

Burnout in Academic Medicine: A Peripandemic Assessment

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Perm J 2023;27:23.042 • <https://doi.org/10.7812/TPP/23.042>

Abstract

The impact of burnout on academic medicine has affected its 3 major missions—education, patient care, and research—in ways both similar to and dissimilar from the community practice of medicine. The authors have assessed major themes in the literature regarding burnout in health care professionals in academic medicine in the peripandemic periods—pre-, intra-, and postpandemic—to gain information on the impact of the pandemic on these perspectives. Additionally, burnout in military physicians, particularly in the military medicine academic community, was assessed to provide comparative perspectives on the factors of military training, personal resiliency, and unit cohesiveness on the development of, or resistance to, professional burnout. Overall, there are data to indicate an aggravation of burnout during the pandemic, but currently no long-term data to indicate a persistence of its effects over time on health care professionals beyond baseline prevalence identified prepandemic. Based on the assessments, recommendations are provided for future research, including clarification and standardization of the concepts of burnout, developing longitudinal studies on health care practitioner burnout status with preventive and/or mitigating interventions, and the special protection of certain professionals, including female physicians, physicians in training, and early-career faculty, including nonclinical researchers.

Introduction

The psychosocial and physical impacts of the COVID-19 pandemic crisis on health care practitioners across the globe were admittedly substantial and unprecedented in modern medicine. It is likely that the additional stressors of the pandemic have adversely affected burnout in physicians and other health care practitioners in many domains, with

the expectation that identifying the impacts of the pandemic may be helpful in developing mitigating and preventive actions. First formally identified 50 years ago, burnout in health care workers has gained major scientific and societal attention over the past several decades, particularly in the elements of identification, characterization, prevention, mitigation, and impact on patient care and public health. It is generally held that the COVID-19

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Disclosures

Conflicts of Interest: None declared
Funding: None declared

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Published Online First: June 14, 2023
Final issue publication: June 15, 2023
Volume 27 Issue 2

pandemic has had an aggravating impact on the risks for burnout in health care, but supportive evidence is only now forthcoming.

While the entire scope of health care was impacted by the pandemic, this article focuses on the collective situation in academic medicine—that is, at the teaching, research, and clinical care institutions where all missions were potentially at risk for compromise. There is, however, some overlap of the academic clinical care mission with community practice, as common stressors in this area of patient care were encountered by both types of practice. Academic medical centers, by virtue of their missions, experienced potential impacts on research and education as well as on their clinical enterprises. To gain additional perspectives on the effects of the pandemic on the prevalence of burnout in academic health care professionals, the authors examined the literature to identify and compare burnout data and observations through the peripandemic period—prepandemic, intrapandemic, and postpandemic. They evaluated issues of personal, professional, systematic, and patient effect factors in the various periods, as well as potential elements for future interventional research. The authors also briefly reviewed the prevalence of burnout in military academic medical centers, with special attention to comparison with civilian findings. This evaluation of the literature was not a systematic review, but a survey of relevant publications.

Prepandemic

Burnout in health care workers is not a recently identified phenomenon. In 1974, Freudenberg recognized and reported burnout as a sociological issue, initiating an investigation into the impact of burnout on physicians and nurses, which has expanded to its present state.¹ In 2018, Rotenstein and colleagues reported the results of a systematic review of the prevalence of burnout in practicing physicians found in 182 studies from 45 countries, with 85.7% of the articles surveyed utilizing the Maslach Burnout Inventory (MBI) in the assessment of burnout.² The authors reported a prevalence variability range of overall burnout from 0% to 80.5%. This wide variability in range reflects a long-standing difficulty in medical research on burnout that underscores the presence of myriad variables in both the assessment tools and the professional stressors that can produce burnout. To that point, the authors commented that “because of inconsistencies in definitions of and assessment methods for burnout

across studies, associations between burnout and sex, age, geography, specialty, and depressive symptoms could not be reliably obtained.” They also recommended that future consensus definitions of burnout and research methodologies will be required to appropriately study this complex condition.²

From the early identification of health care worker burnout from the Freudenberg era, more sophisticated methodologies for research into the phenomenon were approached by Maslach and Jackson in 1981, when they reported their development of an inventory to measure “hypothesized aspects of the burnout syndrome”—the MBI.³ Previously, the authors had recognized the impact on physicians, their patients, and the institutions at which they worked, and identified the pertinent elements of this syndrome. The MBI measures 3 cardinal elements of burnout in health care workers: emotional exhaustion, depersonalization, and personal accomplishment. To date, the MBI is considered the standard for burnout measurement, although it is conceded that burnout is such a complex set of symptoms with the potential for individual susceptibility that no survey or inventory is yet comprehensive enough to capture the breadth of the information required to fully understand these human responses. Eckleberry-Hunt and associates authored an article in 2018 titled “The Problems with Burnout Research,” indicating that some standard, consistent approach is required, including addressing the problem from a perspective of physician wellness and positive psychology.⁴

