RESEARCH ARTICLE

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# Multidimensional stressors and protective factors shaping physicians' work environments and work-related well-being in two large US cities during COVID-19

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## Abstract

**Introduction:** Clinician burnout and poor work-related well-being reached a critical inflection point during the COVID-19 pandemic. This article applies a novel conceptual model informed by the Total Worker Health® approach to identify and describe multilevel stressors and protective factors that affected frontline physicians' work environments and work-related well-being.

**Methods:** We conducted a qualitative study of hospital-based physicians from multiple hospital types in Los Angeles and Miami who cared for COVID-19 patients. Semistructured interviews lasting 60–90 min were conducted over Zoom. Interview transcripts were thematically coded using Dedoose qualitative software.

**Results:** The final sample of 66 physicians worked in 20 hospitals. Stressors in the social, political, and economic environment included dealing with the politicization of COVID-19, including vaccine hesitancy; state and federal governmental COVID-19 policies and messaging; and shifting CDC guidance. Employment and labor pattern stressors included the national nursing shortage, different policies for paid time off, furloughs, reduced pay, and layoffs. Organizational-level stressors included institutional policies, staffing constraints and high patient volume (i.e., increased number of cases and longer lengths of stay), and perceived poor leadership. At the individual worker level, stressors included concerns about viral transmission to family, strained personal relationships, and work-life fit, particularly for those with young children. Respondents identified promising protective factors at multiple levels, including responsive state leadership, job security, concrete opportunities to provide input into institutional policy, strong leadership and communication, and feeling cared for by one's institution.

**Conclusion:** Findings support a multi-level strategy that acknowledges internal organizational and external factors shaping clinicians' work-related well-being, consistent with the Total Worker Health® approach.

KEYWORDS
burnout, COVID-19, qualitative, United States, work-related well-being

The institution at which the work was performed: UNC-Chapel Hill.

# 1 | INTRODUCTION

Clinician burnout and poor work-related well-being has been a longstanding concern in US medicine.[1–5] This issue reached a critical inflection point during the COVID-19 pandemic,[6–12] when clinicians were exposed to unprecedented levels of occupational stress and poor working conditions,[13] resulting in adverse mental health outcomes.[14] Clinician-reported occupational stressors prevalent during the pandemic include increased workload and loss of autonomy,[15] resource constraints,[16–21] irregular and more demanding schedules,[22] communication and leadership challenges,[23] uncertainty and ethical dilemmas,[17,21,24] and confronting hierarchies of power and inequality in healthcare.[25,26]

The pandemic also accelerated mounting awareness of the role of organizational factors in shaping clinicians' work-related well-being.[27–34] Perspectives from occupational health and safety sciences have been instrumental to expanding the individualistic lens on clinician burnout and drawing attention to the work environment as a determinant of health and safety outcomes for the healthcare workforce.[1] Adverse work environments have been linked to poor mental health outcomes,[35] as has poor work-related social support.[36,37]

In contrast, supportive work environments have been associated with a range of positive outcomes. Safe work environments, support from colleagues, job protection, and clear information from management protected against stress and threats to well-being during the COVID-19 pandemic.[38] In a meta-analysis of data from 11 countries, job resources were strongly associated with physicians' work engagement and lower levels of emotional exhaustion, and lower levels of emotional exhaustion were associated with better patient safety outcomes.[39]

In addition to organizational-level factors, social, political, and economic factors external to the organization, such as social policy,[40,41] regulatory context,[42] and employment and labor patterns[43] also shape work environments, and in turn, individual clinicians. Yet these external factors have been less well-recognized in accounts of clinician stress and well-being. In this article, we apply a novel conceptual model that accounts for both organizational and external factors to understand how these multilevel factors shape physicians' work environments, stress, and work-related well-being.[44] Our model is informed by the Total Worker Health® approach developed by the National Institute for Occupational Safety and Health (NIOSH) in 2003 to advance worker well-being by combining health protection (i.e., hazard reduction and injury prevention) with health promotion and illness-prevention efforts.[45] Aligned with the Total Worker Health® imperative to attend to multidimensional determinants of physicians' work-related well-being, this study identifies and describes multilevel stressors and protective factors that affected work-related well-being among frontline physicians caring for COVID-19 patients in two large US cities.

# 2 | MATERIALS AND METHODS

## 2.1 | Study design

We conducted a qualitative descriptive study of hospital-based physicians who cared for COVID-19 patients during the pandemic.[46]

We adopted a qualitative approach because in-depth interviews are uniquely suited to producing rich, nuanced accounts of complex phenomena. They also allow researchers to capture unexpected findings—rather than targeting predetermined domains, as in surveys—and are excellent for gathering a range of experiences, interpretations, and beliefs.[47] Qualitative research aims for analytical, rather than statistical, generalizability[48]—that is, for the ideas, concepts, and categories that emerge to potentially be relevant to other contexts.

To understand how multidimensional stressors and protective factors shaped physicians' work experiences, we designed a comparative study of physicians in two large US cities: Los Angeles (LA) and Miami. We selected these cities because they experienced initial surge conditions at roughly similar times beginning in December 2020, but with different social and political climates, inviting comparative analysis. We sought to include physicians from a range of hospital types within these two cities to understand how a variety of organizational and external factors contributed to physicians' stress and work-related well-being.

