Occupational Stress and Burnout in Pathologists' Assistants

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Abstract

Background: The unique work environments and responsibilities of healthcare professionals put them at an increased risk of high levels of occupational stress, which can lead to burnout, characterized by exhaustion, detachment, and reduced accomplishment. Pathologists' assistants are allied health professionals whose primary work is in the pathology laboratory, performing non-patient-facing duties. Much attention and research have focused on occupational stress and burnout in patient-facing healthcare professions, and little is known about occupational stress and burnout in pathologists' assistants. ***Purpose:*** The purpose of this study was to explore the unique experiences of occupational stress and burnout in pathologists' assistants, examining participants' perceptions of contributing factors and stress management. ***Method:*** A qualitative study using a basic interpretive approach was conducted, in which 12 pathologists' assistants were recruited to participate in one-on-one, semi-structured interviews via Zoom web conferencing. The data were analyzed through a review of transcripts, notes, and memos to identify overarching themes relating to the experiences of occupational stress and burnout. ***Results:*** Four main themes arose regarding occupational stress: workload, physical demands, interpersonal issues, and lack of respect/understanding. In relation to burnout, four additional themes emerged: physical impacts, emotional and interpersonal impacts, potential patient care impacts, and addressing burnout. ***Discussion and Conclusion***: An understanding of the unique stressors and burnout factors for pathologists' assistants will aid in identifying potential strategies for the prevention and management of these issues.

Keywords: occupational stress, burnout, pathology, pathologists' assistants

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Occupational Stress and Burnout in Pathologists' Assistants

Occupational stress and burnout are significant issues faced by the global workforce, leading to a range of adverse outcomes both on the individual and organizational levels. Occupational stress describes the psychological and physiological response to workplace events or conditions that are detrimental to health and well-being (American Psychological Association [APA], 2021). Factors that influence occupational stress include autonomy, workload, responsibility level, job security, physical environment, the nature and pace of the work, and interpersonal relationships with coworkers and supervisors (APA, 2021).

Efforts to understand the causes and effects of stress at work came to the forefront in the 1970s, with researchers identifying some common work-related stress concerns that span occupations (Quick & Henderson, 2016). Three of the leading causes of occupational stress identified in a review of the literature by Quick and Henderson (2016) are a lack of employee decision latitude, that is, high work demands coupled with low control; uncertainty, which includes job insecurity and role ambiguity; and poorly managed conflict at work. In addition, occupational stress is a known risk factor for a range of health issues, including medical problems like cardiovascular disease and musculoskeletal injury; behavioral issues such as tobacco, drug, or alcohol abuse; and psychological problems like anxiety, depression, and burnout (Quick & Henderson, 2016).

Burnout is a significant form of psychological distress resulting from chronic occupational stress (Salvagioni et al., 2017). Over the past two decades, the conceptualization of burnout has been shaped, depicting the issue as a psychological syndrome stemming from the response to chronic occupational stressors (Maslach et al., 2001). In 2019, the World Health Organization (WHO) included burnout in the 11th Revision of the International Classification of

Diseases (ICD-11), recognizing it as an occupational phenomenon (WHO, 2019). In the ICD-11, the WHO included the three core dimensions of the burnout experience described in Maslach's (1982, 1998, 2001) multidimensional theory of burnout. The three key dimensions of burnout are overwhelming exhaustion, feeling detached and cynical toward one's job, and a sense of reduced professional efficacy or accomplishment (Maslach, 2001).

Burnout research has its roots in caregiving and service occupations, uncovering common themes of emotional exhaustion, detachment, and cynicism as coping mechanisms, focusing on relationships as both a stressor and a stress management resource (Maslach, 2001). For healthcare professionals, many of the unique job-related demands, particularly with today's rapidly changing healthcare environment, lead to increased levels of stress which can result in an increased risk of burnout. More than 50% of nurses, physician assistants, and physicians report symptoms of burnout (Green et al., 2020). Burnout carries potential psychological and physical effects for each individual, including chronic fatigue, relationship conflicts, depression, and anxiety (Schrijver, 2016). At the organizational level, burnout can negatively impact healthcare professionals' productivity, effectiveness, and engagement, resulting in diminished compassion in care and weakened job performance, directly impacting the quality of patient care provided (Green et al., 2020).

Problem Statement

Occupational stress and burnout in healthcare professionals are significant, growing issues with potential adverse impacts on the delivery of quality care. Healthcare professionals are regularly exposed to stressful environments and are more vulnerable to high degrees of stress and burnout (Bidlan & Sihag, 2013). Burnout is commonly seen in professions involving high levels of interaction with others, like most healthcare professions, but it can occur in any occupation

(De Hert, 2020). For example, most pathology professionals, including pathologists' assistants, perform their duties in non-patient-facing roles but still face many of the demands and stresses experienced by healthcare professionals with direct patient contact, in addition to their own unique challenges. Pathologists' assistants are highly trained allied health professionals trained to examine and evaluate surgical pathology specimens, perform postmortem examinations, and participate in educational and administrative tasks. Occupational stress and burnout in healthcare professionals are the topics of a large volume of current research; however, most research focuses on patient-facing professions.

Purpose Statement

The purpose of this study was to understand the experiences of occupational stress and professional burnout in pathologists' assistants. Specifically, this study investigated participants' perceptions of factors contributing to occupational stress and potential burnout in their field and characterized their feelings toward stress management and burnout prevention.

Research Questions

1. How do pathologists' assistants experience and manage occupational stress?
    a. What are their perceptions and feelings about stress management?
    b. What are their perceptions of job-related and situational factors that increase stress or impact how stress is managed?
2. How do pathologists' assistants perceive and define professional burnout?
    a. What are their perceptions and feelings about professional burnout?
    b. What are their perceptions of job-related and situational factors that contribute to burnout?

Significance of the Study

Identifying and understanding factors leading to increased occupational stress in healthcare professionals can provide valuable insight to inform future initiatives to promote effective stress management and prevent burnout. Stress and burnout are highly individualized experiences, and more targeted, specific information about those personal experiences can improve approaches to management and prevention. As acknowledged by Kroft (2020), very little is known about burnout within the specific community of pathology professionals and what interventions are likely to be successful in this unique field. Several recent studies have dedicated their attention to the pathology professions, establishing data on burnout prevalence and common contributing factors. Broad role diversity exists among pathology professionals, and the role of the pathologists' assistant differs greatly from the roles of their pathology peers. This study has taken a qualitative approach, with an effort to identify and describe unique elements of the stress and burnout experience specific to pathologists' assistants. This detailed, specific insight into personal experiences can be utilized to promote policies and initiatives that address current issues and better serve the specific needs of this population.

Definition of Terms

- Burnout: a syndrome resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of energy depletion or exhaustion; mental detachment from one's job or feelings of negativism or cynicism related to one's job; and reduced professional efficacy or accomplishment (WHO, 2019).
- Occupational stress: a physiological and psychological response to events or conditions in the workplace that is detrimental to health and well-being. It is influenced by such factors as autonomy and independence, decision latitude, workload, level of

responsibility, job security, physical environment and safety, the nature and pace of work, and relationships with coworkers and supervisors (APA, 2021).

- Pathology professionals: individuals whose primary work is in the pathology laboratory setting, either as a physician (pathologist), physician trainee (pathology resident), advanced provider (pathologists' assistant), or in another medical laboratory profession.
- Pathologists' assistant: a highly trained allied health professional qualified to provide services in anatomic pathology under the direction and supervision of a board-certified anatomic pathologist. Duties include examining, evaluating, and dissecting surgical pathology specimens, performing postmortem examinations, and educational and management activities (American Association of Pathologists' Assistants, n.d.).

Literature Review

In recent years, increased attention has been focused on occupational stress and burnout as significant issues for the global workforce, triggering a large volume of research to understand these phenomena further and develop ways to reduce their adverse effects. The psychophysiological phenomenon known as the stress response was first described in the early 20th century, with research identifying the biological processes in the body's physical response to stress (Quick & Henderson, 2016). Subsequent research has included work to describe factors contributing to variations in the stress response among individuals, studies identifying some of the consequences of prolonged stress, and the exploration of interventions to manage and prevent stress (Quick & Henderson, 2016). The term occupational stress encompasses the stress response to workplace events or conditions, leading to adverse effects on an individual's health and well-being (American Psychological Association, 2021). Unmanaged, chronic occupational stress can

lead to various health issues, including mental health concerns like anxiety, depression, and burnout (Quick & Henderson, 2016).

In the United States, the term burnout came into widespread use in the 1970s, with earlier writings in the fiction and nonfiction realms describing the phenomenon as a social problem (Maslach et al., 2001). As burnout research emerged, it was disparaged at first, viewed as non-scholarly pop psychology due to its nonacademic origins (Maslach et al., 2001). Over the years, empirical study into the phenomenon and the development of recognized theoretical models has led to an established conceptualization of job burnout as a psychological syndrome impacting many in the global workforce.

History of Occupational Stress Research

Occupational stress is one of the most researched topics in organizational psychology, characterized predominantly by research focused on the psychosocial aspects and causes of stress and research exploring the mental, physiological, and organizational impacts of stress (Cassar et al., 2020). Early work explaining the biological stress response paved the way for the emergence of behavioral and psychological models in the late 20th century. Cassar et al. (2020) described a shift from viewing stress as an external event to acknowledging the dynamic interplay between external events and internal balances, focusing on personal meanings, emotions, and perceptions.

Much recent research has centered on linking occupational stress to health and organizational outcomes and examining the efficacy of stress management interventions (Cassar et al., 2020). Evidence has been found connecting occupational stress with cardiovascular disease, anxiety, depression, and increased levels of substance abuse (Quick & Henderson, 2016). Quick and Henderson (2016) emphasized that workplace stress reduction interventions

are a vital defense against the adverse effects of occupational stress and incorporate current trends in wellness and positive psychology.

Defining Occupational Stress

While work-related stress has become a well-known global issue, conceptualizing the phenomenon in the literature has caused some debate, leading to differences in how the construct is described (Cassar et al., 2020). Conceptual variations reflect the subjective nature of the stress experience and individual differences in defining stress and well-being. The American Psychological Association (2021) has defined occupational stress as "a physiological and psychological response to events or conditions in the workplace that is detrimental to health and well-being" influenced by factors like autonomy and independence, decision latitude, workload, responsibility level, job security, physical environment, the nature and pace of the work, and relationships with coworkers and supervisors (para. 1). One of the most severe and detrimental potential responses to occupational stress is burnout (Quick & Henderson, 2016).

History of Burnout Research

The initial phase of burnout research was defined by social science articles on burnout from Freudenberger (1974, 1975) and Maslach (1976), which were qualitative, encompassing interviews with direct accounts of job stress, coping strategies, and the feelings associated with the experience (Maslach et al., 2001). Freudenberger (1974) first used the term burnout to describe the experience of becoming exhausted from excessive demands on one's energy, strength, or resources in the workplace, and he identified numerous signs and symptoms, including exhaustion, fatigue, frequent headaches, gastrointestinal issues, frustration, anger, and depression (p. 159). Freudenberger (1974) acknowledged burnout as an issue at both the individual and organizational levels, recognizing that those highly dedicated and committed to

their work were more likely to experience burnout. Burnout occurs more frequently in occupational contexts that require empathy, personal involvement, and intrinsic motivation (Heinemann & Heinemann, 2017).

In the late 1970s and early 1980s, Maslach and her colleagues shifted their approach and began to focus on the quantitative measurement of burnout. With the development of the Maslach Burnout Inventory (Maslach & Jackson, 1981), a new empirical phase in burnout research began (Maslach et al., 2001). The Maslach Burnout Inventory (MBI) is a 22-item instrument still considered the gold standard for measuring burnout today (Williamson et al., 2018). The MBI originated as an instrument for the human service professions (i.e., social workers, police, counselors), and adapted versions have been developed for medical personnel, educators, and students, in addition to a general version that can be applied to any occupation (Mind Garden, Inc., 2019). The scale evaluates burnout by addressing three established dimensions: emotional exhaustion, depersonalization, and personal accomplishment (Maslach & Jackson, 1981).

The continuation of the empirical phase of burnout research through the 1990s saw theoretical and methodological contributions from the field of organizational psychology, lending further strength to the scholarly base of burnout research through more established, quantitative approaches (Maslach et al., 2001). Focus shifted to more varied aspects of the concept, with research beginning to explore multiple potential influences and consequences, including the long-term impacts of burnout and how interventions can alleviate burnout (Maslach et al., 2001). Organizational psychologists also began to relate burnout to established psychological constructs like job stress, job satisfaction, and organizational commitment (Heinemann & Heinemann, 2017). Over the past two decades, research on burnout and

occupational stress has continued to grow, including numerous studies focusing on the causes of burnout, the prevalence of burnout in different occupational groups, the development and implementation of interventions to alleviate job stress and burnout, and the psychological and physical symptoms of job stress and burnout (Heinemann & Heinemann, 2017).

