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Nurse Burnout and Health: Exploring the Connection

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Abstract

Burnout is a prevalent issue among nurses, with significant implications for organizational, mental, and physical health. This article explores the interconnection between these three facets of burnout, presenting findings and implications for each area in the context of nursing. Burnout is commonly assessed using the Maslach Burnout Inventory (MBI), which measures emotional exhaustion, depersonalization, and reduced personal accomplishment. Numerous factors contribute to nurse burnout, including workload, moral distress, inadequate support, and workplace violence. Protective factors against burnout include social support, resilience, and spiritual well-being. Chronic stress associated with burnout impairs immune, cardiovascular, neuroendocrine, and central nervous systems, increasing susceptibility to various diseases. Studies using the MBI have found significant associations between high burnout levels and poor mental health outcomes, such as stress, anxiety, depression, and post-traumatic stress disorder (PTSD). Physical health consequences of burnout include elevated salivary cortisol levels, reduced influenza vaccine

efficacy, increased short-term sick leave, and engagement in risky health behaviors. Resilience has been shown to mediate the relationship between burnout and mental health. The authors emphasize the need for healthcare organizations to implement multifaceted approaches to address burnout, including resilience training, self-care promotion, and creating supportive work environments. Prioritizing these strategies can mitigate the detrimental effects of burnout on nurses' health and well-being, ultimately improving patient care and organizational outcomes.
Keywords: nurses, burnout, mental health, physical health

Introduction

The nursing profession often entails extensive workplace demands, leading to high levels of burnout among nurses. Burnout can have numerous negative implications, impacting patients, healthcare organizations, the nursing profession, and the individual nurse's mental and physical well-being. Burnout primarily affects three areas of health: organizational health, mental health, and physical health. Of these, organizational health is the most extensively studied. It encompasses outcomes such as reduced care quality, lower nurse retention, and diminished job performance when burnout rates within an organization are high (Bakhamis et al., 2019). Mental health pertains to the psychological well-being of individual nurses, encompassing elevated rates of trauma, depression, stress, and anxiety, which are both causes and consequences of burnout. Physical health issues in nurses often arise from chronic stress and burnout. Burnout is a recognized form of job-related stress, and its effects on physical health remain under-researched. Notably, in 2001, one of the developers of the Maslach Burnout Inventory (MBI) advocated for more studies on how burnout impacts the physical health of healthcare workers, particularly nurses. The interconnection between the three facets of burnout—organizational, mental, and physical health—is explored in this article, along with findings and implications for each area in the context of nursing.

Burnout Incidence in Nursing

Burnout is a global issue in nursing that adversely affects patient safety, care quality, nurse health, and retention rates. A national nursing survey revealed that 15.6% of over 2,000 nurses self-reported experiencing burnout. Burnout in nursing is commonly described through three dimensions: emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (PA) (Gómez-Urquiza et al., 2020). Emotional exhaustion refers to the fatigue stemming from continuous work under demanding conditions. Depersonalization denotes a sense of detachment from patients and their care. Reduced personal accomplishment reflects a diminished sense of achievement due to excessive workloads and heightened expectations (Bakhamis et al., 2019).

The MBI is the leading tool for assessing burnout, focusing on these three dimensions: emotional exhaustion, depersonalization, and personal accomplishment. It is widely regarded as the "gold standard" for measuring burnout in healthcare professions, with strong validity across diverse populations and languages. Burnout symptoms can be classified into four main categories: emotional, cognitive, behavioral, and social. Emotional symptoms include feelings of hopelessness, apathy, depression, helplessness, and irritation. Cognitive symptoms may involve disorientation, distraction, and a loss of meaning or value. Behavioral symptoms often manifest as maladaptive actions such as increased substance use, avoidance of responsibilities, and absenteeism. Social symptoms may result in interpersonal conflicts, strained home relationships, and social isolation. Nurse burnout contributes to high turnover rates, compromises patient safety, and lowers job performance. In 2019, The Joint Commission emphasized the responsibility of healthcare organizations to address the root causes of nurse burnout.

