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# Changes in Burnout and Satisfaction With Work-Life Integration in Physicians During the First 2 Years of the COVID-19 Pandemic

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## Abstract

**Objective:** To evaluate the prevalence of burnout and satisfaction with work-life integration (WLI) in US physicians at the end of 2021, roughly 21 months into the COVID-19 pandemic, with comparison to 2020, 2017, 2014, and 2011.

**Methods:** Between December 9, 2021, and January 24, 2022, we surveyed US physicians using methods similar to those of our prior studies. Burnout, WLI, depression, and professional fulfillment were assessed with standard instruments.

**Results:** There were 2440 physicians who participated in the 2021 survey. Mean emotional exhaustion and depersonalization scores were higher in 2021 than those observed in 2020, 2017, 2014, and 2011 (all  $P < .001$ ). Mean emotional exhaustion scores increased 38.6% (2020 mean, 21.0; 2021 mean, 29.1;  $P < .001$ ), whereas mean depersonalization scores increased 60.7% (2020 mean, 6.1; 2021 mean, 9.8;  $P < .001$ ). Overall, 62.8% of physicians had at least 1 manifestation of burnout in 2021 compared with 38.2% in 2020, 43.9% in 2017, 54.4% in 2014, and 45.5% in 2011 (all  $P < .001$ ). Although these trends were consistent across nearly all specialties, substantial variability by specialty was observed. Satisfaction with WLI declined from 46.1% in 2020 to 30.2% in 2021 ( $P < .001$ ). Mean scores for depression increased 6.1% (2020 mean, 49.54; 2021 mean, 52.59;  $P < .001$ ).

**Conclusion:** A dramatic increase in burnout and decrease in satisfaction with WLI occurred in US physicians between 2020 and 2021. Differences in mean depression scores were modest, suggesting that the increase in physician distress was overwhelmingly work related. Given the association of physician burnout with quality of care, turnover, and reductions in work effort, these findings have profound implications for the US health care system.

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Since early 2020, the COVID-19 pandemic has created overwhelming morbidity and mortality as well as taxed health care delivery systems to their limits.<sup>1-9</sup> Studies from around the world have documented acute stress and mental health challenges in health care workers providing care in this time. These cross-sectional studies, often conducted in geographic hot spots and focused on front-line health care workers, have documented high rates of stress, anxiety, depression, and posttraumatic stress disorder.<sup>2-11</sup>

Whereas these studies have provided helpful insights, they do not have historical context or evaluate longitudinal changes at the overall US health care delivery system level. This context is important because concerning levels of occupational distress in US physicians predated the pandemic.<sup>12-15</sup>

The challenges during the first 2 years of the pandemic have been myriad and have evolved with time. In the early days of the pandemic practicing without adequate personal protective equipment, the individual risk of COVID-19 infection, the overwhelming



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workload in some locations, a lack of effective treatments for COVID-19, and the need for some physicians to practice outside their typical area of expertise or to deviate from normal standards of care were acute issues.<sup>6-8,11,16</sup> Now that the pandemic has stretched over multiple years, new challenges have emerged even as these early issues have improved. The chronicity of the COVID-19 work burden and multiple waves of new variants have depleted health care workers' emotional reserves. Many health care systems are short-staffed and are unable to maintain an optimal health care workforce, which increases work intensity for those remaining.<sup>16-19</sup> Politicization of vaccination and antisocial attitudes have altered health care workers' relationships with patients and created new dimensions of moral distress.<sup>20,21</sup> The collective impact of these and other challenges on occupational distress in US physicians is not well understood.

We began longitudinal evaluation of the point prevalence of occupational burnout and satisfaction with work-life integration (WLI) among physicians and US workers every 3 years in 2011.<sup>12-15</sup> Although these studies have illustrated variation in the prevalence of burnout and satisfaction with WLI, they have consistently found greater occupational distress among US physicians relative to the US workforce, even after adjustment for age, sex, work hours, and level of education.<sup>12-15</sup>

We previously reported the results of the fourth national survey of US physicians comparing their experience from November 2020 through March 2021 (hereafter referred to as the 2020 survey) with previous time points (ie, 2011, 2014, and 2017). In the fall of 2020, there was high variability in the impact of COVID-19 by geography and specialty.<sup>15</sup> Some parts of the United States had not yet experienced an initial COVID-19 surge, whereas others had experienced intense patient volume that overwhelmed local care delivery systems. The 2020 results illustrated variability in burnout changes by specialty and COVID-19 experiences.<sup>15</sup> Although burnout at that time had improved modestly for the overall physician

workforce, this was not the case for the specialties most affected by COVID-19 (emergency medicine, hospital medicine, critical care medicine, infectious disease). In addition, burnout had worsened for those physicians who had to deliver care without adequate personal protective equipment or who had suffered disruptive economic consequences from the pandemic (such as surgeons or other procedure-oriented specialists who had to temporarily suspend elective surgeries).<sup>15</sup>

By the end of 2021, all regions of the United States had experienced multiple surges from COVID-19 variants (eg, Delta, Omicron). Because of the rapidly shifting experiences and impact of the pandemic, we performed a midcycle evaluation of physician burnout between December 2021 and January 2022 approximately 1 year after the previous survey and before the scheduled 2023 survey of physicians and the general population.