Defining Burnout

Maslach (1982, 1998) defined three core dimensions of burnout: overwhelming exhaustion, feelings of cynicism or detachment from one's job, and a sense of ineffectiveness and lack of accomplishment. This theoretical framework has been widely used to assess burnout in various settings, and the scale for which it is the basis (the Maslach Burnout Inventory) is the best-known questionnaire used in most clinical studies assessing burnout (Teo et al., 2020). As described by Maslach (2001), the exhaustion component represents the individual stress dimension of burnout, the cynicism and detachment component incorporates the interpersonal context, and the element of reduced efficacy and accomplishment represents the self-evaluation aspect of burnout (p. 399).

In 2019, the World Health Organization (WHO) utilized Maslach's multidimensional model in their definition of burnout when they included it in the 11th Revision of the International Classification of Diseases (ICD-11). While they do not classify it as a medical condition but rather an occupational phenomenon, the WHO acknowledges mental well-being in the workplace as a key health issue (WHO, 2019). The WHO (2019) defines burnout as: "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of energy depletion or exhaustion; increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and reduced professional efficacy" (para. 4).

Occupational Stress and Burnout in Healthcare Professionals

Healthcare professionals are exposed to multiple psychosocial hazards stemming from workplace conditions and demands, frequently leading to high levels of occupational stress (Karadzinska-Bislimovska et al., 2014). Stress in healthcare professionals can often stem from factors like work overload, time constraints on work, unpredictable work hours, social and emotional challenges from working closely with others, lack of staff, and high levels of responsibility (Karadzinska-Bislimovska et al., 2014). Ravalier et al. (2020) found that many healthcare professionals experiencing occupational stress described a lack of support and understanding about mental health issues from their organization's management. Some professionals described a busy work environment just about "surviving each day," leaving little time for physical and mental breaks, relationship building, or quality communication with leadership (Ravalier et al., 2020, p.7).

In the earliest burnout research, it was noted that individuals in human services and healthcare, occupations with high levels of emotional and interpersonal stress and in which aiding those in need is the primary goal, were at a very high risk of burnout (Maslach, 2001, p. 399). Further research has explored the prevalence of burnout in healthcare workers, seeking to identify contributing factors and develop ways to counteract the effects of stress and burnout. Green et al. (2020) found that more than 50% of nurses, physician assistants, and physicians report symptoms of burnout and emphasize that the well-being of healthcare professionals is critical for the provision of safe, quality patient care. Occupational stress and burnout in healthcare workers are simultaneously individual, organizational, and patient safety issues. Individual symptoms of high occupational stress and burnout can be severe and include physical and emotional issues, like chronic fatigue, memory deficits, depression, increased risks of

substance abuse and suicide, and relationship disturbances (Green et al., 2020). At the organizational level, issues like turnover, decreased job satisfaction, and absenteeism can result from occupational stress and burnout (De Hert, 2020). Potential negative impacts on patient care and safety are also a key concern, with some examples including medical errors resulting from overwhelming exhaustion and fatigue, a lack of relationship building with providers because of high job turnover, and a general lack of compassion in care from a cynical/detached provider (Green et al., 2020). These issues can begin with lowered levels of patient satisfaction and can escalate to malpractice and fatal errors (Mangory et al., 2021).

Contemporary Impacts on Occupational Stress and Burnout in Healthcare Professionals

The current climate in healthcare has evolved and changed since Maslach's early work on conceptualizing burnout, with many contemporary issues emerging that have significantly impacted stress and burnout for healthcare professionals. Healthcare professionals face emerging pressures from organizational cultures that devalue the individual, focus on pushing productivity, and decrease provider autonomy (Dillon et al., 2020). Chmielewski et al. (2021) added that the ever-evolving modern healthcare work environment promotes a culture of perfectionism that can intensify stress, impede work-life balance, and contribute to burnout. Many professionals report that the current climate has led to excessive workload, decreased personal time, lack of control over bureaucratic administrations, and high levels of work-life conflict, contributing to high stress levels and burnout (Schrijver, 2016).

Recent years have also seen a marked increase in gun violence and other mass casualty events, such as higher rates of climate-related natural disasters (Leaning & Guha-Sapir, 2013). Many healthcare professionals suffer from secondary trauma from working with individuals experiencing a traumatic event (Hensel et al., 2015). An array of negative psychological changes

can occur after indirect trauma exposure, including secondary traumatic stress (STS), usually resulting in socioemotional symptoms like extreme stress and avoidance, and compassion fatigue, characterized by a lack of capacity or interest in maintaining empathy and bearing the suffering of others (Dar & Iqbal, 2019). Healthcare professionals experiencing STS or compassion fatigue often have symptoms that impact their personal and working lives that extend to the quality of care they can provide (Dar & Iqbal, 2019).

Since March 2020, the COVID-19 pandemic has been a major factor contributing to occupational stress and burnout for healthcare professionals. The pandemic has presented new challenges, like high volumes of patients requiring advanced critical care, isolation precautions, and PPE shortages, and exacerbated existing stressors like long hours, low staffing, and inadequate institutional support systems (Hesselink et al., 2021). In a 2020 survey of U.S. healthcare professionals, 42.7% indicated they were facing work overload, and 49.4% reported experiencing burnout due to the stress of the pandemic (Prasad et al., 2021). The stress of the pandemic has only worsened as time has gone on. In an early 2021 Washington Post poll of healthcare professionals, 62% of respondents reported that stress related to the pandemic had a negative effect on their mental health, and 55% reported feelings of burnout (Clement et al., 2021). In the survey, 25% of all respondents had at least one patient die of the disease, and one nurse described what felt like "a mass casualty event every day" (Clement et al., 2021). Healthcare professionals surveyed described a combination of exhaustion from extended work hours and increased responsibilities and emotional exhaustion from treating critically ill, isolated patients, and high death rates (Clement et al., 2021). One physician described the frustration of knowing his team has given their best efforts but continuing to see their patients die (Clement et al., 2021). The worry, frustration, fear, and stress brought on by the pandemic have caused

considerable trauma for many healthcare professionals. Wild et al. (2021) found high diagnostic rates of post-traumatic stress disorder and major depression in frontline healthcare workers.

Talaee et al. (2020) found that healthcare professional stress and burnout are associated with an increased frequency of medical errors and decreased quality of healthcare services and added that the additional stress attributed to the pandemic has adversely impacted patient care. For pathology professionals, the high demand for COVID-19 testing during 2020 and 2021 has created even more demanding workloads, exacerbating the lack of staffing and schedule control already felt before the pandemic (Golab, 2021). Nowrouzi-Kia et al. (2021) surveyed medical laboratory technologists during the second wave of the pandemic in 2021, finding a 72.3% burnout rate in these frontline laboratory professionals. High quantitative demands and high work pace were reported to be chief factors associated with medical laboratory technologist burnout (Nowrouzi-Kia et al., 2021). The extraordinary circumstances and impacts on mental health brought on by the pandemic have helped bring the importance of monitoring healthcare professionals' stress and developing tools to address stress and burnout to the forefront (Prasad et al., 2021).

Occupational Stress and Burnout in Pathology Professionals

Pathology professionals, a group comprising pathologists, residents, and more than 15 types of medical laboratory professionals, including pathologists' assistants, play a unique behind-the-scenes role in patient care. Most pathology professionals have little to no direct patient contact, yet their work impacts almost all aspects of patient care, from the diagnosis of disease, to developing treatment plans, to monitoring disease progression and response to treatment (Kelly et al., 2020). Celik et al. (2021) asserted that the potential for negative impacts on patient care requires every medical specialty with its unique professional characteristics to

receive a separate, focused evaluation for burnout. Research focusing on occupational stress and burnout in pathology professionals has been minimal until recent years (Cohen et al., 2022; Smith et al., 2022). Until a 2020 study, the last widely published survey on stress in non-physician pathology professionals was conducted in 1987. The study by Liller (1987) found high levels of occupational stress in the surveyed population of American Society for Clinical Pathology (ASCP) certified medical technologists. Some specific causes of stress included the pressure to produce fast lab results, perceptions of low pay and high demand, limited authority, and a lack of respect from organizational leadership, other healthcare professionals, and the public (Liller, 1987).

Burnout and occupational stress in pathology recently reemerged in the academic literature as attention to wellness in the medical professions has grown. In early 2020, the ASCP conducted a cross-sectional survey study to extract information about job satisfaction, well-being, job stress, and burnout among pathologists, pathology residents, and medical laboratory professionals (Garcia et al., 2020). The survey sought to gain basic data on stress, satisfaction, and burnout; determine factors influencing these constructs; and offer some recommendations for potential programs to promote well-being and prevent burnout (Garcia et al., 2020). The survey found that most respondents reported feeling stress, mainly due to workload, with the majority reporting feeling at least slightly overwhelmed by their workload and responsibilities, and the majority also reported feeling at least slightly anxious/worried about their work (Garcia et al., 2020). For pathologists in the study, 71.4% reported feeling burnout at some point in their career as a pathologist, with around a third currently experiencing burnout at the time of the survey (Garcia et al., 2020). Pathology residents reported nearly the same rates of burnout (Garcia et al., 2020). Among medical laboratory professionals, 85% reported burnout at some

point in their careers, and about half said it was a current issue (Garcia et al., 2020).

Smith et al. (2022) conducted a burnout-specific mixed methods study in which pathology professionals, including pathologists, pathologists' assistants, and laboratory professionals, completed the Mini Z Burnout Survey and were provided with open-ended questions in which they could clarify answers and provide additional descriptions. In surveys completed just prior to the emergence of the COVID-19 pandemic, a 58.4% burnout rate was identified, with markedly higher rates of burnout in laboratory professionals and pathologists' assistants than in pathologists. In a similar pre-pandemic mixed-methods study, Keith (2022) surveyed 427 Canadian pathologists, reporting a 57.6% burnout rate, noting the difference between that finding and the 44% baseline pre-pandemic burnout rate for American physicians across all specialties. Cohen et al. (2022) got a similar response, with 48% of the 1256 pathologist respondents reporting experience with burnout. For these pathologists, burnout was most commonly experienced at the beginning of their residency training and in their first three years of professional practice (Cohen et al., 2022).

As research interest in burnout has reemerged, the recent findings of these larger scale studies in many ways parallel early findings from Liller's 1987 work. Recent surveys also revealed key differences in the causes and manifestations of the burnout experience among different roles in the pathology laboratory. Current research trends reflect not only that burnout still exists in pathology professionals but also underscore the need for further research and effort to address burnout in this population.

Contributing Factors

Factors contributing to occupational stress and burnout in pathology professionals are varied. Garcia et al. (2020) found that 69% of respondents feeling high levels of job stress were

also experiencing burnout, with the highest levels of burnout in clinical pathology and lowest in anatomic pathology. The survey found that the top issues contributing to burnout were increased workload, inadequate support staff, lack of support, understanding, and respect from hospital administration, and feeling undervalued by the department and colleagues (Garcia et al., 2020).

Workload has emerged as a common issue for many pathology professionals. In the 2020 ASCP survey, more than half of the participants reported stress due to workload (Garcia et al., 2020). For pathologists in the Keith (2022) Canadian survey, workload issues were the number one stressor. Alrawahi et al. (2018) found that many laboratory professionals expressed unhappiness and heightened stress due to workload increases with no accompanying recruitment of additional staff. Chiou (2021) spoke to cytotechnologists who cited productivity expectations as their most common stressor, describing the pressure to complete an expected number of cases daily.

In a 2017 survey of medical laboratory scientists, those reporting high stress levels also reported stressors related to their physical work environment (i.e., safety concerns), high job demand, insufficient job control, job insecurity, and higher levels of interpersonal conflict with colleagues (So et al., 2017). So et al. (2017) found that laboratory professionals with lower degrees of autonomy, self-efficacy, and authority to influence the content of their jobs had the highest overall stress levels. As they often handle hazardous chemicals and biohazardous specimens, frustrations from potential safety issues are also a common cause of stress. Alrawahi et al. (2018) found that many laboratory professionals report an absence of a safety culture in their workplace, demonstrating that exposure to toxic chemicals and hazardous materials is a leading factor contributing to job dissatisfaction and stress in laboratories.

Ergonomic and physical stressors are also an issue for any pathology professionals. Pathologists and cytotechnologists spend long hours at a microscope, increasing their risk for vision issues and musculoskeletal pain (Chiou, 2021). Kadivar et al. (2021) investigated work-related hazards for pathologists in a cross-sectional survey, finding physical issues like musculoskeletal pain and visual disturbances to be prevalent conditions alongside depression and burnout. Cytotechnologists have also shown high rates of musculoskeletal disorders and related symptoms are a significant stressor in that population (Chiou, 2021). For pathologists' assistants, engaging in repetitive motion and the prolonged daily use of tools like scalpels and forceps could contribute to similar physical issues.

A contributor to the stress related to safety issues is inattention from management. Many laboratory professionals reported feeling frustrated and stressed due to management's failure to address safety issues and promote a culture of safety (Alrawahi et al., 2018). Many laboratory professionals also reported feeling demoralized by the lack of professional recognition from other healthcare professionals and the wider community (Alrawahi et al., 2018). Smith et al. (2022) heard from medical laboratory professionals and pathologists' assistants who described experiencing a lack of respect from other healthcare professionals and feeling demoralized, unsupported, and unappreciated. Alrawahi et al. (2018) added that a lack of appreciation, coupled with the potential hazards of the job, is often cited as a primary reason for professionals to leave their positions.

