Original Research Article

Ohio Physicians' Retrospective Pre-Post COVID-19 Pandemic Reports of Burnout and Well-Being

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ABSTRACT: This cross-sectional, retrospective, pre-post repeated measures study aimed to describe Ohio physicians' burnout and mental health experiences as perceived prior to and during the COVID-19 pandemic. A one-time online survey was completed by 1,613 physicians registered with the State Medical Board of Ohio (SMBO). Wilcoxon signed-rank tests were used to assess differences between physicians' self-reports of burnout and mental health prior to and during the pandemic. Mann-Whitney U tests examined response differences between physicians and residents. Data revealed statistically significant differences between physicians' pre-pandemic and pandemic experiences for all measures of burnout and mental health ($p < 0.001$) with moderate effect sizes for feeling emotionally drained from work ($Z = -16.71$, $r = 0.43$); feeling down, depressed, or hopeless ($Z = -18.09$, $r = 0.46$); feeling less accomplished ($Z = -11.03$, $r = 0.29$); and caring less about what happens to patients ($Z = -12.04$, $r = 0.31$). Small effect sizes were found for thoughts of suicide and concerns about one's substance use. Additionally, resident physicians were more likely than physicians to report many burnout and mental health concerns prior to and during the pandemic, although these effect sizes were small. These findings can inform stakeholders' efforts toward the prevention and reduction of physician burnout and improvement of well-being.

Introduction

Rationale

Physician burnout refers to the condition of experiencing emotional exhaustion, depersonalization, and a decreased sense of accomplishment among physicians and has been associated with various negative outcomes for professionals, healthcare systems, and the public.[1] Burnout contributes to poorer physical health and overall well-being, depression, substance abuse, and suicide among physicians.[2] Further, burnout is correlated with work dissatisfaction, turnover, medical errors, patient dissatisfaction with care, and poorer patient outcomes.[1,3]

Physician burnout has been documented across nearly all physician types and specialties, including residents and medical students.[4] Even before the COVID-19 pandemic, burnout was a common occurrence affecting over 50% of US physicians.[5] Using 2017 survey data representative of over 30,000 US physicians, researchers found that 43.9% of physicians had at least one symptom of burnout in 2017 and after adjusting for age, sex, relationship status, and weekly hours worked, physicians were at increased risk for burnout and less likely to report work-life satisfaction compared to other working US adults.[6] Additionally, some research suggests that burnout may be even higher among medical residents than more experienced physicians.[7]

Physician burnout has been attributed to both individual characteristics and problematic systems.[5] Individual factors include personality characteristics such as being highly self-critical, perfectionism, having poor work-life balance and limited coping skills, and lacking an adequate support system in one's personal life. System factors include high workloads and excessive hours, poor leadership, limited workplace support, and reduced autonomy and control. Bureaucratic challenges, increases in medical record documentation requirements, administrative burden, and reimbursement pressures are among the most frequently noted burdens contributing to burnout.[4]

Additional and unexpected burdens to individuals and systems (eg, the COVID-19 pandemic) can worsen the frequency of burnout and challenge resiliency. Given the magnitude of the COVID-19 pandemic, the fallout from subsequent burnout

and related mental health symptoms among healthcare professionals will likely be proportionately substantial for the foreseeable future. Moreover, there is much we do not yet know regarding how severely physicians have been impacted. Some data show that frontline healthcare staff are likely to report higher symptoms of COVID-19 related burnout and anxiety than those in more administrative roles.[8] Other data show that exposure to COVID-19 is not clearly associated with burnout and that burnout among frontline workers during the pandemic was lower when compared to other healthcare workers although reasons for this are not completely clear.[9] Frontline workers may be more accustomed to uncertainty and have more procedures in place that allow for a greater sense of control. Regardless, rates of physician burnout are high. Additional research is needed to fully understand physicians' experiences with burnout—particularly in the context of pandemics, the factors associated with burnout, and effective means of burnout prevention.