In the prepandemic period, research on burnout in academic medicine had progressed to identifying stressors and predisposing factors across the spectrum of missions of these institutions—patient care, research, and education—which are inextricably intertwined in the relationships between faculty, resident physicians and fellows, and medical students. Del Carmen and colleagues conducted comparative surveys of a large number of physicians in 2014 and 2017 to study the prevalence and risk factors associated with burnout in a multi-specialty academic faculty practice organization.⁵ They reported an increase in overall burnout rate between the 2 survey periods from 40.6% to 45.6%, with specific increases in exhaustion and cynicism. Additionally, their data suggested that compared with midcareer physicians, early-career physicians were more susceptible to burnout, and that late-career physicians appeared to be less vulnerable. The authors noted that burnout alleviation efforts

will require a shared professional commitment from both physicians and their institutions, as well as centralized and physician-engaged strategy implementation.

Residency training is accepted as generally challenging and inherently stressful, conducted in an environment of high expectations and accountability for safety and efficacy in patient care, and the acquisition of foundational knowledge is critical to the practice of medicine. It is not surprising that physicians in training in an academic medical center could be particularly susceptible to developing burnout. In earlier eras, the environment in residency training was not particularly conducive to accepting burnout as a risk for resident physicians; however, data from the current century better identify the major risks for burnout in physicians in training programs. In 2002, Shanafelt and colleagues reported on the prevalence of burnout in an internal medicine program as well as its relationship to self-reported care of patients.⁶ Using the MBI survey scores on the depersonalization or emotional exhaustion subscales, the authors identified 76% of responding resident physicians who met the primary criteria for burnout, in addition to a higher reported incidence of “suboptimal patient care,” and higher depersonalization scores related to the care incidents.

In the prepandemic period, Edmondson and associates identified the importance of creating a culture of health and wellness in residency.⁷ They emphasized the associated risks for depression and suicide in burnout syndrome, and posited that resident physicians were susceptible to these risks. The report identified modifiable barriers to resident wellness, including unfriendly/unhealthy work environments, lack of wellness initiatives, and personal health-related behaviors, and identified methodologies to create positive cultural changes. In consideration of the opportunities for academic medicine faculty to positively impact risk factors for themselves and their learners, Abaza and Nelson proposed that role-modeling personal and professional resilience and the joy of patient care by academic faculty can provide guidance for self-care and wellness, and perhaps reduce the risk for burnout in resident physicians.⁸

Burnout is not isolated to patient care practitioners in academic medical centers, as nonclinical biomedical scientists and researchers are also at risk for work-related burnout. Messiah and colleagues conducted a burnout prevalence survey of clinical

practitioners and biomedical scientists using the Copenhagen Burnout Inventory at a midsized academic medical center.⁹ In comparison to the MBI’s emphasis on emotional exhaustion, depersonalization, and personal accomplishment, the Copenhagen Burnout Inventory addresses personal burnout, work burnout, and patient burnout. The authors reported, in 2019, that the “type of burnout varies across professional categories, with significant differences between clinicians and scientists.” Their study results indicated a personal burnout prevalence of 52.7%, work-related burnout of 47.5%, and a patient- or research-related burnout of 20.3%. They additionally noted a higher prevalence of burnout among women and younger professionals. Interestingly, clinicians had higher burnout rates in professional and clinical-related duties, while biomedical scientists had a higher research “client”-related prevalence rate. The authors also reported that nurses had higher odds risks for all 3 types of burnout. These prepandemic findings are important foundational comparisons to the intra- and postpandemic findings discussed later in this article.

A special category of health care professionals who may face unique stressors in the clinical environment is that of military medical practitioners, particularly those who work and train in military academic medical centers. Based on the experiences of the senior author, through 2 combat zone deployments, this is felt to be a potential area of investigation. Including these health professionals in an overview of burnout in the 21st century seems appropriate, given the similarity of their academic missions, as well as the very challenging missions of combat casualty care in austere and dangerous environments. In 2016, Sargent and colleagues addressed the issue of health care practitioner burnout in a US military medical center during a period of war, citing concerns for the impact of burnout on efficiency, empathy, and medical errors.¹⁰ The MBI was utilized in the survey, along with deployment history for military providers and various work variables. Sixty percent of respondents were active-duty health care providers and 34% had been deployed. The levels of burnout in the surveyed military population were comparable to those reported in civilian academic medical centers. The study results also demonstrated, among respondents, frustration with administrative support and frustration with work-life balance issues, similar concerns found in civilian academic medicine surveys. Deployment had no demonstrated impact on the survey results. In contradistinction, Summers and colleagues, studying