## 2.2 | Sample and recruitment

Participants were recruited using direct email solicitations and purposive snowball sampling, with the assistance of local consultants in each city. Eligibility criteria included: (1) being a hospital-based fellow or attending physician; (2) practicing in emergency medicine, hospital medicine, critical care pulmonology, or palliative care; and (3) having at least 4 weeks of experience caring for COVID-19 patients since the onset of the pandemic. We focused on specialties that had the most direct contact with seriously ill COVID-19 patients, and, consequently, faced the toughest work conditions. We also included a few additional physicians who had been redeployed to these specialties to provide care for COVID-19 patients.

## 2.3 | Data collection

Interviews were conducted over Zoom between October 2021 and June 2022 by two PhD-level social scientists with expertise in qualitative methods (MB and TJ) and two graduate research assistants they trained (A. B. and S. F.). Interviews lasted between 60 and 90 min and were audio-recorded and transcribed verbatim by a professional transcriptionist. The semistructured interview guide included questions about (1) personal backgrounds; (2) local government and institutional responses to the pandemic; (3) work conditions and stressors; (4) professional well-being while working during the pandemic; (5) personal well-being while working during the pandemic; and (6) suggested changes to improve physician stress and well-being.

## 2.4 | Qualitative data analysis

Interview transcripts were deidentified and coded using Dedoose qualitative software and an iterative analytic approach that combined

a priori and inductively derived themes.[49] The study PI (MB) developed a structured coding guide that included a definition for each code. Members of the six-person coding team then assigned codes to units or "chunks" of the text that matched the coding definition.[50] During an initial training period, at least two coders coded the same transcript independently, and discrepancies were discussed to ensure that understanding of concepts and codes remained in agreement. Code applications and definitions were revised as these understandings evolved. After the first 10% of transcripts were coded, we determined that a sufficient level of agreement had been attained, and we divided the remaining transcripts. Following coding, coding reports, and individual transcripts were examined to identify patterns and relationships between themes.

## 3 | RESULTS

The final sample of 66 physicians included 34 women and 32 men. Most participants (76%, n = 50) were under 50 years old, white (61%, n = 40) or Asian (33%, n = 20), and non-Hispanic (83%, n = 55). Participants were trained in internal medicine or hospital medicine (36%, n = 24), pulmonary critical care (26%, n = 17), emergency medicine (18%, n = 12), palliative care (12%, n = 8), or other specialties redeployed to COVID-19 care (8%, n = 5) (see Table 1). Participants were roughly evenly split between working in academic (41%, n = 27), community (32%, n = 21), and public hospitals (27%, n = 18), with 29% (n = 19) working in hospitals classified as safety net hospitals (see Table 2). Altogether, participants worked in a total of 14 hospitals in Los Angeles and six in Miami.

Figure 1 outlines our conceptual model, adapted from Sorensen and colleagues' revised model for research on work, safety, health, and wellbeing.[44] The Sorensen et al. model, which follows the Total Worker Health® approach, highlights the importance of factors beyond the immediate workplace environment that shape worker stress, health, and well-being. In this respect, it also aligns with the socio-ecological framework used in the National Academies of Medicine's report on clinician burnout,[1] which explicitly called for more research on organizational and broader environmental determinants of burnout and wellbeing. The Sorensen et al. model particularly emphasizes how broad social, political, and economic factors, as well as national employment and labor patterns, shape workplace settings and conditions. As occupational safety and health researchers, however, their focus for intervention nevertheless remains on modifiable conditions of work and their capacity to shape worker and enterprise outcomes.

We adapted Sorensen et al.'s model to include attention to organizational culture, which we conceptualize as overlaying an organization's policies, programs, and practices, as well as conditions of work. Our conceptual model thus permits us to consider stressors and protective factors for physicians'

**TABLE 1** Demographic characteristics (n = 66).

| | Los Angeles, n (%) | Miami, n (%) | Total, n (%) |
|---|---|---|---|
| **Age** | | | |
| 18–29 | 0 | 2 (6.7) | 2 (3.0) |
| 30–39 | 23 (63.9) | 12 (40.0) | 35 (53.0) |
| 40–49 | 9 (25) | 6 (20) | 15 (22.7) |
| 50–64 | 3 (8.3) | 8 (26.7) | 11 (16.7) |
| 65+ | 1 (2.8) | 1 (3.3) | 2 (3.0) |
| Missing | 0 | 1 (3.3) | 1 (1.5) |
| **Gender** | | | |
| Female | 19 (52.8) | 15 (50.0) | 34 (51.5) |
| Male | 17 (47.2) | 15 (50.0) | 32 (48.5) |
| **Race** | | | |
| White | 18 (50.0) | 22 (73.3) | 40 (60.6) |
| Black/African American | 1 (2.8) | 1 (3.3) | 2 (3.0) |
| Asian | 15 (41.7) | 5 (16.7) | 20 (30.3) |
| American Indian or Alaska Native | 0 | 0 | 0 |
| Biracial | 1 (2.8) | 2 (6.7) | 3 (4.5) |
| Not recorded | 1 (2.8) | 0 (0.0) | 1 (1.5) |
| **Ethnicity** | | | |
| Non-Hispanic | 33 (91.7) | 22 (73.3) | 55 (83.3) |
| Hispanic | 3 (8.3) | 8 (26.7) | 11 (16.7) |
| **Medical specialty** | | | |
| Internal medicine/ hospital medicine | 14 (38.9) | 10 (33.3) | 24 (36.4) |
| Emergency medicine | 9 (25.0) | 3 (10.0) | 12 (18.2) |
| Palliative care | 3 (8.3) | 5 (16.7) | 8 (12.1) |
| Pulmonary critical care | 9 (25.0) | 8 (26.7) | 17 (25.8) |
| Other | 1 (2.8) | 4 (13.3) | 5 (7.6) |
| **Mean years practicing medicine** | 8.7 | 12.8 | 10.5 |