## METHODS

The 2021 survey employed methods similar to those of the 2011, 2014, 2017, and 2020 surveys. A sample of physicians from all special disciplines was assembled using the American Medical Association Physician Masterfile, a nearly complete record of all US physicians. The sample size for the 2021 online survey was constructed to be 45,000 physicians, roughly half that of the electronic component of the 2020, 2017, 2014, and 2011 surveys.<sup>12-15</sup> Of these, 1701 returned as undeliverable, yielding a sample of 43,299. No mailed surveys were included in the 2021 survey. Similar to previous years, we oversampled physicians in specialties other than primary care (general internal medicine, general pediatrics, family medicine, obstetrics and gynecology) to provide an adequate sample of physicians from smaller specialties. The specialty composition of the 2021 study was designed to mirror that of the 2011, 2014, 2017, and 2020 surveys.<sup>12-15</sup> Survey invitation emails were sent on December 9, 2021, with 3 reminder emails sent during the ensuing 7 weeks (survey close, January 24, 2022).

The University of Illinois (Chicago) institutional review board reviewed the study and deemed it exempt. Participants did not receive compensation for completing surveys.

### Study Measures

Physicians provided information about demographic characteristics, hours worked per week, and the professional characteristics of their practice. Burnout was assessed with the emotional exhaustion and depersonalization domains of the Maslach Burnout Inventory<sup>22</sup>; depression was assessed by the National Institutes of Health Patient-Reported Outcomes Measurement Information System measure (mean T-score for reference population, 50 [SD 10])<sup>23</sup>; and professional fulfillment was assessed by the professional fulfillment subscale of the Stanford Professional Fulfillment Index (scale range, 0 to 10).<sup>24</sup> Satisfaction with WLI and career choice were assessed with the same approach as in prior years.<sup>12-15</sup>

### Statistical Analyses

Per protocol design, the primary analysis included descriptive and summary statistics to evaluate demographic characteristics, burnout scores, and satisfaction with WLI among physician respondents. Details about the statistical analysis are provided in the [Supplemental Methods](#) (available online at <http://www.mayoclinicproceedings.org>). All analyses were completed using R version 4.1.2 (R Foundation for Statistical Computing).

## RESULTS

Of the 43,299 physicians invited to participate in the electronic survey, 2440 (5.6%) completed a survey. We compared participants with all 923,840 practicing US physicians at the time of the survey as well as with the physicians who participated in previous surveys ([Table 1](#)). Demographic characteristics of participants relative to all practicing physicians were generally similar, although participants were slightly younger and slightly more likely to be women. Participants in 2021 were more likely to be women

and were younger than 2020 survey participants.

Mean emotional exhaustion and depersonalization scores at the time of the 2021 survey were higher than those observed in 2020, 2017, 2014, and 2011 ([Table 2](#); [Figure 1](#)). Compared with responders in the 2020 survey, mean emotional exhaustion scores were 38.6% higher (2020 mean, 21.0 [SD 13.2]; 2021 mean, 29.1 [SD=14.2];  $P<.001$ ), and mean depersonalization scores were 60.7% higher (2020 mean, 6.1 [SD 6.2]; 2021 mean, 9.8 [SD 7.9];  $P<.001$ ). Based on the full emotional exhaustion and depersonalization scales, 62.8% of physicians had at least 1 manifestation of burnout in 2021 compared with 38.2% in 2020, 43.9% in 2017, 54.4% in 2014, and 45.5% in 2011 (all  $P<.001$ ). The large increase in distress appeared primarily related to occupational distress, with mean T-scores for depression increasing by a more modest 6.1% (2020 mean, 49.54 [SD 8.40]; 2021 mean, 52.59 [SD 9.17];  $P<.001$ ).

Trends for burnout and satisfaction with WLI are shown in [Figure 2](#). On multivariable analysis pooling responders from the 2011, 2014, 2017, 2020, and 2021 surveys and adjusting for age, sex, specialty, hours worked per week, and practice setting, physicians who responded in 2021 had higher odds for burnout compared with 2014 (odds ratio [OR], 1.21; 95% CI, 1.08 to 1.35), whereas physicians responding at all other time points (2011, 2017, 2020) were at lower risk relative to 2014 ([Supplemental Table 1](#), available online at <http://www.mayoclinicproceedings.org>).

