., 2017). In this study, increased personal accomplishment predicted higher job satisfaction. Additionally, depersonalization predicted lower levels of teacher productivity and more days of poor mental status. However, emotional exhaustion did not predict teachers' stress, mental or physical health in this study. These findings are in line with previous research that found relationships between burnout levels and job satisfaction (Ortan et al., 2021) as well as teacher productivity (Agyapong et al., 2022). These findings partially confirm hypotheses 1a and 1b that increased burnout in middle school teachers will predict decreased job

satisfaction and productivity. However, the findings from this study differ from previous research finding no relationship between burnout and teachers' overall rates of depression, stress levels, and physical health (Bianchi & Schonfeld, 2016; Bottiani et al., 2019; Capone et al., 2019; Madigan et al., 2023). The result of this study does not support Hypotheses 2a and 2b that increased burnout levels predict decreased mental and physical health of middle school teachers.

Results from mean comparisons between sex found that male teachers reported fewer days of poor mental and physical health, higher levels of productivity, and lower perceived stress than their female counterparts. These findings match previous research on differing experiences for males and females in the workplace broadly (Purvanova & Muros, 2010) and specific to the teaching profession (Kreuzfeld & Seibt, 2022). However, despite differences in health and productivity measures, there were no sex differences observed for burnout measures of emotional exhaustion, depersonalization, or personal accomplishment. This finding differs from previous research, where female teachers often report higher experiences of burnout compared to their male counterparts (Kreuzfeld & Seibt, 2022). The lack of difference between male and female teachers is likely due to the over representation of males in this sample. The sample in this study is not reflective of the larger population of public-school teachers, however, providing insight on male teacher experiences is important in expanding the knowledge of how burnout impacts the entire population of teachers.

Previous research suggests that teachers' experiences of burnout differ when comparing primary versus secondary school (Bottiani et al., 2019; Camacho & Parham, 2019). The exploration of differences between grade levels is unique to this study. In this

sample, job satisfaction, days of poor physical health, days of poor mental health, productivity, stress, and chronic disease differed across grade levels. However, rates of depression and burnout did not differ based on grade level taught. Examining post-hoc results, differences in outcome variables were most often seen between 6th and 9th grade teachers. This may be due to several factors. The cognitive and emotional development of students from 6th to 9th grade can be significant and may impact teachers' perception of stress and workload (Braun et al., 2019). The differences observed in experiences between grade levels deserves more attention.

Implications

Research suggests that workplace improvements to reduce burnout could prevent adverse sequelae, improve health outcomes, and reduce healthcare expenditures (Wu, et al., 2016). Lancu et al., (2018) and Oliveira et al. (2021) conducted meta-analyses on existing teacher burnout interventions and found that interventions were effective in reducing burnout symptoms using cognitive-behavioral, mindfulness, and social and emotional learning techniques (Iancu et al., 2018a; Oliveira et al., 2021). Within individual schools, administrators have the potential to impact teacher wellbeing and reduce teacher stress (Leithwood & Jantzi, 2006). School administration can adopt these effective interventions to reduce burnout and its impact on teacher and school outcomes (Kyriacou, 2001). On a larger scale, education researchers, policy makers, and public health professionals can use these findings to inform interventions that improve teacher wellbeing and student outcomes.

Strengths

This study has several strengths. First, the use of non-probability sampling allowed us to include a diverse group of teachers across 40 states – a sampling technique that is not typically used in the teacher burnout literature where there is more reliance on convenience samples. Additionally, limiting the sample to middle school and junior high teachers allowed us to examine burnout in this group that has different work exposures than elementary teachers, in particular. While unexpected, the large sample of male teachers in this study increases the external validity of the findings to this subpopulation of teachers.

Limitations

Despite its strengths, the findings of this sample must be interpreted considering several limitations. First, this was an overwhelmingly urban sample so any comparisons between urban and rural teacher experiences were not sufficiently powered to explore. Also, this sample was majority white and male. The over representation of male teachers does not reflect the larger population of middle school teachers and may explain the differences in findings within this project compared to other literature in this field. More representation of minority teachers within public middle schools is needed to draw conclusions about experiences of burnout among this population of teachers.