work-related well-being at multiple levels (social/political/economic environment, employment, and labor patterns, organization, individual worker) that align with the fundamental elements of Total Worker Health.®

Participants reported a range of external stressors and protective factors shaping their work environments, conditions of work, and individual health and well-being. We detail these below. Illustrative quotations for each level of the model are provided in Table 3.

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**TABLE 2** Characteristics of participants' primary hospital workplaces.

|  | Los Angeles, n (%) | Miami, n (%) | Total, n (%) |
| --- | --- | --- | --- |
| Hospital type |  |  |  |
| Academic | 12 (33.3) | 15 (50.0) | 27 (40.9) |
| Community | 17 (47.2) | 4 (13.3) | 21 (31.8) |
| Public | 7 (19.4) | 11 (36.7) | 18 (27.3) |
| Hospital funding structure |  |  |  |
| Voluntary nonprofit | 14 (38.9) | 18 (60.0) | 32 (48.5) |
| Proprietary | 0 | 1 (3.3) | 1 (1.5) |
| Governmental | 22 (61.1) | 11 (36.7) | 33 (50.0) |
| Safety net hospital | 7 (19.4) | 12 (40.0) | 19 (28.8) |
| Hospital size (bed count) |  |  |  |
| 0–200 | 4 (11.1) | 3 (10.0) | 7 (10.6) |
| 201–700 | 32 (88.9) | 15 (50.0) | 47 (71.2) |
| 701–1000 | 0 | 2 (6.7) | 2 (3.0) |
| 1001+ | 0 | 10 (33.3) | 10 (15.2) |

## 3.1 | Social, political, and economic environment (Table 4)

Participants from both Miami and Los Angeles reported that caring for "COVID deniers" and combating conspiracy theories of physicians profiting from COVID-19 was exceptionally stressful. A Miami physician recalled, "The patients that came in with the conspiracy theories, they were difficult, and honestly, I felt too exhausted to have the time to really discuss all that" (0425A). Participants from both cities described treating unvaccinated patients as particularly taxing, with negative emotional impacts ranging from frustration to anger to sadness reported by 47 (71%) participants. Some physicians reported a concurrent uptick in antiphysician sentiment and mistreatment, which they characterized as demoralizing: "Patients treated us poorly during the pandemic, too. I noticed a shift in respect" (0425A).

Many participants cited a disconnect between government messaging minimizing the severity of COVID-19 and their own experiences of patient care. They further suggested that the federal public health response worsened the pandemic, which in turn exacerbated physicians' stress. Several participants indicated that President Trump's dismissive attitude toward COVID-19 early in the pandemic led to prolonged surges and vaccine refusal, which increased
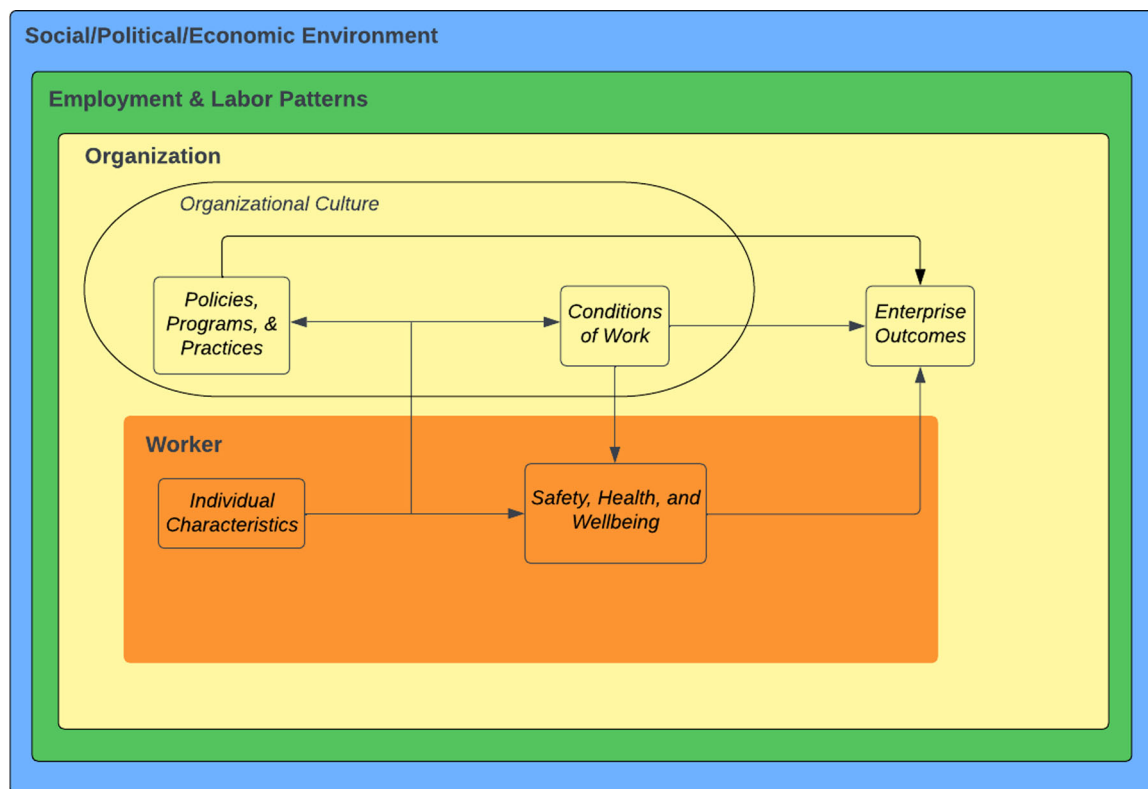