Satisfaction with WLI also declined in 2021; 30.3% of physicians indicated that they “agreed” or “strongly agreed” that their work schedule left enough time for personal/family life compared with 46.1% in 2020, 42.8% in 2017, 40.9% in 2014, and 48.5% in 2011 (all  $P<.001$ ). On multivariable analysis pooling responders from the 2011, 2014, 2017, 2020, and 2021 surveys and adjusting for age, sex, specialty, hours worked per week, and practice setting, physicians who responded in 2021 were less likely to be satisfied with WLI compared with 2014

**TABLE 1. Demographic Characteristics of Responding Physicians Compared With All US Physicians<sup>a,b</sup>**

Characteristics	2021 Responders (N=2440)	All US Physicians 2021 (N=923,840 <sup>c</sup> )	2020 Responders (N=7510)
<b>Sex</b>			
Male	937 (49.2)	584,618 (63.3)	4013 (62.4)
Female	919 (48.3)	338,067 (36.6)	2416 (37.6)
Other	47 (2.5)	(0)	4 (0.1)
Missing	537	1155 (0.1)	1077
<b>Age, years</b>			
Median (IQR)	50 (41-60)	53 (43-64)	54 (45-63)
<35	92 (5.0)	39,649 (4.3)	218 (3.5)
35-44	526 (28.6)	218,844 (23.7)	1324 (21.3)
45-54	510 (27.7)	230,779 (25.0)	1606 (25.8)
55-64	485 (26.3)	219,947 (23.8)	1806 (29.1)
≥65	229 (12.4)	213,966 (23.2)	1260 (20.3)
Missing	598	655 (0.1)	1284
<b>Specialty</b>			
Anesthesiology	94 (4.9)		334 (4.5)
Dermatology	38 (2.0)		178 (2.4)
Emergency medicine	178 (9.3)		430 (5.8)
Family medicine	226 (11.8)		532 (7.1)
General surgery	29 (1.5)		237 (3.2)
General surgery subspecialty	75 (3.9)		560 (7.5)
Internal medicine, general	192 (10.0)		519 (7.0)
Internal medicine subspecialty	233 (12.2)		734 (9.8)
Neurology	40 (2.1)		254 (3.4)
Neurosurgery	10 (0.5)		79 (1.1)
Obstetrics and gynecology	129 (6.7)		314 (4.2)
Ophthalmology	28 (1.5)		306 (4.1)
Orthopedic surgery	39 (2.0)		379 (5.1)
Otolaryngology	22 (1.1)		66 (0.9)
Other	129 (6.7)		514 (6.9)
Pathology	9 (0.5)		200 (2.7)
Pediatrics, general	106 (5.5)		379 (5.1)
Pediatric subspecialty	115 (6.0)		270 (3.6)
Physical medicine and rehabilitation	24 (1.3)		166 (2.2)
Preventive medicine/occupational medicine	6 (0.3)		31 (0.4)
Psychiatry	99 (5.2)		590 (7.9)
Radiation oncology	12 (0.6)		63 (0.8)
Radiology	66 (3.4)		280 (3.8)
Urology	18 (0.9)		45 (0.6)
Missing	523		50
<b>Hours worked per week</b>			
Median (IQR)	50 (40-60)		50 (40-60)
<40	347 (18.5)		1406 (20.3)

Continued on next page

(OR, 0.66; 95% CI, 0.58 to 0.75), whereas physicians responding at all other time points (2011, 2017, 2020) were more likely to be satisfied with WLI than those who responded in 2014 (Supplemental Table 2, available online at <http://www.mayoclinicproceedings.org>).

A more nuanced picture emerged in comparing differences in burnout by specialty at each time point. All 24 specialties had higher mean emotional exhaustion scores in 2021 relative to 2020, whereas 23 of 24 had higher mean depersonalization scores and a higher percentage of physicians with at least 1 symptom of burnout. Despite the consistent trends, the magnitude of the difference varied substantially by specialty (Supplemental Tables 3 and 4, available online at <http://www.mayoclinicproceedings.org>). Mean scores for emotional exhaustion in 2021 were at the highest level on record for 18 of 24 specialties, whereas mean depersonalization scores were at the highest level on record for 20 of 24 specialties. With respect to WLI, 23 of 24 specialties experienced a decline in the percentage of physicians who were satisfied with WLI in 2021 relative to 2020, with the magnitude of the difference again varying by specialty (Supplemental Table 5, available online at <http://www.mayoclinicproceedings.org>).