PHYSICIAN BURNOUT HAS BEEN DOCUMENTED ACROSS NEARLY ALL PHYSICIAN TYPES AND SPECIALTIES, INCLUDING RESIDENTS AND MEDICAL STUDENTS.

Objectives

The two research questions guiding this study were:

1. How do physicians' one-time recollections of their burnout, mental health, and substance use experiences prior to and during the COVID-19 pandemic compare?
2. How do these recollections compare between physicians and resident physicians?

Based on a literature search, anecdotal stories, and professional experience and feedback, we hypothesized that physicians' data would show an increase in frequency of burnout, substance use, and mental health symptoms as reported during the COVID-19 pandemic. Additionally, we suspected that residents may be at increased risk for negative outcomes when compared to more experienced physicians. Thus, this study aimed to systematically document physician well-being before and during the COVID-19 pandemic to subsequently (1) identify strategies to improve preparedness, response, and recovery from future public health emergencies and (2) better understand how to support physicians' health and well-being.

Methods

Design

This study presents a cross-sectional, retrospective pretest-post-test (RPP) research design reported using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies.[10] When using a RPP design, a survey is administered once at post-test and participants respond to the same questions twice—once referencing a specific time prior to the intervention or exposure and again following it. RPP has been shown to capture greater change accuracy than traditional pre-post methods.[11] Survey data were obtained from an online survey deployed by the Ohio Physicians Health Program (OhioPHP)—a non-profit organization for healthcare professionals affected by mental, emotional, and behavioral illness; substance-related and addictive disorders; or other illnesses. OhioPHP's mission is to facilitate the health and wellness of healthcare professionals to enhance patient care and safety.[12] In 2020, OhioPHP received a grant from the Federation of State Medical Boards Foundation to assess the impact of the pandemic on the well-being of Ohio's healthcare professionals. OhioPHP contracted with Mighty Crow Media, LLC (Mighty Crow), an evaluation services firm, to develop the one-time survey and complete subsequent data analysis, reporting, and dissemination of findings.

Mighty Crow's evaluation team conducted a literature search on burnout, well-being, and mental health and substance use among healthcare professionals which informed the survey creation. Mighty Crow built the online survey using Typeform software and in consultation with OhioPHP. The 60-question survey inquired about individuals' personal characteristics; employment status; work status and responsibilities; home and workplace stressors; and experiences of burnout, mental health, substance use, and other measures of well-being. Most questions inquired about participants' experiences both prior to and during the COVID-19 pandemic.

Healthcare professionals who held a license through the State Medical Board of Ohio (SMBO) were targeted for participation. OhioPHP made a public records request to 13 different healthcare licensing boards in Ohio and shared the survey link

invitation via the members' email addresses. OhioPHP sent three rounds of email reminders during the survey window. Survey data were collected in July 2021 – August 2021. The online link first described participant rights and the survey's purpose. By clicking "I agree," participants gave consent and commenced the survey. No personally identifiable information was collected. OhioPHP sent survey invitation emails to 77,517 members of the SMBO and 2,865 completed the survey. Of those, 1,613 (56.30%) identified as physicians. The physicians' data were of focus for this study.

Measurement

Questions related to burnout and physician well-being were informed by literature and focused on assessing symptoms and other sources of stress that have been associated with physician burnout both broadly and specific to the COVID-19 pandemic.[5,13] The primary outcome measures were the frequency of symptoms of burnout as indicated by six variables: (1) feeling emotionally drained; (2) not caring what happens to patients; (3) feeling that one accomplished worthwhile things at work (never = 0, a few times a year or less = 1, once a month or less = 2, a few times a month = 3, once a week = 4, a few times a week = 5, every day = 6); (4), feeling down, depressed, or hopeless (not at all = 0, several days = 1, more than half the days = 2, nearly every day = 3); (5) having suicidal thoughts (never = 0, some thoughts of death = 1, some thoughts of suicide = 2, some attempt at suicide = 3); and (6) having concern about one's own substance use (no = 0, sometimes = 1, yes = 2). These symptoms were reported using ordinal scales and participants were asked about the frequency or presence of each symptom prior to and again during the pandemic. Demographic data collected categorically included participant gender, race and ethnicity, age group, role (physician or resident), household income, and employment status.