**FIGURE 1** Conceptual model.

**TABLE 3** Themes and exemplary quotes.

| Themes | Exemplary quotation |
| --- | --- |
| Social, political, and economic environment | |
| Government response | "It was the sort of ivory tower disregard for the pandemic that was contrasting with our day-to-day lived experience was very hard to reconcile and very hard to not to hate and feel very angry about. I think I feel very fortunate to live in Los Angeles where I feel that in a local level…we've erred on the side of being overly strict.…I would say from a federal level, that that was really jarring and I think really contributed to a lot of mental health issues and troubles that a lot of us were experiencing was the rhetoric from the government that this didn't exist and this was a hoax and this was whatever, when we were living in fear for our lives and just wanting to invite a lot of those deniers to spend a day in our lives." (0317) |
| CDC guidance | "My beautiful CDC guidelines said that you can go back to work as long as you wear the N95 mask. That was very scary because you know that you are the source of infection. You don't talk to anybody. You're afraid to remove this mask. That was very anti-humane to the healthcare workers." (0430) |
| Vaccine politics | "I'm angry at them for making us have to do this all the time and burning out our entire workforce. I'm angry at them for making there be less room and less opportunities for people to get other medical therapy. I'm angry at a whole bunch of it." (0410) |
| Employment and labor patterns | |
| National nursing shortage | "We've lost a lot of full-time nurses. I don't know why. Maybe overwork, maybe PTSD because we lost a lot of patients. … A lot of nurses who become travelers because the money is better. But a combination of I guess all three of stress and overwork, traveling, getting to see different parts of the place, another country. From a medical standpoint, the doctors have been relatively the same, same crew and the same staff." (0334) |
| Enterprise | |
| Policies, programs, and practices | "I think interacting with families who appropriately want to be at their patient's bedside and having tell them they can't, that's been stressful." (0401) |
| Conditions of work | "You get these little pods of nurses or groups of respiratory therapists and then like four or five of them get COVID, so now, they can't come in. And then their work cohort is only 10 people, so now, they're 50% down. So now, they're either working double or we're having to reduce our capacity by 50% … And so all of that just trickles down. And then now, because six nurses on the seventh floor got COVID and we have to close half of those beds, now that's impacting the emergency department." (0315) |
| Organizational culture | "I think there's a very good sense of camaraderie. And now that we're in a lull time here in Miami and at the hospital, I think people are feeling very strong and good that they've come through a very difficult situation." (0404 A) |
| Enterprise outcomes | "I know of at least a fistful of times that I can think of off the top of my head where people died preventably, you know, where something clotted and nobody noticed because they were one to five, or someone's high-flow fell off and no one noticed because someone was coding in another room." (0301) |
| Individual worker | |
| Individual stressors | "There are times where I would walk out of a patient's room and be crying because you just feel so helpless because all you want to do is care for this patient and you can't. And, you want to be compassionate and be there for them but you have six other patients that are actively dying and they're by themselves. And you can't also be with them." (0332) |
| | "Oh, I got burned out for sure. Absolutely. I had every single sign of burnout that you can imagine. I've had it all. So I had to kind of be creative. So what I started, I started just to take some dance classes." (0430) |

**TABLE 4** Social, political, and economic environment: Key themes.

- Caring for "COVID deniers" and dealing with rising antiphysician sentiment was stressful.
- Government messaging minimized the severity of COVID-19.
- The federal public health response worsened the pandemic.
- Living in a state or city that took the pandemic seriously had a protective effect.
- Fluctuating CDC guidance created distrust, uncertainty, and frustrations.

their workloads and burden of care. One physician explained, "By making the pandemic worse, that definitely increased my stress and probably that of every single one of my colleagues" (0302A).

Several participants indicated that shifting guidance from the federal Centers for Disease Control and Prevention (CDC) around quarantine procedures created distrust and uncertainty among healthcare workers. Others found conflicts between CDC and local-level guidance frustrating and confusing. Reflecting on the CDC guidelines, one physician commented, "It was definitely confusing because it was constantly in flux and always changing. Which led to

frustration because everyone's already burnt out and work was becoming depressing" (0332P).