Mean professional fulfillment scores (range, 0 to 10) decreased 17.6% between 2020 and 2021 (2020 mean, 6.49 [SD 2.22]; 2021 mean, 5.38 [SD 2.33];  $P<.001$ ). The proportion of physicians with a high (favorable) professional fulfillment score decreased from 40.0% in 2020 to 22.4% in 2021. Consistent with these trends in professional fulfillment, the proportion of physicians who indicated they would choose to become a physician again if they could revisit their career choice was 57.1% in 2021 compared with 72.2% in 2020, 68.5% in 2017, 67% in 2014, and 70.2% in 2011 (all  $P<.001$ ). On multivariable analysis pooling respondents from 2011, 2014, 2017, 2020, and 2021 and adjusting for age, sex, specialty, hours worked per week, and practice setting, physicians who responded in 2021 were less likely to report they would

become a physician again relative to 2014 (OR, 0.73; 95% CI, 0.65 to 0.81), whereas physicians responding at all other time points (2011, 2017, 2020) were more likely to report they would become a physician again relative to 2014 ([Supplemental Table 6](#), available online at <http://www.mayoclinicproceedings.org>).

On multivariable analysis of the 2021 survey data, the variables associated with higher rates of burnout were being a woman (OR, 2.02; 95% CI, 1.6 to 2.57); working more hours per week (OR, 1.02 for each additional hour; 95% CI, 1.01 to 1.03); and practicing in emergency medicine (OR, 4.59; 95% CI, 2.7 to 8.01), family medicine (OR, 1.57; 95% CI, 1.02 to 2.43), and general pediatrics (OR, 2.44; 95% CI, 1.37 to 4.48). Age (OR for each year older, 0.97; 95% CI, 0.96 to 0.98) and practicing in a pediatric subspecialty (OR, 0.6; 95% CI, 0.36 to 0.99) were associated with lower risk (referent category: internal medicine subspecialty; [Supplemental Table 7](#), available online at <http://www.mayoclinicproceedings.org>).

On multivariable analysis evaluating factors associated with WLI, being a woman (OR, 0.59; 95% CI, 0.45 to 0.77) and working more hours per week (OR, 0.94 for each additional hour; 95% CI, 0.93 to 0.95) were associated with lower odds of satisfaction with WLI. Practicing obstetrics and gynecology (OR, 1.83; 95% CI, 1.03 to 3.27) was associated with higher odds of satisfaction with WLI (referent category: internal medicine subspecialty; [Supplemental Table 8](#), available online at <http://www.mayoclinicproceedings.org>).

## DISCUSSION

We report here detailed information on the changing experience of occupational distress in US physicians during the first 24 months of the COVID-19 pandemic and provide context for current scores relative to the last decade. The results show a large increase in mean emotional exhaustion and mean depersonalization scores as well as in the proportion of physicians with symptoms of burnout compared with both fall of 2020<sup>15</sup> and all prior assessment time points during

TABLE 1. Continued

Characteristics	2021 Responders (N=2440)	All US Physicians 2021 (N=923,840 <sup>c</sup> )	2020 Responders (N=7510)
Hours worked per week, continued			
40-49	392 (20.9)		1609 (23.3)
50-59	461 (24.6)		1623 (23.5)
60-69	426 (22.7)		1450 (21.0)
70-79	106 (5.7)		375 (5.4)
≥80	144 (7.7)		453 (6.6)
Missing	564		594
No. of nights on call per week, median (IQR)	1 (0-2)		1 (0-2)
Primary practice setting			
Private practice	912 (47.9)		3810 (55.8)
Academic medical center	571 (30.0)		1863 (27.3)
Veterans' hospital	32 (1.7)		148 (2.2)
Active military practice	8 (0.4)		38 (0.6)
Not in practice or retired	20 (1.1)		150 (2.2)
Other	361 (19.0)		820 (12.0)
Missing	536		681

<sup>a</sup>IQR, interquartile range.

<sup>b</sup>Values are reported as number (percentage) unless otherwise indicated.

<sup>c</sup>As of September 30, 2021.

the last decade.<sup>12-15</sup> Mean scores for emotional exhaustion were 39% higher relative to the 2020 survey, whereas mean depersonalization scores were 61% higher. The prevalence of burnout increased roughly 25% during the 12-month interval between the end of 2020 and the end of 2021. Satisfaction with WLI also declined in this interval. Notably, the differences in mean scores for depression at the end of 2020 and end of 2021 were modest, suggesting that the increase in physician distress in this interval was primarily due to increased work-related distress.