Analysis

Survey responses from Typeform were exported to IBM's SPSS software (Version 27) for analysis. Duplicate respondents were removed from the dataset and the most recent completed survey was kept. Data from individuals who identified as part of the SMBO and as a physician (MD, DO, DPM, including resident physicians) were copied from the original data set into its own file for analysis. The final sample size was 1,613. Descriptive statistics and histograms were run on the full dataset with a primary focus on assessing normality and reporting frequencies and percentages for each variable. To examine the questions about self-reported stress before and during the pandemic, a series of Wilcoxon signed-rank tests were conducted for participants with complete data who said they worked during the pandemic to determine whether there was a difference in the ranking of participants' various experiences related to burnout (as described above) prior to and during the COVID-19 pandemic. Wilcoxon signed-rank tests were used rather than paired t-tests since data were not normally distributed, and the responses consisted of ordinal-level data. Mann-Whitney U tests were conducted to test whether there were differences in the mean rank of responses for physicians compared to residents on questions comparing burnout before and during the COVID-19 pandemic. *P*-values of <0.05 were considered statistically significant. Where statistically significant results emerged, effect sizes were manually calculated ($r = z/\sqrt{(n)}$) to determine whether the statistical findings were clinically significant. Using Cohen's classification of effect, the larger the effect size, the stronger the magnitude of the research finding: 0.1 (small effect), 0.3 (moderate effect), and 0.5 and above (large effect). Missing data accounted for less than 2%.

QUESTIONS RELATED TO BURNOUT AND PHYSICIAN WELL-BEING WERE INFORMED BY LITERATURE AND FOCUSED ON ASSESSING SYMPTOMS AND OTHER SOURCES OF STRESS THAT HAVE BEEN ASSOCIATED WITH PHYSICIAN BURNOUT BOTH BROADLY AND SPECIFIC TO THE COVID-19 PANDEMIC.

Results

Most survey participants were physicians (96.65%) compared to residents (3.35%) and 94.17% reported working at some point during the COVID-19 pandemic. Respondents reported an average of 22.68 years of work experience (range: 0 – 60 years). Just over half were male (55.18%) and over two-thirds of participants were aged 45 years old or older. Eighty-four percent were White, 8.74% were Asian, and 3.53% were Black or African American.

Nearly 75% reported an annual income above $120,000 USD. Gender data were missing for 55 individuals, age data were missing for 39, and income data were missing for 185. See Table 1 for a summary of demographic data. Though not a specific research question for this study, we examined differences in burnout based on demographic variables. Female physicians reported higher frequencies of burnout symptoms (feeling emotionally drained (p <0.001); down, depressed, or hopeless

Table 1
Sample demographics (N = 1613)

Years of experience	
Range 0-60	*M (SD)* 22.68 (13.04)

Characteristic		n (%)
Position	Physician	1559 (96.65)
	Resident	54 (3.35)
Employed during the pandemic	Yes	1519 (94.17)
	No	94 (5.83)
Gender	Female	667 (41.35)
	Male	890 (55.18)
	Other	1 (0.06)
	Unknown	55 (3.41)
Age (years category)	25-34	143 (8.87)
	35-44	312 (19.34)
	45-54	343 (21.26)
	55-64	396 (24.55)
	65 and older	380 (23.56)
	Unknown	39 (2.42)
Race and ethnicity[1]	AI/AN	19 (1.18)
	Asian	141 (8.74)
	Black or African American	57 (3.53)
	Hispanic or Latinx	36 (2.23)
	NH/PI	4 (0.25)
	White or Caucasian	1355 (84.00)
	Other	31 (1.92)
Annual income	Below $20,000	9 (0.56)
	$20,000 - $40,000	15 (0.93)
	$40,000 - $80,000	89 (5.52)
	$80,000 - $120,000	106 (6.57)
	Above $120,000	1209 (74.95)
	Unknown	185 (11.47)

Notes:
AI/AN = American Indian or Alaskan Native
NH/PI = Native Hawaiian or Pacific Islander
[1]Participants could choose multiple responses.

