

Mini Review

# Understanding Burnout Rates for Clinicians and Physical Symptoms of Allostatic Load

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## Abstract

Burnout among clinicians is a pressing concern worldwide, manifesting as emotional exhaustion, depersonalization, and reduced professional efficacy. This article explores the intersection of burnout and allostatic load, the physiological burden resulting from chronic stress, to elucidate the consequences for healthcare providers. Burnout impacts clinicians' mental and physical health, leading to compromised patient care, reduced job satisfaction, and increased attrition rates. A comparative analysis of recent scholarly works reveals converging evidence on systemic contributors such as excessive workloads, inadequate support systems, and organizational inefficiencies, further compounded by individual vulnerabilities like lack of resilience. These challenges have been exacerbated by the COVID-19 pandemic, which has significantly increased stress levels among healthcare professionals globally.

This article synthesizes insights from studies conducted between 2020 and 2024, emphasizing the need for holistic approaches to mitigate burnout. It highlights the physiological underpinnings of allostatic load, including chronic dysregulation of stress-response systems that predispose clinicians to adverse health outcomes like cardiovascular diseases, immune dysfunction, and mental health disorders. To address these issues, the article proposes a multidimensional strategy encompassing organizational reforms, evidence-based interventions, and policy advocacy. Recommendations include reducing administrative burdens, fostering supportive work environments, and integrating wellness programs targeting both systemic and individual stressors. Limitations and directions for future research emphasize the importance of inclusive, longitudinal studies focusing on diverse populations to develop tailored solutions. This comprehensive approach aims to enhance clinician well-being and improve healthcare outcomes globally.

## Burnout in clinicians: scope and impact

Burnout rates among clinicians have reached critical levels, with surveys indicating that approximately 42% of U.S. physicians experience burnout symptoms [1]. Among nurses, the rates are even higher, with reports suggesting up to 60% experiencing emotional exhaustion [2]. Social workers and mental health professionals face similar challenges, with studies revealing that over 50% experience moderate to high levels of burnout due to excessive workloads, administrative demands, and inadequate support systems [3].

The COVID-19 pandemic has further heightened these challenges. For example, 70% of healthcare workers reported increased anxiety and stress during peak pandemic months,

and 30% considered leaving the profession altogether [4]. These systemic stressors parallel findings on broader social determinants of health, where inequities exacerbate mental and physical health disparities. Such stressors disproportionately impact women and clinicians of color, who report higher rates of burnout compared to their counterparts [5]. Additionally, the prolonged exposure to high patient loads, lack of Personal Protective Equipment (PPE), and witnessing increased mortality rates compounded the psychological burden on healthcare workers. The emotional toll has manifested in rising cases of anxiety, depression, and Post-Traumatic Stress Disorder (PTSD) among clinicians, underscoring the severity of the crisis.

A broader analysis reveals that burnout extends beyond the

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individual, affecting team dynamics, institutional performance, and patient outcomes. High levels of burnout correlate with increased medical errors, lower patient satisfaction scores, and higher turnover rates among healthcare staff [1]. The financial implications for healthcare institutions are equally significant, with estimates suggesting that burnout-related turnover costs exceed \$4.6 billion annually in the U.S. healthcare system. These findings underscore the urgency of addressing burnout as a systemic issue rather than an individual failure.

### **Allostatic load: the physical manifestation of burnout**

Allostatic load describes the “wear and tear” on the body caused by repeated activation of stress responses [6]. Among clinicians, stress-related dysregulation of the Hypothalamic-Pituitary-Adrenal (HPA) axis, heightened inflammatory markers, and altered autonomic nervous system activity are common. A study revealed that healthcare workers with high burnout levels exhibited a 30% increase in cortisol levels and a 40% reduction in immune response.

These physiological changes contribute to adverse health outcomes, including cardiovascular disorders, metabolic dysregulation, immune dysfunction, and neurocognitive impairments.

Recent studies have demonstrated how pandemic-related stressors exacerbate these physiological effects, linking higher rates of infection, fatigue, and mental health issues among healthcare workers to allostatic load [6]. For instance, 60% of frontline workers reported chronic fatigue and immune suppression symptoms, highlighting the physical toll of prolonged stress.