Risk Factors for Nurse Burnout

Numerous factors contribute to nurse burnout, including workload, moral distress, inadequate support systems, limited resources, insufficient training, and workplace bullying. Prolonged stress exposure can lead to anxiety, depression, mental and physical exhaustion, and depersonalization, all of which are linked to nurse burnout. Additional factors include extended work hours, mandatory overtime, staff shortages, time constraints, poor management, low nurse-to-patient ratios, and a lack of team support. Exposure to traumatic workplace events, prolonged shifts, and years of practice may further elevate burnout risk (Higgins et al., 2020). Nurses in high-stress areas such as critical care and emergency departments are particularly vulnerable due to increased patient morbidity and mortality, ethical dilemmas, and demanding daily practices (Browning, 2019). Workplace violence and moral distress in emergency departments have been specifically linked to burnout among nurses (Rozo et al., 2017). Furthermore, emergency department nurse burnout has been associated with perceptions of being undervalued, excessive workloads, unmet job expectations, and insufficient time to complete tasks effectively.

Protective Factors Against Nurse Burnout

Certain factors may protect nurses against burnout. Among nurses working with hospitalized trauma patients, being female, being married, and having better sleep quality were identified as protective factors. Social support, defined as assistance and protection from others, is a significant protective factor against burnout and a component of resilience (Caldeira & Timmins, 2016). Resilience includes attributes such as rebounding, coping or adapting, self-determination, and maintaining a positive outlook. Resilience can be understood as a trait, a process, or an outcome, depending on the context. Notably, resilience emerges in adverse circumstances that typically lead to maladjustment but instead fosters positive adaptation. Resilience evolves over time, with new strengths and vulnerabilities arising in response to changing circumstances. Physical, emotional, social, moral, and psychological dimensions of resilience may emerge as adaptive responses to adversity. According to The Joint Commission, resilience is "the process of personal protection from burnout".

Resilience, along with hope and support, was shown to reduce emotional exhaustion among 114 nurses in high-stress units. Greater resilience not only mitigated emotional exhaustion but also enhanced personal accomplishment in high-intensity settings. Spiritual well-being was similarly found to decrease emotional exhaustion and depersonalization.

HEALTH CONSEQUENCES OF BURNOUT

Chronic stress has long been associated with negative physical and emotional health outcomes. Burnout, as a chronic stressor, impairs the immune, cardiovascular, neuroendocrine, and central nervous systems. Prolonged stress perception over time depletes cellular immunity, triggering an inflammatory response in the body. This process suppresses non-essential immune functions, such as the generation of natural killer cells that target mutating cancer cells, thereby compromising normal immune function and increasing susceptibility to illness. Furthermore, stress-induced inflammation contributes to conditions like metabolic syndrome, which underlies cardiovascular disease, diabetes, hypertension, and stroke (Wilson, 2020). Inflammation caused by stress and burnout has been linked to various diseases, such as irritable bowel syndrome, which has a direct association with burnout (Hod et al., 2020). Burnout elevates the risk of cardiovascular disease (CVD) to a level comparable to smoking or obesity. As anti-inflammatory cell production diminishes due to persistent stress, systemic inflammation increases, escalating CVD progression. Sleep deprivation, frequently linked to burnout, exacerbates health risks, including elevated blood pressure, inflammation, and a higher likelihood of mortality. Sleep deprivation triggers inflammation worsens disease progression or recurrence and increases suicidal ideation. Quality sleep enhances immune

defense mechanisms, while its deprivation negatively impacts emotional and cognitive functions.

The COVID-19 pandemic has further intensified these issues, leading to a rise in post-traumatic stress disorder (PTSD) diagnoses among healthcare workers. PTSD, which falls at the severe end of the burnout spectrum, is accompanied by inflammation and sleep disturbances. Studies have shown that high scores on the Maslach Burnout Inventory (MBI) can predict future psychotropic drug use (Leiter et al., 2013, pp. 12-). Additionally, surveys conducted during the COVID-19 pandemic revealed that 45% of frontline healthcare workers reported physical symptoms within four weeks, many of which had lasting health implications. PTSD, sleep disturbances, and inflammation frequently co-occur in individuals experiencing burnout.

Inflammation also plays a significant role in the development and exacerbation of depression and other psychiatric disorders. Depression, often described as an inflammatory condition, can intensify other inflammatory diseases, such as rheumatoid arthritis, when they are active. Furthermore, the inflammatory components of depression can predict cancer risk. Physicians scoring high on the MBI displayed higher rates of alcohol abuse, depression, poor self-care, and motor vehicle accidents. Prolonged and persistent stress reduces immune function, perpetuating inflammation and increasing the risk for conditions such as ulcers, Alzheimer's disease, and other autoimmune disorders. The interplay between burnout, inflammation, and stress significantly impacts the health of nurses and other healthcare professionals.