Conclusion

Within American, public middle school teachers, burnout has negative impacts on days of poor mental health, job satisfaction, and productivity. A sample like this one, with an oversample of male teachers, is rare in the education and workplace literature and provides insight into sex differences in workplace, and health factors. Significant differences in the mental and physical health of male versus female teachers were evident

in this study as well as across grade levels, with 6th grade teachers reporting the highest levels of poor mental and physical health. Additional studies are needed to confirm some of the observed differences, particularly for teachers who work in rural areas and those who are minorities.

CHAPTER 5

DISCUSSION

Project Summary

Teacher burnout is an important workplace health issue, one that not only impacts individual teachers, but also the students they serve, mentor, and educate. Approximately 600,000 teachers have left the profession since January 2020, and the percentage of teachers leaving earlier than planned nearly doubled, rising from 28% to 55% (National Education Association, 2022). At the beginning of the 2022-2023 school year, 18% of public schools had one teaching vacancy, and 27% had multiple teaching vacancies (National Education Association, 2022). Teacher shortages are more severe in low-income schools, with more than half of public schools in high-poverty neighborhoods (57%) experiencing at least one teaching vacancy (National Education Association, 2022). Vacancies in teaching positions require teachers to cover additional students, meaning that class sizes increase, workloads increase, and job stress increases (Granziera et al., 2021). Teacher stress, extreme workload, and lack of teaching efficacy negatively affects the students they teach and mentor. Emotional exhaustion and job dissatisfaction experienced by teachers have previously been shown to predict teaching effectiveness and positive educational outcomes for students (Arens & Morin, 2016).

Understanding the factors contributing to and protecting from burnout among teachers has been an ongoing effort by education and public health professionals for decades (Maslach et al., 2001). Teaching is one of the most stressful job positions in the United States (Bottiani et al., 2019; Marken & Agrawal, 2022). A constantly changing political landscape, personal safety concerns, and global pandemics (i.e., COVID-19) are the macro scale concerns teachers must endure in addition to daily stressors such as student misbehavior and balancing work-life demands (Chan et al., 2021; Fitchett, et al., 2018; Ryan et al., 2017).

A framework for conceptualizing risk and protective factors for employee burnout is the Job Demands, Job Resources model (JD-R). This model is commonly used in workplace research and is one of the most well-known theoretical frameworks within job stress, job motivation, work engagement, and burnout literature (Bakker & Demerouti, 2017). The JD-R categorizes individuals' workplace experiences into two major categories: job demands and job resources. The JD-R model is flexible and can include a wide variety of job characteristics and settings (e.g., school climate, workplace safety, role ambiguity, task stress, teaching autonomy, etc.). The JD-R model has been applied to understand why teachers experience burnout; however, previous studies did not include nonwork-to-work and nonwork-to-work conflict as demands (Bakker & Demerouti, 2017; Demerouti et al.,2001; Maslach, 2016). Additionally, previous investigations have not examined how burnout is impacting teacher mental, physical, and workplace health outcomes. Additionally, the burnout literature overwhelmingly captures experiences of elementary school teachers and less is known about the experiences of middle school teachers who have different demands. The purpose of this dissertation was to extend the

teacher burnout literature to capture health and workplace outcomes in a sample of middle school teachers, and to investigate the relationships and group differences between demands, resources, and work-life factors that impact teachers' burnout. This was accomplished through two studies described in Chapters 3 and 4 of this dissertation. The results from each chapter are reviewed briefly below.

Chapter 3 Summary

In chapter 3, the cross-sectional relationship between job demands, job resources, personal factors, and teacher burnout were investigated in a non-probability sample of teachers obtained by Qualtrics Research Services. In total, 200 public, middle school, core classroom teachers were recruited for participation and asked about their experiences with supervisor support, coworker support, workload, recognition, job autonomy, work-to-non-work and non-work-to-work conflict, teaching efficacy, and student misbehavior as well as their self-reported levels of emotional exhaustion, depersonalization, and personal accomplishment. Overall, the sample was 51% male, 71% White, and 97% non-Hispanic. Half of the sample (50%) taught 9th grade, and 89% taught in a metropolitan area.