The interplay between psychological and physical health in the context of burnout is complex. Chronic stress leads to persistent activation of the HPA axis, resulting in elevated cortisol levels, which, over time, contribute to systemic inflammation. This inflammation has been linked to a range of health issues, including diabetes, hypertension, and even cognitive decline. Moreover, disrupted sleep patterns, a common symptom of burnout, further exacerbate physiological dysregulation. Sleep deprivation impairs the body’s ability to repair itself, weakens immune function, and reduces cognitive efficiency, compounding the challenges faced by healthcare professionals.

Another key aspect of allostatic load is its impact on neurobiological systems. Prolonged stress can lead to hippocampal atrophy, affecting memory and learning abilities. In clinicians, these cognitive deficits can compromise decision-making and increase susceptibility to errors, further fueling a cycle of stress and burnout. Additionally, elevated cortisol levels have been associated with reduced gray matter volume in the prefrontal cortex, a brain region critical for executive functioning and emotional regulation. These changes underscore the profound and multifaceted impact of allostatic load on both mental and physical health.

Gender and racial disparities further compound the effects of allostatic load among clinicians. Women, particularly women of color, are more likely to experience heightened stress levels due to the dual burdens of professional and caregiving responsibilities. Structural inequities, such as limited access to leadership opportunities and implicit bias in workplace evaluations, exacerbate the stress experienced by marginalized groups. These disparities highlight the need for tailored interventions that address the unique challenges faced by diverse populations within the healthcare workforce.

## **Discussion**

### **Divergent perspectives on burnout and allostatic load**

Efforts to address clinician burnout span diverse domains, offering both convergences and divergences in insights and approaches.

Maslach and Leiter [7] conceptualize burnout as a psychological phenomenon tied to systemic organizational failures. Addressing emotional exhaustion, depersonalization, and lack of professional efficacy requires fundamental changes to workplace culture, including fostering supportive leadership, improving resource allocation, and promoting a healthy work-life balance.

Chirico, et al. [6] provide a biological perspective, highlighting the physical consequences of chronic stress through the concept of allostatic load. Their work underscores the physiological damage caused by sustained activation of stress responses, providing a framework for understanding the physical toll of burnout. This perspective shifts the focus from organizational factors to the tangible health impacts on individuals, advocating for interventions that mitigate physiological stress.

Empirical data from Shanafelt, et al. [1] reveal the alarming prevalence of burnout, with systemic stressors such as administrative overload and inadequate support as key drivers. This aligns with the National Academy of Medicine [2], which emphasizes organizational reforms, including leadership training, workload reductions, and the integration of wellness programs, as strategies to mitigate burnout.

Livingston, et al. [3] explore the socioeconomic determinants of systemic stress, situating burnout within broader inequities. Their work, supported by findings from Bau, et al. [4], demonstrates that addressing systemic inequities, such as unequal pay, discrimination, and lack of access to career advancement, can alleviate stressors and promote clinician well-being. These findings highlight the intersectionality of burnout, where gender, race, and socioeconomic factors play a critical role in exacerbating stress.

Bai, et al. [8] found that resilience is a critical mediator in mitigating psychological distress, suggesting interventions that enhance resilience could significantly reduce burnout



rates among healthcare workers. Resilience training programs, mindfulness practices, and peer support groups are among the proposed solutions to equip clinicians with tools to navigate high-stress environments effectively.

These perspectives collectively emphasize the necessity of addressing both systemic and individual dimensions of burnout. However, the focus varies, with some prioritizing organizational factors, such as leadership and resource management, while others highlight psychological, biological, or socio-economic contributors. The integration of these approaches offers a comprehensive strategy, ensuring that interventions are multi-dimensional and inclusive of diverse clinician experiences.

By synthesizing insights from these diverse perspectives, future strategies can better address the complexity of burnout. For instance, combining systemic reforms with individual resilience-building programs could create a more sustainable and holistic approach. Recognizing the interconnected nature of organizational, biological, and socio-economic factors is crucial in designing interventions that not only alleviate burnout but also enhance the overall well-being and performance of healthcare professionals.

### Addressing burnout: interventions and recommendations

Given the multifaceted nature of burnout, interventions must be comprehensive, targeting individual, organizational, and systemic levels. At the individual level, Mindfulness-Based Stress Reduction (MBSR) programs have shown promise in mitigating burnout symptoms. These programs emphasize meditation, mindfulness practices, and stress management techniques, which have been linked to improved psychological resilience and reduced cortisol levels. Additionally, Cognitive-Behavioral Therapy (CBT) and resilience training programs can help clinicians develop coping strategies to manage stress effectively.