Poor work atmosphere and a lack of positive relationships with colleagues and leaders also contribute to stress for laboratory professionals. A negative work atmosphere and instances of interprofessional incivility and disrespect were key stressors for pathology professionals in the Smith et al. 2022 study. For Alrawahi et al. (2018), poor communication and a lack of perceived

respect were common themes, with many respondents reporting little to no direct contact with leaders, a lack of meetings, and broken or nonexistent relationships with managers. Alrawahi et al. (2018) suggest that one focus of potential stress reduction interventions should be improving relationships between laboratory professionals and their superiors, which could contribute to a greater sense of respect and appreciation and facilitate establishing a safety culture and better addressing safety concerns.

Pathologists' assistants hold a unique role as allied health providers with a responsibility level between the pathologist and the laboratory technician. In the 2022 Smith et al. burnout study, PAs listed loss of job satisfaction and negative work atmospheres as primary stressors contributing to their burnout symptoms. Smith et al. (2022) also acknowledged that stressors weigh differently across job roles in pathology, highlighting the need for more specific inquiries into particular roles.

Job Impacts and Outcomes

Liller (1987) called attention to the fact that laboratory professionals may not directly face patients but still perform procedures and make decisions that ultimately affect patient outcomes, acknowledging that the high stress levels she identified could lead to laboratory professional burnout. Liller (1987) added that burnout could impact the ability of a pathology professional to perform their duties properly, potentially resulting in adverse outcomes like delayed or inaccurate test results which could negatively impact patient care. Job instability and lack of job autonomy have been correlated with higher levels of workplace accidents, and many other stress factors, like interpersonal conflict and physical environment, are correlated to cognitive failure, which could indirectly lead to accidents and errors (So et al., 2017). Hernandez (2018) contended that burnout is an underrecognized cause of laboratory errors. As a laboratory

medical director, Hernandez recognized that burnout among other healthcare professionals likely drives a negative feedback loop that affects laboratory personnel (Hernandez, 2018). Hernandez (2018) added that while there is little direct evidence in the current literature, stress and burnout likely contribute to preanalytical errors like incorrect test ordering, patient identification errors, incorrect specimen handling, and mislabeled specimens; analytical errors like lost specimens, specimen mix-ups, and misread results; and post-analytical errors like lost results and increased turnaround time (delayed results).

Stress and burnout also drive job dissatisfaction, which for laboratory professionals has often led to increased turnover and staffing issues (Alrawahi et al., 2018). Pathologists and pathologists' assistants reported a loss of job satisfaction as a primary driving force of their burnout experiences (Smith et al., 2022). Collaborative work environments, where communication, teamwork, communication, and psychological safety are valued, are less likely to see employee burnout (Golab, 2021). Plebani (2009) added that communication and teamwork are also vital in preventing errors and promoting quality patient care in the laboratory.

The Stress and Burnout Experience

The findings revealed in the 2020 ASCP survey underscore the multifactorial, personal nature of stress and burnout and the importance of understanding individual experiences. In an editorial following the survey's publication, Kroft (2020) explains that the issue of medical professional stress and burnout "flew under the radar for many years," partly due to a cultural view that those in the medical professions should not be "whiny" or "weak," attributes commonly ascribed to those speaking out about stress and burnout (p.423). Kroft (2020) called the high prevalence of job stress and burnout in pathology professionals an enormous concern. Kroft pointed out that the 2020 ASCP surveys represent a starting point to further determine

contributing factors and outcomes of burnout and stress and identify the types of interventions that might successfully address them (Kroft, 2020). Additional studies in recent years have sought to add to the data on burnout in pathology professionals and have begun to uncover some of the root causes and factors associated with stress and burnout. Further inquiry using a qualitative approach can garner more specific information about how these causes and factors influence the personal stress and burnout experiences of different pathology professionals. Rich descriptions of these unique experiences may prove valuable not only in understanding these phenomena but in developing tailored, specific ways to mitigate these issues and their effects on this population.

Method

Study Design

The study was conducted using a basic interpretive approach, drawing on principles of phenomenology. The broader focus of qualitative research is to understand how individuals make sense of their lives and experiences. The basic interpretive approach seeks to uncover, explore, and interpret these meanings (Merriam, 2002). This qualitative study focused on an effort to gain a deeper understanding of the experiences of pathologists' assistants with occupational stress and burnout. The study focused on the individual experience and the personal meanings each participant ascribed to their situation. This focus fits well with the basic interpretive approach's interest in understanding how people interpret their experiences and how they attribute meaning to their experiences (Merriam, 2002). Potential participants were invited to complete a one-on-one, in-depth interview with the primary researcher. Data collection took place from March 2022 to June 2022. The study was approved by the University of Indianapolis Institutional Review Board in February 2022, prior to the recruitment of participants.

Participants

The study initially sought to recruit participants currently employed as pathology professionals, defined as individuals whose primary work is in the pathology laboratory setting, either as a physician (pathologist), physician trainee (pathology resident), advanced provider (pathologists' assistant), or in another medical laboratory profession. The only inclusion criterion for recruitment was adults currently in a primary role as full-time pathology professionals (as defined above). Any individual who met that inclusion criterion was eligible to participate. The only exclusion criteria were individuals who were non-English speaking or currently employed by the same organization as the primary researcher. The study sought a sample from the target group to provide diverse experiences and rich dialogue. The study included 12 participants, based on continual appraisal of the sample throughout the study to determine if the sample size was adequate for analysis. This appraisal incorporated the concept of information power, as described by Malterud et al. (2015), by assessing the sample's specificity and the quality of the interview data obtained through the lens of the study's aims.

Procedures

Sampling and Recruitment

The study utilized a purposeful sampling strategy, seeking individuals in the population of interest with diverse experiences. Purposeful sampling in qualitative research lends itself to the selection of information-rich cases, lending depth to the data acquired (Patton, 1990). A maximum variation strategy was employed to obtain the initial sample, seeking participants with multiple roles in the field. Maximum variation provides a small, diverse sample yielding high-quality, detailed descriptions that can reveal central themes and patterns in the population of interest (Patton, 1990). Initial recruitment began in March 2022, targeting multiple professional

organizations comprised of pathology professionals in various positions, such as pathology residents, pathologists, pathologists' assistants, cytotechnologists, and histotechnologists.

Potential participants were recruited primarily from social media outreach. The Facebook pages of professional organizations of pathology professionals, including The American Society for Clinical Pathology (ASCP), American Association of Pathologists' Assistants (AAPA), National Society for Histotechnology (NSH), and American Society for Cytotechnology (ASCT), were targeted for recruitment. The moderators of each page were contacted via Facebook message to obtain permission to post a recruitment advertisement on their Facebook page. Once permission was obtained, the primary researcher posted an infographic (Appendix A) with basic information about the study and its aims, including some brief background on the primary researcher, the topic of interest, methods, confidentiality, required time commitment, and how to reach out to express interest in participating. The infographic included the primary researcher's email, to which potential participants were asked to respond if they were interested in participating or had questions and wanted to learn more about the study. The post also included instructions encouraging individuals to share the recruitment infographic with any other pathology professionals they know who may have been interested to enable the potential for snowball sampling. Snowball sampling aids in accumulating information-rich cases (Patton, 1990) and, for this study, opened the door for potential participants who might not have otherwise been reached.

A disproportionate number of potential participants emerged from the pathologists' assistant (PA) group, representing a variety of work settings and years of experience. Difficulties were encountered in obtaining participants with other roles. Some potential participants expressed a lack of time to commit to an interview, and others said they would like to help but

did not feel they had much experience to share. After additional attempts to recruit non-PA participants, the potential merits of a study focusing solely on pathologists' assistants were discussed. It was determined that the sample could still provide diverse experiences and could provide beneficial insight into challenges in the profession. The population of interest was then shifted, and the study focused on the experiences of pathologists' assistants.

Potential participants emailed the primary researcher to express an interest in participating. They were then screened via email to ensure that they met the inclusion criteria and to answer any questions. Informational phone calls or web conferences with the primary researcher were available at the participant's request. Potential participants were provided with an IRB-approved informed consent form which included additional background information about the study, including a basic overview of the interview process, confidentiality information, and the study's aims. Once eligibility was confirmed, the potential participant was given an opportunity to review the study information and have any additional questions answered. Upon expressing a desire to move forward via email, an invitation to schedule a one-on-one interview via Zoom was extended to each participant, and interviews were scheduled at the participants' convenience.

Informed Consent

The study was submitted for review and approval by the University of Indianapolis Institutional Review Board and followed all ethics procedures required by the University of Indianapolis Human Research Protections Program. Informed consent was obtained from all participants. Specifically, an informed consent form containing key information for potential participants, including details about the purpose of the study, requirements of the participants during the study, potential risks/inconveniences, potential benefits, methods to protect

confidentiality, and researcher contact information was shared via email with each participant for their review. In the email, the primary researcher assured each participant that they would be available to answer any remaining questions and would set up appropriate calls or web conferences as needed. Once all questions were answered, and participants agreed to move forward, the primary researcher communicated to each participant that their verbal consent to participate in the study would be obtained prior to the start of their interview, then interviews were scheduled. At the start of each interview, the primary researcher asked each participant for any remaining questions, then obtained their verbal consent to participate in the study and for audio to be recorded.

Data Collection

The primary researcher conducted one-on-one interviews with each participant from March 2022 to June 2022. Interviews took place remotely via Zoom web conferencing and were scheduled at the participants' convenience. At the beginning of each interview, the researcher reviewed the study information sheet with the participant, allowed an opportunity for the participant to ask any remaining questions, and obtained verbal consent to participate in the study. Participants were reminded that their interview would be audio-recorded and that interview audio would be used only by the researchers and would not be shared or disseminated. Each participant provided their consent to be audio recorded. They were also reminded that they could decline to answer any question and terminate the interview at any time. A semi-structured interview guide (Appendix B) was utilized for each interview, focusing on open-ended questions to encourage participants to share as much of their stories and experiences as they wished.

The interview began with broad questions allowing each participant to speak about their experiences in the field of pathology, including their role, approach to their work, and successes

and challenges. As the interview progressed, questions became more focused, beginning with some general inquiry about job stress, then allowing each participant the opportunity to consider and voice their personal views on the concept of burnout. The focus then shifted to the participants' potential personal experiences with burnout. Interviews ran from approximately 35-90 minutes in length. At the end of each interview, participants were reminded that their personal information would be kept secure and that they could contact the primary researcher if they had any questions or concerns after the interview. The primary researcher memoed throughout the data collection process, documenting ideas about emerging patterns in the data and reflecting on personal views and experiences. Birks et al. (2008) pointed out that memoing can be useful throughout the research process from conceptualization to analysis, providing opportunities to clarify thinking on the topic and question, articulate assumptions and potential biases, and guide a study's development.

Data Management & Analysis

Data management and analysis procedures primarily followed the suggested steps for qualitative studies outlined by Creswell and Poth (2018). The qualitative analysis web-based application Dedoose (9.0.54) was utilized in the management and analysis of data. Dedoose is a secure platform that allows for collaboration among research team members, with the capability for file storage, coding, and memoing (Dedoose, n.d.). Data management involved organizing and storing files to promote data security. First, audio files of the interviews were saved to the primary researcher's password-protected computer, utilizing a standardized file naming system. Specifically, each audio file included the interview date and an assigned identification number for each participant to protect participant privacy. This consistency facilitated the accessibility of files later in the analysis process (Creswell & Poth, 2018). A spreadsheet was also created for

organizational purposes, including the participant ID, data collection date, audio run time, and additional pertinent information.

Audio recordings of the interviews were transcribed verbatim, utilizing Temi, a web-based audio-to-text software application. Transcripts were reviewed for accuracy by the primary researcher, and any identifying information was removed. The data analysis phase then began with an in-depth reading of the interview transcripts, allowing the primary researcher to become immersed in the data. This process was repeated several times, allowing for an initial exploration of the data as a whole before breaking down the information into smaller pertinent pieces. Marshall and Rossman (2011) explained that immersion in the data is a critical step, as reading and rereading through the data allows the researcher to become intimate with the material. Additional memoing took place throughout the process. The primary researcher took notes while reading the data, including summaries of the data, thoughts on emerging concepts and meanings, and recollections from the interview about non-verbal cues or other pertinent details. Creswell and Poth (2018) recommended prioritizing memoing throughout the analysis process, beginning with the initial reading of the data. As the process continues, memos are a valuable source for the researcher to track code and theme development. Memoing can also be a key component of bracketing, in which researchers set aside their own experiences as much as possible, contributing to establishing the trustworthiness of study data (Creswell & Poth, 2018).