Overall, teachers in this sample had moderate levels of burnout, which is consistent with other groups of public-school teachers (Jennings et al., 2017). However, compared to other studies using the MBI-ES, teachers in this sample had lower than average emotional exhaustion (20.58, and 21.25, respectively) and higher than average personal accomplishment scores (44.13, and 33.54, respectively; Mind Garden, 2023).

Using path analysis, associations between the constructs of job demands, job resources, and burnout were tested. Job demands had a positive relationship with burnout (alpha= -.187, p= .05) where for every increase in teacher's job demands, their burnout scores increased. This confirms previous application of the JD-R model to examine teacher burnout (Bottiani et al., 2019). However, no relationship between job resources and teacher burnout was found in this sample of teachers, contrary to previous research (Brady et al., 2022).

More specifically, burnout was associated with higher workload, work-to-non-work and non-work to work conflict, and perceived student misbehavior in this sample of teachers. These findings are consistent with previous studies including teachers at all grade levels (Corrente, et al., 2022; Gooden, et al., 2023; Napoles, 2022; Yang, 2021). However, teachers' experiences of being recognized for their work, supported by both administrators and coworkers, teaching efficacy, and reported job autonomy did not predict burnout levels.

Separate models were used to examine geographic location and sex as a moderator of burnout. Testing the impact of geographic location was underpowered due to small number of teachers who taught in rural areas. Mean differences between male and female teachers were investigated for all the variables of interest. Female teachers reported higher workload, non-work to work conflict, work to non-work conflict, and more frequent student misbehavior than male teachers. Supervisor support, coworker support, job autonomy, teaching efficacy, recognition, emotional exhaustion, depersonalization, and personal accomplishment scores were not different between male

and female teachers. However, there were no significant interaction effects for male versus female teachers.

Chapter 4 Summary

In Chapter 4, relationships between burnout, and teachers' mental health, physical health, and workplace outcomes were investigated. Using the same non-probability sample described in Chapter 3, data was obtained about emotional exhaustion, depersonalization, personal accomplishment, diagnoses of chronic diseases, mental health, physical health, productivity, stress, and job satisfaction.

Increased personal accomplishment predicted higher job satisfaction while depersonalization predicted lower levels of teacher productivity and more days of poor mental status. These findings support previous research on relationships between burnout levels and job satisfaction (Ortan et al., 2021) as well as teacher productivity (Agyapong et al., 2022). However, in this study, emotional exhaustion was not associated with any of the variables of mental health, physical health, nor organizational outcomes. Additionally, no associations were observed between burnout and depression, stress, and physical health. The findings from this study differ from previous research, which often reports relationships between burnout and mental and physical health (Bianchi & Schonfeld, 2016; Bottiani et al., 2019; Capone et al., 2019; Madigan et al., 2023).

We also found sex differences in the measured variables in this study. More specifically, male teachers reported fewer days of poor mental and physical health, higher levels of productivity, and lower perceived stress than their female teachers. These findings match previous research on sex differences in the workplace broadly (Purvanova

& Muros, 2010) and within teaching (Kreuzfeld & Seibt, 2022). However, despite teachers' differences in health and productivity measures, there were no sex differences observed for job satisfaction or the three burnout measures. This finding differs from previous research, where female teachers often report higher experiences of burnout (Kreuzfeld & Seibt, 2022).

Between-group differences were also assessed for grade levels taught by the teachers in this sample. In omnibus testing, results showed differences in teachers' job satisfaction, days of poor physical health, days of poor mental health, productivity, stress, and chronic disease diagnoses differed across grade levels. Post-hoc testing revealed most of these differences were between 6th grade and 9th grade teachers.