At the state level, many Miami participants criticized Florida's response to the pandemic. One physician lamented:

> "It was willful harming of the citizens of Florida from the very beginning. It was making profits on mask distribution...it was scrubbing race data from the COVID numbers. ... And there's just so much to talk about, but it was willfully mishandled from the very beginning and many, many people died as a result" (0426P).

Another physician, reflecting on how the state Surgeon General had promoted nonevidence-based treatments, said, "It's become much more politicized, our jobs have, which certainly adds to the stress and to the burden of an already stressful job" (0410C).

In contrast, most Los Angeles physicians reported that their city had done a fairly good job responding to the crisis, and many praised California in comparison to other parts of the country. One noted, "I think the city of L.A. was pretty aggressive in its safety measures. I think the county was one of the first in the state to implement lockdown procedures last year. Quickly everyone was wearing masks and you saw a lot of reluctance for people to go out and mingle in public" (0324C). One participant attributed the fact that LA did not have a big surge in the beginning to these preventive measures.

## 3.2 | Employment and labor patterns (Table 5)

The national nursing shortage which predated the pandemic and intensified during it was a common stressor raised by participants across hospital sites. Physicians reported working with traveling nurses more frequently during the pandemic, which required additional training and involved frequent turnover. Because they were temporary, "it was not like they were invested into it. They were just there just to do their job," one physician said (0430A). Furthermore, pay discrepancies between travel nurses and longtime nursing staff led to resentment, which affected team dynamics.

Several participants commented on different policies and social norms surrounding paid time off for nurses and physicians due to the role of nursing labor unions in negotiating for paid time off. One physician, whose hospital instituted supplemental paid sick leave for nurses during the pandemic, described an uptick in sick calls at

**TABLE 5** Employment and labor patterns: Key themes.

- The national nursing shortage led to increased workloads and suboptimal work conditions for physicians.
- Different policies and cultures surrounding paid time off for nurses and physicians affected team dynamics.
- Layoffs and furloughs contributed to financial insecurity for some physicians.

regular intervals before the supplemental leave was set to expire. Another physician complained, "There's no accountability for the nurses when they call off. ... They can use their sick time, and it's beneficial to them, instead of using vacation days. But there's no consequences" (0322C).

These policies had palpable consequences for physicians' work-related well-being. Participants indicated that nursing shortages strained the entire healthcare team, leading to higher workloads and suboptimal work conditions for physicians. As one physician put it, "You just work harder. You do jobs that aren't yours ... I feel like I go into a little bit of a disaster mode, in terms of how I treat presentations that come in" (0319C). And even when staffing was sufficient, the quality of nursing care was not always optimal due to high turnover rates, further contributing to physicians' stress. One respondent explained, "It makes you more diligent. It makes you check everything. It's like getting that first week in July when you have new interns" (0327C).

One LA-based physician described large-scale layoffs—encompassing nurses, respiratory technicians, and clinical director positions—at a small community hospital. While such sweeping cuts were uncommon in our data set, a few Miami physicians mentioned short-term furloughs undertaken at their institutions to reduce costs early in the pandemic. Physicians working as independent contractors and those working in community hospitals seemed to take the biggest hit in this regard. One physician who worked in a community hospital in LA reported that her compensation declined during the pandemic because she worked as an independent contractor: "I remember thinking, 'Okay, if I got COVID and it was a very mild case, I'm gonna have to just put on an N95 and go to work or else I won't be able to pay my loans or afford rent'" (0321 C). Another participant described a dichotomy between institutions that were willing to take a financial hit and compensate later, and those that cut costs immediately to address revenue shortfalls, noting, "we've seen their true colors" (0315C). A few physicians who worked in an academic institution shared that their employer had temporarily suspended contributions to physicians' retirement accounts to save money during the pandemic.

One participant connected the disparate trends facing nurses and physicians in the following comment: "Medicine is not the same anymore. ... With the staffing shortages, I think a lot of people felt slighted. A lot of nurses figured out that they could travel and make more money. Nurses felt they weren't getting paid and compensated. That's not really my end, but then physicians were unable to get jobs, and they were furloughed. There was a lot of tension there" (0425A). In this way, broader employment patterns, including layoffs and the increased use of travel nurses, shaped physician' stress during the pandemic.

## 3.3 | The organization (Table 6)

### 3.3.1 | Policies, programs, and practices

Of the institutional policies mentioned, participants spoke most frequently about visitor restrictions, which in many institutions

**TABLE 6** The organization: Key themes.

| | Themes |
|---|---|
| Policies, programs, and practices | • Visitor restrictions increased the emotional burden on physicians.<br>• Institutions varied on adoption of precautionary measures. Experience with disaster preparedness played a protective role.<br>• Wellness programming was not viewed as helpful. |
| Conditions of work | • COVID infection and quarantine rules caused staffing constraints. Hiring moonlighters or additional teams had a buffering effect.<br>• High patient volumes during surges led to overwork.<br>• PPE supply was adequate, but some institutions were too restrictive with distributing PPE. |
| Organizational culture | • Administrative leaders did not understand working conditions.<br>• Unit leaders were frequently praised while c-suite executives were often criticized.<br>• Participants felt valued when administrators showed gratitude for their work.<br>• "Being in the trenches" together strengthened bonds among clinical teams. |
| Enterprise outcomes | • High patient mortality rates affected physicians' wellbeing.<br>• Quality of care declined due to delays and decreased staffing levels. |

continued long after the initial surge and after vaccines were widely available. Delivering bad news to the families of critically ill patients over the telephone and watching patients die without families at the bedside was emotionally burdensome for physicians. One physician explained, "Delivering bad news is both an art and incredibly taxing and emotionally draining. And then to do it over and over again over a phone made it even more draining on us" (0315C). On the other hand, one outlier participant commented that it was easier to work without extra people "getting in the way" (0322C).