(p <0.001); having more thoughts of suicide (p = 0.30); caring less about what happens to patients (p<0.001); and feeling less accomplished (p <0.001) compared to male physicians. However, the effect sizes for each symptom were small ($r \leq 0.02$). No differences were found for the other variables apart from age group. Respondents aged 65 and older reported feeling they accomplished worthwhile things more often (p <0.001); and reported not caring what happens to patients (p <0.001); feeling emotionally drained (p <0.001); and down, depressed, or hopeless (p <0.001) less often compared to those ages 25 – 64. The effect sizes ranged from moderate (r = 0.3) to large for each symptom (r = 0.5).

Table 2 provides information about participants' scores on the burnout questions and summarizes the Wilcoxon signed-rank test results. When comparing prior to the pandemic responses to during the pandemic responses, there was a 200% increase in feeling emotionally drained from work every day and a 324% increase in feeling down, depressed, or hopeless nearly every day. There were statistically significant differences between the median scores for all measures of burnout and mental health. Results indicate that physician study participants felt emotionally drained more frequently (Z = -16.71, p < 0.001); felt down, depressed, or hopeless more frequently (Z = -18.09, p < 0.001); cared less about what happened to patients (Z = -12.04, p < 0.001); felt less accomplished (Z = -11.03, p < 0.001); had more thoughts of suicide (Z = -4.46, p < 0.001); and were more concerned about their substance use (Z = -7.71, p < 0.001) during the pandemic than prior to the pandemic.

Moderate effect sizes were found for participants feeling emotionally drained (r = 0.43); caring less about what happens to patients (r = -0.31); feeling less accomplished (r = -0.29); and feeling down, depressed, or hopeless more frequently during the pandemic (r = -0.46). The findings for being concerned about one's own substance use and thoughts of suicide resulted in small effect sizes.

MOST SURVEY PARTICIPANTS WERE PHYSICIANS (96.65%) COMPARED TO RESIDENTS (3.35%) AND 94.17% REPORTED WORKING AT SOME POINT DURING THE COVID-19 PANDEMIC.

Additionally, resident physicians were more likely than physicians to report burnout and mental health concerns. Mann-Whitney U tests showed that residents reported feeling emotionally drained more often before the pandemic (Z = 2.54, p = 0.011) and during the pandemic (Z = 2.77, p = 0.006), not caring about what happens to patients more

Table 2
Wilcoxon signed-rank test results and effect sizes for physicians' experiences prior to and during the COVID-19 pandemic

Variable	n	Prior to the Pandemic		During the Pandemic		Z	r
		Mean (SD)	Median	Mean (SD)	Median		
Emotionally drained from work	1496	2.76 (1.76)	3	3.45 (2.06)	4	-16.71*	-0.43
Don't really care what happens to patients	1502	0.69 (1.26)	0	1.03 (1.69)	0	-12.04*	-0.31
Accomplished many worthwhile things	1496	4.69 (1.48)	5	4.35 (1.74)	5	-11.03*	-0.29
Down, depressed, or hopeless	1556	0.56 (0.68)	0	0.96 (0.89)	1	-18.09*	-0.46
Thoughts of suicide	1556	0.17 (0.48)	0	0.22 (0.54)	0	-4.46*	-0.11
Concerned about alcohol/ substance use	1556	0.14 (0.46)	0	0.25 (0.62)	0	-7.71*	-0.20