the prevalence of faculty physician burnout in military graduate medical education training programs, identified an overall 26% prevalence of burnout, with the only independent risk factor for burnout being increasing numbers of deployments.¹¹ Like Sargent et al's study, this report identified predisposing occupational distress issues and inadequate support in the areas of bureaucratic task management, administrative burdens, and productivity metrics. The prevalence of burnout in military residents has been further identified in both orthopedic and emergency medicine programs as 3.7% and 10%, with at-risk prevalence of 33% and 23%, respectively.^{12,13} Additionally, Simons et al also surveyed the burnout prevalence of staff/faculty physicians in the studied orthopedic residency training programs and noted a rate of 16.7%, with an additional 8.3% at risk for burnout.¹²

Having a sense of baseline prepandemic prevalence data for burnout is important to understanding the impact of the actual COVID-19 pandemic stressors on health care practitioners and their susceptibility to burnout. Clearly in the prepandemic period burnout was a syndrome of concern, and how the pandemic affected the susceptibility to and prevalence of burnout is of broad interest.

Intrapandemic

The COVID-19 pandemic undoubtedly impacted academic medicine in many aspects, both directly and indirectly. Sinsky and colleagues reported burnout prevalence during the pandemic in 48% of physicians and 63% of nurses.¹⁴ Another study by Khan and associates in Canada reported a 68% prevalence of burnout in physicians, although resident physicians and medical students were not studied.¹⁵ Data from undergraduate and graduate medical education programs are difficult to obtain and analyze, as many of these early health care professionals were taken "off-line" from clinical duties, or had these duties reduced, owing to the risks of exposure, and classwork was transitioned to virtual instruction in most programs. However, manifestations of the stressors in academic medicine ranged widely, including psychosocial and emotional distress, gender disparity, moral exhaustion, self-reported medical errors, and institutional economic repercussions.

Harry and colleagues reported from a survey during the pandemic that women experienced a considerable gender disparity in their academic

and professional careers, with women professionals having nearly 50% greater odds of reporting burnout than men.¹⁶ The authors also found that both male and female health care workers in the survey who reported high childcare stress had 80% greater odds for burnout than those with less childcare stress. Female professionals in a study by Frank and associates also reported a more significant homelife burden, including childcare stress (school and daycare closures), than their male counterparts.¹⁷ Liu et al found that mental health concerns were reported by respondents primarily as anxiety, depression, posttraumatic stress disorder (PTSD), and insomnia.¹⁸ The combination of increased childcare and household burdens for female professionals may have been manifested in a reduction of female first authors in research manuscripts submitted during the pandemic compared to prepandemic.¹⁹

The psychosocial impacts identified during the pandemic were not limited to gender disparity. Patel and Foster investigated the progression of mental health issues in physicians' overtime work hours during and after the pandemic, reporting that early in the pandemic 80.4% of physicians experienced anxiety, 49.2% reported insomnia, and 36% reported worsening depressive symptoms.²⁰ Four months into the pandemic, some measures were reported as worsening, including depression, frustration, fatigue, dread of going to work, and feelings of hopelessness. Dubey and colleagues observed that the overarching causes of anxieties during the pandemic were related to the perception of danger posed by the virus's lethality, dealing with affected patients' panic and stigmatization, and the potential risks to the professionals and their families.²¹ Greenberg and associates reported that being exposed and quarantined or the death or illness of a patient, relative, or friend were additional contributors to the negative impact of the pandemic on health care practitioners' mental health and well-being.²²

Lluch et al proposed the importance of burnout as a reliable indicator of poor well-being in health care professionals, as their study respondents reported high rates of emotional exhaustion, depersonalization, low personal accomplishment, and compassion fatigue, with compassion satisfaction reported at a low rate.²³ Darcharlet and associates posited that 1 cause of emotional exhaustion and depersonalization could be combined moral distress and injury.²⁴ Moral distress comes into play when a health care professional is required to take action not normally taken in a nonemergency

situation such as in the prepandemic period. Such actions required during the pandemic may have been based on institutional financial constraints, the requirements of hospital care of ill patients, and the nature of the pandemic contagion. Friedberg and associates have proposed that the insertion of the electronic health record into physicians' lives (work and home) could be an additional causative agent for emotional exhaustion and depersonalization, thus blurring the line of protection for work separation.²⁵ Work-home balance may have been sorely unbalanced during the pandemic health care requirements.