Several participants criticized their institution's lateness to adopt universal masking, accessible testing for hospital staff, and other precautionary measures, which had a measurable impact on clinician wellbeing. On the other hand, a few attributed their institution's excellent response to early pandemic planning to factors such as a track record of hurricane preparedness (in Miami), or experience with other infectious diseases (e.g., a public hospital in LA that had been a tuberculosis ward hospital before the pandemic). Another LA participant credited his academic institution's corporate image for its excellent response: "[Name of hospital] is very, very—to a fault—very image-focused. And so their response as far as adequate PPE and testing capacity was excellent. It was just excellent, and that's just because they have enough money to just throw money at the problem" (0301A). His comment clearly illustrates the relationship between an organization's practices and priorities, and physician well-being.

While many participants reported that their institutions had implemented programs to support clinicians during a time of heightened stress, most believed that their emphasis on "wellness" was misplaced. Some even found the programs to be unhelpful. As one physician put it, "If they [would] just lower the workloads and had more people, that would solve 90% of it. But I don't think anybody is willing to do that because, you know, that will affect their bottom line. But they can just roll out some workshop every six months … and then they say they're doing something" (0422P).

### 3.3.2 | Conditions of work

COVID infection and quarantine rules caused staffing constraints and overwork, which had spillover effects on patient care and physicians' stress. Furthermore, patient volume (i.e., increased number of cases and longer lengths of stay) ballooned during surge periods, which led to additional strain and overwork. A few participants, primarily those from academic hospitals, indicated that their hospitals were adequately staffed or overstaffed. Similarly, a few participants from academic hospitals spoke about the buffering effect of institutional efforts to increase staff, such as hiring moonlighters or adding additional physician teams. An LA physician from an academic hospital explained, "Each of the sites had extra moonlighters for support. So, that was an extraordinarily helpful thing that I just—I cannot emphasize enough how helpful that was to know that whenever I left, I was going home, I was going to be able to sleep" (0335A).

On a more positive note, most participants noted that personal protective equipment (PPE) was never in short supply, or that it was not in short supply after an initial period of scarcity at the start of the pandemic, suggesting that their most basic needs for occupational safety and health were being met. On the other hand, many participants criticized their institutions for being too restrictive with PPE and doling it out in limited amounts.

### 3.3.3 | Organizational culture

Many participants criticized administrative leaders for failing to visit the ICU and understand working conditions on the ground. It was common for participants to praise clinical or unit leadership while criticizing the hospital's c-suite executives. Only one participant suggested that the c-suite listened to physicians better during the pandemic. Several participants across sites noted that hospital policies neglected to incorporate the perspectives of frontline

clinicians, which led physicians to feel underappreciated and affected their work-related well-being. One physician explained:

> One of the biggest frustrations I had was feeling like I wasn't even heard, my opinions didn't matter. And for me, that was incredibly frustrating. Hospital administration has an idea of what they want to happen, and I certainly can appreciate their global view of things. They have no idea what I do on a day-to-day basis. … And that, to me, really eroded my sense of value and my sense of loyalty or duty to the hospital. (0311P)

One participant, who described her workplace morale as "at an all-time low" and indicated that "animosity towards the c-suite has… never been higher" (0313A), said that she had volunteered to be on the hospital's wellbeing committee because of the opportunity to speak with c-suite executives about working conditions in the hospital's emergency room. She had advocated for one of them to walk through the emergency department waiting room on their way out of work, but they had declined to do this. "They won't even come down to look at what their policies are doing to human beings," she pointed out. "I mean, that's what I call moral injury."

In contrast, participants felt valued when the administration showed gratitude for their work, whether via email or in person, or invited them to provide feedback and input into new polices. Those who felt valued by hospital leaders at any level appreciated feeling heard, indicated that the hospital administration recognized their contributions, and believed that the institution took measures to protect and support them. Participants also valued frequent communication from leadership that transparently conveyed key information. One physician working in an academic hospital explained, "Our institution was very good at communicating. So we would get, at first, daily emails and then it spread out to weekly and then bi-weekly. But I actually felt really comforted by receiving those messages. We were kind of kept informed about the major changes and decisions and all that even if we obviously didn't hear about what was happening behind the scenes" (0303A). Interestingly, the physician quoted above who accused her c-suite as perpetrating moral injury worked in the same hospital and agreed that her institution "did a great job with communication," noting, "I felt cared for" (0313A), suggesting that organizational culture can be complex and affect physicians in different ways. Yet another physician in the same hospital indicated, "I felt like they were really taking care of us and watching out for us" (0307A). A physician who worked in a public hospital in Miami noted similar qualities of care and protection at the unit level:

> I will say that my specific program, my program director, from the beginning, was such a protector of not just the residents, but of the employees, of anybody who was working under her. She protected the heck out of us. And even her boss protected all of

them, in terms of making sure that we weren't being abused, or working hours that we shouldn't have been working, or working in unsafe conditions. (0417P)

Across institutions, most participants perceived that frontline clinicians had bonded through being "in the trenches" together, becoming closer and more supportive in the face of challenging work conditions. One physician noted, "I could be working crazy hours but if I'm with a team with good morale and where people are helping me and supporting me, that makes all the difference" (0305A). Another suggested that working in "a super supportive group" (0304A) made it easier to combat the strain of the pandemic.