Whereas the collective results for all US physicians are striking, the results for certain subgroups and specialties are even more alarming. On multivariable analysis adjusting for personal (eg, age, relationship status) and professional (eg, hours worked, practice setting) characteristics, the OR for burnout among women physicians—relative to men—was 2.02 (95% CI, 1.59 to 2.57) compared with 1.27 (95% CI, 1.12 to 1.44) in 2020. These data suggest that the long-documented increased risk for burnout and

TABLE 2. Physician Career Satisfaction, Burnout, and Satisfaction With Work-life Integration 2021 Compared With 2020, 2017, 2014, and 2011<sup>a,b</sup>

	2021 (N=2440)	2020 (N=7510)	2017 (N=5445)	2014 (N=6880)	2011 (N=7288)	P value			
						2021 vs 2020	2021 vs 2017	2021 vs 2014	2021 vs 2011
<b>Work hours</b>									
Median (IQR)	50 (40-60)	50 (40-60)	50 (40-60)	50 (40-60)	50 (40-60)	<.001	.78	.01	.03
<40 hours	347 (18.5)	1406 (20.3)	961 (18.9)	1244 (18.2)	1026 (14.8)	.04	.11	.05	.002
40-49 hours	392 (20.9)	1609 (23.3)	1053 (20.7)	1340 (19.6)	1459 (21.0)				
50-59 hours	461 (24.6)	1623 (23.5)	1245 (24.4)	1667 (24.4)	1852 (26.7)				
60-69 hours	426 (22.7)	1450 (21.0)	1084 (21.3)	1526 (22.4)	1659 (23.9)				
70-79 hours	106 (5.7)	375 (5.4)	386 (7.6)	535 (7.8)	455 (6.5)				
≥80 hours	144 (7.7)	453 (6.6)	367 (7.2)	509 (7.5)	497 (7.2)				
Missing	564	594	349	59	340				
<b>Burnout indices<sup>c</sup></b>									
<b>Emotional exhaustion</b>									
Mean (SD)	29.1 (14.8)	21.0 (13.2)	23.2 (13.2)	25.5 (13.5)	22.7 (13.0)	<.001	<.001	<.001	<.001
Low score	567 (27.1)	3177 (47.9)	1991 (41.0)	2299 (34.1)	3041 (42.2)	<.001	<.001	<.001	<.001
Intermediate score	313 (15.0)	1223 (18.4)	989 (20.3)	1283 (19.0)	1433 (19.9)				
High score	1210 (57.9)	2231 (33.6)	1881 (38.7)	3165 (46.9)	2734 (37.9)				
<b>Depersonalization</b>									
Mean (SD)	9.8 (7.9)	6.1 (6.2)	6.8 (6.5)	8.1 (6.6)	7.1 (6.1)	<.001	<.001	<.001	<.001
Low score	819 (39.2)	3972 (59.9)	2644 (54.2)	2951 (44.0)	3601 (50.1)	<.001	<.001	<.001	<.001
Intermediate score	339 (16.2)	1127 (17.0)	907 (18.6)	1434 (21.4)	1476 (20.5)				
High score	932 (44.6)	1537 (23.2)	1331 (27.3)	2325 (34.6)	2116 (29.4)				
Overall burnout <sup>d</sup>	1313 (62.8)	2536 (38.2)	2147 (43.9)	3680 (54.4)	3310 (45.5)	<.001	<.001	<.001	<.001
<b>Depression</b>									
Mean (SD)	52.59 (9.17)	49.54 (8.40)				<.001			
Normal	1076 (56.0)	4677 (70.6)				<.001			
Mild	414 (21.5)	1164 (17.6)							
Moderate	388 (20.2)	716 (10.8)							
Severe	44 (2.3)	65 (1.0)							
Missing	518	888							
<b>Career satisfaction</b>									
Would choose to become a physician again	1097 (57.1)	4652 (72.2)	3508 (68.5)	4476 (67.0)	5081 (70.2)	<.001	<.001	<.001	<.001
<b>Work-life integration</b>									
Work schedule leaves me enough time for my personal and/or family life									
Strongly agree	143 (8.6)	908 (14.2)	602 (12.5)	706 (10.6)	1233 (17.0)	<.001	<.001	<.001	<.001
Agree	363 (21.7)	2031 (31.9)	1454 (30.2)	2012 (30.3)	2279 (31.5)				

Continued on next page

TABLE 2. Continued

	P value								
	2021 (N=2440)	2020 (N=7510)	2017 (N=5445)	2014 (N=6880)	2011 (N=7288)	2021 vs 2020	2021 vs 2017	2021 vs 2014	2021 vs 2011
Work-life integration, continued									
Neutral	289 (17.3)	1115 (17.5)	796 (16.6)	973 (14.6)	1046 (14.4)				
Disagree	520 (31.1)	1636 (25.7)	1272 (26.5)	2004 (30.1)	1775 (24.5)				
Strongly disagree	356 (21.3)	686 (10.8)	685 (14.2)	956 (14.4)	911 (12.6)				
Missing	769	1134	636	229	44				
Professional fulfillment									
Mean (SD)	5.38 (2.33)	6.49 (2.22)				<.001			
High score	46.1 (22.4)	2646 (40.0)				<.001			