Emotional exhaustion and depersonalization, both subsets of the MBI, can have deleterious effects on motivation and passion, which are altruistic traits anticipated to be part of a health care practitioner's professional persona. Salas-Vallina and colleagues related the notion of self-determination theory to a practitioner's capability for perseverance in the face of major challenges.²⁶ They argued that human motivation emerges through a fulfillment of basic psychological needs for autonomy, relatedness, and competence—all traits enjoined in a professional career. Their study explored mechanisms underpinning the dyadic relationship between shared leadership and job outcomes among physicians in an unprecedented health emergency context. The authors emphasized that shared leadership was a salutary resource in the face of the negative effects on professionals during the pandemic, and that professional "passion" can predict work-related outcomes such as resilience and performance.

The overall incidence of burnout noted during the pandemic, along with its psychosocial impacts and occupational fatigue, have increased the reported consideration among survey professional respondents to leave their jobs or reduce working time, especially female clinicians and nurses. Galvin reported from a poll of 1000 health care workers that up to 30% of health care workers resigned or lost their positions during the pandemic, in some part due to their childcare and homecare responsibilities.²⁷ The poll results also indicated that, in the middle of the pandemic—mid-February 2020—12% of health care workers had been laid off or lost their jobs, an additional 18% quit their employment, and 79% of remaining health care workers considered the possibility of leaving employment. This loss of health care professionals, for whatever reason, accentuated the patient care challenges during the pandemic, causing further stress and

potential burnout in the remaining staff. Linzer and associates investigated the mitigating and aggravating factors of clinician burnout during the pandemic, reporting that chaotic workplace conditions and lack of control of workload requirements were associated with higher burnout rates; conversely, efficient teamwork and demonstrated value of clinicians were associated with lower burnout rates.²⁸

Financial issues were also reportedly factors in the development of burnout in clinicians, primarily in the early phases of the pandemic. Han and associates evaluated the national financial effects of burnout due to decreased physician work hours as well as the turnover of physicians. They estimated that \$4.6 billion of lost revenue was due to these factors, representing a loss of roughly \$7600 per employed physician each year.²⁹ These losses can have considerable impact on the revenue flow for an academic medical center where budgets are always tight and reliance on the academic practice plan an important budgetary item. These data point to a little considered aspect of the pandemic effects, perhaps by requiring increased workload per clinician and institutional stress, which can be felt by those who care for patients. A previous study from Stanford Medicine by Hamidi and colleagues estimated their 2-year recruitment costs for physician departure due to burnout were between \$15,544,000 and \$455,506,000.³⁰ The authors also reported that physicians who expressed an intent to leave their current employment were 3 times more likely to resign than those who did not express the intent. The downstream financial effects of burnout on health care professionals and institutions can be substantial, and their full impact from the pandemic has yet to be determined.

Postpandemic

Although the impacts of the pandemic on prevalence of burnout on the missions of academic medicine are still to be completely identified and understood, there are several observations from the current literature that can be noted, along with recommendations for future research and mitigation. In an article published in 2022, Garner and associates surveyed academic medical faculty at a major medical university's department of medicine to identify the impact of the pandemic on their clinical practice and work-life integration.³¹ The authors noted a general prevalence of burnout

in North America as reaching up to 50% before the pandemic, while the additional demands of the pandemic prompted their efforts to assess its impact. Of the faculty respondents in their survey, the reported burnout rate was 75.9%, with the greatest impact on women and early-career faculty. Nearly half of the clinician respondents reported a concern about potential medical liability risks of transitioning to telehealth formats. Higher hours of work during the pandemic, especially for women compared to prepandemic levels, and more time spent on caring for dependents characterized the gender gap with women. Both men and women professionals noted lower career fulfillment and research productivity by over 50% in each category.

Matulevicius and colleagues addressed the effect of how the COVID-19 pandemic has affected academic medicine faculty members' work-life balance through an anonymous survey of 1186 respondents at a large urban academic medical center.³² The main outcomes and measures of the survey included "self-assessed intention to leave, reducing employment to part-time, or turning down leadership opportunities because of work-life conflict before and since the COVID-19 pandemic." The report findings indicated that respondents' perceived work-life integration stressors were higher in female faculty than male faculty and were considered exacerbated by the pandemic. Parenthood and female gender were both associated with perceived work-life stress and could be contributory to long-term negative effects on the careers of these faculty members postpandemic.

Delaney and colleagues conducted a survey to assess and identify the experiences of the pandemic on 5030 faculty, staff, and trainee respondents at a major university academic medical center on the factors of career development, work culture, and childcare needs, all issues that were stressed due to the pandemic.³³ More than half of the respondents who were parents reported difficulties with parenting and managing virtual education for children. Within the respondent pool, 21% considered leaving the medical workforce, and 30% considered reducing work hours. Over half of the faculty and trainee respondents perceived productivity reduction, and 47% reported concern about career development. Those reporting concerns included academic professionals from racial/ethnic groups that are historically underrepresented in medicine.