### 3.3.4 | Enterprise outcomes

Enterprise outcomes include employer-relevant organizational-level outcomes such as staff turnover, productivity, healthcare costs, and quality metrics. While we did not measure such outcomes directly, interview participants referenced patient outcomes as relevant to their conditions of work and individual well-being. One physician noted that the unprecedented patient mortality rates were "extremely traumatizing" and "exhausting," further elaborating: "It's just the feeling of not being able to achieve the goals just like we have always predicted and been able to achieve with this pandemic. You're giving in your 150%, but you're not getting the satisfaction of improvement" (0403A). Another participant relayed that her "well-being absolutely suffered" due to the "sheer amount of death I was seeing" (0335A).

Several participants described how testing requirements or restrictions on diagnostic testing and treatment for patients who tested positive for COVID-19 had caused delays in care that were ultimately harmful for patients. Others acknowledged that patient outcomes suffer when staffing levels declined. One participant noted: "With staffing levels, with nursing, the quality of care goes down naturally. …When you don't have extra bodies, you just have to spread the resources out thin" (0318A).

### 3.4 | Worker (Table 7)

Beyond the immediate work environment, participants reported a range of individual-level stressors, including strained relationships

**TABLE 7** Worker: Key themes.

| Themes |
| --- |
| • Participants reported trained relationships with family and friends and difficulty balancing professional and family responsibilities. |
| • The threat of viral transmission to family was a stressor for some. |
| • The pandemic had a negative impact on physicians' mental health. |
| • Buffers included living in a city/state that handled COVID-19 well, social and institutional support, PPE, and coping mechanisms. |

with family and friends, the threat of viral transmission to family, and balancing children with professional responsibilities. One physician noted, "I'm actually pregnant right now. And so also the number of pregnant women that I've seen die and leave behind a small child … I think when you can kind of self-identify with what's happening with a patient, it makes it much more real and much more scary" (0414C). At the same time, many participants indicated that vaccines alleviated their concerns about viral exposure at work and possible transmission to family members.

Several participants ended romantic relationships during the pandemic. Many shared that working during the pandemic had a negative impact on their mental health, leading to stress, burnout, anxiety, and depression. Most participants indicated that they had not sought treatment for mental health challenges, citing barriers that included scheduling, time, and the cost of treatment. Some felt that treatment was unnecessary. Four participants chose to reduce their work hours or took time off from practicing medicine because of these work-related strains.

Living in a city or state that handled COVID-19 well, in addition to having social and institutional support, proper protection (i.e., PPE and vaccination), and coping mechanisms (i.e. hobbies and outdoor exercise) buffered against the negative impacts of working during the pandemic. One LA physician shared: "I have a great support system and a lot of other colleagues that have young families as well and we talk extensively all the time. And that sort of peer debriefing, I think, has alleviated some of the stress that I would feel if I didn't have anyone to talk to" (0317P). Several participants reporting feeling fortunate to have a partner who worked in medicine and understood what they were going through. While a small number of participants (*n* = 13) expressed feeling negatively about their jobs during the pandemic, about half (*n* = 34) had positive feelings about working during the pandemic and about their professional identities, which offset the burden of their reported stressors despite many challenges.

## 4 | DISCUSSION

This qualitative study of the work environments of 66 frontline physicians in LA and Miami during the COVID-19 pandemic identified a wide range of multilevel stressors and protective factors for work-related well-being. Stressors in the social, political, and economic environment included state and federal governmental COVID-19 policies and messaging, shifting CDC guidance, and dealing with the politicization of COVID-19, including vaccine hesitancy. Employment and labor pattern stressors included the national nursing shortage, which affected physicians across hospital sites, different policies surrounding paid time off for nurses and physicians, and furloughs, reduced pay, and layoffs. Organizational-level stressors included institutional policies, particularly those restricting visitors, decreased family presence for critically ill patients, staffing constraints and high patient volume, and perceived poor leadership. At the individual worker level, stressors included concerns about viral transmission to

family, strained personal relationships, and work-life fit, particularly for those with young children. Respondents further identified promising protective factors at multiple levels, including responsive state leadership at the societal level, job security at the employment and labor pattern level, and concrete opportunities to provide input into institutional policy, strong leadership and communication, and feeling cared for by one's institution at the organizational level.