Key Findings

Several important findings have been identified in this research. Using a sample of middle school teachers, we confirmed that workload and student misbehavior were associated with burnout as others have reported. We also found that in this sample, work-life conflict also predicted burnout. Finally, we found that burnout had negative associations with productivity, mental health, and job satisfaction.

The sample represented in this research is atypical. This study was primarily male, which differs from national statistics on public, middle school teachers in the US. According to the most recent census, the overall population of middle school teachers is 64.6% women (Zippia, 2024). This allowed us to examine sex differences in predictor and outcome variables. Additionally, research conducted on middle school teachers is

slim, and no research on only public middle school teachers who teach a core subject currently exists (Bottiani et al., 2019).

Strengths

This study has several strengths. One is the use of nonprobability sampling to gather data from 200 public, middle school, core classroom teachers across the US rather than a single school or convenience sample. Additionally, this sample size allowed for testing of these relationships using structural equation modeling to account for measurement error in the latent variables and to simultaneously estimate the parameters for the multiple predictors in Chapter 3. The sample is also unique in its overrepresentation of male teachers, a lesser represented population in middle school teachers. This dissertation examined burnout from two perspectives, as the outcome and as a predictor for health outcomes. Examining both pathways within the same sample allowed for a more holistic examination on what contributes to, and what happens when, teachers experience burnout.

Limitations

The findings of this study must be considered in light of several limitations. First, this was overwhelmingly an urban sample and does not represent the experiences of rural teachers. Second, this sample was majority white and male, therefore cannot be generalized to represent the experiences of most teachers, considering the population of middle school teachers across the US is primarily female. Lastly, the measures in this study were all self-reported and are subject to recall bias. Due to the cross-sectional nature of these relationships, the measures were collected at the same time using the same

instrument, which does not allow for the examination of causal pathways. Therefore, the measures are subject to common method variance that may result in inflated parameter estimates.

Conclusion

With the increasing rates of teacher shortages and understaffed schools, public health and education professionals are looking to address teacher burnout. It is vital to understand the risk and protective factors for burnout to inform appropriate and effective primary prevention strategies. It is also critical to understand how burnout impacts teacher health (mental and physical), productivity, and job satisfaction to develop interventions that mitigate or eliminate the negative outcomes of burnout for teachers and their students.

Interestingly, when compared to baseline and validation testing of the MBI-ES, teachers in this sample had higher personal accomplishment scores, but similar emotional exhaustion and depersonalization scores (Mind Garden, 2023). The measurement nature of the MBI-ES and the subscales means that having higher personal accomplishment reduces overall burnout ratings, suggesting that personal accomplishment may have mitigated burnout in this sample.

Future research needs to examine these relationships in a rural setting or with a geographically diverse sample that includes both rural and urban teachers. Additionally, more representation of racial and ethnic minorities in the sample would provide a more complete picture of burnout.

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APPENDIX A: TEACHER BURNOUT SURVEY

Teacher Burnout

Start of Block: Screener Questions

OCC Please select your current occupation.

- ○ Physician (1)
- ○ Lawyer (2)
- ○ Public School Teacher (3)
- ○ Nurse (4)
- ○ Musician (5)
- ○ Other (6)

Skip To: End of Block If Please select your current occupation. != Public School Teacher

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Page Break

FTT Are you a full time, public school teacher in the United States?

- ○ Yes (1)
- ○ No (2)
- ○ I don't know (3)

Skip To: End of Block If Are you a full time, public school teacher in the United States? != Yes

Page Break

GRADE What grade level do you currently teach?

- ○ K-Fifth Grade (1)
- ○ Sixth Grade (2)
- ○ Seventh Grade (3)
- ○ Eight Grade (4)
- ○ Ninth Grade (5)
- ○ Tenth Grade (6)
- ○ Eleventh Grade (7)
- ○ Twelfth Grade (8)
- ○ Other, please describe: (9) _____