Next, the primary researcher engaged in the process of coding the data. This process began with reviewing the transcripts, then identifying initial codes as concepts were mentioned. Specifically, transcripts were reviewed multiple times, and words, phrases, and statements that stood out in relation to the research questions were highlighted. Initial codes were then identified by assigning an associated label to highlighted segments within the Dedoose platform. Once

initial codes were named, they were listed and described; then, the list was reviewed. Codes were combined or separated as appropriate, allowing a full list of codes to take shape. A second coder with expertise in qualitative research methods then independently and separately coded one interview transcript selected by the primary researcher for its rich description and depth. The two coders then met via Zoom to discuss and compare codes, after which the primary researcher established a final list of codes. The finalized list of codes with descriptions provided the foundation for creating the codebook, which includes a list of final codes, a description of the code to include any inclusion/exclusion criteria, and examples of the code from the study data (Creswell & Poth, 2018).

The codebook was then reviewed to begin the classifying process, in which themes were developed. Creswell and Poth (2018) described classifying as taking the qualitative data apart piece by piece while looking for like categories, themes, or dimensions of information, usually resulting in five to seven general themes. Significant statements and codes were examined and grouped into larger units to form broader themes. As recommended by Creswell and Poth (2018), strategies employed in the classifying process included writing brief summaries of recurring and remarkable aspects of the data and creating visual representations of the data, similar to concept maps, depicting relationships between codes and aspects of the data. The second coder was also consulted at this point, ensuring that the themes accurately reflected their independent interpretation of the data.

Finally, interpretations were developed as the data was abstracted beyond the code and theme units to articulate the data's greater meaning (Creswell & Poth, 2018). This process drew on elements of the viewpoint of hermeneutic or interpretive phenomenology. Hermeneutic phenomenology goes beyond a knowledge of the core essence of a phenomenon and

acknowledges that humans are interpretive beings who find their own meaning in their lives and experiences (Wojnar & Swanson, 2007). The research questions were written to focus on understanding how the phenomena of occupational stress and burnout have been experienced by study participants, focusing on the unique personal significances and meanings the participants have seen in their experiences. While drawing on this view, the hermeneutic concept of incorporating the researcher's own understanding of the phenomenon was not utilized (Wojnar & Swanson, 2007); instead, the researcher continually focused on bracketing to promote neutrality.

The process of developing initial interpretations began with a review of the transcripts, codebook, and themes, followed by the documentation of preliminary ideas. The second coder was consulted for feedback on initial interpretations and to add any independent interpretations they may have gathered. Feedback using member checking was also incorporated. Specifically, participants were emailed in September 2022 and were asked to review the themes and preliminary analyses and provide honest feedback on how accurately the themes reflect their own experiences. Critical evaluation from participants is vital to establishing credibility and allows participants the opportunity to express how well the products of data analysis represent their experiences (Creswell & Poth, 2018). During these post-interview interactions with the participants, the primary researcher allowed participants opportunities to ask questions and provided information and resources on stress and burnout. Acknowledging that the experiences discussed in the interviews could be highly personal and emotional, the primary researcher provided a list of resources about stress management and burnout to the participants during this stage so that they could seek additional information as needed. Participants who responded to the member checking email expressed agreement with the themes and interpretations and stated that they saw their own experiences reflected in the analysis.

The feedback and initial ideas from participants were reviewed, and the primary researcher then wrote a description of the phenomenon and how it was experienced. As recommended by Creswell and Poth (2018), a "textural description" of what the participants shared was created in addition to a "structural description" of how the phenomena were experienced by the participants (p. 201). A composite description was then developed, incorporating the textural and structural descriptions as they came together to form interpretations of the broader meanings of the participants' experiences.

Rigor/Trustworthiness

The conventional standards for demonstrating rigor in quantitative research have proven difficult to properly apply to qualitative methods. Thus, qualitative rigor has been the subject of criticism and debate over the years (Ryan-Nicholls & Will, 2009). Guba's 1981 Model of Trustworthiness of Qualitative Research translates concepts of rigor from the quantitative paradigm into criteria that apply to qualitative methodologies. The first concept, credibility, is similar to quantitative internal validity, reflecting how the results accurately represent the stories shared by study participants (Henderson & Rheault, 2004). As part of the strategy to ensure credibility, the primary researcher engaged in reflexive analysis throughout the research process. The specific strategies of memoing and journaling were utilized. Extensive work was put into bracketing, ensuring that time was taken to reflect on personal experiences, beliefs, and potential biases, and a thoughtful effort was taken to set them aside. In addition, member checking during data analysis, allowing participants to ensure that the data accurately reflects what they desired to express in the interview, also added to credibility.

Transferability is similar to the quantitative concept of external validity, supporting the ability to generalize study results, which for a qualitative study could be described as the

potential for the study's results to reasonably be applied to a similar group of individuals experiencing the same phenomenon in a similar context (Henderson & Rheault, 2004). To contribute to establishing transferability, clear explanations of the methods employed to include an audit trail and detailed descriptions of the sample, contextual information, and boundaries of the study, are provided. Dependability, much like quantitative reliability, refers to the consistency of the results (Henderson & Rheault, 2004). To increase the study's dependability, a second coder independently worked with the raw data, and the methods used in the study were clearly delineated. The element of confirmability, analogous to quantitative objectivity, is critical for a qualitative study, evaluating for neutrality and the reduction of research bias (Henderson & Rheault, 2004). Continual engagement in reflexivity throughout the processes of data collection, analysis, and presentation was key to establishing confirmability. The primary researcher was sure to remain aware of personal experiences, views, and potential biases throughout the process and continually made an effort to maintain neutrality and objectivity.

Results

Twelve participants were interviewed for this study. Each participant was a practicing pathologists' assistant (PA) with years of experience ranging from 1 year to 26 years, with a mean of 7.83 years (±6.52). The participants were evenly mixed with respect to two additional demographic elements: working as a solo PA vs. in a PA team and working in an academic vs. private setting. Ten of the twelve participants shared that they experienced burnout at some point in their PA career.

Four major themes emerged in relation to the research questions: how do pathologists' assistants experience and manage occupational stress, and how do pathologists' assistants perceive and define professional burnout? Themes relating to the first research question

regarding occupational stress were: workload, physical demands, interpersonal issues, and lack of respect/understanding. The four additional major themes that arose regarding the second research question about burnout were: physical impacts, emotional and interpersonal impacts, potential patient care impacts, and addressing burnout. Themes are illustrated in Figure 1. These themes and associated subthemes create a detailed picture of the experiences and perceptions of pathologists' assistants regarding occupational stress and burnout.

Occupational Stress

Workload

A common stressor among all participants was workload and issues that arose in relation to workload. Like in other healthcare fields, chronic understaffing was a common issue, and among participants this occurred in both academic and private settings, and for solo PAs as well as PAs working with a team. For many participants, understaffing led to the expectation to work long hours with multiple demands on their time. Most participants were salaried employees, with no overtime compensation, and yet many consistently worked more than 8 hours a day to keep up with workload demands. P10 expressed that in one job, "it was just kind of expected that you're there like overtime every day" and, "they would just expect you to give up your lunch, to not take vacation, to stay late and be grateful for the opportunity." With understaffing came increased demands, and as P9 stated, "I was never, ever caught up because they [my employer] just kept putting more and more things on my plate." Participants described feeling overwhelmed with the number of tasks they were asked to take on, with many facing the challenge of balancing work on the laboratory bench with other responsibilities. P12 described, "with the understaffing…I'm grossing more than full time and then getting behind on QA reports and other things, and it's stressful, just trying to keep on top of everything." P4 added the insight that

> we have a position that's unique and it's great that people need us because of our knowledge and what we can do, but we're being pulled in a lot of different directions and that can just get exhausting and can be too much.

Physical Demands

Many participants expressed feeling stress caused by the physical demands of the job. Among participants, this stress was experienced at equal levels among solo and team PAs and among academic setting PAs and PAs working in private groups. The physical demands of the job also took a toll on participants across the range of years of experience. P10 described that, "in this job… you have amazing skill, but it is so hard on your body… it just tears up your hands and your wrists and your neck and your legs and it just kills your body." The main duty of the pathologists' assistant is grossing, a colloquial term used to describe the gross examination and dissection of surgical specimens. This can be performed from standing or seated positions, and many participants expressed that they prefer to work while standing. Looking down at delicate tissues and tasks from a standing position can result in being "hunched over for hours on end" as described by P9. For P3, even with an adjustable height workstation, there was a struggle to find the right position:

> the less I have to bend my neck the better, so I'll lift the station and then my shoulders will hurt… so the next day I'll bring it down, and it'll be more pressure on my neck than my shoulders… I alternate because I know it's gonna be one or the other.

Chronic back pain and neck pain were common among nearly all participants, with some also experiencing hand and wrist issues caused by repetitive motion and tool use. P3 also added that "it got to the point where I started having carpal tunnel issues because of just the physical strain of gripping those forceps all day and holding that scalpel handle." Several participants

voiced that stress was exacerbated by the fact that wrist or hand injuries could leave them unable to work. For P5, "it was scary to think that one injury could actually end my career." Both P9 and P10 shared insight that in many other physically demanding medical professions, like surgery or massage therapy, practitioners don't usually work on patients every day, much less for eight hours a day, five days a week. P9 went so far as to add, "…this job is really physical and I don't think it's realistic for some people to gross all day every day."

Another aspect of the physical demands of the job is the chemical exposure PAs experience in the laboratory. PAs work with and around toxic, carcinogenic chemicals like formalin and xylene, which can both cause acute and chronic health effects such as headache, dizziness, nausea, and irritation of the eyes, skin, nose, and throat (Dimenstein, 2009; Kandyala et al., 2010). P10 said, "I do stress about my exposure to chemicals" but was an outlier among participants in that "all the labs I've been in have been pretty good about addressing any problems."

Many participants experienced situations in which abnormal chemical exposure was occurring, and management was unresponsive in addressing the issue. For P3, it was a manager who did not believe there was a problem: "I got my monitoring badge back and it was two and half times the allowable limit, and she tried to say, well it was probably contamination." P11's concerns were also dismissed by management: "I complained about it so much. My eyes are burning, my nose is burning, my throat's burning, and they were just like oh yeah, sure, we'll get it [the air vent] cleaned or something…" For many others, they found their department to be low on their hospital's priority list. P2 described a time when the air filtration system in the lab went down: "we were all smelling xylene, and other chemicals, and we really struggled to get people to listen to us. We had headaches, people who had to leave for fresh air because they were

getting lightheaded and winded." Some participants theorized that hospital responsiveness might have been lacking because the pathology lab is not a patient-facing area. As P10 put it: "It just seems to me that in general, because pathology is behind the scenes, it's always at the bottom of the list for hospitals."

Interpersonal Issues

Another common source of stress among most participants was problematic interpersonal relationships in the laboratory. This stressor was seen equally among solo and team PA participants, participants in academic and private settings, and for participants across the spectrum of years of experience. P12 described it in general terms: "Some of our histology staff is really uptight, and we get some surgeons that are really demanding… and just trying to people please everyone… rather than just let me sit here and gross and do my job, it's stressful." Many participants expressed that instead of providing support in a demanding environment, managers were often a cause of stress. Some participants reported being micromanaged, often by managers who did not fully understand the specifics or demands of a PA job. P11 described having production and speed constantly tracked by a supervisor, and P2 had a non-PA supervisor who was "criticizing my ability to do my job…when he wasn't trained to do this job."

Others described stressful situations caused by absent or indifferent management. P8 said, "I feel like our lab director is more focused on the clinical lab, doesn't care so much about histology, cytology, pathology. So that's kind of something that we're struggling with…" For P3 and P6, direct managers worked offsite and were not often present in the lab. P6 explained that "it's frustrating if there is an issue I feel like I need to bring up, they're hundreds of miles away and they don't really understand what's going on in our lab setting at the moment." P3 added about one manager: "she has said before, if you don't see me or hear from me, then everything is

good." Feeling like a low priority to management was dispiriting for many participants. Some felt that their voices were not valued, and many experienced heightened stress in interactions with managers, especially when they had issues to bring issues to management's attention.

Lack of Respect/Understanding

Nearly all participants expressed stress caused by feeling a lack of respect for their role and contributions at their workplace, with many also voicing a lack of understanding about what their job entails as a major stressor. This appeared to be more common among participants with 5 or more years of experience and was reported equally among solo and team participants and participants in academic and private settings. For many participants, stressful job experiences led to a shift in how they viewed their roles in their workplaces and the healthcare system as a whole. P10 described losing hope in being able to affect change in their workplace: "I always had the idea that when you just stick with something and do your best, it'll work out, but I learned that in medicine, and the laboratory especially, we are expendable, we are replaceable, we are faceless." P9 described a similar realization: "I kind of had this idea that I was valued, and they did care about me, but I realized, you're disposable… it was so, so disheartening." P2 expressed coming to the awareness that "you put forth all of this energy and you are dedicated and hardworking and want to do the best you can, but you are not valued at all… if something happens, you will be replaced tomorrow." For many participants, this augmented pre-existing stress, as they began to feel impacts from their efforts at work going unrecognized.

Stress caused by the unique situation of working in a small field that is not well known to the public or even to the greater medical community was also a common theme that came up among participants. P3 said, "I think the biggest challenge is our profession not being respected or recognized…," and P8 added that there is a "…lack of support and appreciation that I feel like

weighs pretty heavily on our profession." P10 acknowledged that "not only are we a forgotten profession because we're just so small… people don't know what we do, but then it's compounded by being in this faceless department the [medical] people don't care about also." P9 added that "I do feel like there's this piece of me that is frequently stressed by like not being recognized and people not … really understanding my experience." Some participants felt that this added to their stress, since few people, including other medical professionals could relate to the high stakes and demands of their job.