Data are currently emerging that indicate an elevated level of stressors and detractors present

during the pandemic and characterize the impact of these challenges on the careers of typically dedicated health care professionals. Additionally, there are concerns that the effects of the pandemic could continue longitudinally, as the pandemic accentuated the stressors and challenges that were already at an endemic level of burnout in the health care community of academic medicine professionals. Shan and associates identified the need for restoring what they termed "faculty vitality" in academic medicine in the face of the burnout challenge, proposing that a better understanding of the concepts of faculty and institutional "vitality" is needed so that the threats of burnout can be accurately addressed.³⁴ Models being proposed in the wake of the pandemic suggest that addressing the aggravation of burnout in academic medicine will require substantial efforts across a very wide range of stressors and susceptibilities before substantial progress can be made.

Conclusion and Recommendations

Although the specific elements of the diagnosis of burnout syndrome are beyond the scope of this literature examination, burnout is a fundamental problem in health care that can have major consequences on patient care and the mental status of health care professionals. Heineemann and Heinemann have called for a broader investigation of the psychological and somatic symptoms of burnout to reduce the "vagueness and ambiguity of the concept" that requires further clarification.³⁵ According to the authors, burnout has not yet been accepted and codified as a mental disorder, which continues to hinder clinical, psychological, and social investigations into the syndrome's elements for better clarification. Nadon and fellow researchers have posed the question of whether burnout should be conceptualized as a mental disorder and appropriately classified as its own pathological entity.³⁶ They state that "stemming from a lack of conceptual clarity, the current state of burnout research remains, unfortunately, largely circular and riddled with measurement issues." The authors call for international collaboration to clarify the concepts and avoid previous definitions. Perhaps the professional responses to the pandemic effects on burnout in medicine will help clarify the nature of this syndrome or disorder.

In an editorial on the pandemic and health care worker burnout, Kaushik calls for global action on what the author deems “unsustainable health care worker burnout.”³⁷ His concern relates to the risk for a reduction in the global size and supply of health care workers, owing to the effects of burnout, which has generally been aggravated by the pandemic. Near loss of a generation of health care practitioners could substantially restrict available health care and jeopardize patient safety. He calls on politicians and policy makers to recognize the potential impact of health care burnout and provide adequate funding for prevention programs to facilitate and protect the economic growth and resilience of nations.

It is largely unknown, and underinvestigated, whether personal traits and resilience play a role in the development of, or resistance to, burnout in the health care industry. In general, physicians, nurses, and other health care professionals tend to be hardworking, self-sacrificing, and dedicated to a greater cause in society. These traits would seem to be tied to a resiliency that strengthens health care professionals through long periods of education and training, as well as career demands that are often onerous and exhausting. However, the traits of self-effacement and noncomplaining felt to be required in health care practitioners may also be deterrents to seeking assistance with their potential burnout. Likewise, if personal resiliency is shown to be a mitigating factor in resisting burnout and its effects, attention should be paid to developing stronger resiliency in the face of stress and exhaustion. Teaching and promoting personal resiliency to strengthen that which is inherent to the individual professional may be a salutary effort.

Alarcon and colleagues, reporting a meta-analysis of the relationships between personality variables and burnout, identified potential factors that could be associated, including self-esteem, self-efficacy, emotional stability, conscientiousness, agreeability, positive affectivity, optimism, proactive personality, and hardiness, among others.³⁸ The authors concluded from their study that personality is related to burnout, recommending that “personality variables be included as predictors in future research on burnout.” Writing in a military medicine journal, Shahbodaghi and Farnell examined the COVID-19 pandemic with respect to the training and skills of military physicians afforded

by military-specific graduate medical education.³⁹ Citing the unique preparation of military physicians, particularly those trained in military residencies, to practice in austere and chaotic environments, the authors propose that such training provides experience and expertise to organize and lead others in dedicated tasks no matter the challenges encountered. Although military physicians compare favorably in burnout statistics to civilian physicians, the personal traits and characteristics of military-educated and military-trained physicians may provide some additional insight into methods to enhance and strengthen resiliency in health care practitioners during times of chaos, including pandemics, epidemics, casualty care, natural disasters, and terrorist events. A sense of duty to country and a responsibility to one’s patients and comrades in military medicine may be mitigative against burnout when caring for patients in dangerous and hostile environments. Personal resiliency may be studied for role modeling and mentoring, and the authors of this article suggest that this is a valuable aspect of burnout prevention that requires further investigation. Additionally, the authors propose that, as there are symptoms of PTSD in common with burnout in health care workers, some consideration be given to exploring a new perspective on burnout as related to PTSD in these professionals.