End of Block: Screener Questions

Start of Block: Informed Consent

INFCONSENT Dear Participant,

My name is Emily Ashby, and I am a doctoral candidate at the University of Georgia under the supervision of Dr. Heather Padilla. I am inviting you to take part in a research study. This form summarizes the purpose of the study, the procedures you will be asked to complete, and your rights as a participant. The purpose of this study is to examine

teachers' experiences at work and the factors that may contribute to workplace burnout. This study will also examine the impact burnout has on workplace and personal outcomes, including mental and physical health. The findings from this study will help us better understand teachers' experiences at work, the potentially negative impact of burnout on teacher health, and may provide information on developing better resources to support teachers. It will also help us better understand what resources exist and what actions are needed to reduce teacher burnout. You are invited to participate in this study because you are a 6th – 12th grade teacher in a public school in the United States, teach a core subject, and are not a teacher of students with special needs. Your participation in the study is strictly voluntary, and you may choose not to participate or stop at any time without penalty. In this survey, you will be asked to answer questions about several work and health-related topics, including your administrative support, job satisfaction, student behaviors, work-life balance, mental health, and emotional exhaustion. The questionnaire should only take 15 minutes to complete. Your responses are completely anonymous. There a no known risks or benefits to participating in this research. All records containing individual data pertinent to this research will be maintained at the University of Georgia. Results of this study may be published, but no identifying information will be used. By completing this questionnaire, you are agreeing to participate in this research project. Please keep this letter for your records.

If you have any questions about this project or your participation, send an email to Dr. Heather Padilla at hmpadilla@uga.edu or call at (706) 542-4328. Questions or concerns about your rights as a research participant should be directed to The Chairperson,

University of Georgia Institutional Review Board at (706) 542-3199 or irb@uga.edu.

Thank you for your time and participation.

Sincerely,

Emily Loedding Ashby, MPH

Doctoral Candidate

University of Georgia

End of Block: Informed Consent

Start of Block: Demographics Section

Display This Question:

If HIDE = YES

LOCAL Please fill in the state, county, and district you currently teach in.

_____

Page Break

LOCAL1 Please select which state you currently teach in.

▼ Alabama (1) ... Wyoming (52)

LOCAL2 Please fill in the county or district you currently teach in.

_____

LOCAL3 Please write the 5-digit zip code of the location you currently teach in.

_____

Page Break

YEARS Please indicate your years of experience.

- ○ 0-5 (1)
- ○ 6-10 (2)
- ○ 11-15 (3)
- ○ 16-20 (4)
- ○ 21-25 (5)
- ○ 26-30 (6)
- ○ 30+ (7)

X→

INCOME Which of the following describes your individual income last year (before taxes)?

- ○ □ $20,000 to $34,999 (2)
- ○ □$35,000 to $49,999 (3)
- ○ □$50,000 to $74,999 (4)
- ○ □ $75,000 to $99,999 (5)
- ○ □ $100,000 to $149,999 (6)
- ○ □ $150,000 to $199,999 (7)
- ○ □ $200,000 or more (8)

YEARSTEACH How long have you been teaching in your current school district?

- ○ 1-5 years (1)
- ○ 6-10 years (2)
- ○ 11-15 years (3)
- ○ 16-20 years (4)
- ○ 21-30 years (5)

AGE What is your age?

- ○ 20-25 years (1)
- ○ 26-30 years (2)
- ○ 31-35 years (3)
- ○ 36-40 years (4)
- ○ 41-45 years (5)
- ○ 46-50 years (8)
- ○ 51-55 years (9)
- ○ 56 + years (10)

RACE What race do you consider yourself to be?

- [ ] White (1)
- [ ] Black/ African American (2)
- [ ] American Indian (3)
- [ ] Alaska Native (4)
- [ ] Native Hawaiian (5)
- [ ] Other Pacific Islander (6)
- [ ] Asian (7)
- [ ] Some other race (8)
- [ ] Prefer not to answer (9)

HISPANIC Do you consider yourself to be Hispanic or Latino?

- ○ Yes (1)
- ○ No (2)
- ○ Prefer not to answer (3)

SEX What was your assigned sex at birth?