Organizational interventions are equally critical. Healthcare institutions must prioritize creating supportive work environments that address the root causes of burnout. This includes implementing policies to ensure manageable workloads, providing adequate resources, and fostering a culture of open communication and psychological safety. For example, introducing flexible scheduling, offering peer support programs, and establishing wellness committees can significantly alleviate stress among healthcare workers. Furthermore, leadership training programs that emphasize empathy, active listening, and conflict resolution can enhance team dynamics and reduce burnout rates.

Systemic changes are necessary to address the broader structural issues contributing to burnout. Policymakers must advocate for increased funding for healthcare systems to address staffing shortages, improve working conditions, and enhance access to mental health support for clinicians.

Additionally, integrating burnout prevention strategies into medical and nursing education can equip future healthcare professionals with the skills needed to navigate high-stress environments effectively. For instance, curriculum changes that incorporate stress management training, communication skills, and self-care practices can lay the foundation for a healthier workforce.

Another promising approach involves leveraging technology to address burnout. Telemedicine platforms, Electronic Health Records (EHRs) with user-friendly interfaces, and AI-driven tools can streamline administrative tasks, allowing clinicians to focus more on patient care. For example, EHR systems that incorporate automated documentation, and predictive analytics can reduce the time spent on paperwork, alleviating one of the primary stressors for healthcare workers. However, it is essential to ensure that technology is implemented thoughtfully to avoid introducing new stressors, such as technical glitches or increased screen time.

### Systemic recommendations

**Reducing administrative burdens and ensuring adequate staffing levels:** Reducing administrative burdens is a pivotal strategy in combating clinician burnout. Excessive documentation requirements and bureaucratic processes not only increase stress but also detract from patient care time. Streamlining administrative tasks through the adoption of efficient Electronic Health Record (EHR) systems, automating repetitive tasks, and delegating non-clinical responsibilities to administrative support staff can significantly alleviate these burdens. Additionally, ensuring adequate staffing levels is essential to prevent overwork and maintain patient safety. Healthcare institutions must regularly assess workload distribution and implement policies to hire and retain sufficient personnel, particularly during high-demand periods such as public health crises.

**Leadership training focused on emotional intelligence and clinician support:** Implementing leadership training programs centered on emotional intelligence can play a transformative role in fostering supportive workplace environments. Leaders trained in empathy, active listening, and conflict resolution are better equipped to address the needs of their teams, reducing stress and enhancing job satisfaction. According to the National Academy of Medicine [2], emotionally intelligent leadership is associated with decreased burnout rates and improved team cohesion. Regular feedback sessions and open communication channels between staff and leadership can further strengthen organizational support systems.

**Introducing wellness programs:** Wellness programs that integrate physical and mental health activities have demonstrated substantial benefits. These programs often include access to fitness facilities, stress management



workshops, mindfulness sessions, and mental health counseling. Reports indicate a 25% improvement in employee satisfaction and a 15% reduction in absenteeism following the implementation of such initiatives [6]. Tailoring these programs to the specific needs of healthcare professionals—for instance, providing flexible scheduling for participation—can maximize their effectiveness.

**Individual strategies:** Encouraging clinicians to engage in mindfulness practices and prioritize physical health is crucial in building individual resilience against burnout. Techniques such as meditation, yoga, and breathing exercises have been shown to reduce stress levels and enhance emotional regulation. Additionally, promoting regular exercise and balanced nutrition supports physical health and bolsters immune function, mitigating the effects of chronic stress.

Promoting work-life balance is another critical component. Normalizing time off and vacations allows clinicians to recharge, preventing long-term exhaustion. Studies have shown that taking regular breaks from work reduces burnout rates by up to 30% [4]. Creating a workplace culture that values and encourages self-care is essential in sustaining a healthy workforce.

**Policy-level interventions:** Policy-level interventions are necessary to address systemic contributors to burnout. Advocating regulations that limit work hours and ensure fair compensation can protect clinicians from exploitation and overwork. Additionally, allocating funds to mental health resources, such as onsite counseling services, provides accessible support for healthcare workers. Policymakers must also prioritize research into systemic stressors and their impact on diverse healthcare populations, ensuring that interventions are inclusive and equitable [6].