Notes:
*p < 0.001

often before the pandemic ($Z = 2.22$, $p = 0.027$) and during the pandemic ($Z = 4.08$, $p < 0.001$), and feeling that they accomplished worthwhile things less often before the pandemic ($Z = -3.42$, $p = 0.001$) and during the pandemic ($Z = -3.54$, $p < 0.001$). Residents reported feeling that they felt down, depressed, or hopeless more often prior to the pandemic than physicians ($Z = 2.24$, $p = 0.025$); had suicidal thoughts more often during to the pandemic than physicians ($Z = 2.45$, $p = 0.014$); and were more concerned about their substance use during the pandemic than physicians ($Z = 1.99$, $p = 0.046$). All findings resulted in small effect sizes. See Table 3 for a summary of these data.

Discussion

It is important to underscore that the response rate for the survey was considerably lower than researchers typically recommend. However, growing literature indicates that increased response rates do not consistently or markedly reduce response bias and should not result in a complete depreciation

Table 3
Mann-Whitney U test results and effect sizes for comparing physicians' and resident physicians' experiences prior to and during the COVID-19 pandemic

Prior to the Pandemic					
Variable	**Group (*n*)**	**Mean Rank**	***Z***	***p*-value**	***r***
Emotionally drained from work	Physicians (1480)	760.30	2.54	0.011	0.06
	Residents (50)	919.43			
Don't really care what happens to patients	Physicians (1485)	764.17	2.22	0.027	0.06
	Residents (50)	881.81			
Accomplished many worthwhile things	Physicians (1480)	771.72	-3.42	0.001	0.09
	Residents (49)	562.16			
Down, depressed, or hopeless	Physicians (1546)	796.21	2.24	0.025	0.06
	Residents (54)	923.33			
Thoughts of suicide	Physicians (1546)	798.56	1.54	0.123	-
	Residents (54)	855.93			
Concerned about alcohol/substance use	Physicians (1546)	800.50	1.82	0.069	-
	Residents (54)	859.96			

During the Pandemic					
Variable	**Group (*n*)**	**Mean Rank**	***Z***	***p*-value**	***r***
Emotionally drained from work	Physicians (1480)	759.84	2.77	0.006	0.07
	Residents (50)	933.09			
Don't really care what happens to patients	Physicians (1485)	760.71	4.08	0.000	0.10
	Residents (50)	984.42			
Accomplished many worthwhile things	Physicians (1480)	772.04	-3.54	0.000	0.09
	Residents (49)	552.50			
Down, depressed, or hopeless	Physicians (1546)	796.68	1.43	0.153	-
	Residents (54)	883.29			
Thoughts of suicide	Physicians (1546)	797.17	2.45	0.014	0.06
	Residents (54)	895.95			
Concerned about alcohol/substance use	Physicians (1546)	800.78	1.99	0.046	0.05
	Residents (54)	881.75			

of the study's findings.[14] Additionally, while full physician demographic data for the state of Ohio is not available for comparison, respondents' gender was similar—with a slight overrepresentation of females—to that of 2019 data provided via the 2021 State Workforce Report (female physicians: 35.75%; male physicians: 64.25%).[15] Further, data from 1,613 respondents—many who reported high levels of burnout pre-pandemic that worsened significantly during the pandemic—still demands attention to Ohio physicians' well-being.

In this survey, Ohio physicians were very experienced, having worked an average of over 20 years. This supports previous research suggesting that worsening burnout is correlated with years of practice.[16] Beyond statistical significance, results were clinically significant for four of the six burnout symptoms assessed and reports of feeling frequently emotionally drained from work and feeling down, depressed, or hopeless were of highest concern.