Burnout

Out of the 12 participants in the study, 10 expressed having felt burnout at some point in their PA career. Burnout was seen equally among participants working as solo PAs and on teams, in academic and private settings, and across the range of years of experience. In each interview, the participant was asked to describe what burnout looked like to them, in their own words, aside from current official definitions. P3 mentioned "physical exhaustion, mental exhaustion…" and "the inability to focus and stay focused at the level that is safest for the patient" in addition to "the inability to balance between work and family." P10 described feeling "overwhelmed" and "losing motivation," and P4 added "the feeling like there's just too much, I just can't keep up…" These sentiments were echoed in the experiences of most other participants.

Physical Impacts

Every participant who expressed experiencing burnout described some sort of physical impact, ranging from general exhaustion to issues requiring medical attention. Back pain, neck pain, and physical tension were described as chronic issues that arose for participants in stressful times at work. When experiencing burnout, these conditions were exacerbated for many

participants. P12 developed Achilles tendonitis and was prescribed physical therapy, while P9 also underwent physical therapy for work-related chronic neck pain. On the more severe end of the spectrum, one participant experienced the emergence of an autoimmune condition that greatly disrupted their life both at work and outside of work, describing that, "I was so stressed out that I was getting really, really sick… and flare-ups were happening like once a month because I was just so stressed." Another participant shared a significant medical experience related to their work stress:

> I thought I was having a heart attack at work. I went to the ER and everything because I was so stressed out… I was short of breath, my heart was racing, I had chest pains, and of course it was just stress, just physically manifesting like that.

Multiple participants also described sleep disruptions, with P5 describing "weeks and months of irregular sleep [and] having dreams about work…" P2 added that "I was not sleeping well at all, and then at work of course, I was tired." Other participants described physical exhaustion so severe, that all they could do was sleep. Both P11 and P12 described an endless cycle of long workdays from which they'd come home extremely exhausted. For P11:

> I'd go to work for 12 hours [for a scheduled 8-hour shift] and then I would go home, shower, and fall asleep immediately, then by the time I woke up, it was like time to go to work again. I was so tired every day.

P12 recalled exhaustion getting in the way of plans outside of work: "I would bail [on friends] a lot more often because I'd just want some time to myself, like I'd just like to lay in bed until… well until the next time I have to go to work!" P9 summarized: "I think the physical stuff isn't really in the conversation about burnout, but I think it really contributed to my case a lot. We need to talk more about what we can reasonably physically do."

Emotional and Interpersonal Impacts

In addition to the impact of physical exhaustion, for many participants, burnout manifested itself in emotional, mental, and interpersonal concerns. P11 recalled: "I've never been like, depressed in my life, but during those months, I felt like I was headed in that direction… I isolated myself and just wanted to lay in my bed." P10 echoed a feeling of losing motivation: "I'm overwhelmed and exhausted to a point where I've been going so fast and so hard for so long that all I want to do is lay down and do nothing." For P6, it got to the point where "you don't even want to get up and go to work anymore, and it's like, you love what you do, but you've just had enough." P12 recalled: "it definitely altered my mindset, changed how I felt about work… it was the first time that I just didn't want to go in, didn't want to do it, didn't have good things to say about it."

Multiple participants described their burnout having an impact on friends and family. P4 and P5 both described their burnout symptoms creeping into interactions with partners at home, with conversations about work stress becoming a distraction. P7 recalled: "little things would set me off at home, after I'd be at work all day in this stressful environment…" and family members even expressed that they'd witnessed a change in P7's overall demeanor during the burnout period. Maintaining a work/life balance was also a concern for many participants during burnout experiences. P6 and P3 both described the difficulty of balancing parenting with their jobs. For P6, working long hours took a toll: "with the amount of work we do at work, then trying to get off at a decent time to be able to go spend a few hours with my child in day, was just hard." P3 described a similar feeling: "By the time I would come home, I would just be so exhausted that I could not give my son the attention he deserved because I just mentally could not…"

Potential Patient Care Impacts

Nearly every participant who experienced burnout expressed a concern for the potential impacts that burnout may have on the quality of patient care they delivered. This was reported across the board, with each participant voicing an awareness of the focus and precision required to perform the job of a PA, noting that accurate measurements, thorough examinations, and precise dissection have a direct impact on a patient's treatment course. P12 acknowledged that "you can't do your best if you're overworked and exhausted," and knew that minor mistakes happened during a burnout period, expressing a fear that, at that time, mistakes could have escalated to interfere with patient care. P3 admitted that "I'm sure it did affect the quality of my work, never purposely cutting corners but… if you're tired and stressed and overwhelmed, even the best PA can still not take the perfect section like they normally would… at the end of the day, we're human." P5 summarized: "When you're stressed, something is interfering with your focus, so even if you think you're being focused and meticulous, the stress is distracting you, and I think that's a dangerous situation."

Addressing Burnout

Aside from the impacts, a portion of the discussion with each participant included conversations about how they have personally addressed burnout, and how they would advise other pathologists' assistants who are experiencing burnout. Building self-awareness, learning to set boundaries, and making the decision to leave the job were common elements that arose from this portion of the discussion.

Many participants who had been in the field for five or more years described a process in which they grew in self-awareness and the ability to set boundaries and advocate for themselves. P12 described initially being afraid to speak with management about workload issues, adding

that "my improvements were through the communication," advising others "don't just put your head down and think you have to get it all done and that's how it is, talk to your management and let them know there is a problem…" P3 acknowledged that "it comes with time, with knowing yourself, the ability to stand your ground and say it [that something is a problem]." P2 also mentioned that "as I get older and interact with more people, I see that you don't always listen to those tiny cues you're getting…" and "you really need to just listen to your inner, personal self." P9 described growth after coming through a burnout experience: "I'm more in tune to my reactions and my inner dialogue… like the way I talk to myself and the expectations I put on myself and I'm better at setting boundaries…." For P4, stress and burnout experiences allowed for the self-awareness to know when a burnout state was approaching: "I call it toasty. It's like, I'm just feeling toasty, not quite burned out but I can see it happening in the future."

Learning how to set boundaries with the job to manage stress and burnout was also a common topic among participants. P2 recommended that "if something doesn't seem right, if your body is getting to the point of over exhaustion, listen to your body and know that it's okay to set boundaries." P12 pointed out the national "work culture" that praises overwork and excessive commitment to one's job and affirmed that "we have to start putting our foot down and saying this is all I can do and I can't do anymore." P10 added, "I would suggest not being idealistic, I would say be realistic and protect yourself, don't push as hard as I did…" P11 also advised setting boundaries but acknowledged that it would depend on the workplace's responsiveness: "If you could set more boundaries with your time, you could negotiate that, but I knew the place I was working, it was not going to be like that."

For many in similar positions to that described above by P11, with a workplace not responsive to attempts to set boundaries and take feedback about mitigating stress, the only

option to address the burnout situation was to leave the job. P3 recalled making that choice and knowing that it was for their own personal health, on a physical, mental, and emotional level. P12 echoed that sentiment: "You've got to do what's best for you- if you have to start looking for another job, then that's what you have to do." P9 acknowledged that, "it is scary to start over... but just go for it before it's too late and you're so broken that you take all your baggage with you to the next job." P7 added, "I'd say don't feel stuck… if you have the ability to make the change to new circumstances, you owe it to yourself to do it…" concluding with "life is too short to feel that miserable and burned out and injured, it's just no way to live." Most of the participants who chose to address burnout by leaving their job had at least three years of experience in the field and left academic and private jobs as well as solo and team jobs at equal rates.

Among the participants, many consistent themes and topics arose in relation to occupational stress and burnout, and common issues were identified. Many participants experienced stress due to long hours and heavy workloads in a job that requires precision and focused attention. The physical demands of the job weighed heavily as stressors for many, and most participants voiced a general sense that the expectations in their jobs did not match up with the regard and/or respect they receive. Burnout experiences for participants also revealed common impacts, from physical to interpersonal, and concerns for one's own health and patient safety. Each participant took the time to share thoughtful advice and recommendations that can be used to improve their own future experiences and the future experiences of other PAs. The themes that arose in the process of reviewing and coding the interviews illuminate the complex stress and burnout experiences of working pathologists' assistants.

Discussion

This study set out to explore the occupational stress and burnout experiences of pathologists' assistants (PAs) and investigate their perceptions of the factors contributing to these experiences. Participants shared their unique duties and responsibilities, highlighting the stress and burnout factors specific to their experiences. Ten of the twelve participants in the sample shared that they had personally felt burnout at some point in their professional careers. Participants shared their accounts and through their descriptions, provided insight into some key factors contributing to occupational stress in this population. Participants shared some personal stress relief strategies and discussed their perceptions of employer-led stress management programming. The study was also able to identify some of the impacts of and concerns surrounding the issue of burnout in PAs.

Occupational Stress

The key themes that emerged concerning occupational stress were workload, physical demands, interpersonal issues, and lack of respect/understanding. While workload and interpersonal issues are common stressors across professions, participants voiced unique concerns about particular physical demands of the PA's job and the difficulties of working in a little-known field.

Among healthcare professionals, workload is a common stressor. Dillon et al. (2019) found that increasing workloads and a culture in medicine focusing on productivity are key stressors contributing to physician burnout. In nursing, work-related stress associated with workload demands, frequently caused by staffing shortages, has significantly impacted burnout (Akkoc et al., 2021). In the ASCP survey of pathologists, 67% of respondents reported job stress due to workload, and 86% reported feeling overwhelmed to some degree by their workload (Garcia et al., 2020). Smith et al. (2022) discovered that a major contributor to stress in medical

laboratory professionals was increasing work hours due to chronic understaffing. PA participants in this study echoed experiencing this issue, as workload stress often resulted from understaffing in the laboratory. Many participants also expressed that the need for more staff was not adequately addressed by their organizations, similar to frustrations expressed by many in nursing (Akkoc et al., 2021). Some participants also pointed out that the job of a PA is unique in that they are trained to perform many tasks and can serve in many potential roles in a laboratory. These circumstances can result in PAs being spread too thin as overwhelming demands and responsibilities build, increasing stress and potential burnout.

A key stressor for PAs in this study was the unique physical element of the work. PAs perform most of their work on the laboratory bench, which can cause problems with basic ergonomics and positioning. In addition, the work is detailed and involves the near-constant use of small, handheld tools like scalpel handles and forceps, which brings its own set of potential overuse injuries and chronic problems. Participants reported neck, back, wrist, hand, and foot issues to varying degrees and described the struggle to mitigate these issues while continuing to work. Many other healthcare professions also have significant physical demands. In a 2021 survey, 97% of nurses reported some work-related pain in the past 12 months (Krishnan et al., 2021). PAs face unique challenges due to continual, repetitive motion and tool use. Surgery involves repetitive, ergonomically challenging physical work with tissue manipulation analogous to that of PAs. Laparoscopic surgery is associated with increased shoulder and neck pain and injury rates in surgeons (Steinhilber et al., 2014). Like in PAs, posture and task-related causes have been noted, with similar motions when switching views from a computer monitor to the specimen/patient and comparable "prolonged elevated arm postures" leading to biomechanical stress and muscle strain in the shoulder-neck region (Steinhilber et al., 2014, p. 2852). Surgery is

generally associated with an increased risk of work-related musculoskeletal symptoms, frequently caused by sustained awkward postures (Szeto et al., 2009). Some recommendations for surgeons that could also prove useful for PAs include ergonomically reviewed monitor placement, ergonomically designed tools, and ergonomic workspace assessment (Kranenburg & Gossot, 2004).

Interpersonal issues are a common workplace stressor. Workplace relationships have been known to influence job satisfaction and morale (Roeder et al., 2020). For PAs in this study, relationships with supervisors were more common stressors than relationships with coworkers. Two extremes were noted, with managers either causing increased stress via micromanagement or by being absent and indifferent to employee needs. Gilbreath and Benson (2004) found that supervisor behavior significantly impacts employees' psychological well-being. A micromanaging supervisor can contribute to low employee morale, high rates of staff turnover, and loss of productivity, and these types of supervisors have been named as one of the top three reasons employees leave a job (Collins & Collins, 2002). Several participants in this study cited their supervisor as the leading cause for their stress and dissatisfaction in a particular workplace, and some indicated that it was their reason for resigning. On the other end of the spectrum, several participants described managers who engaged in a laissez-faire style of leadership, an extremely passive approach in which managers intervene only to correct negative actions and are otherwise largely absent (Silva & Mendis, 2017). Skogstad et al. (2007) found that laissez-faire managers can contribute to frustration and stress among employees and can even lead to increased interpersonal conflict between employees. Several participants in this study expressed frustration associated with having inaccessible managers. Many experienced stress caused by

their manager's lack of effort and support, having to make their own extra efforts just to be seen and heard.