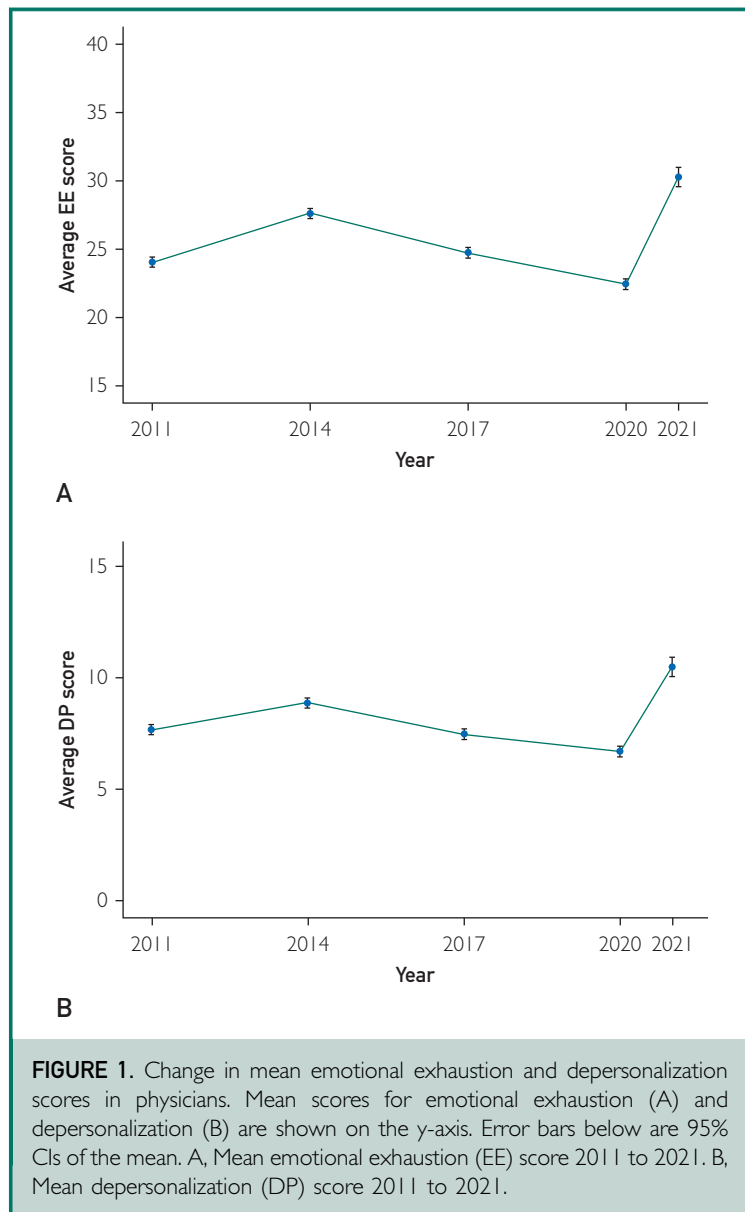
<sup>a</sup>QR, interquartile range.  
<sup>b</sup>Values are reported as number (percentage) unless otherwise indicated.  
<sup>c</sup>As assessed by the full Maslach Burnout Inventory. Per the traditional scoring of the Maslach Burnout Inventory for health care workers, physicians with scores on the emotional exhaustion subscale  $\geq 27$  or the depersonalization subscale  $\geq 10$  are considered to have a high degree of burnout in that dimension.  
<sup>d</sup>High score on emotional exhaustion and depersonalization subscales of the Maslach Burnout Inventory (see Methods).

work-life conflict in women physicians<sup>25-27</sup> has been exacerbated by the COVID-19 pandemic, a finding consistent with other reports.<sup>28-30</sup> Although mean emotional exhaustion and depersonalization scores as well as the proportion of physicians with burnout were higher in 2021 than in 2020 for all specialties except urology, specialty-specific trends were observed. On multivariable analysis of 2021 respondents, physicians practicing emergency medicine, family medicine, and general pediatrics were at increased risk for burnout after adjustment for other personal and professional characteristics.