In considering the impact of the pandemic period, several observations can be proffered. First, all indications point to an aggravation of self-reported burnout perceptions and symptoms across the spectrum of academic medicine professionals during the pandemic. Of particular concern are the constraints faced by female professionals that appear to be related to dependent care and education but may also have been foundationally present due to previous inequalities in available opportunities for promotion, time management, and financial remuneration. This was also manifested in reduced research efforts for women in medical academia due to overarching homecare responsibilities. Second, for both male and female professionals, it is conceded that the general fear of contagion and risk for infecting family members may have been substantial stressors. Third, the unknown qualities of the virus, lack of previous clinical experience with prevention and management of the infection, the initial inadequate supply of personal protective equipment, and lack of standardized best practices and guidelines all

created an environment of loss of control and safety concerns. For many, being exposed to daily death and dying led to emotional exhaustion and compassion fatigue. Professional burnout under these circumstances was very understandable. For health care professionals in academic medicine, the pandemic appears to have impacted all missions of academia—patient care, education, research—in both personal and professional aspects.

It is also apparent that there are no standardized programs for the prevention or remediation of professional burnout, in good part because the syndrome remains elusive in definition and composition, further hindering research based on inadequacies in conclusive etiologies and unknown personal vulnerabilities. To date, most studies have utilized self-reporting by health care professionals, which has inherent limitations. Most of the studies reviewed that provided recommendations for moving forward, proposed both institutional/systemic improvements and local/personal interventions to identify and reduce stressors, educate professionals on signs and symptoms, create an atmosphere of self-help and colleague help, and wellness training to improve personal resilience and self-awareness. In 2023, Alkhamees and colleagues performed a systematic review and meta-analysis of physicians' burnout during the COVID-19 pandemic, with the inclusion of 30 studies in the final analyses.⁴⁰ The authors posited that many factors may be at play in the predisposition to burnout in physicians, including preexisting psychiatric disorders, culture, substance abuse, depression and anxiety, and work-related issues. They also stressed the need for longitudinal studies in individual health care practitioners to identify improvement in, or deterioration of, burnout prevention or mitigation strategies. Of particular concern is the apparent detrimental effect of the pandemic on special categories of health care professionals, including resident physicians, female physicians, and early-career academicians.

Summary

On one hand, the authors' assessment of the peripandemic time frame supports the negative effects on health care professionals accentuated by the pandemic, while the extent of the aftereffects is yet to be identified. On the other hand, it is possible that, for some professionals,

exposure to the extenuating circumstances of the pandemic, perhaps not dissimilar to combat exposure, will have been a personal resiliency builder, better preparing the professional to resist burnout and function competently and appropriately under challenging and chaotic conditions. Personal resiliency development should be an additional focus for research and education. Finally, real data on issues of great importance to burnout effects such as patient care errors and patient safety require, in the authors' opinion, identifying prospective data collection and analysis protocols to determine the true relationships between burnout and patient care. To the issue of whether burnout in health care practitioners should be considered a mental disorder, further discussions should be encouraged across the spectrum of knowledgeable mental health professionals.

Limitations of this study include a noncomprehensive assessment of the literature during the peripandemic period, and lack of focus on 1 professional category in health care. The studies assessed did, however, address topics in the range of health care practitioners, resident physicians, and nonclinical biomedical researchers. This overview was intended to search for general concepts of burnout pertinent to a comparison of time periods before, during, and after the pandemic experience.

REFERENCES

1. Freudenberger HJ. Staff burn-out. *J Soc Issues*. 1974;30(1):159-165. DOI: <https://doi.org/10.1111/j.1540-4560.1974.tb00706.x>
2. Rotenstein LS, Torre M, Ramos MA, et al. Prevalence of burnout among physicians: A systematic review. *JAMA*. 2018;320(11):1131-1150. DOI: <https://doi.org/10.1001/jama.2018.12777>
3. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organiz Behav*. 1981;2(2):99-113. DOI: <https://doi.org/10.1002/job.4030020205>
4. Eckleberry-Hunt J, Kirkpatrick H, Barbera T. The problems with burnout research. *Acad Med*. 2018;93(3):367-370. DOI: <https://doi.org/10.1097/ACM.0000000000001890>
5. Del Carmen MG, Herman J, Rao S, et al. Trends and factors associated with physician burnout at a multispecialty academic faculty practice organization. *JAMA Netw Open*. 2019;2(3):e190554. DOI: <https://doi.org/10.1001/jamanetworkopen.2019.0554>
6. Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med*. 2002;136(5):358-367. DOI: <https://doi.org/10.7326/0003-4819-136-5-200203050-00008>
7. Edmondson EK, Kumar AA, Smith SM. Creating a culture of wellness in residency. *Acad Med*. 2018;93(7):966-968. DOI: <https://doi.org/10.1097/ACM.0000000000002250>