RESEARCH ON NURSE BURNOUT AND HEALTH

The MBI remains the most widely utilized instrument for assessing burnout among nurses. This section reviews findings regarding burnout and health using this validated tool. The MBI has five versions tailored to different occupational settings: MBI-HSS for human service workers, MBI-HSS (MP) for medical personnel, MBI-ES for educators, MBI-GS for general occupations, and MBI-GS (S) for students. Most studies discussed here employed the MBI-HSS, which evaluates the three dimensions of burnout: emotional exhaustion, depersonalization, and personal accomplishment. The MBI-GS, however, measures exhaustion, cynicism, and professional efficacy.

A systematic review by Zangaro et al. analyzed 2391 articles published between 2000 and 2019 that incorporated the MBI. The articles were filtered for English-language studies focusing on health-related findings in nurses. Fourteen articles were identified that investigated mental or physical health as outcomes or alongside burnout. Disappointingly, few studies directly correlated health with burnout. Instead, many researchers measured burnout alongside stress or mental health using additional tools, often integrating results to present a broader perspective of overall mental health. This approach makes it challenging to delineate the specific relationship between burnout and health outcomes.

MENTAL HEALTH FINDINGS

Various scales have been used to evaluate mental health in studies addressing burnout. Many researchers viewed burnout as an aspect of job stress, frequently assessing overall stress levels (Fernández-Sánchez et al., 2018). Fernandez-Sanchez et al. demonstrated a direct correlation between burnout dimensions, as measured by the MBI, and stress levels on the Perceived Stress Scale. Nurses with high burnout scores on one or more dimensions exhibited significantly higher average stress levels.

Two studies specifically assessed post-traumatic stress. Favros et al. found that 50% of neonatal intensive care unit (NICU) nurses experienced secondary traumatic stress and high burnout levels (Favrod et al., 2018). Mealer et al. analyzed data from 744 nurses and found that 21% exhibited PTSD symptoms, with 70% reporting symptoms lasting at least three months. Although the study did not explicitly link PTSD symptoms to burnout, 80% of the sample met the criteria for at least one burnout dimension.

Mealer et al. further explored the association between resilience and psychological outcomes, including PTSD, burnout, anxiety, and depression (Mealer et al., 2012). Using the 10-item Connor-Davidson Resilience Scale, they identified significant relationships between resilience and lower prevalence rates of PTSD (8% in highly resilient individuals versus 25% in less resilient individuals, $P < .001$), burnout in all three dimensions ($P < .001$), and psychological symptoms such as anxiety (8% vs. 21%, $P = .001$) and depression (2% vs. 14%, $P < .001$). Nurses with greater resilience were also more likely to report life satisfaction than their less resilient counterparts.

Several studies measured depression and anxiety using instruments such as the SCL-90, HADS, SF-12, GHQ-28, SRSDA, SF-36, and Pressure Management Indicator (PMI). Although some studies did not directly correlate these mental health disorders with burnout, those that did identified significant associations between high burnout and poor mental health, particularly symptoms of depression (Papathanasiou, 2015; Suñer-Soler et al., 2013). Other reported symptoms in nurses with high burnout levels included interpersonal sensitivity, hostility, paranoid ideation, psychoticism, melancholia, asthenia, mania, feelings of nervousness, sadness, lack of calmness, and unhappiness.

Physical Health Findings

As highlighted earlier, burnout is frequently conceptualized as job-related stress, which contributes to poor mental health, and this, in turn, can lead to inflammation and various adverse physical health conditions. Numerous studies have examined mental and physical health concurrently, likely due to this interconnection. Arrogante and Aparicio-Zaldivar utilized the SF-12 survey in their research to explore mental and physical health among participants. Their study aimed to evaluate the role of resilience in mitigating burnout and its impact on both mental and physical health (Arrogante & Aparicio-Zaldivar, 2017). When examining the relationship between burnout and physical health, they found a significant association between emotional exhaustion and physical health. Notably, their findings indicated that resilience mediated the relationship between all three dimensions of burnout and mental health—emotional exhaustion (EE: $\beta = 0.38$, $P < .01$), depersonalization (DP: $\beta = 0.20$, $P < .01$), and personal accomplishment (PA: $\beta = 0.07$, $P < .05$). However, resilience did not moderate the relationship between burnout and physical health, nor was there any association between resilience and physical health.