Emotional exhaustion has been referred to as the core symptom of burnout[5] and was recently associated with leaving their position among a study of physicians in Ohio.[3] Studies investigating

BEYOND STATISTICAL SIGNIFICANCE, RESULTS WERE CLINICALLY SIGNIFICANT FOR FOUR OF THE SIX BURN-OUT SYMPTOMS ASSESSED AND REPORTS OF FEELING FREQUENTLY EMOTIONALLY DRAINED FROM WORK AND FEELING DOWN, DEPRESSED, OR HOPELESS WERE OF HIGHEST CONCERN.

the impact of COVID-19 on global physician burnout found wide ranges of emotional exhaustion from almost 25% (among Chinese physicians) to more than 67% (among Italian and Portuguese physicians).[9,17] Moreover, a dose-dependent relationship has been discovered between physicians' level of burnout and their odds of screening positive for depression.[18] Thus, there is likely a good degree of overlap between the physicians reporting feeling emotionally drained and physicians reporting feeling down, depressed, or hopeless. Additional research is required to confirm this hypothesis, but current findings support the need for targeted prevention and intervention to address burnout and symptoms of depression to improve physician well-being and workplace retention as well as patient outcomes.

Our findings that residents fared worse than more experienced physicians on nearly all measures of burnout symptoms prior to and during the pandemic is supported by previous research. Younger age and a higher frequency of being on call (more typical for residents) has been associated with increased

OUR FINDINGS THAT RESIDENTS FARED WORSE THAN MORE EXPERIENCED PHYSICIANS ON NEARLY ALL MEASURES OF BURNOUT SYMPTOMS PRIOR TO AND DURING THE PANDEMIC IS SUPPORTED BY PREVIOUS RESEARCH.

levels of burnout.[19,21] Additionally, a systematic review found that the prevalence of depressive symptoms among residents ranged between 20.9% and 43.2%.[21] While effect sizes were small, the current study suggests that resident physicians' work-related needs and burnout may require distinct monitoring. Residents may be at increased risk for burnout and need additional training and support to prevent and ameliorate burnout, particularly under high stress conditions, like the emergence of a pandemic.

Years of research has established that not enough attention has been devoted to preventing and alleviating burnout among healthcare professionals and the COVID-19 pandemic has made the consequences of this omission even more apparent.[22] Individual physician-directed (eg, lifestyle changes, development of self-care, and coping strategies) and broader systemic organizational-directed interventions (eg, reduction of workload and redistribution of non-essential tasks, increased teamwork and participation in decision-making, improving organizational workflows and procedures) have all been shown to reduce physician burnout.[1]

In a proactive response to concerns about burnout during COVID-19, a team of physicians created a free, downloadable self-care practice guide for healthcare professionals at www.hprtselfcare.org.[23] This resource includes a 10-point toolkit with actionable self-care steps to promote resiliency and an abbreviated version in the form of a self-care pocket card. Self-care strategies include deep breathing

and mindfulness; daily activities for caring for the body and mind; representing one's personal and organizational mission statement; participating in peer supervision and support; and self-monitoring one's empathy. The authors note that this information should ideally be employed by individuals in the context of a supportive clinical environment.

While physicians need to take ownership of their own well-being efforts, healthcare organizations play an even more significant role in changing the structures and culture required to support physician wellness. A systematic review and meta-analysis of

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over 20 randomized clinical trials found that burnout scores specific to emotional exhaustion responded more favorably to interventions that were organization-directed than physician-directed, suggesting that burnout should be perceived and approached as a systemic problem rather than an individual one.[24] Thus, there is a growing call for organizational acknowledgement of burnout and workplace dissatisfaction and for committed leaders to develop creative solutions, including means for assessing the effectiveness of interventions on reducing burnout.[2,25]