Participants discussed feeling a lack of respect and understanding of their role and the field of pathology in general. Pathology is generally lesser known than other medical specialties, likely due in part to the fact that patients rarely visit a pathologist in person. With little exposure to the behind-the-scenes world of a pathology laboratory, there is little awareness of the roles of the professionals in the lab. Smith et al. (2022) described a lack of "pathology fluency" among the general public and even other healthcare professionals, acknowledging that clinical providers may lose sight of the value of the work performed by pathology professionals (p. 8). For participants in this study, many stressors and frustrations were linked to feeling undervalued and under respected by their hospitals/organizations. Several participants felt that their contributions to patient care were unnoticed and unappreciated by other medical professionals in their organizations. While issues with leadership and organizational culture often contributed to this experience, many participants also felt that there was a connection to the lack of understanding and awareness of the field.

In the public realm, efforts to bridge the gap between patients and pathologists have grown recently. The College of American Pathologists (CAP) has published steps for starting a patient-pathologist consultation program, acknowledging the benefit of direct interaction for the patient to understand their diagnosis and the importance of the pathologist on the patient care team (Green, 2019). Booth (2019) affirmed the importance of educating patients and their families directly and adds that social media initiatives have increased the visibility of pathology. For PAs, direct patient interaction is less feasible, as privacy and safety concerns in the laboratory environment preclude patient visits to the lab. Like pathologist-centered initiatives,

education and advocacy to build awareness of the PA profession are growing. The American Association of Pathologists' Assistants (AAPA) has an active marketing and communications committee devoted to advocacy and promotion of the profession. One participant in this study shared an experience in which they provided their organization with an informational profile to be featured on the company intranet, highlighting their unique role in the healthcare system. These efforts to build public awareness of pathology's role in patient care could help PAs get more visibility and might serve to alleviate some of the stress participants associated with the lack of understanding. Participants expressed that if they had some relief from the burden of explaining the importance of their work, they might have better responsiveness from their organizations regarding facility and safety issues and be treated with more respect and given more autonomy by management.

Burnout

Burnout related themes were physical impacts, emotional and interpersonal impacts, potential patient care impacts, and addressing burnout. Participants described their own experiences with burnout and shared their thoughts on how to address burnout on an individual and organizational level.

Of Maslach's three dimensions of burnout, exhaustion is the most predictive of stress-related health issues (Maslach & Leiter, 2016). Exhaustion has been correlated to physical stress symptoms like headaches, chronic fatigue, muscle tension, hypertension, and sleep disturbances (Maslach & Leiter, 2016). The burnout experiences of participants in this study all included some physical impact, with most expressing issues with fatigue, muscle pain, and general physical tension. Sleep disruptions were also common among participants, with many experiencing severe exhaustion and an inability to get adequate rest. Some participants described

a frustrating cycle in which they would come home exhausted from a long day at work, then have disrupted sleep, which only made them more overtired at work the next day. Bailey (2006) explains that persistent burnout can lead to vicious cycles in which physiological effects feed back into the brain and body, adding to exhaustion and malaise.

Participants in this study also described significant emotional and interpersonal impacts felt during their burnout experiences. Bianchi et al. (2018) described emotional exhaustion related to burnout as a combination of depressive responses, with symptoms like irritability, disengagement, and loss of emotional involvement. Several participants expressed feeling what they thought were close to, if not actual, symptoms of depression, such as self-isolation, a loss of interest in work, and a loss of motivation. Many participants also described becoming more irritable with family and friends, adding that it was challenging to balance their burnout symptoms with maintaining their roles as partners, friends, and parents. Maslach and Leiter (2016) affirm that fewer positive social encounters at and outside of work can feed burnout, with a marked influence on the burnout dimensions of exhaustion, cynicism, and inefficacy.

A chief concern for participants who experienced burnout was its potential impact on the patient care they provided. Burnout is associated with an increased risk of major medical errors and poorer overall quality of medical care (Yates, 2020). Hernandez (2018) expressed the belief that burnout is an underrecognized cause of errors in laboratory medicine. PA participants in this study described fears that workload and employer expectations for productivity could push them into a state where errors became more likely. All participants discussed a strong understanding of the significance of their work, noting the weight of knowing that if they were to miss something in a specimen, it could lead to an adverse impact on the patient. The struggle between wanting to provide accurate, thorough patient care and having to meet demands was a common stressor

among all participants and a contributor to burnout for participants who had the experience. Participants' concerns are supported by known biological effects of stress and burnout on the body. Koutsimani (2021) described some of the long-term negative impacts of chronic stress and burnout on the brain, including the destruction of neurons and decreased blood oxygenation. Manifestations of these physiological effects have been observed, with individuals in a burnout state performing poorer than others on cognitive tasks requiring attention and visual/spatial processing and lowered performance in working memory, learning, and episodic memory (Koutsimani, 2021).

Participants also shared thoughts and experiences surrounding the topic of addressing burnout. A common stress reducer for participants was spending time with the support systems of friends and family. Several participants also described the benefit of having close relationships with work friends who could relate to their stressors. Positive social relationships have a significant impact on mitigating the effects of burnout, and studies have shown the stress-reducing advantages of having friends at work (Maslach & Leiter, 2016). A possible strategy to help mitigate stress and burnout for PAs could be a mentorship program, in which employees are paired with a mentor and positive social interactions are fostered. Jordan et al. (2019) saw that a mentorship program for medical students decreased stress and led to an increased sense of personal accomplishment.

Many participants expressed a better ability to manage their stress when working for an organization that allowed or even encouraged flexible scheduling, taking breaks as needed, and a general sense of autonomy. Participants described feeling more respected, having more focus, and feeling less pressure when working for these more flexible organizations. Smith et al. (2022) learned that lack of control and loss of autonomy at work are major drivers of job stress for

medical laboratory professionals. Several participants expressed these frustrations, particularly due to a lack of control over decisions that impact their work life and environment. PAs may benefit from knowledge about strategies to assert some control over their situations to aid in alleviating some of the impacts of this frustration and stress. van Dorssen-Boog et al. (2021) proposed that healthcare professionals' workplace stress management interventions should focus not simply on reducing stress but also on increasing self-leadership. Self-leadership hinges on the belief that people are active agents of their own well-being, performance, and intrinsic motivation, not simply products of their environment and traits (van Dorssen-Boog et al., 2021). Self-leadership positively contributes to engagement and performance at work, and the increased self-efficacy associated with self-leadership has been shown to increase resiliency to work-related stress and reduce the overall experience of stress (van Dorssen-Boog et al., 2021). Training on self-leadership similar to the intervention utilized by van Dorssen-Boog et al. (2021) to include proactive problem-solving strategies, self-awareness, goal-setting, and constructive thought patterns could be a valuable intervention to build a stress management toolkit in PAs. Self-advocacy on the community level could also be beneficial, with the PA community working to encourage self-leadership, advocate for employee needs and express how meeting these needs is vital to long-term employee retention.

Most participants were unaware of any formal stress-management programming at their organization. Of these participants, all expressed that they would be interested in taking advantage of some type of employer-led programming. Of the participants who worked for organizations with stress management programs, only one was able to participate. Participants voiced that many classes took place during work hours and in inconvenient locations, and with the workload in the lab, they could never get away. One participant shared that their organization

offered online yoga sessions that employees did in their offices and laughed at how unfeasible that would be in the lab. Making stress management available and easily accessible can enhance the benefits of such programming. Bostock et al. (2019) found that using a mindfulness meditation program delivered via a smartphone app led to significant improvements in well-being, stress levels, and perceptions of social support at work. Employers can improve their offerings by increasing accessibility to employees in all roles. More recorded sessions or asynchronous programming that employees can pull up on their own and varied timing for employees on different shifts could go a long way. Also, adding access to services that employees can schedule at their convenience, like massage, yoga classes, and meditation sessions, could considerably improve accessibility.

Beyond employer-led programming, participants expressed an interest in exploring self-directed stress-management strategies. Bailey (2006) asserted that the complicated nature of burnout demands multidisciplinary interventions addressing various factors via multiple methods. The American Medical Association has built an interactive multimedia collection of resources on physician and trainee stress and burnout (AMA, n.d.). As part of their Steps Forward initiative, the burnout "toolkits and playbooks" provide open access to webinars, podcasts, articles, and additional tools and resources to assist physicians in managing stress and creating and fostering a wellness culture in their organizations (AMA, n.d.). Many of the resources are structured modules with quizzes that can be applied for continuing medical education credit, with additional practical resources to guide physicians toward better stress management and burnout prevention. Similar programming specific to PAs could be valuable, such as a free online resource hub with a blend of content created specifically for PAs and content curated from additional sources. Toolkits could include PA-specific yoga poses and

stretches to mitigate known physical issues from the job, guides for speaking to management about employee needs, and links to webinars and articles that could be consumed on demand. The hub could incorporate input from PAs and include additional tools and resources to guide individuals to more formal help if needed.

Study Limitations

There are several limitations to this study. Selection bias may have occurred, as those who volunteered for the study might have been attracted to doing so because they had significant personal stress and burnout experiences. Their experiences might not necessarily reflect those of the average PA.

The researcher is a practicing pathologists' assistant, which introduces the potential for researcher bias. The researcher took steps to mitigate this potential bias at each stage of the study, employing tools like reflective journaling, writing memos, and discussing potential biases with fellow researchers. Another strategy to mitigate potential bias was using an independent coder during data analysis. The researcher also took care to make current coworkers ineligible to participate in the study, eliminating possible biases that might arise from that common ground.

Implications for Further Research

This study draws further attention to the issues of occupational stress and burnout and how they are experienced by pathologists' assistants, professionals in a lesser-known field in healthcare. The 2020 ASCP survey and the 2022 Smith et al. mixed methods survey began to paint a picture of the prevalence of burnout and gather information on major factors contributing to occupational stress in the greater pathology community (Garcia et al., 2020). Keith (2022) also utilized a quantitative approach to assess burnout in the specific population of Canadian pathologists. A quantitative, survey-based study utilizing the Maslach Burnout Inventory and

focusing solely on pathologists' assistants would be a natural next step to this research. More detailed patterns might emerge in this format, possibly illuminating more stressors that can be addressed and possibly illustrating demographic patterns. Additional data could also be valuable for workforce-related decisions that could benefit PAs. Many participants cited work volume as a major stressor, and several voiced difficulties in obtaining and maintaining adequate staffing levels. Keith pointed out that many of these decisions in healthcare are driven by metrics and evidence and expressed a hope that data from additional studies could be helpful for those advocating for additional positions (Newitt, 2022).

Additional studies of occupational stress and burnout in PAs could focus on particular subpopulations, such as a study in which veteran and retired PAs share their experiences and a study considering the perspectives of PAs new to the field. This type of study could help identify if there are issues that are universal across the career span and could add to the understanding of effective stress management strategies for PAs. Also, it could give some insight into how graduate programs are working to prepare students for their PA careers, potentially identifying areas for improvement.

Studies focusing on some of the particular stressors identified by participants in this research could also prove beneficial. Quantitative data on staffing and workflow concerns specific to PAs could be valuable self-advocacy tools for PAs navigating understaffing or recruitment issues. Additional exploration of the physical impacts of the job could also be a useful direction for future study. A study specifically focused on work-related physical conditions in PAs could yield information on the most common injuries by anatomic distribution, pinpointing specific prevention and mitigation techniques.

Conclusion

Occupational stress and burnout are timely and significant issues for the global workforce and are particularly pronounced for healthcare professionals. This study explored the experiences of occupational stress and burnout in pathologists' assistants, a small field of highly trained allied health professionals working behind the scenes in medicine. Stressors experienced by participants, like workload and interpersonal issues, showed some commonality with those expressed in other healthcare professions. This study reveals some stressors more specific to the profession, like the unique physical demands of the work and a lack of understanding of the pathology field. The study also identified the impacts and concerns for pathologists' assistants experiencing burnout and provided insight into ways stress management programming could be better tailored to this population. Ultimately, a deeper understanding of how stress and burnout are experienced and the main contributing factors and impacts can better inform how these issues are addressed and prevented.

References

Akkoç, İ., Okun, O., & Türe, A. (2021). The effect of role-related stressors on nurses' burnout syndrome: The mediating role of work-related stress. *Perspectives in Psychiatric Care*, *57*(2), 583–596. https://doi.org/10.1111/ppc.12581

Alrawahi, S., Sellgren, S. F., Alwahaibi, N., Altouby, S., & Brommels, M. (2018). Factors affecting job satisfaction among medical laboratory technologists in University Hospital, Oman: An exploratory study. *International Journal of Health Planning and Management, 34,* e763-e775. https://doi.org/10.1002/hpm.2689

American Association of Pathologists' Assistants (n.d.) *About Us.* https://www.pathassist.org/page/AboutUs

American Association of Pathologists' Assistants (n.d.) *What is a PA?* https://www.pathassist.org/page/What_is_a_PA

American Medical Association (n.d.). *Practice innovation strategies: Physician burnout*. https://www.ama-assn.org/practice-management/ama-steps-forward/practice-innovation-strategies-physician-burnout

American Psychological Association (2021). *Occupational stress*. APA dictionary of psychology. https://dictionary.apa.org/occupational-stress

Bailey, D. S. (2006, June 1). Burnout harms workers' physical health through many pathways. *Monitor on Psychology*, *37*(7). https://www.apa.org/monitor/jun06/burnout

Bianchi, R., Schonfeld, I. S., & Laurent, E. (2018). A neglected problem in burnout research. *Academic Medicine: Journal of the Association of American Medical Colleges*, *93*(4), 518–519. https://doi.org/10.1097/ACM.0000000000002103

Bidlan, J. S., & Sihag, A. (2013) Occupational stress among healthcare professionals. *Indian Journal of Health and Wellbeing, 4*(8), 1558-1562.