These findings align with recent recommendations for a Total Worker Health® framework for implementing protections for worker safety, health, and well-being,[41,43,44] which promotes a multilevel approach, with a focus on the modifiable conditions of work, to reduce workplace hazards, including to work-related wellbeing. More specifically, our findings suggest focusing on protective factors at multiple levels would be more effective at preventing physician harm and improving overall wellbeing, a defining element of the Total Worker Health® framework.[51]

The conceptual model for work-related wellbeing advanced here builds on Sorensen et al.'s framework for research on work, safety, health, and well-being[44] by specifying organizational culture as an essential driver of stressors and protective factors at the organizational level, spanning both policies, programs, and practices, as well as conditions of work. While Sorensen et al.'s framework has been applied to waste and sanitation workers,[52] construction workers,[43] and ambulatory care nurses,[22] organizational culture was not an explicit component of their model, nor has it been explored in these case studies. Incorporating organizational culture into a Total Worker Health® conceptual model for work-related well-being is essential because the majority of protective factors identified in this study were attributed to organizational culture. Furthermore, organizational culture is an actionable site of intervention for health systems and institutions. Our findings suggest that organizations may improve clinicians' work-related well-being by targeting elements of organizational culture such as communication, leadership, and expressions of appreciation for employees.

In this regard, our findings are consistent with a growing body of scholarship which suggests that targeting organizational culture[35,39] may be more effective at improving work-related well-being than targeting individual behaviors (e.g., through psychoeducation or resilience training). The contention of many participants in this study that hospital-based wellness programs were futile or ineffective is a powerful indication of how hospital executives may misunderstand the drivers of work-related wellbeing in hospital-based clinicians in channeling funding toward "wellness." From a Total Worker Health® perspective, a truncated notion of wellness that focuses on practices undertaken by individual workers and overlooks the broader environmental context may produce more harm than good, insofar as wellness programs aimed at individual workers' behaviors such as mindfulness practices risk blaming clinicians for poor wellbeing.

Our comparative methodological design, which enabled us to compare physicians' work-related well-being across different hospital types and geographic settings, is an important strength and innovation of this study. Organizational culture emerged as a salient analytic focus precisely because our study included physicians

employed by 20 distinct hospitals, permitting us to identify a range of stressors and protective factors within different hospital environments. Furthermore, incorporating participants from two large US cities with different government and public responses to COVID-19 illuminated how the sociopolitical environment contributed to individual physician well-being. Participants from Miami specifically reported that their state government's response to COVID-19 exacerbated work-related stress, whereas participants in LA commented that living in a geographic region in which most people took COVID-19 seriously buffered against the harmful effects of work-related stress. Finally, shifts in employment and labor patterns appeared to hit community hospitals hardest, whereas academic hospitals had relatively more resources to buffer against workplace stressors.

## 4.1 | Limitations

Findings from this qualitative study represent perspectives from physicians caring for hospitalized COVID-19 patients in LA and Miami. As such, findings may not be generalizable to outpatient physicians, for example, nor to physicians working in other areas of the country. This limitation is offset by our inclusion of physicians working in 20 hospital settings, including a wide range of hospital types (e.g., academic, community, and public; safety net and nonsafety net), and diverse sizes. In addition, there may be selection bias, insofar as physicians who agreed to participate may not represent the general population. We believe that this tradeoff is justified by the expected gains of qualitative data, which are particularly useful for studying new and complex areas.[45]

## 4.2 | Practice implications

Our findings suggest that investing in domains such as organizational culture and ensuring that clinicians feel valued by their employers may have greater payoff for clinician wellbeing than investing in traditional workplace wellness programs. Previous research highlights the benefits of a people-oriented culture, which includes supportive relationships, open communication, and involving employees in decision-making.[37] Furthermore, there is mounting evidence for modest changes to scheduling, work flows, and team structures that may enhance working conditions, even in an under-resourced environment.[53,54] Our findings align with organizational strategies recommended by Shanafelt and colleagues for improving physician engagement and preventing burnout, including demonstrating an organizational commitment to improving physician well-being, harnessing the power of leadership, developing and implementing targeted interventions, cultivating community at work, appropriate incentivization and rewards, aligning values to strengthen culture, promoting flexibility and work-life integration, providing resources for self-care, and funding organizational science.[31]

Opportunities for intervention even further upstream include imposing federal regulations to ensure safe nursing care and stabilize the nursing staffing crisis[55] and appropriating federal funding for investing in research on care delivery models. Our data also suggest that state and federal responses and policies shape physician well-being. Governments should therefore consider the impact of their policies on patients *as well as* physicians, as they can be drivers of physician mental well-being.

## 5 | CONCLUSION

Findings from this study of frontline physicians during COVID-19 support a multilevel strategy that acknowledges internal organizational and external factors as shaping clinicians' work-related well-being, consistent with the Total Worker Health® approach. Our findings further suggest that a better assessment of organizational culture and its impact on unique work settings like healthcare would prove fruitful. Future research could utilize validated instruments like the NIOSH Worker Well-Being Questionnaire (NIOSH WellBQ)[56] to measure organizational culture and its relationship to work-related well-being.[57,58] Results can be used to identify and set organization-specific benchmarks, as well as to inform evidence-based interventions for improving clinician well-being.

### CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest.

### DISCLOSURE BY AJIM EDITOR OF RECORD

John Meyer declares that he has no conflict of interest in the review and publication decision regarding this article.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## ETHICS APPROVAL AND INFORMED CONSENT

The study protocol was reviewed and approved by the Institutional Review Board at the University of North Carolina at Chapel Hill. No signed informed consent was obtained, as the study was classified as having an exempt status.

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