- ○ Male (1)
- ○ Female (2)
- ○ Prefer not to answer (3)

End of Block: Demographics Section

Start of Block: Section 1: MBI-ES

BURNOUT Section 1: Burnout

This section will ask questions about how you as an educator view your job and the people you work with closely. Please read each statement carefully and decide if you ever feel this way about your job.

End of Block: Section 1: MBI-ES

Start of Block: Burnout Inventory - Emotional Exhaustion

BURNEE1 I feel emotionally drained from my work.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE2 I feel used up at the end of the workday.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE3 I feel fatigued when I get up in the morning and have to face another day on the job.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE4 Working with people all day is a strain for me.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE I feel burned out from my work.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE I feel frustrated by my job.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE I feel I'm working too hard on my job.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE Working with people directly puts too much stress on me.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNEE I feel like I'm at the end of my rope.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

End of Block: Burnout Inventory - Emotional Exhaustion

Start of Block: Burnout Inventory - Depersonalization

BURNDP I feel I treat some students as if they are impersonal objects.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNDP I've become more callous toward people since I took this job.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNDP I worry that this job is hardening me emotionally.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNDP I don't really care what happens to some students.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNDP I feel students blame me for some of their problems.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

End of Block: Burnout Inventory - Depersonalization

Start of Block: Burnout Inventory - Personal Accomplishment

BURNPA I can easily understand how my students feel about things.

- Never (1)
- A few times a year or less (2)
- Once a month or less (3)
- A few times a month (4)
- Once a week (5)
- A few times a week (6)
- Every day (7)

BURNPA I deal very effectively with the problems of my students.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA I feel I'm positively influencing other people's lives through my work.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA I feel very energetic.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA I can easily create a relaxed atmosphere with my students.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA I feel exhilarated after working closely with my students.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA I have accomplished many worthwhile things in this job.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

BURNPA In my work, I deal with my emotional problems very calmly.

- ○ Never (1)
- ○ A few times a year or less (2)
- ○ Once a month or less (3)
- ○ A few times a month (4)
- ○ Once a week (5)
- ○ A few times a week (6)
- ○ Every day (7)

End of Block: Burnout Inventory - Personal Accomplishment

Start of Block: Section 2: NIOSH WellBQ

Q242 Section 2: Work Evaluation and Experience

The questions in this section ask how you feel about different aspects of your job & your health.

End of Block: Section 2: NIOSH WellBQ

Start of Block: NIOSH WellBQ - Work Evaluation and Experience

JOBSAT Overall, I am ____ with my job.

- ○ Not at all satisfied (1)
- ○ Not too satisfied (2)
- ○ Somewhat satisfied (3)
- ○ Very satisfied (4)

SUPSUPP I can count on my administrators for support when I need it.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Somewhat agree (3)
- ○ Strongly agree (4)
- ○ Does not apply (5)

COWSUPP I can count on my coworkers for support when I need it.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Somewhat agree (3)
- ○ Strongly agree (4)

AUTONOMY I am given a lot of freedom to decide how to do my own work.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Somewhat agree (3)
- ○ Strongly agree (4)

End of Block: NIOSH WellBQ - Work Evaluation and Experience

Start of Block: NIOSH WellBQ - Time Paucity/Work Overload

TIMOVRLD I never seem to have enough time to get everything done on my job.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Somewhat agree (3)
- ○ Strongly agree (4)
- ○ Does not apply (5)

End of Block: NIOSH WellBQ - Time Paucity/Work Overload

Start of Block: NIOSH WellBQ - Recognition

REG I receive recognition for a job well done.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Somewhat agree (3)
- ○ Strongly agree (4)

End of Block: NIOSH WellBQ - Recognition

Start of Block: NIOSH WellBQ - Life/ Work Conflict

WNWCONF How often do the demands of your job interfere with your personal life?

- Never (1)
- Almost Never (a few times a year or less) (2)
- Rarely (once a month or less) (3)
- Sometimes (a few times a month) (4)
- Often (once a week) (5)
- Very often (a few times a week) (6)
- Always (every day) (7)

NWWCONF How often do the demands of your personal life interfere with your work on the job?