**Interventions to address burnout and allostatic load:** Effective interventions for clinician burnout must address both systemic factors and individual resilience. Key strategies include:

- 1. Organizational reforms:** Reducing administrative burdens, ensuring adequate staffing, and fostering supportive leadership can alleviate systemic stressors [1].
- 2. Mindfulness and stress reduction:** Mindfulness-Based Stress Reduction (MBSR) programs have shown efficacy in lowering stress biomarkers and improving emotional resilience among clinicians.
- 3. Physical health interventions:** Regular physical activity, adequate sleep, and balanced nutrition can mitigate the physiological impacts of allostatic load.
- 4. Peer support programs:** Creating opportunities for peer support can reduce feelings of isolation and promote a sense of community.

## Recommendations

### Organizational-level recommendations

- 1. Create supportive work environments:** Healthcare organizations must prioritize creating supportive environments that reduce stressors such as excessive workloads and administrative burdens. Implementing policies for flexible schedules, ensuring adequate staffing, and providing resources to reduce time spent on non-clinical tasks are essential steps [2].
- 2. Promote leadership training:** Equipping leaders with training on emotional intelligence and stress management can create a workplace culture that prioritizes employee well-being.
- 3. Establish wellness programs:** Organizations should offer wellness programs that include physical health activities, mental health counseling, and stress management workshops tailored for clinicians. Programs that incorporate Mindfulness-Based Stress Reduction (MBSR) have proven effective in reducing symptoms of burnout and improving well-being.
- 4. Facilitate peer support networks:** Providing formal peer support systems where clinicians can share their experiences and challenges helps reduce isolation and fosters a sense of camaraderie.

### Individual-level recommendations

- 1. Develop personal resilience:** Clinicians should be encouraged to engage in activities that promote resilience, including mindfulness practices, regular exercise, and adequate rest. Developing coping strategies for stress and setting realistic professional goals are crucial for maintaining balance.
- 2. Encourage continuing education:** Offering training on recognizing signs of burnout and understanding its physical and emotional consequences empowers clinicians to seek help proactively.
- 3. Prioritize work-life balance:** Clinicians should be encouraged to set boundaries between their professional and personal lives. Time off and vacations must be normalized to avoid overexertion and chronic stress.
- 4. Advocate for self-compassion:** Encouraging self-compassion and reducing stigma around seeking help for mental health issues can play a significant role in improving clinician well-being.

### Policy-level recommendations

- 1. Legislative support for burnout prevention:** Policymakers should advocate for regulations that limit work hours, increase clinician-patient ratios, and



fund mental health resources for healthcare workers. Financial incentives for organizations implementing burnout prevention measures should be considered.

2. **Integrate burnout metrics into accreditation:** Accrediting bodies should require healthcare organizations to monitor and report clinician burnout rates and implement measurable interventions.
3. **Focus on research and development:** Increased funding for research on clinician burnout and interventions addressing allostatic load is critical. Special attention should be given to understanding the unique stressors faced by underrepresented groups, as highlighted in recent studies on systemic stress and well-being [3,5,9,10].

## Conclusion

The intertwined issues of clinician burnout and allostatic load represent a significant challenge for healthcare systems worldwide. Addressing these problems requires a comprehensive, multidisciplinary approach encompassing systemic reforms, individual resilience-building strategies, and targeted policy measures. Key takeaways include recognizing the physiological underpinnings of burnout, fostering supportive work environments, and promoting inclusive research to address systemic inequities.

Additionally, successful intervention requires commitment from all stakeholders, including policymakers, healthcare administrators, and clinicians themselves. Healthcare institutions must prioritize creating cultures of wellness that extend beyond superficial initiatives to address root causes of stress. Comprehensive wellness programs, equitable resource distribution, and flexible work policies must be integrated into the structural framework of healthcare systems to ensure sustainable change.

Furthermore, advancing technology and innovation can play a crucial role in alleviating administrative burdens and enhancing patient care. Leveraging user-friendly electronic health record systems, telemedicine, and artificial intelligence can streamline workflows, reduce errors, and allow clinicians to focus on direct patient interactions.

Education and ongoing training also form a cornerstone

of sustainable solutions. Embedding resilience training and stress management strategies into medical education can equip future healthcare professionals with the skills needed to navigate the high-stress demands of the industry. Ongoing professional development opportunities should emphasize emotional intelligence, adaptive coping strategies, and collaborative teamwork.

Ultimately, the goal is not only to reduce burnout rates but to create a healthcare system where clinician well-being is prioritized alongside patient outcomes. A resilient and supported healthcare workforce is essential for delivering high-quality, compassionate care. By embracing these solutions, healthcare organizations can drive meaningful improvements, ensuring the longevity and efficacy of healthcare systems in the face of future challenges.

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