Birks, M., Chapman, Y., & Francis, K. (2008). Memoing in qualitative research: Probing data and process. *Journal of Research in Nursing, 13*(1), 68-75. https://doi.org/10.1177/1744987107081254

Booth, A. L., Katz, M. S., Misialek, M. J., Allen, T. C., & Joseph, L. (2019). "Please help me see the dragon I am slaying": Implementation of a novel patient-pathologist consultation program and survey of patient experience. *Archives of Pathology & Laboratory Medicine, 143*(7), 852-858. https://doi.org/10.5858/arpa.2018-0379-OA

Bostock, S., Crosswell, A. D., Prather, A. A., & Steptoe, A. (2019). Mindfulness on-the-go: Effects of a mindfulness meditation app on work stress and well-being. *Journal of Occupational Health Psychology, 24*(1), 127–138. https://doi.org/10.1037/ocp0000118

Cassar, V., Bezzina, F., Fabri, S., & Buttigieg, S.C. (2020). Work stress in the 21st century: A bibliometric scan of the first two decades of research in this millennium. *The Psychologist-Manager Journal, 23*(2), 47-75. http://dx.doi.org/10.1037/mgr0000103

Celik, S. U., Aslan, A., Coskun, E., Coban, B. N., Haner, Z., Kart, S., Skaik, M. N. I., Kocer, M. D., Ozkan, B. B., & Akyol, C. (2021). Prevalence and associated factors for burnout among attending general surgeons: a national cross-sectional survey. *BMC Health Services Research, 21*(1), 39. https://doi.org/10.1186/s12913-020-06024-5

Chiou, P. (2021). Exploring staff turnover, burnout and resilience in cytology reference laboratories: A workforce qualitative study. *Cytopathology, 32*(3), 738-750. https://doi.org/10.1111/cyt.13024.

Clement, S., Pascual, C., & Ulmanu, M. (2021, April 6). Stress on the front lines of COVID-19. Washington Post. https://www.washingtonpost.com/health/2021/04/06/stress-front-lines-health-care-workers-share-hardest-parts-working-during-pandemic/

Cohen, M. B., Saint Martin, M., Gross, D. J., Johnson, K., Robboy, S. J., Wheeler, T. M., Johnson, R. L., & Black-Schaffer, W. S. (2022). Features of burnout amongst pathologists: A reassessment. *Academic Pathology*, *9*(1), 100052. https://doi.org/10.1016/j.acpath.2022.100052

Collins, S. K., & Collins, K. S. (2002). Micromanagement: A costly management style. *Radiology Management*, *24*(6), 32–35.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Dar, I. A., & Iqbal, N. (2020). Beyond linear evidence: The curvilinear relationship between secondary traumatic stress and vicarious posttraumatic growth among healthcare professionals. *Stress and Health: Journal of the International Society for the Investigation of Stress, 36*(2), 203–212. https://doi.org/10.1002/smi.2932

Dedoose. (n.d.). History. Retrieved October 25, 2021 from https://www.dedoose.com/about/history

De Hert, S. (2020). Burnout in healthcare workers: Prevalence, impact and preventative strategies. *Local and Regional Anesthesia, 13*, 171–183. https://doi.org/10.2147/LRA.S240564

Dillon, E. C., Tai-Seale, M., Meehan, A., Martin, V., Nordgren, R., Lee, T., Nauenberg, T., & Frosch, D. L. (2020). Frontline perspectives on physician burnout and strategies to

improve well-being: Interviews with physicians and health system leaders. *Journal of General Internal Medicine, 35*(1), 261–267. https://doi.org/10.1007/s11606-019-05381-0

Dimenstein, I. B. (2009). A pragmatic approach to formalin safety in anatomical pathology. *Laboratory Medicine, 40*(12), 740–746. https://doi.org/10.1309/LMQ1HJFD4UN0WWBP

Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues, 30*, 159-165. https://doi.org/10.1111/j.1540-4560.1974.tb00706.x

Ganster, D. C. & Rosen, C.C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of Management, 39*(5), 1085-1122. https://doi.org/10.1177/0149206313475815

Garcia, E., Kundu, I., Kelly, M., Soles, R., Mulder, L., & Talmon, G. A. (2020). The American Society for Clinical Pathology's job satisfaction, well-being, and burnout survey of laboratory professionals. *American Journal of Clinical Pathology, 153*(4), 470–486. https://doi.org/10.1093/ajcp/aqaa008

Gilbreath, B. & Benson, P. (2004). The contribution of supervisor behavior to employee psychological well-being. *Work & Stress, 18*(3), 1-12. doi:10.1080/02678370412331317499

Golab, K. (2021 September 2). The impact of burnout on clinical lab staff. https://www.clinicallabmanager.com/trends/laboratory-training/the-impact-of-burnout-on-clinical-lab-staff-25911

Green E. A. (2019, Oct 31). *Steps to Start a Patient-Pathologist Consultation Program.* College of American Pathologists. https://www.cap.org/member-resources/articles/steps-to-start-a-patient-pathologist-consultation-program

Green, S., Markaki, A., Baird, J., Murray, P., & Edwards, R. (2020). Addressing healthcare professional burnout: A quality improvement intervention. *Worldviews on Evidence-Based Nursing, 17*(3), 213–220. https://doi.org/10.1111/wvn.12450

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology, 29*(2)*,* 75-91.

Heinemann, L. V. & Heinemann, T. (2017). Burnout research: Emergence and scientific investigation of a contested diagnosis. *SAGE Open.* https://doi.org/10.1177/2158244017697154

Henderson, R. & Rheault, W. (2004). Appraising and incorporating qualitative research in evidence-based practice. *Journal of Physical Therapy Education, 18*(3), 35-40.

Hernandez, J. S. (2018 April 1). The human cost of burnout and errors in the laboratory. https://www.aacc.org/cln/articles/2018/april/the-human-cost-of-burnout-and-errors-in-the-laboratory

Hensel, J. M., Ruiz, C., Finney, C., & Dewa, C.S. (2015). Meta-analysis of risk factors for secondary traumatic stress in therapeutic work with trauma victims. *Journal of Traumatic Stress, 28*(2), 83-91. https://doi.org/10.1002/jts.21998

Hesselink, G., Straten, L., Gallée, L., Brants, A., Holkenborg, J., Barten, D. G., & Schoon, Y. (2021). Holding the frontline: a cross-sectional survey of emergency department staff well-being and psychological distress in the course of the COVID-19 outbreak. *BMC Health Services Research, 21*(1), 525. https://doi.org/10.1186/s12913-021-06555-5

Jordan, J. J., Watcha, D., Cassella, C., Kaji, A. H., & Trivedi, S. (2019). Impact of a mentorship program on medical student burnout. *AEM Education and Training 2019*(3), 218– 225. https://doi.org/10.1002/aet2.10354

Kadivar, M., Kabir-Mokamelkhah, E., & Habibi-Shams, Z. (2021). Work-related hazards among pathologists and residents of pathology: Results of a cross-sectional study in Iran. *Iranian Journal of Pathology, 16*(3), 274–283. https://doi.org/10.30699/IJP.2021.132380.2473

Kandyala R., Raghavendra S. P., Rajasekharan, S. T. (2010). Xylene: An overview of its health hazards and preventive measures. *Journal of Oral and Maxillofacial Pathology, 14*(1), 1-5. https://doi.org/10.4103/0973-029X.64299.

Karadzinska-Bislimovska, J., Basarovska, V., Mijakoski, D., Minov, J., Stoleski, S., Angeleska, N., & Atanasovska, A. (2014). Linkages between workplace stressors and quality of care from health professionals' perspective - Macedonian experience. *British Journal of Health Psychology*, *19*(2), 425–441. https://doi.org/10.1111/bjhp.12040

Keith J. (2022). The burnout in Canadian pathology initiative. *Archives of Pathology & Laboratory Medicine*. Advance online publication. https://doi.org/10.5858/arpa.2021-0200-OA

Kelly, M., Soles, R., Garcia, E., & Kundu, I. (2020). Job stress, burnout, work-life balance, well-being, and job satisfaction among pathology residents and fellows. *American Journal of Clinical Pathology, 153*(4), 449–469. https://doi.org/10.1093/ajcp/aqaa013

Nowrouzi-Kia, B., Dong, J., Gohar, B., & Hoad, M. (2022). Factors associated with burnout among medical laboratory professionals in Ontario, Canada: An exploratory study during the second wave of the COVID-19 pandemic. *The International Journal of Health Planning and Management*, *37*(4), 2183–2197. https://doi.org/10.1002/hpm.3460

Koutsimani, P., Montgomery, A., Masoura, E., & Panagopoulou, E. (2021). Burnout and cognitive performance. *International Journal of Environmental Research and Public Health*, *18*(4), 2145. https://doi.org/10.3390/ijerph18042145

Kranenburg, L., & Gossot, D. (2004). Ergonomic problems encountered during video-assisted thoracic surgery. *Minimally Invasive Therapy & Allied Technologies*, *13*(3), 147–155. https://doi.org/10.1080/13645700410033661

Krishnan, K. S., Raju, G., & Shawkataly, O. (2021). Prevalence of work-related musculoskeletal disorders: Psychological and physical risk factors. *International Journal of Environmental Research and Public Health*, *18*(17), 9361. https://doi.org/10.3390/ijerph18179361

Kroft, S. H. (2020). Well-being, burnout, and the clinical laboratory. *American Journal of Clinical Pathology, 153*(4), 422–424. https://doi.org/10.1093/ajcp/aqaa022

Leaning, J., & Guha-Sapir, D. (2013). Natural disasters, armed conflict, and public health. *New England Journal of Medicine, 369*, 1836-1842. https://doi.org/10.1056/NEJMra1109877

Liller, K. D. (1987). Staff burnout among medical technologists. *Laboratory Medicine, 18*(10), 699-701. https://doi.org/10.1093/labmed/18.10.699

Malterud, K., Siersma, V. K, & Guassora, A. D. (2015). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research,* 1-8. https://doi.org/10.1177/1049732315617444

Mangory, K. Y., Ali, L. Y., Rø, K. I., & Tyssen, R. (2021). Effect of burnout among physicians on observed adverse patient outcomes: A literature review. *BMC Health Services Research, 21*(1), 369. https://doi.org/10.1186/s12913-021-06371-x

Marshall, C. & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). Sage Publications.

Maslach, C. (1982). *Burnout: The cost of caring*. Prentice-Hall.

Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World Psychiatry, 15*(2), 103–111. https://doi.org/10.1002/wps.20311

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupational Behavior 2*, 99–113. https://doi.org/10.1002/job.4030020205

Maslach, C., Schaufeli, W. B., Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology, 52*(1), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

Merriam, S. B. (2002). Basic interpretive qualitative research. In S. B. Merriam (Ed.), *Qualitative research in practice: Examples for discussion and analysis* (pp. 37-39). Jossey-Bass.

Mind Garden, Inc. (2019). Maslach Burnout Inventory (MBI). Retrieved from: https://www.mindgarden.com/117-maslach-burnout-inventory-mbi

Newitt, V.N. (2022 November). Canadian pathology study finds high burnout prevalence. *CAP Today Online.* https://www.captodayonline.com/canadian-pathology-study-finds-high-burnout-prevalence/

Plebani, M. (2010). The detection and prevention of errors in laboratory medicine. *Annals of Clinical Biochemistry*, *47*(2), 101–110. https://doi.org/10.1258/acb.2009.009222

Prasad, K., McLoughlin, C., Stillman, M., Poplau, S., Goelz, E., Taylor, S., Nankivil, N., Brown, R., Linzer, M., Cappelucci, K., Barbouche, M., & Sinksy, C. A. (2021). Prevalence and correlates of stress and burnout among U.S. healthcare workers during the COVID-19 pandemic: A national cross-sectional survey study. *EClinicalMedicine, 35*(100879), 1-9. https://doi.org/10.1016/j.eclinm.2021.100879

Quick, J. C., & Henderson, D. F. (2016). Occupational stress: Preventing suffering, enhancing wellbeing. *International Journal of Environmental Research and Public Health, 13*(459), 1-11. doi:10.3390/ijerph13050459

Ravalier, J. M., McVicar, A., & Boichat, C. (2020). Work stress in NHS employees: A mixed-methods study. *International Journal of Environmental Research and Public Health, 17,* 1-13. https://doi.org/10.3390/ijerph17186464

Roeder, A. C., Garner, J. T., & Carr, K. (2020). Workplace relationships, stress, and verbal rumination in organizations. *Southern Communication Journal*, *85*(2), 63–72. https://doi.org/10.1080/1041794X.2019.1697893

Ryan-Nicholls, K. D. & Will, C. I. (2009). Rigour in qualitative research: Mechanisms for control. *Nurse Researcher, 16*(3), 70-85.