Suner-Soler et al. and Anagnostopoulos and Niakas also employed versions of the SF-36 survey to analyze both mental and physical health outcomes. Suner-Soler et al. reported a significant relationship between burnout and diminished physical health, with emotional exhaustion having the strongest relationship among the three burnout dimensions (Suñer-Soler et al., 2013). They further observed that the depersonalization dimension correlated more strongly with mental health than physical health, a pattern not mirrored in emotional exhaustion or personal accomplishment (46). Similarly, Anagnostopoulos and Niakas found a relationship between emotional exhaustion and depersonalization and poor physical health (Anagnostopoulos & Niakas, 2010). Other tools utilized to measure both mental and physical health in these studies included the SCL-90, the GHQ-28, the GHQ-12, and the PMI. Research employing these tools identified significant associations between burnout and poor physical health outcomes (Skorobogatova et al., 2017). Specific physical symptoms reported included somatization, poor sleep quality, tiredness, feelings of exhaustion, shortness of breath, muscle tremors, and prickling sensations.

Certain studies focused on more specific aspects of physical health. Fernandez-Sanchez et al. investigated salivary cortisol levels among healthcare workers, predominantly nurses, finding that individuals with high burnout scores in at least one dimension exhibited elevated salivary cortisol levels both in the morning and near bedtime, compared to non-burned-out colleagues,

although their levels were similar during the workday (F (3.5) = 2.48, $P < .03$). These findings suggest dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis among more burned-out workers, which is crucial for maintaining homeostasis under stress. Evidence suggests that workers with a regulated HPA axis are more engaged in their work.

Sacadura-Liete et al. (44) explored the efficacy of the influenza vaccine among hospital nurses experiencing high levels of chronic stress and burnout. However, their findings focused on chronic stress as measured by the GHQ-12, rather than burnout specifically. They noted a decline in immune response, as evidenced by hemagglutination inhibition antibody levels six months post-vaccination in nurses experiencing elevated chronic stress.

Another study investigated risky health behaviors among 2,623 healthcare workers, including 1,431 nurses. They found significant associations between higher levels of emotional exhaustion and depersonalization and the prevalence of unhealthy behaviors. These included increased fast-food consumption (EE: $F = 44.18$, $P < .001$; DP: $F = 60.83$, $P < .001$), reduced physical exercise (EE: $F = 70.64$, $P < .001$; DP: $F = 30.66$, $P < .001$), more frequent alcohol consumption (EE: $F = 8.40$, $P < .01$; DP: $F = 29.66$, $P < .001$), and greater use of painkillers (EE: $F = 148.99$, $P < .001$; DP: $F = 74.91$, $P < .001$). These behaviors are detrimental to nurses' health and have been linked to medical errors, reduced patient safety, and diminished effectiveness in health promotion efforts directed toward patients (Alexandrova-Karamanova et al., 2016).

Anagnostopoulos and Niakas examined sick leave patterns among 477 nurses, noting that increased absences affect both individual health and organizational efficiency. They found that nurses experiencing high levels of burnout were more likely to take short-term sick leave compared to their lower-burnout counterparts. The researchers suggested that hospitals implement programs to reduce absenteeism and pay special attention to nurses with frequent short-term absences, as these may signal burnout and a need for additional support from the organization.

Discussion

The relationship between burnout and health is evident, highlighting the need for nurses, as healthcare professionals, to prioritize self-care as both a preventive and therapeutic approach. Proactively seeking and practicing strategies to manage workplace stressors, personal challenges, and the additional strain of a pandemic is essential. Healthcare workers exposed to COVID-19 face heightened psychological stress, with elevated rates of PTSD (Restauri & Sheridan, 2020). Burnout can be effectively monitored using validated instruments like the MBI, which can help identify when preventive measures are insufficient, and treatment is necessary. Addressing burnout requires a multifaceted approach, involving facilities, individuals, and professional organizations. Online resources provided by the American Nurses Association and the American Holistic Nurses Association offer free guidance to healthcare professionals, helping them develop self-awareness and integrate self-care practices into their routines.