- Never (1)
- Almost Never (a few times a year or less) (2)
- Rarely (once a month or less) (3)
- Sometimes (a few times a month) (4)
- Often (once a week) (5)
- Very often (a few times a week) (6)
- Always (every day) (7)

End of Block: NIOSH WellBQ - Life/ Work Conflict

Start of Block: NIOSH WellBQ - Productivity

PRODAV In the past month, how often did you not concentrate enough on your work?

- Never (1)
- Almost never (one time a month) (2)
- Rarely (once a week or less) (3)
- Sometimes (a few times a week) (4)
- Often (once a day) (5)
- Very often (a few times a day) (6)
- Always (every hour) (7)

PRODAV In the past month, how often did you find yourself not working as carefully as you should?

- ○ Never (1)
- ○ Almost never (one time a month) (2)
- ○ Rarely (once a week or less) (3)
- ○ Sometimes (a few times a week) (4)
- ○ Often (once a day) (5)
- ○ Very often (a few times a day) (6)
- ○ Always (every hour) (7)

PRODAV In the past month, how often did you not work at times when you were supposed to be working?

- ○ Never (1)
- ○ Almost never (one time a month) (2)
- ○ Rarely (once a week or less) (3)
- ○ Sometimes (a few times a week) (4)
- ○ Often (once a day) (5)
- ○ Very often (a few times a day) (6)
- ○ Always (every hour) (7)

PRODAV In the past month, how often did you get less done than other workers?

- ○ Never (1)
- ○ Almost never (one time a month) (2)
- ○ Rarely (once a week or less) (3)
- ○ Sometimes (a few times a week) (4)
- ○ Often (once a day) (5)
- ○ Very often (a few times a day) (6)
- ○ Always (every hour) (7)

End of Block: NIOSH WellBQ - Productivity

Start of Block: NIOSH WellBQ - Physical Health

HLTHOVER Would you say that in general, your health is poor, fair, good, very good, or excellent?

- ○ Poor (1)
- ○ Fair (2)
- ○ Good (3)
- ○ Very Good (4)
- ○ Excellent (5)

PHYSHLDY Now, thinking about your physical health, which includes physical illness and injury, during the past 30 days, for how many days was your physical health **not good**? Enter number of days (0–30).

_____

HLTHSUM Have you ever had arthritis?

- ○ Never (0)
- ○ In the past (1)
- ○ Have currently (2)

X→

HLTHSUM Have you ever had other musculoskeletal disorders (for example, back pain, neck pain, other pain)?

- ○ Never (0)
- ○ In the past (1)
- ○ Have currently (2)

X→

HLTHSUM Have you ever had asthma?

- ○ Never (0)
- ○ In the past (1)
- ○ Have currently (2)

HLTHSUM Have you ever had lung disease, other than asthma (for example, chronic obstructive pulmonary disease [COPD], chronic bronchitis, emphysema)?

- Never (0)
- In the past (1)
- Have currently (2)

HLTHSUM Have you ever had cancer?

- Never (0)
- In the past (1)
- Have currently (2)

HLTHSUM Have you ever had depression?

- Never (0)
- In the past (1)
- Have currently (2)

HLTHSUM Have you ever been diagnosed with diabetes or prediabetes?

- Never (0)
- In the past (1)
- Have currently (2)

HLTHSUM Have you ever had heart disease?

- Never (0)
- In the past (1)
- Have currently (2)

HLTHSUM Have you ever had high blood pressure?

- Never (0)
- In the past (1)
- Have currently (2)

End of Block: NIOSH WellBQ - Physical Health

Start of Block: NIOSH WellBQ - Mental Health

MENTHLDY Now, thinking about your mental health, which includes stress, depression, anxiety, and problems with emotions, during the past 30 days, for how many days was your mental health not good? Enter number of days (0–30).

_____

STRSAV How often do you experience stress with regard to your health?

- ○ Never (1)
- ○ Almost never (a few times a year or less) (2)
- ○ Rarely (once a month or less) (3)
- ○ Sometimes (a few times a month) (4)
- ○ Often (once a week) (5)
- ○ Very often (a few times a week) (6)
- ○ Always (every day) (7)

STRSAV How often do you experience stress with regard to your finances?

