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ORIGINAL RESEARCH

The impact of health inequities on physicians' occupational well-being during COVID-19: A qualitative analysis from four US cities

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Abstract

Objective: The aim of this study is to describe frontline physicians' perceptions of the impact of racial-ethnic and socioeconomic disparities in COVID-19 infection and mortality on their occupational well-being.

Methods: One hundred and forty-five qualitative, semistructured interviews were conducted between February 2021 and June 2022 with hospital medicine, emergency medicine, pulmonary/critical care, and palliative care physicians caring for hospitalized COVID-19 patients in four US cities.

Results: Physicians reported encountering COVID-related health disparities and inequities at the societal, organizational, and individual levels. Encountering these inequities, in turn, contributed to stress among frontline physicians, whose concerns revealed how structural conditions both shaped COVID disparities and constrained their ability to protect populations at risk from poor outcomes. Physicians reported feeling complicit in the perpetuation of inequities or helpless to mitigate observed inequities and experienced feelings of grief, guilt, moral distress, and burnout.

Conclusions: Health inequities are an under-acknowledged source of physicians' occupational stress that requires solutions beyond the clinical context.

INTRODUCTION

Since the onset of the COVID-19 pandemic, concerns around physician mental health have come into sharper national focus, with extensive media coverage of post-traumatic stress disorder, depression, and burnout.^{1,2} In September 2021, 76% of US healthcare workers reported burnout, compared with 54% in 2019.³ Drivers of increased stress and burnout among physicians during the pandemic include individual-level factors like fear of exposure and transmission^{4,5} and social isolation,^{5,6} and organizational factors like inadequate personal protective equipment^{7,8} and poor leadership.^{7,9}

Health inequities are an additional yet underrecognized source of physicians' occupational stress. Wide-ranging racial-ethnic and socioeconomic health disparities prior to the onset of the COVID-19 pandemic are well established in the United States.^{10–16} Consistent with these

patterns, racial disparities in COVID-19 mortality have persisted,^{17–20} contributing to larger overall declines in life expectancy since 2019 among Black, Latinx, and Indigenous populations relative to White Americans.^{21–23} Occupational and residential risk of exposure rendered these communities particularly at risk of infection,^{18,19} while pre-existing disease burdens left them disproportionately vulnerable to severe illness and death.^{19,24} Moreover, residential segregation impedes access to high-quality, well-resourced hospitals within marginalized communities.¹⁹ Implicit racial bias^{24–26} among healthcare providers disproportionately impacts Black Americans and other marginalized patients,¹⁹ which may further contribute to COVID-19 disparities. Because these disparities are largely driven by the social determinants of health, which fall beyond the scope of physicians' clinical practice,²⁷ physicians have had limited ability to intervene. Yet, little is known about how these stressors affect physicians' occupational well-being.

We examined participants' perceptions of health inequities during the COVID-19 pandemic and their relationship to occupational well-being to bring together two as yet disconnected bodies of literature on the impacts of the COVID-19 pandemic. Our data allow us to address the question: How do frontline physicians recognize COVID-19 inequities in their clinical practice, and how does that impact their occupational well-being? In so doing, we enhance the understanding of physicians' occupational well-being, which has not often considered the impact of societal stressors on hospital physicians' well-being.

METHODS

Study design and sample

This article is part of a larger study of stressors affecting US hospital-based physicians during the COVID-19 pandemic. Research design and methods have been described in more detail elsewhere.²⁸ From February 2021 through June 2022, we conducted semistructured interviews with physicians who cared for hospitalized COVID-19 patients in New York City (NYC), New Orleans (NOLA), Miami, and Los Angeles (LA). We sampled physicians from academic, community, and public hospitals in each city to assess differences in state and local responses and organizational policies and practices shaping physicians' experiences. For comparative purposes, we chose cities that experienced initial surge conditions at similar times (i.e., NYC and NOLA; LA and Miami).