A review of the research examining the effectiveness of organization-directed interventions highlight that improved workplace processes, reductions in physicians' documentation responsibilities, and changes in work schedules are the most positively impactful on reducing burnout.[23] Specific institutional strategies such as improved workflows and efforts to promote efficiency and maximization of resources to reduce physician administrative burdens, support and mentorship, flexibility with work schedules, time banking opportunities, and creating cultures of psychological safety have all been shown to reduce burnout.[2] Additionally, creating and funding peer-support and emotional-support outreach programs; offering safe, confidential, destigmatizing employee assistance programs; and strengthening leadership to shift the culture of mental health and elicit feedback from physicians about how to best prevent and support clinicians experiencing burnout are also recommended.[26,27]

OhioPHP, some Ohio hospital systems, the SMBO, and the Ohio State Medical Association (OSMA) recognize burnout as a problem and are implementing various approaches to ameliorate it and facilitate access to care when needed. OhioPHP has commissioned research to better understand the problem of burnout and works with stakeholders to increase access to services and supports to prevent and reduce burnout. After identifying high rates of burnout among its physicians in Cleveland, Ohio, hospital administrators organized town hall meetings to discuss the problem and identify solutions.[3] An interdisciplinary team including physicians was created to do outreach, targeted education and programming, efficiency assessments, and community building to improve the culture and address burnout.

The SMBO has been working closely with the legislature to ease access and strengthen confidentiality for physicians seeking mental health and substance abuse related supports.[28] The One-bite program—administered by OhioPHP—was established in 2018 for licensed physicians (and others licensed through the SMBO) to ensure that physicians seeking substance use treatment will be not penalized or subject to disciplinary

THE SMBO HAS BEEN WORKING CLOSELY WITH THE LEGISLATURE TO EASE ACCESS AND STRENGTHEN CONFIDENTIALITY FOR PHYSICIANS SEEKING MENTAL HEALTH AND SUBSTANCE ABUSE RELATED SUPPORTS.

action by the SMBO. In 2022, the OSMA, a physician-led organization committed to promoting physician well-being, released a free and anonymous 10-minute questionnaire (available at www.wellbeingcare.org/) targeting Ohio's healthcare professionals called the Well-Being Checkup and Referral Engagement Service.[29] Licensed mental health professionals review the completed questionnaires and provide healthcare workers with individualized recommendations of in-person and/or telehealth mental and emotional health support services available in their area. OSMA also provides no-cost, on-demand physician well-being webinars focused on coping,

emotional resilience, and suicide prevention. Beyond the various individual-focused resources, OSMA also maintains an updated Well-Being Toolkit online that organizes institutional, state, and national level resources and informational links to promote shared responsibility for physician burnout and well-being among employers, organizations, and policymakers. Given the ongoing instability of the healthcare system and the added burden of a global pandemic, more widespread prevention and intervention programs are needed to address burnout and related mental health needs in Ohio and across the country.

Limitations of this work include the cross-sectional design using a convenience sample. There was also a lower than desired response rate among physicians and residents had even lower representation. It is possible that those who did respond were more negatively impacted by the pandemic and felt compelled to record their experiences. On the contrary, it is possible that individuals who were experiencing a heavier burden in terms of work, caregiving, and/or personal well-being would be less likely to respond. Additionally, survey responses relied on an unvalidated tool, were self-report only, and may be subject to recall bias where participants may not reliably or accurately report on prior experiences because they simply do not remember, or their current circumstances may cloud their memory. Despite this, the survey findings resulted from a large sample and provide an informative snapshot of healthcare professionals' experiences and overall well-being prior to and during the COVID-19 pandemic. These data can be used for shaping OhioPHP's goals and strategies for ensuring physicians' good health and well-being to ensure optimum patient care and safety.

Conclusions

This study is significant because it adds to the burgeoning literature surrounding the impact of the COVID-19 pandemic on the well-being of healthcare professionals. Findings suggest that physicians were already experiencing health and well-being challenges prior to the pandemic; since it began, things are even worse. Additionally, resident physicians may need extra attention to prevent burnout. We hope this research can primarily help facilitate conversations with stakeholders about ways to reduce burnout and improve physician well-being and subsequently improve patient care.

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