There were a number of plausible explanations for the modest improvement in burnout and WLI scores between 2017 and 2020. Many parts of the country had not yet experienced their first COVID-19 surge, and the pandemic had transiently decreased work intensity for some specialties and brought a number of potentially positive changes to the care delivery system (virtual care, decreased documentation requirements, breaking down of interdisciplinary silos, and better team-based care).<sup>31-33</sup> At that time point, the experience of physicians was varied; whether occupational distress had worsened or improved appeared to be influenced by geography, specialty, and personal COVID-19 experiences (whether they had to practice with inadequate personal protective equipment, disruptive economic consequences).<sup>15</sup>

An additional year into the pandemic, the results are starkly different. Physicians have now been affected by the chronicity of the pandemic, short staffing, attitudes of antiscience and incivility, and new dimensions of moral distress.<sup>15,16</sup> These professional challenges have occurred against the backdrop of a number of societal challenges (school and childcare challenges for those with children, social justice issues, gun violence, a war in Ukraine, inflation and economic concerns).<sup>17-21</sup> The collective effect on the US physician workforce appears to be profound. Given the association of physician burnout with quality of care,<sup>34</sup> medical errors,<sup>35-37</sup> reductions in clinical work effort,<sup>38</sup> turnover,<sup>39,40</sup> departure from practice,<sup>41</sup> and





health care costs,<sup>42,43</sup> these findings also have potentially critical implications for the US health care delivery system.<sup>44</sup>

Although the problem is recognized, large-scale change is necessary to address it. The roadmap to respond has already been developed. The National Academy of Medicine (NAM) consensus report *Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-being*,<sup>44</sup> the result of a 2-year audit of the delivery system by the nation's experts that specified the holistic changes needed to address long-standing

issues in the delivery system, was released in November 2019. In June 2022, the NAM released the national plan<sup>45</sup> to translate the recommendations of the consensus report into action. In early 2022, the US Surgeon General also released an advisory, *Addressing Health Worker Burnout*,<sup>46</sup> and called for action by federal, state, and local government and health care organizations, health insurers, technology companies, training programs, and accrediting bodies. Early signs of action are also apparent. In July 2021, the Department of Health and Human Services allocated \$103 million to be spent during 3 years to reduce burnout and to promote mental health among the health workforce.<sup>47</sup> In March 2022, President Biden signed the Lorna Breen Health Care Provider Protection Act,<sup>48</sup> providing federal funding for mental health education and awareness intended to protect the well-being of health care workers. Although encouraging signs, these initial actions primarily focus on personal resilience rather than address the system issues specified in the NAM consensus report<sup>44</sup> and allocate only \$20 per physician or nurse in the United States without even accounting for other health care workers. Evidence indicates that a resilience deficit is not the issue driving health care worker burnout,<sup>49</sup> and new legislation and action aligned with the NAM recommendations<sup>44,45</sup> and paired with more substantive funding will be needed to address the problem.

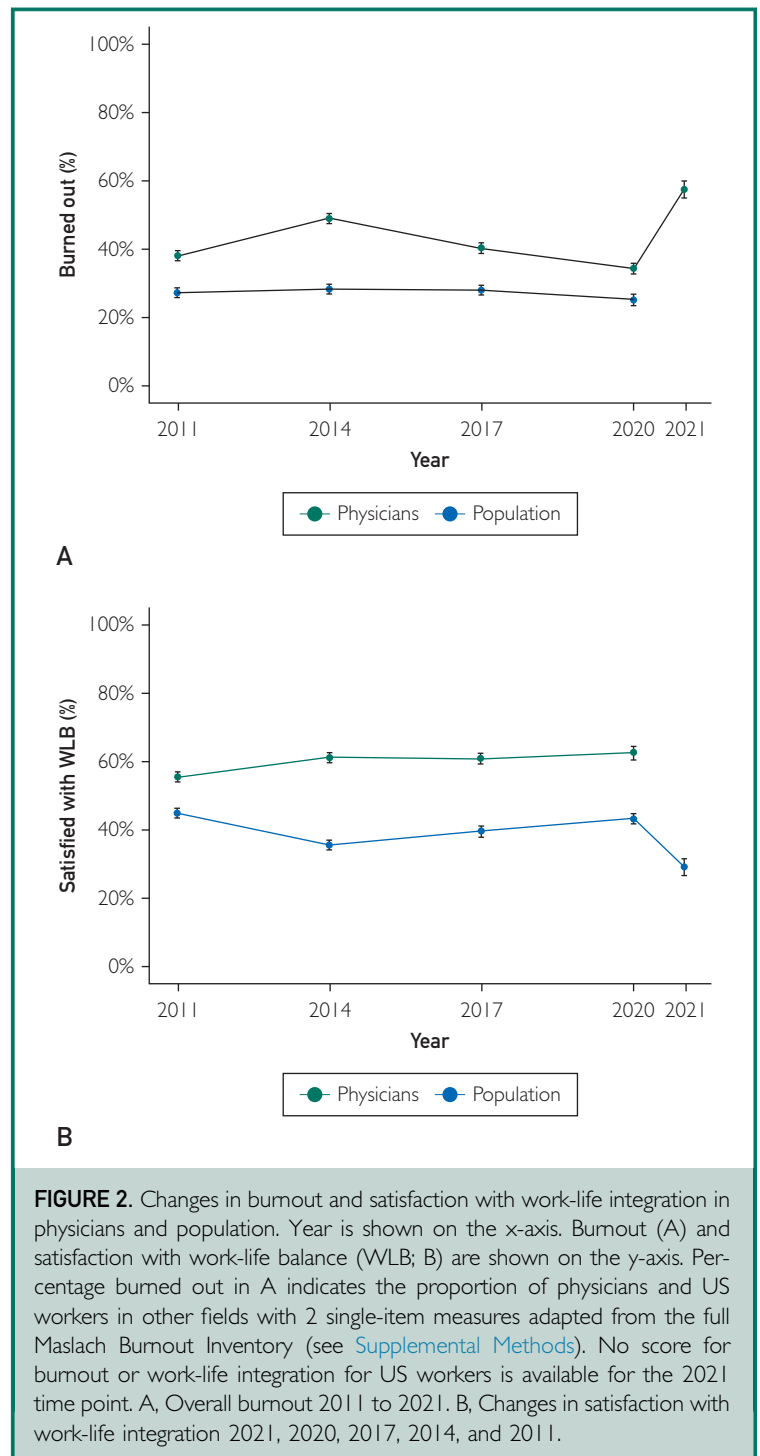
At the organization level, a number of randomized and controlled trials as well as systematic reviews and meta-analyses have reported that organizational interventions both work and are critical to creating an organizational culture and practice environment that cultivates professional fulfillment.<sup>50-54</sup> The pandemic has caused many organizations to recognize on a deep level the critical role their workforce plays in their ability to achieve their mission to serve patients and communities. Although sincere, many of these organizations have focused on providing resources for individuals in distress, such as psychological first aid, peer support, mental health care, and counseling. These organizations will benefit