Participants were recruited using direct email solicitations and purposive snowball sampling. Hospital-based fellows or attending physicians with at least 4 weeks of experience caring for COVID-19 patients who practiced in emergency medicine, hospital medicine, pulmonary/critical care, and palliative care were eligible to participate.

Audio-recorded interviews were conducted over Zoom and lasted approximately 60–90 min. After recordings were professionally transcribed, transcripts were coded using Dedoose qualitative software²⁹ and an iterative analytic approach that combined a priori and inductively derived themes. For this substudy, we examined the coding reports for the “disparities” code, which captured discussions regarding socioeconomic, racial, and ethnic disparities in COVID outcomes as a source of stress. The study was deemed exempt by the UNC-Chapel Hill Institutional Review Board.

RESULTS

The final sample of 145 physicians included 80 women (55.2%) and 65 men (44.8%). Most participants were aged 30–49 years ($n = 117$, 80.7%), white ($n = 103$, 70.3%), and non-Hispanic ($n = 130$, 89.7%) (see Table 1). Participants worked at a total of 44 hospitals with diverse funding structures, sizes, and patient populations. Forty-nine (33.8%) participants worked at safety net hospitals (see Table 2).

Figure 1 outlines our conceptual model, which shows how perceived drivers of societal health inequities and their consequences related to physicians' occupational stress and well-being. Participants perceived societal, organizational (i.e., hospital level), and individual conditions as shaping COVID inequities and constraining their ability to protect marginalized populations from poor outcomes. At the societal level, physicians reported that patients' unequal access to sick leave, safe transportation, and adequate housing disproportionately rendered low-income communities of color vulnerable to infection. At the organizational level, limited bed capacity forced physicians to send sick patients to homes where isolating was not an option, furthering the spread of COVID-19. Additionally, inequities in resources among hospitals—which were experienced as resource and personnel constraints among physicians in public hospitals—meant that patients in less-resourced hospitals were at greater risk of dying. At the individual level, physicians worried that biased clinical decisions exacerbated disparities in COVID-19 mortality. Physicians encountering these disparities reported negative feelings, including stress, guilt, helplessness, despair, and moral distress. In what follows, we discuss reported inequities at each level of our model and their impact on physician occupational well-being.

Societal

Physicians across cities described how social circumstances contributed to their patients' risk of contracting COVID-19 and developing serious illness. One NYC-based critical care pulmonologist explained, “[COVID-19] exposed things that were already there: structural racism, institutional racism, the lack of a healthcare system, the fact that patients don't have access to regular human rights, including the right to health” (0112). An NYC-based emergency medicine physician explained why she thought her hospital saw a high volume of essential workers early in the pandemic: “[NYC] did not stop construction until summer. And so, we had a ton of construction workers who got COVID on the job, and then food delivery people, food prep people that kept the city running and couldn't not go to work. *So that was really heartbreaking to see*” (0140, emphasis added). Likewise, a NOLA-based palliative care physician told us, “I don't think that COVID-19 affected Black people because they're Black. I think it affected Black people more frequently in our town because of the health disparities that are out there, the poor access to care, the lack of transportation, the really close together housing in some of our neighborhoods” (0221). These comments underscore physicians' awareness of the social underpinnings of racial disparities in health, including COVID-19.

Overcrowded housing and the inability to isolate were the most salient factors that physicians perceived as driving observed disparities. In LA, a critical care pulmonologist asked one patient whose father had died of COVID-19: “Did you guys try to isolate from each other, to not spread it amongst the family?” And she said, “Well, we tried as much as possible, but we have a one-bedroom apartment with five adults. So, what we did was we would sleep with

TABLE 1 Demographic characteristics.