Burnout has been strongly associated with various mental health symptoms, particularly stress, anxiety, and depression, as evidenced in numerous studies. Research has shown that mental health symptoms are more closely linked to emotional exhaustion than to depersonalization or personal accomplishment in two studies (Harwood et al., 2010). For nurse leaders, implementing programs that emphasize mindfulness of personal mental health needs and emotional exhaustion is beneficial. These initiatives can include tools for recognizing emotional exhaustion, accessing mental health support, and promoting self-care and mindfulness techniques. Fostering a caring and supportive environment can empower nurses to seek help when needed, thus enhancing overall well-being.

If mental health and burnout remain unaddressed, adverse physical health outcomes are likely. Among the reviewed studies, the most frequently reported physical health issues associated

with burnout were tiredness and poor sleep quality. Zangaro and colleagues highlighted that workload is a significant stressor contributing to burnout, often resulting in disrupted sleep patterns. Increased workload is also associated with emotional exhaustion, indirectly impacting patient care. By reducing nurses' workload, organizations and nursing leaders can improve nurses' health. Emotional exhaustion was more strongly linked to negative physical health outcomes than the other two burnout subscales in multiple studies. Emotional exhaustion affects not only nurses' personal health but also patient care quality, job satisfaction, and staff retention. Addressing emotional exhaustion and burnout requires creating a supportive workplace environment and implementing programs that promote a healthy work-life balance, provide access to mental health resources, and encourage self-care and mindfulness practices.

Resilience has shown a mediating effect on the relationship between burnout and health in one study (Arrogante & Aparicio-Zaldivar, 2017) and was associated with lower burnout levels in another (Mealer et al., 2012). Healthcare organizations that introduce resilience training may reduce burnout rates, improve staff retention, and enhance patient safety. However, such training must be accompanied by an environment characterized by mutual trust, psychological safety, and empowerment to achieve desired outcomes (Rangachari & L Woods, 2020). Strategies identified by nursing leaders to build resilience include fostering social connections, promoting positivity, leveraging nurses' strengths, supporting professional growth, encouraging self-care, nurturing mindfulness, and demonstrating altruism (Wei et al., 2019). Despite prioritizing resilience promotion, challenges such as increased violence at the point of care, perceived pressure to take shortcuts in patient care, insufficient recovery time after traumatic experiences, and isolation due to care protocols undermine efforts to strengthen resilience among nurses (Virkstis et al., 2018).

The correlation between nurse burnout and health is well-documented in studies addressing both mental and physical health. Burnout negatively impacts organizational health through reduced staff retention, compromised patient safety, and increased short-term absences. Nurses experiencing burnout exhibit signs of poor overall mental health, depression, anxiety, and chronic stress, as measured by various instruments. Chronic and posttraumatic stress significantly affect physical health, contributing to metabolic syndrome, inflammation, and severe conditions such as cardiovascular disease, diabetes, hypertension, and stroke.

The impact of burnout and stress on physical health was evident in several studies, which reported outcomes such as reduced influenza vaccine efficacy, increased sick leave, and engagement in risky health behaviors. Resilience, examined in two studies, was found to positively influence burnout, reducing its impact on mental and physical health, and mediating the relationship between burnout dimensions and mental health. Self-care emerged as an effective strategy to mitigate chronic stress. The authors recommend that hospitals and organizations prioritize programs focusing on resilience training and self-care promotion to combat burnout and its detrimental effects on health.

Conclusion

Nurse burnout is a multifaceted issue with profound implications for mental and physical health, as well as organizational well-being. It is strongly associated with symptoms such as depression, anxiety, and chronic stress, which not only affect the nurses themselves but also their ability to provide safe and effective patient care. Furthermore, physical health issues, including poor sleep quality, inflammation, and cardiovascular problems, highlight the toll that prolonged burnout can have on the body.

Strategies for combating burnout must include organizational efforts to reduce workload and create supportive environments, as well as individual practices like self-care and resilience building. Programs that focus on mental health support, mindfulness, and resilience training

can help mitigate the effects of burnout. However, fostering a culture of psychological safety and mutual trust is essential for the success of these initiatives.

As the healthcare industry continues to face challenges such as increased patient demands and workforce shortages, addressing nurse burnout must remain a priority. By implementing holistic strategies, healthcare organizations can improve nurse retention, enhance patient safety, and promote a healthier, more sustainable nursing workforce.

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