Salvagioni D. A. J., Melanda F. N., Mesas A. E., Gonzalez A. D., Gabani F. L., Andrade S. M. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLoS ONE, 12*(10), 1-29. https://doi.org/10.1371/journal. pone.0185781

Schrijver, I. (2016). Pathology in the medical profession? *Archives of Pathology & Laboratory Medicine, 140*(9), 976–982. https://doi.org/10.5858/arpa.2015-0524-RA

Silva, D., & Mendis, B. (2017). Relationship between transformational, transaction and laissez-faire leadership styles and employee commitment. *European Journal of Business and Management, 9*, 13-21.

Skogstad, A., Einarsen, S., Torsheim, T., Aasland, M. S., & Hetland, H. (2007). The destructiveness of laissez-faire leadership behavior. *Journal of Occupational Health Psychology*, *12*(1), 80. https://doi.org/10.1037/1076-8998.12.1.80

Smith, S. M., Liauw, D., Dupee, D., Barbieri, A. L., Olson, K., & Parkash, V. (2022). Burnout and disengagement in pathology: A prepandemic survey of pathologists and laboratory professionals. *Archives of Pathology & Laboratory Medicine*. Advance online publication. https://doi.org/10.5858/arpa.2022-0073-OA

Steinhilber, B., Hoffmann, S., Karlovic, K., Pfeffer, S., Maier, T., Hallasheh, O., Kruck, S., Seibt, R., Rieger, M., Heidingsfeld, M., Feuer, R., Sawodny, O., Rothmund, R., & Sievert, K. D. (2015). Development of an arm support system to improve ergonomics in laparoscopic surgery: study design and provisional results. *Surgical Endoscopy*, *29*(9), 2851–2858. https://doi.org/10.1007/s00464-014-3984-x

So, J. K., Kim, J. S., Lee, Y.H., Kim, D. J., & Park, C.E. (2017). Investigation of subcategories according to the level of job stress in medical technologist. *Korean Journal of Clinical Laboratory Science, 49*(1), 48-54. https://doi.org/10.15324/kjcls.2017.49.1.48

Szeto, G. P., Ho, P., Ting, A. C., Poon, J. T., Cheng, S. W., & Tsang, R. C. (2009). Work-related musculoskeletal symptoms in surgeons. *Journal of Occupational Rehabilitation*, *19*(2), 175–184. https://doi.org/10.1007/s10926-009-9176-1

Talaee, N., Varahram, M., Jamaati, H., Salimi, A., Attarchi, M., Kazempour Dizaji, M., Sadr, M., Hassani, S., Farzanegan, B., Monjazebi, F., & Seyedmehdi, S. M. (2020). Stress and burnout in health care workers during COVID-19 pandemic: Validation of a questionnaire. *Zeitschrift fur Gesundheitswissenschaften = Journal of public health*, 1–6. Advance online publication. https://doi.org/10.1007/s10389-020-01313-z

Teo, Y. H., Xu, J. T. K., Ho, C., Leong, J. M., Tan, B. K. J., Tan, E. K. H., Goh, W.-A., Neo, E., Chua, J. Y. J., Ng, S. J. Y., Cheong, J. J. Y., Hwang, J. Y.-F., Lim, S. M., Soo, T., Sng, J. G. K., & Yi, S. (2021). Factors associated with self-reported burnout level in allied

healthcare professionals in a tertiary hospital in Singapore. *PloS One, 16*(1)e0244338. https://doi.org/10.1371/journal.pone.0244338

van Dorssen-Boog, P., van Vuuren, T., de Jong, J. P., & Veld, M. (2021). Facilitating health care workers' self-determination: The impact of a self-leadership intervention on work engagement, health, and performance. *Journal of Occupational and Organizational Psychology*, *94*(2), 259–281. https://doi.org/10.1111/joop.12352

Wild, J., McKinnon, A., Wilkins, A., & Browne, H. (2021). Post-traumatic stress disorder and major depression among frontline healthcare staff working during the COVID-19 pandemic. *British Journal of Clinical Psychology,*10.1111/bjc.12340. Advance online publication. https://doi.org/10.1111/bjc.12340

Williamson, K., Lank, P. M., Cheema, N., Hartman, N., Lovell, E. O., & Emergency Medicine Education Research Alliance (EMERA) (2018). Comparing the Maslach Burnout Inventory to other well-being instruments in emergency medicine residents. *Journal of Graduate Medical Education*, *10*(5), 532–536. https://doi.org/10.4300/JGME-D-18-00155.1

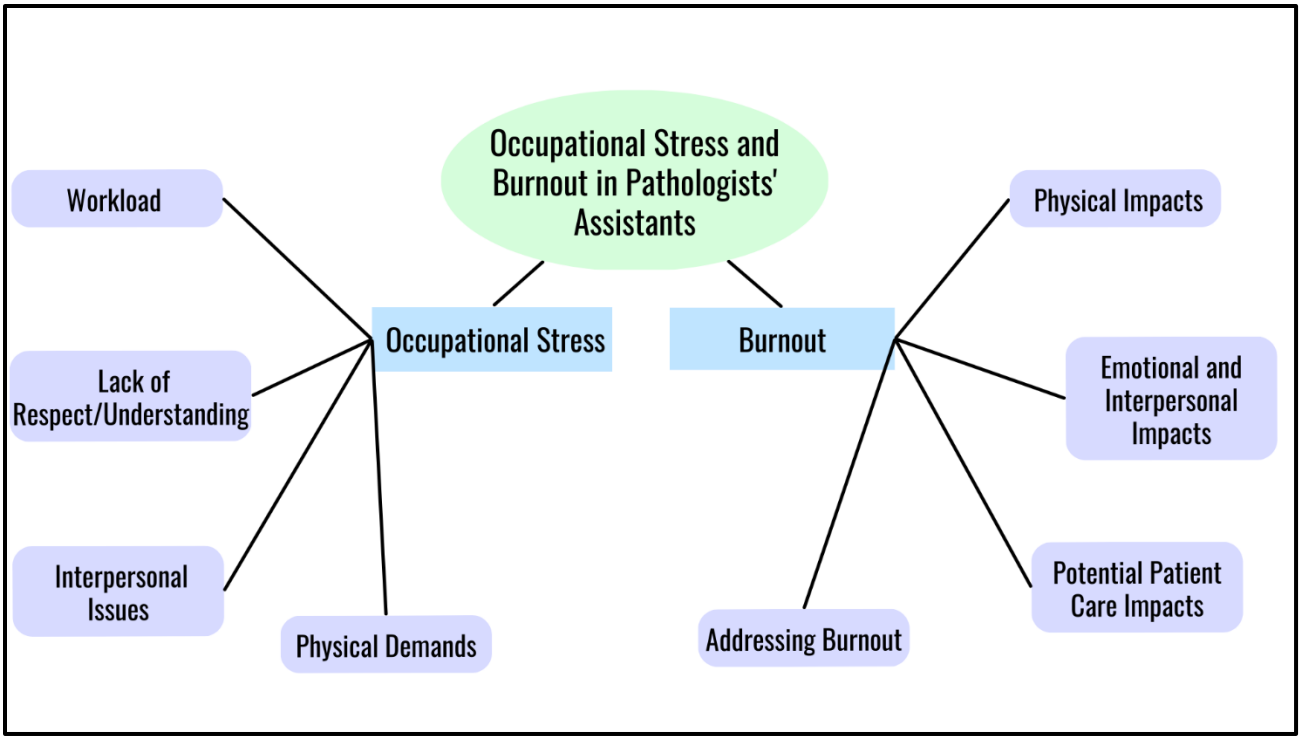
Wojnar, D. M. & Swanson, K. M. (2007). Phenomenology: An exploration. *Journal of Holistic Nursing, 25*(3), 172-180. https://doi.org/10.1177/0898010106295

World Health Organization. (2019, May 28). *Burn-out an "occupational phenomenon": International Classification of Diseases.* https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases

Yates S. W. (2020). Physician stress and burnout. *The American Journal of Medicine*, *133*(2), 160–164. https://doi.org/10.1016/j.amjmed.2019.08

Figure 1

Theme Map



Appendix A

Recruitment Infographic

Seeking Volunteers for a Research Study:
Occupational Stress and Burnout in Pathology Professionals

Overview

Occupational stress and burnout are major topics of conversation right now, especially for healthcare professionals. Much of the dialogue has focused on patient-facing areas but pathology professionals face distinct challenges, and we want to learn more about their unique experiences.

We're looking for participants who would like to share their thoughts to take part in a University of Indianapolis research study exploring the experiences of pathology professionals with occupational stress and burnout.

Participants will:

- Take part in a 60-minute one-on-one interview via Zoom
- Speak about their perceptions of job stress and burnout and their own experiences

Participants will receive:

- A $15 Starbucks e-gift card

You are eligible if you are:

- An adult (18 years or older)
- Currently employed as a pathology professional (i.e., Pathologist, Pathology Resident, Pathologists' Assistant, Histotechnologist, Cytotechnologist)
- English speaking

For more information contact:

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This research project has been approved by the University of Indianapolis Institutional Review Board (IRB). Approval date 2/12/22 Approval number 01597

Appendix B

Interview Guide

Thank you for agreeing to be interviewed today. This interview will be conducted as a part of my doctoral dissertation for the University of Indianapolis Doctor of Health Science program.

The responses you provide will be utilized for the purposes of this project only, and your responses will be 100% confidential. Responses will be seen by faculty and research members, but all identifying information will be removed.

The aim of this interview is to gain a deeper understanding of the unique experiences pathology professionals have with occupational stress and burnout. The questions will focus mainly on your job, job stress, and your personal experiences managing job stress.

The interview will be approximately 30 to 60 minutes long. Your participation is voluntary, and you will have the option to skip any questions that you are not comfortable answering, take breaks at any point, and you can request for the interview to be terminated at any time. Please also know there will be no judgment from me about any of your responses, as the questions are only designed to learn more about your experiences and feelings, and I want you to be able to share openly in a comfortable setting.

What questions can I answer for you regarding the interview, how the data will be used, or anything else you might be wondering before we get started?

As you know, I will be audio recording our interview. The recording will be deleted after its use for this project and will not be shared. Are you okay with me starting the recording?

Interview Questions and Prompts

1. What is your current job role/title?
    a. What got you interested in the field?

b. How did you get started in the field?

c. How long have you been in the field? In your current role?

2. Can you tell me more about what a typical day looks like for you at work in your current role?

    a. What are some of the major successes you experience in your work?

        i. What aspects of your work brings you feelings of fulfillment?

    b. What are some challenges you face in your role?

        i. How do these challenges make you feel?

3. How would you describe your stress level at work?

    a. Can you tell me a little more about why it is [their response]?

    b. What would you say are the most stressful elements of your job?

        i. Are there specifics about your job design (i.e. how much autonomy you have, your expected work output…) that cause stress?

        ii. Are there specifics about your work environment (i.e. safety, ergonomics, having the needed supplies) that cause stress?

        iii. Are there specifics about your interpersonal relationships at work that cause stress?

        iv. Does your relationship with management/leadership contribute to stress?

    c. What things at your job/workplace make work less stressful?

    d. Can you share with me some things you do to manage your stress? At work and outside of work?

4. How does your employer address stress management for employees?

    a. What do you think has been the impact of [these strategies/the lack of strategies]?

b. What else could your employer do to alleviate some of your stress at work?
c. How do you think your employer would respond if you brought up suggestions about addressing stress management at work?

5. What comes to mind when you think of job burnout?
    a. How would you personally define burnout? What does burnout mean to you?
    b. Can you tell me more about why [some element of their answer] is associated with burnout for you?
    c. How do you feel about burnout in the medical field in general?
        i. Do you think it's a major issue?
        ii. What are some contributing factors, in your opinion?
    d. How about in your own pathology colleagues? Do you think burnout has impacted them?
6. Have you ever felt like you personally were experiencing job burnout?
    a. (If yes) Can you tell me more about what that was like for you?
        i. What were some of the major contributing factors?
        ii. What kinds of impacts did it have on you at work?
        iii. What kinds of impacts did it have on your life outside of work?
        iv. What did you do to address it and work through it?
        v. What advice might you have for someone in the middle of the experience?
    b. (If no) What do you think has contributed to you not having had the experience?
        i. How do you think you might navigate the experience if it did occur in your job?

7. Are there any other thoughts you would like to share? They can be about job stress, burnout, or anything we didn't cover that you'd like to add.

Thank you so much for your time today. Before we wrap up, I just want to share again that the information shared here today will be kept secure. The audio recording will be stored securely on my personal password-protected computer, and my written notes will be kept in a secure place and will not be shared. Later in the research process, only deidentified data will be shared with research team members, and eventually in my dissertation. This means that you'll be assigned a participant ID number, and your name will not be attached to the data in any way.

I'll be following up with you via email in the near future to ask you for some additional feedback. In the meantime, if you have any questions or concerns that come up after the interview, please do not hesitate to get in touch, you have my contact information. Thank you again.