Participant characteristics (n = 145)	New York City, n (%)	New Orleans, n (%)	Los Angeles, n (%)	Miami, n (%)	All cities, n (%)
Age (%)					
18–29	0 (0.0)	0 (0.0)	0 (0.0)	2 (6.7)	2 (1.4)
30–39	17 (42.5)	17 (43.6)	23 (63.9)	12 (40.0)	69 (47.6)
40–49	16 (40.0)	17 (43.6)	9 (25.0)	6 (20.0)	48 (33.1)
50–64	6 (15.0)	5 (12.8)	3 (8.3)	8 (26.7)	22 (15.2)
65+	1 (2.5)	0 (0.0)	1 (2.8)	1 (3.3)	3 (2.1)
Not recorded	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.3)	1 (0.7)
Gender (%)					
Female	25 (62.5)	21 (53.9)	19 (52.8)	15 (50.0)	80 (55.2)
Male	15 (37.5)	18 (46.2)	17 (47.2)	15 (50.0)	65 (44.8)
Race (%)					
White	30 (75.0)	32 (82.1)	18 (50.0)	22 (73.3)	102 (70.3)
Black or African American	1 (2.5)	1 (2.6)	1 (2.8)	1 (3.3)	4 (2.8)
Asian	9 (22.5)	6 (15.4)	15 (41.7)	5 (16.7)	35 (24.1)
Biracial	0 (0.0)	0 (0.0)	1 (2.8)	2 (6.7)	3 (2.1)
Not recorded	0 (0.0)	0 (0.0)	1 (2.8)	0 (0.0)	1 (0.7)
Ethnicity (%)					
Non-Hispanic	37 (92.5)	38 (97.4)	33 (91.7)	22 (73.3)	130 (89.7)
Hispanic	3 (7.5)	1 (2.6)	3 (8.3)	8 (26.7)	15 (10.3)
Medical specialty (%)					
Internal medicine/hospital medicine	14 (35.0)	15 (38.5)	14 (38.9)	10 (33.3)	53 (36.6)
Emergency medicine	9 (22.5)	10 (25.6)	9 (25.0)	3 (10.0)	31 (21.4)
Pulmonary/critical care	8 (20.0)	10 (25.6)	9 (25.0)	8 (26.7)	35 (24.1)
Palliative care	2 (5.0)	3 (7.7)	3 (8.3)	5 (16.7)	13 (9.0)
Other (redeployed)	7 (17.5)	1 (2.6)	1 (2.8)	4 (13.3)	13 (9.0)
Mean years practicing medicine postresidency	10.26	9.31	8.7	12.8	10.1

masks and open the window in the winter while we slept” (0330). This participant shared that she felt “terrible” and told us: “I felt like ... what I could do as a doctor during this time was very limited.” Several respondents offered examples of how they could not intervene on upstream determinants of health impacting their patients. Reflecting on overcrowded housing, a NOLA-based emergency medicine physician explained: “I didn’t have a solution for it ... I can’t fix that from the ER” (0220). He then commented on the troubling juxtaposition between patients’ housing constraints and the privilege of (as yet healthy) physicians quarantining from loved ones.

Physicians also reported that societal disparities affected their patients’ access to vaccines. An LA-based critical care pulmonologist worked at multiple hospitals and reported a difference in the

unvaccinated populations between sites: “Some of them are unvaccinated because they are very poor, and they work two or three jobs, and it just wasn’t a priority for them.” He noted, “Those patients are almost, I think, *more morally and emotionally difficult* to take care of because it’s like, ‘Damn ... you have a preventable disease and now you’re in the ICU because you’re poor’” (0301, emphasis added).

Organizational

Patients’ housing constraints intersected with organizational-level constraints when limited bed capacity and high patient volumes in

TABLE 2 Characteristics of participants' primary hospital workplaces (n = 145).