from embracing a more expansive and holistic approach<sup>44,55,56</sup> to prevent occupational distress rather than simply perpetually reacting to it by providing support to distressed clinicians. Such approaches require organizational commitment as well as dedicated leadership and include comprehensive and sustained approaches to reduce administrative burden, to enhance team-based care, to address inefficiency in the practice environment, and to establish staffing models consistent with new models of care delivery.<sup>57</sup>

This study is subject to a number of important limitations, most notably potential for response bias. As is typical for large national physician surveys and consistent with prior years,<sup>12-15</sup> the participation rate for the electronic survey was low. Nonetheless, participants were generally similar to all physicians in the United States with respect to age, sex, and demographic characteristics and were also similar to previous national surveys. Secondary surveys and robust analysis of nonresponders in previous years indicated that survey participants are representative of the overall sample.<sup>14,15</sup> Finally, unlike in the triennial survey, a comparative sample of the general US workforce is not available for the 2021 survey time point.

## CONCLUSION

The COVID-19 pandemic has exacerbated preexisting problems in the health care delivery system and taken a dramatic toll on the US physician workforce. A striking increase in occupational burnout and decrease in satisfaction with WLI occurred in US physicians between 2020 and 2021. Differences in mean depression scores were modest, suggesting that the increase in physician distress was overwhelmingly due to work-related distress. Given the association of physician burnout with quality of care, turnover, and reductions in work effort, these findings suggest that ongoing efforts to mitigate physician burnout are critically important for the US health care system. Timely, system-level interventions implemented by government, payers, regulatory bodies, and health care organizations are warranted.



## POTENTIAL COMPETING INTERESTS

Drs Dyrbye and Shanafelt are co-inventors of the Well-being Index instruments. Mayo Clinic holds the copyright for these instruments and has licensed them for use outside

of Mayo Clinic. Mayo Clinic pays Drs Shanafelt and Dyrbye a portion of any royalties received. Dr Shanafelt is the co-inventor of the Participatory Management Leadership Index. Mayo Clinic holds the copyright for this instrument, has licensed it for use outside of Mayo Clinic, and pays Dr Shanafelt a portion of any royalties received. Drs Shanafelt and Dyrbye report receiving honoraria for presentations and providing advising for health care organizations. Dr Dyrbye reports receiving funding support from the National Science Foundation (2041339) and National Institute of Nursing Research (R01NR020362-01). Michael Tutty is a board member for Emergence Healthcare Group.

#### SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at <http://www.mayoclinicproceedings.org>. Supplemental material attached to journal articles has not been edited, and the authors take responsibility for the accuracy of all data.

**Abbreviations and Acronyms:** **NAM**, National Academy of Medicine; **OR**, odds ratio; **WLI**, work-life integration

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