8. Abaza MM, Nelson KG. Leading by example: Role modeling resilience helps our learners and ourselves. *Acad Med.* 2018;93(2):157–158. DOI: <https://doi.org/10.1097/ACM.0000000000001936>
9. Messias E, Gathright MM, Freeman ES, et al. Differences in burnout prevalence between clinical professionals and biomedical scientists in an academic medical centre: A cross-sectional survey. *BMJ Open.* 2019;9(2):e023506. DOI: <https://doi.org/10.1136/bmjopen-2018-023506>
10. Sargent P, Millegan J, Delaney E, et al. Health care provider burnout in a United States military medical center during a period of war. *Mil Med.* 2016;181(2):136–142. DOI: <https://doi.org/10.7205/MILMED-D-14-00449>
11. Summers SM, Nagy CJ, April MD, Kuiper BW, Rodriguez RG, Jones WS. The prevalence of faculty physician burnout in military graduate medical education training programs: A cross-sectional study of academic physicians in the United States Department of Defense. *Mil Med.* 2019;184(9–10):e522–e530. DOI: <https://doi.org/10.1093/milmed/usz055>
12. Simons BS, Foltz PA, Chalupa RL, Hylden CM, Dowd TC, Johnson AE. Burnout in US military orthopaedic residents and staff physicians. *Mil Med.* 2016;181(8):835–839. DOI: <https://doi.org/10.7205/MILMED-D-15-00325>
13. Williams BJ, Rudinsky SL, Matteucci MJ. Burnout in military emergency medicine resident physicians: A cross-sectional study with comparisons to other physician groups. *Mil Med.* 2020;185(3–4):e331–e334. DOI: <https://doi.org/10.1093/milmed/usz236>
14. Sinsky CA, Brown RL, Stillman MJ, Linzer M. COVID-related stress and work intentions in a sample of US health care workers. *Mayo Clin Proc Innov Qual Outcomes.* 2021;5(6):1165–1173. DOI: <https://doi.org/10.1016/j.mayocpiqo.2021.08.007>
15. Khan N, Palepu A, Dodek P, et al. Cross-sectional survey on physician burnout during the COVID-19 pandemic in Vancouver, Canada: The role of gender, ethnicity and sexual orientation. *BMJ Open.* 2021;11(5):e050380. DOI: <https://doi.org/10.1136/bmjopen-2021-050380>
16. Harry EM, Carlisare LE, Sinsky CA, et al. Childcare stress, burnout, and intent to reduce hours or leave the job during the COVID-19 pandemic among US health care workers. *JAMA Netw Open.* 2022;5(7):e2221776. DOI: <https://doi.org/10.1001/jamanetworkopen.2022.21776>
17. Frank E, Zhao Z, Fang Y, Rotenstein LS, Sen S, Guille C. Experiences of work-family conflict and mental health symptoms by gender among physician parents during the COVID-19 pandemic. *JAMA Netw Open.* 2021;4(11):e2134315. DOI: <https://doi.org/10.1001/jamanetworkopen.2021.34315>
18. Liu S, Yang L, Zhang C, et al. Gender differences in mental health problems of healthcare workers during the coronavirus disease 2019 outbreak. *J Psychiatr Res.* 2021;137:393–400. DOI: <https://doi.org/10.1016/j.jpsychires.2021.03.014>
19. Andersen JP, Nielsen MW, Simone NL, Lewiss RE, Jagsi R. COVID-19 medical papers have fewer women first authors than expected. *eLife.* 2020;9:e58807. DOI: <https://doi.org/10.7554/eLife.58807>
20. Patel R, Foster T. Longitudinal assessment of physician wellness during the COVID-19 pandemic. *Psychiatry Res.* 2022;316:114739. DOI: <https://doi.org/10.1016/j.psychres.2022.114739>
21. Dubey S, Biswas P, Ghosh R, et al. Psychosocial impact of COVID-19. *Diabetes Metab Syndr.* 2020;14(5):779–788. DOI: <https://doi.org/10.1016/j.dsx.2020.05.035>
22. Greenberg N, Docherty M, Gnanapragasam S, Wessely S. Managing mental health challenges faced by healthcare workers during COVID-19 pandemic. *BMJ.* 2020;368:m1211. DOI: <https://doi.org/10.1136/bmj.m1211>
23. Lluch C, Galiana L, Doménech P, Sansó N. The impact of the COVID-19 pandemic on burnout, compassion fatigue, and compassion satisfaction in healthcare personnel: A systematic review of the literature published during the first year of the pandemic. *Healthcare (Basel).* 2022;10(2):364. DOI: <https://doi.org/10.3390/healthcare10020364>