Hospital characteristics	New York City, n (%)	New Orleans, n (%)	Los Angeles, n (%)	Miami, n (%)	All cities, n (%)
Hospital type (%) ^a					
Academic	18 (45.0)	23 (5.0)	12 (33.3)	15 (50.0)	68 (46.9)
Community	7 (17.5)	10 (25.6)	17 (47.2)	4 (13.3)	38 (26.2)
Public	15 (37.5)	6 (15.4)	7 (19.4)	11 (36.7)	39 (26.9)
Hospital funding structure (%) ^b					
Voluntary nonprofit	25 (62.5)	19 (48.7)	14 (38.9)	18 (60.0)	76 (52.4)
Proprietary	0 (0)	13 (33.3)	0 (0.0)	1 (3.3)	14 (9.7)
Governmental (city, federal)	15 (37.5)	7 (18.0)	22 (61.1)	11 (36.7)	55 (37.9)
Safety net hospital (%) ^c	20 (50.0)	10 (25.6)	7 (19.4)	12 (40.0)	49 (33.8)
Hospital size (bed count) (%)					
0–200	2 (5.0)	12 (30.8)	4 (11.1)	3 (10.0)	21 (14.5)
201–700	9 (22.5)	17 (43.6)	32 (88.9)	15 (50.0)	73 (50.3)
701–1000	23 (57.5)	10 (25.6)	0 (0.0)	2 (6.7)	35 (24.1)
1001+	6 (15.0)	0 (0)	0 (0.0)	10 (33.3)	16 (11.0)

^a*Academic hospitals* are research hospitals affiliated with medical schools that operate as the primary hospital site for graduate medical education; *community hospitals* may or may not be affiliated with medical schools and offer minimal-to-no graduate medical education; and *public hospitals* are publicly funded institutions supported by federal, state, and local governments.

^b*Voluntary nonprofit hospitals* are owned and operated by nonprofit associations, such as churches and universities; *proprietary hospitals* are privately owned for-profit hospitals owned by corporations; and *governmental hospitals* are those that are solely funded by federal, state, and local governments.

^c*Safety net hospitals* are obligated to provide care to patients regardless of patients' insurance status or ability to pay.

hospitals forced physicians to send infectious patients to homes where isolating was not an option, furthering the spread of COVID-19. Physicians felt that their hands were tied; there was no space for patients in the hospital, yet discharging them made physicians feel complicit in the continued spread of COVID-19. One NYC hospitalist shared: "You know, you say to people, 'go home and stay in your own bedroom and use your own bathroom.' And they're like, 'There are eight of us in a two-bedroom with one bathroom. What are you talking about?'... We would send these people, knowing they had COVID, back home to their small, crowded NYC apartments, and there's nothing we can do about it" (0109). Another NYC-based emergency medicine physician described this situation in vivid detail, likening the spread of COVID-19 to "a slow bomb" and a "tsunami":

We were like, "(NYC borough) is gonna get decimated. There's no way, 'cause there's nowhere for them to go." ... Looking at every apartment building on the drive home going, "There's a slow bomb going off in there, and there's a slow bomb going off in there" ... you're watching the tsunami hit an island that you're not on ... But again, also knowing that there's nothing we can do. The hospital is full. (0120)

The violent language used by this respondent is striking because of his sense of complicity—because of organizational constraints—in the violence.

Inequities among hospitals created what one NYC-based pulmonologist called a "tale of two cities" that stressed physicians in less-resourced hospitals. He described a "dichotomy" between public and private institutions that meant, "if you're poor, you live in [a] certain neighborhood, you're going to receive poor care" (0106) because of the quality of local hospitals. This sentiment was echoed by physicians across cities. An LA-based hospitalist compared the conditions at her public hospital to a "warzone," explaining: "It just feels like the surge is worse [at the public hospital]" (0327). Comparing her experience working at different hospitals, this respondent made two key observations: first, inequities outside of the healthcare system meant that hospitals serving marginalized populations experienced more extreme surges. Second, the care available to marginalized populations was not equal to the care available to wealthier patients attending better-resourced hospitals. Likewise, an emergency medicine physician in an NYC public hospital told us:

...compared to other hospitals in New York City, my hospitals were higher mortality. And I attribute that to space, resources, eyes on, so that includes nurses watching, techs watching, monitoring. And I think our patients have always had [access to] less resources than the wealthier hospitals in the city. (0140)

Physicians perceived a connection between inequities in hospital-based resources and COVID-19 outcomes and expressed

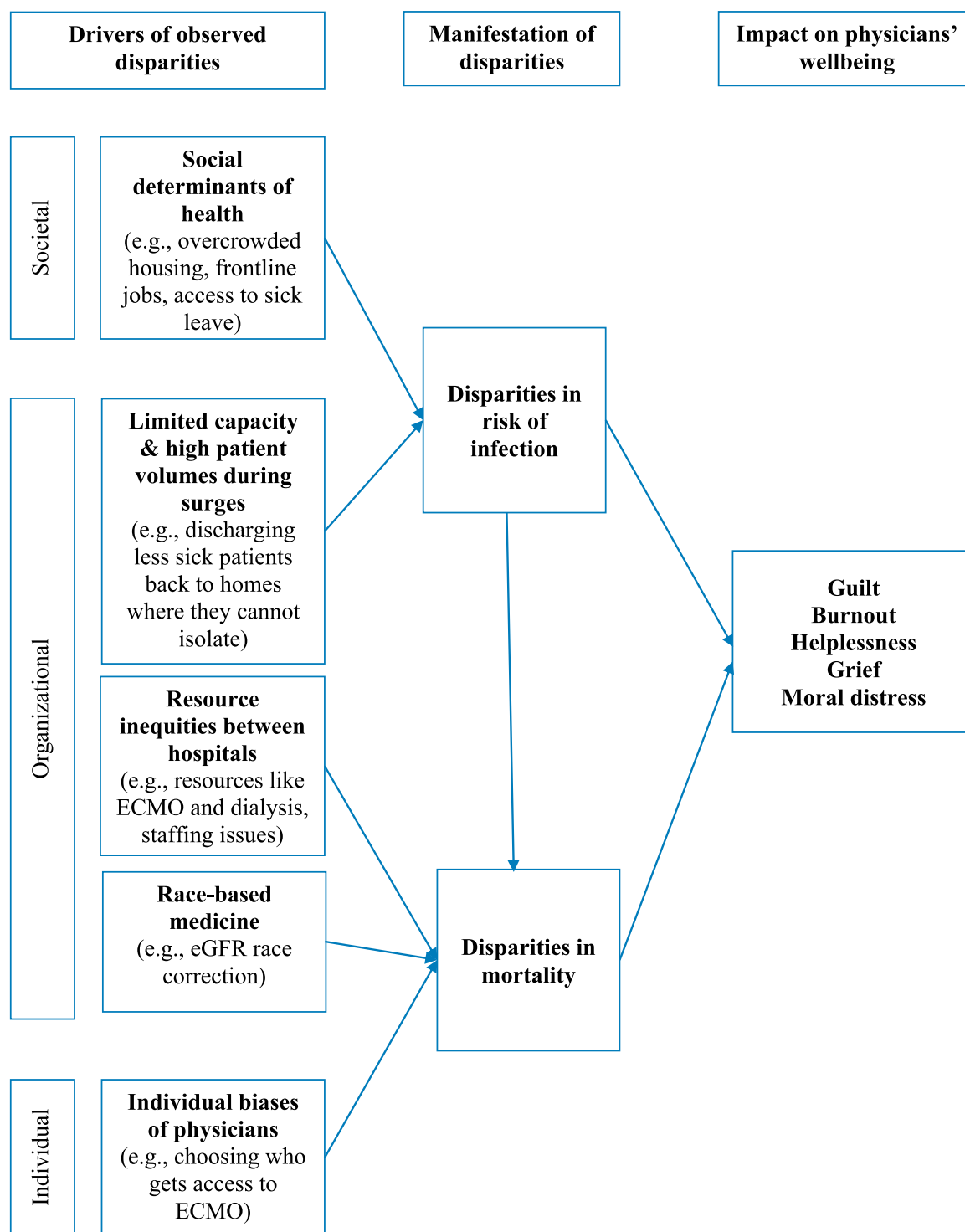


FIGURE 1 Conceptual model. ECMO, extracorporeal membrane oxygenation.