- ○ Never (1)
- ○ Almost never (a few times a year or less) (2)
- ○ Rarely (once a month or less) (3)
- ○ Sometimes (a few times a month) (4)
- ○ Often (once a week) (5)
- ○ Very often (a few times a week) (6)
- ○ Always (every day) (7)

STRSAV How often do you experience stress with regard to your family or social relationships?

- ○ Never (1)
- ○ Almost never (a few times a year or less) (2)
- ○ Rarely (once a month or less) (3)
- ○ Sometimes (a few times a month) (4)
- ○ Often (once a week) (5)
- ○ Very often (a few times a week) (6)
- ○ Always (every day) (7)

STRSAV How often do you experience stress with regard to your work?

- Never (1)
- Almost never (a few times a year or less) (2)
- Rarely (once a month or less) (3)
- Sometimes (a few times a month) (4)
- Often (once a week) (5)
- Very often (a few times a week) (6)
- Always (every day) (7)

MNHPLES Over the last 2 weeks, how often have you been bothered by little interest or pleasure in doing things?

- Not at all (1)
- Several days (2)
- More than half the days (3)
- Nearly every day (4)

MNHNERV Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious, or on edge?

- Not at all (1)
- Several days (2)
- More than half the days (3)
- Nearly every day (4)

MNHWORY Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

- Not at all (1)
- Several days (2)
- More than half the days (3)
- Nearly every day (4)

End of Block: NIOSH WellBQ - Mental Health

Start of Block: Section 3: Teaching Efficacy & Student Behaviors

TEACHEFF Section 3: Students & School Activities

This section asks questions about your personal feelings and experiences. Your answers are confidential.

End of Block: Section 3: Teaching Efficacy & Student Behaviors

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Start of Block: Teacher Subjective Wellbeing Questionnaire (TSWQ) - Teaching Efficacy Scale

TEACHEFF Please answer the next four questions based on how often you believe the statements to be true.

TEACHEFF I am a successful teacher.

- ○ Almost never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Almost always (4)

TEACHEFF I am good at helping students learn new things.

- Almost never (1)
- Rarely (2)
- Sometimes (3)
- Almost always (4)

TEACHEFF I have accomplished a lot as a teacher.

- Almost never (1)
- Rarely (2)
- Sometimes (3)
- Almost always (4)

TEACHEFF I feel like my teaching is effective and helpful.

- ○ Almost never (1)
- ○ Rarely (2)
- ○ Sometimes (3)
- ○ Almost always (4)

End of Block: Teacher Subjective Wellbeing Questionnaire (TSWQ) - Teaching Efficacy Scale

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Start of Block: Student Behavior: Direct Behavior Rating–Single Item Scales (DBR-SIS)

STUMISB How often do you have to stop instruction because students are **NOT academically engaged?**

- ○ Never (1)
- ○ Almost never (one class a day) (2)
- ○ Rarely (one or two classes a day) (3)
- ○ Sometimes (a few classes a day) (4)
- ○ Often (once every class) (5)
- ○ Very often (multiple times during each class) (6)
- ○ Always (every few minutes during each class) (7)

STUMISB How often do you have to stop instruction because students are **disrespectful** to you or others?

- ○ Never (1)
- ○ Almost never (one class a day) (2)
- ○ Rarely (one or two classes a day) (3)
- ○ Sometimes (a few classes a day) (4)
- ○ Often (once every class) (5)
- ○ Very often (multiple times during each class) (6)
- ○ Always (every few minutes during each class) (7)

STUMISB How often do you have to stop instruction due to students **disrupting** class?

- ○ Never (1)
- ○ Almost never (one class a day) (2)
- ○ Rarely (one or two classes a day) (3)
- ○ Sometimes (a few classes a day) (4)
- ○ Often (once every class) (5)
- ○ Very often (multiple times during each class) (6)
- ○ Always (every few minutes during each class) (7)