24. Ducharlet K, Trivedi M, Gelfand SL, et al. Moral distress and moral injury in nephrology during the COVID-19 pandemic. *Semin Nephrol.* 2021;41(3):253–261. DOI: <https://doi.org/10.1016/j.semnephrol.2021.05.006>
25. Friedberg MW, Chen PG, Van Busum KR, et al. Factors affecting physician professional satisfaction and their implications for patient care, health systems, and health policy. *Rand Health Q.* 2014;3(4):1.
26. Salas-Vallina A, Rofcanin Y, Las Heras M. Building resilience and performance in turbulent times: The influence of shared leadership and passion at work across levels. *BRQ Business Research Quarterly.* 2022;25(1):8–27. DOI: <https://doi.org/10.1177/23409444211035138>
27. Galvin G. Nearly 1 in 5 Health Care Workers Have Quit Their Jobs During the Pandemic. *Morning Consult.* 2021. Accessed October 4, 2021. morningconsult.com/2021/10/04/health-care-workers-series-part-2-workforce/
28. Linzer M, Jin JO, Shah P, et al. Trends in clinician burnout with associated mitigating and aggravating factors during the COVID-19 pandemic. *JAMA Health Forum.* 2022;3(11):e224163. DOI: <https://doi.org/10.1001/jamahealthforum.2022.4163>
29. Han S, Shanafelt TD, Sinsky CA, et al. Estimating the attributable cost of physician burnout in the United States. *Ann Intern Med.* 2019;170(11):784–790. DOI: <https://doi.org/10.7326/M18-1422>
30. Hamidi MS, Bohman B, Sandborg C, et al. Estimating institutional physician turnover attributable to self-reported burnout and associated financial burden: A case study. *BMC Health Serv Res.* 2018;18(1):851. DOI: <https://doi.org/10.1186/s12913-018-3663-z>
31. Garner S, Campbell N, Douketis J, et al. Impact of the COVID-19 pandemic on clinical practice and work life integration experienced by academic medical faculty. *Open Science Framework.* 2022;17:22–23. DOI: <https://doi.org/10.31219/osf.io/ym54d>
32. Matulevicius SA, Kho KA, Reisch J, Yin H. Academic medicine faculty perceptions of work-life balance before and since the COVID-19 pandemic. *JAMA Netw Open.* 2021;4(6):e2113539. DOI: <https://doi.org/10.1001/jamanetworkopen.2021.13539>
33. Delaney RK, Locke A, Pershing ML, et al. Experiences of a health system's faculty, staff, and trainees' career development, work culture, and childcare needs during the COVID-19 pandemic. *JAMA Netw Open.* 2021;4(4):e213997. DOI: <https://doi.org/10.1001/jamanetworkopen.2021.3997>
34. Shah DT, Williams VN, Thorndyke LE, et al. Restoring faculty vitality in academic medicine when burnout threatens. *Acad Med.* 2018;93(7):979–984. DOI: <https://doi.org/10.1097/ACM.0000000000002013>
35. Heinemann LV, Heinemann T. Burnout research: Emergence and scientific investigation of a contested diagnosis. *SAGE Open.* 2017;7(1). DOI: <https://doi.org/10.1177/2158244017697154>

36. Nadon L, De Beer LT, Morin AJS. Should burnout be conceptualized as a mental disorder? *Behav Sci (Basel)*. 2022;12(3):82. DOI: <https://doi.org/10.3390/bs12030082>
37. Kaushik D. COVID-19 and health care workers burnout: A call for global action. *EClinicalMedicine*. 2021;35:100808. DOI: <https://doi.org/10.1016/j.eclinm.2021.100808>
38. Alarcon G, Eschleman KJ, Bowling NA. Relationships between personality variables and burnout: A meta-analysis. *Work & Stress*. 2009;23(3):244-263. DOI: <https://doi.org/10.1080/02678370903282600>
39. Shahbodaghi D, Farnell E. COVID-19 crisis: The pandemic highlights the unique training and skills of military physicians afforded by military-specific graduate medical education. *Mil Med*. 2021;186(11-12):292-293. DOI: <https://doi.org/10.1093/milmed/usab288>
40. Alkhamees AA, Aljohani MS, Kalani S, et al. Physician's burnout during the COVID-19 pandemic: A systematic review and meta-analysis. *Int J Environ Res Public Health*. 2023;20(5):4598. DOI: <https://doi.org/10.3390/ijerph20054598>