emotional distress as a result. One NYC-based emergency medicine physician began to cry as she explained: "So absolutely, there's no world in which the patients at my hospital did not suffer because they didn't have health insurance and they were a minority population *and they were coming to a city hospital*" (O119, emphasis added). An NYC-based hospitalist became angry as he recalled clear mortality disparities between two NYC hospitals: "I don't know how the fuck

you [administrators] haven't gotten traction on the issue that more people are fucking dying at this one institution than this other one" (O111). And when we asked an LA-based emergency medicine physician how he felt encountering resource inequities among hospital systems, he said: "I'm sure it's partly anger, partly frustration, partly sadness, partly just this is what it is ... there are only certain things you have control over and to get angry or upset about things

that you can't or don't, then it's just a waste of what finite limited energy and emotions that you have" (0315).

Some respondents in well-resourced hospitals reported lingering guilt. An LA-based pulmonologist shared, "I feel like we were able to take really good care of patients. And I think the thing I struggle with again is, should we have helped other places more?" (0302). The NYC-based hospitalist who recognized disparities in outcomes between his hospital and a smaller hospital in the same borough said:

Other researchers in our group were crunching numbers and they're like, "Yeah. Mortality rate is worse here." You know, just different things like that can't really be explained by the patients' comorbidity or any of the usual things... the disparities became more and more apparent over time, not less so. And so, one of [my colleagues] wrote a memo with some of the preliminary data a bunch of us saw. It resonated that this was not okay. (0111)

This respondent attributed these outcome differences to resource inequities. He and the other physicians involved called for a response from administrators to address these troubling disparities but were instead threatened with repercussions, causing "a lot of worry and fear." Ultimately, nothing came of it, much to the respondent's disappointment.

Two NYC-based hospitalists identified how organizational practices might have contributed to disparities in COVID-19 outcomes. One expressed disbelief around her institution's claims that there were no race-based differences in patient outcomes, noting, "I just can't imagine that that's a really true thing" (0117). She was skeptical because her hospital was using a race correction in calculating renal function, which was increasingly scrutinized by the medical community.³⁰ As a result, some Black patients were likely not accessing needed dialysis care. A second physician from the same hospital shared: "you know, we were still using a GFR calculator that took race into account. And a lot of the kind of clinical calculators that we use have some racial bias in them" (0124). Race-based practices contributed to both physicians' concerns around disparate COVID-19 outcomes for Black patients, in particular.

Individual

Some physicians reported concerns that their colleagues' or their own biases impacted care decisions and exacerbated COVID-19 disparities. An NYC-based pulmonologist expressed anger toward her hospital's extracorporeal membrane oxygenation (ECMO) team for their informal rationing decisions throughout the pandemic. Her hospital served a primarily Black and Latinx community but also received transfer requests from white suburban communities. The team would accept white transfer patients for ECMO but would rarely put local patients on ECMO. This respondent worked with the ECMO team to generate triage guidelines to address this perceived bias. She explained: "I channeled that anger in another direction."

Some respondents worried about their own biases, such as one who said: "I constantly felt like I didn't know enough and I constantly was doubting my clinical decision-making and wondering if I had advocated enough and was wondering ... was I being biased in some way that I wasn't recognizing?" (0124). She reported that she felt uncomfortable "the entire time." Conversely, she and others observed preferential treatment being offered to "VIPs" and expressed discomfort about the impact it had on patients who did not have personal connections.

Respondents who were themselves members of marginalized racial and ethnic groups experienced an additional dimension of stress when encountering inequities. One LA-based physician told us:

There's certain times where disproportionately more of the population that's ... in the ICU with COVID on a ventilator, they're Latino or they're minority, they're Hispanic, or whatever. When I see that physically as a Latin doctor, obviously it's kind of hard to not think of, "Oh, this is my grandma, my uncle, my aunt," whatever, right?

Similarly, one of the main stressors reported by one Black physician respondent in NYC (0106) during COVID-19 was recognizing the inequities impacting his own demographic group. Finally, a Black Miami-based physician explained the stress she experienced due to the dual pandemics of COVID-19 and racism in the United States: "That was also a stressor because I'm painstakingly aware of, and privy to, and subject to racism" (0429).

DISCUSSION

Physicians reported social drivers of COVID-19 infection and mortality disparities at multiple levels. At the societal level, physicians reported that patients' reduced access to sick leave, healthcare, and adequate housing left marginalized groups disproportionately vulnerable to COVID-19 infection and severe illness. Organizational constraints meant that physicians had to send sick patients home, making physicians feel complicit in the spread of COVID-19 in marginalized communities. Resource inequities among hospitals contributed to the feeling that marginalized patients experienced a lower quality of care when they were able to reach a hospital. Two respondents called out their hospital's reliance on the estimated glomerular filtration rate race correction, an unfounded race-based diagnostic algorithm that systematically denies Black patients the same level of care as White patients.^{19,24} Finally, at the individual level, physicians were concerned that colleagues' individual biases in healthcare decision-making and resource allocation exacerbated inequities.

Although some physicians reported fears around biases, the majority of their concerns transcended individual clinical encounters and fell beyond their control. Being unable to soften the impact of inequities heightened physicians' occupational stress and made them feel complicit in societal health inequities that perpetuated poor outcomes among marginalized groups. Research from primary care settings suggests that

physicians who feel that they are able to meet patients' social needs experience higher satisfaction and lower burnout,^{31,32} but little research among inpatient physicians has considered how the broader societal context affects their occupational well-being.³³ Our findings suggest the importance of broadening the lens to consider these factors.

Our findings also suggest that targeting resource inequities across health systems and hospitals during a public health emergency could help redress disparities and ease physician stress. Physicians in public hospitals perceived themselves as less able to provide adequate care to their patients due to resource and personnel constraints, exacerbating their stress. While Congress took steps to support hospitals, such as enacting the Provider Relief Fund to buffer against financial losses incurred during the pandemic,³⁴ these steps were reactionary rather than proactive and insufficient, as evidenced by our respondents' experiences.

LIMITATIONS

This study did not set out to assess the impact of societal health disparities on physicians' well-being. Health disparities and inequities emerged as a salient theme shared spontaneously by many respondents, but we did not discuss this topic systematically with all respondents. Our findings may thus reflect some response bias, in that respondents who spontaneously mentioned societal inequities may have been more negatively affected by them. Additionally, our study design did not include quantitative measures of well-being but instead asked respondents more broadly about the impact of stressors on their physical and emotional well-being. These limitations are offset by the study's numerous strengths, including our comparative approach and the qualitative richness of data that draw from 44 distinct hospital settings.

Areas for future research

Further research considering the impact of grappling with health disparities in clinical practice is warranted. First, greater understanding is needed of how health disparities and inequities affect physicians from marginalized groups. Second, future research could examine whether taking action against perceived disparities buffers against physician distress. Finally, studies could incorporate validated measures of occupational stress.

CONCLUSIONS

The growing literature on physician well-being has not fully recognized how structural factors such as societal health inequities create occupational strain on clinicians. For physicians working in the segregated US healthcare system, the fallout of inequities within the system trickles down to impact physicians and patients. A "Health in All Policies" approach³⁵—which targets the "nonhealth" social policy, such as housing policy to lessen community-level inequities—could

have a positive impact on the occupational well-being of physicians who care for members of marginalized populations.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

ETHICS STATEMENT

This study was reviewed by the University of North Carolina at Chapel Hill IRB and was certified as exempt.

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