

ORIGINAL RESEARCH

Burnout, Depression, Anxiety, and Stress Among Family Physicians in Kansas: 18 Months into the COVID-19 Pandemic

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Introduction: Given the significant turmoil during the COVID-19 pandemic, the authors evaluated burnout and other types of emotional distress experienced by family physicians in Kansas during the second year of the pandemic. The authors compared findings of this study to a similar study conducted 3 months into the pandemic.

Methods: A cross-sectional online survey of 272 actively practicing family physicians in Kansas was conducted from September 15 to October 18, 2021. A 34-item questionnaire was used to measure the physicians' levels of burnout, personal depression, anxiety, and stress. A mixed method approach was used to collect, analyze, and interpret the data. Descriptive statistics, Mann-Whitney U test/independent samples *t*-test, χ^2 , adjusted odds ratio, and immersion-crystallization methods were used to analyze the data.

Results: The response rate was 48.9% (n = 133). In aggregate, 69.2% of respondents reported at least 1 manifestation of professional burnout in 2021 compared with 50.4% in 2020; (P ≤ .01). The 2021 respondents were at higher odds of experiencing burnout compared with 2020 respondents (aOR = 1.86; 95% CI, 1.00 to 3.57; P = .046). The respondents who reported at least 1 manifestation of professional burnout were more likely to screen positive for depression (aOR = 1.87; 95% CI, 1.31-2.66; P ≤ .01), report higher levels of anxiety (aOR = 1.53; 95% CI, 1.04-2.24; P = .013), and higher levels of stress (aOR = 1.39; 95% CI, 1.17-1.66; P ≤ .001).

Conclusion: As the COVID-19 pandemic continued, there are significant and worsening rates of professional burnout and other forms of emotional distress among family physicians. These findings suggest timely need for appropriate psychological supports. (J Am Board Fam Med 2022;35:921–932.)

Keywords: COVID-19, Cross-Sectional Studies, Family Physicians, Kansas, Mental Health, Occupational Burnout, Pandemics, Surveys and Questionnaires

Introduction

The first case of coronavirus disease 2019 (COVID-19) in the United States was confirmed by the United States Centers for Disease Control and Prevention (CDC) in January 2020.¹ In March 2020, the World Health Organization (WHO) designated

the worldwide outbreak of COVID-19 as a pandemic.² Before the outbreak, physician burnout was considered to be epidemic and a public health emergency in the United States.³ Burnout is characterized by long-term exposure to chronic job-related stress, resulting in emotional and physical exhaustion, depersonalization and feelings of low self-worth.^{3,4}

Physicians experiencing burnout are at risk of several health-related hazards including a variety of medical conditions, mood disorders, substance and alcohol use disorders, suicidal ideation, and accidents.^{5–8} Physician burnout also has been associated with risk to patients. Patients may experience decreases in quality of care and increases in medical errors.^{9–12} Burned out physicians may retire early

This article was externally peer reviewed.

Submitted 7 February 2022; revised 14 April 2022; accepted 25 April 2022.

From Department of Family and Community Medicine, University of Kansas School of Medicine, Wichita.

Funding: None.

Conflict of interest: None.

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or leave the medical profession for other careers, exacerbating nationwide shortages and maldistribution of the physician workforce.^{13–15} Burnout is associated with less efficiency and productivity among clinicians.¹⁶ High rates of burnout have been associated with problematic patient experiences and reduced patient satisfaction with their medical care.^{17,18} In 2019, the National Academy of Medicine published a report outlining an evidence-based agenda to mitigate burnout, enhance clinician well-being and improve patient care.⁴

Before the COVID-19 pandemic, nearly 1-half of Kansas physicians were documented to experience symptoms of burnout. These physicians were more likely to screen positive for depression, experience suicidal ideation and report high levels of fatigue compared with colleagues.^{19,20} A survey of Kansas family physicians conducted between May 22 and June 25, 2020, approximately 3 months after the first case of COVID-19 was reported in the state, showed that 50.4% of respondents reported manifestations of burnout. Physicians who had treated a patient with COVID-19 were 4 times more likely to report at least 1 manifestation of burnout than physicians who had not.^{21,22}

Many reports have documented the downstream effects of the COVID-19 pandemic on front-line health care professionals. For family physicians, changes in work patterns were manifest. The routine uses of personal protective equipment, oftentimes in short supply, and new untested office protocols, such as screening patients for respiratory symptoms and fever before rooming, were adopted.²³ Ad hoc testing, treatment and monitoring protocols were developed without standardization from office to office. Some practices that could access test equipment established protocols to sample patients in the office parking lot. Other practices that could not access testing equipment referred patients to community testing sites which might or might not have testing supplies. Previously underutilized telemedicine technologies were deployed.

Existing workforce shortages were exacerbated by sick colleagues and support staff who were physically isolated or who had been exposed to the virus and quarantined. Many unnerved and overworked health care professionals left their jobs.²⁴ Many physician practices saw their patient volume and income cut significantly.²⁵

National, state, and local patient care recommendations did not always align and changed as new information about the virus emerged. For example, recommendations to clean and disinfect work surfaces changed as more was learned about COVID-19 transmission.²⁶

In many communities, the public push-back against science, public health recommendations and public health officials was palpable. Some physicians felt that their own safety was under physical threat from angry community members. Some reported that long-time patients and friends turned against them for supporting CDC recommendations for masking and social distancing.²⁷ Elected city and county commissioners, school board members, state legislators as well as the general public argued over everything from use of masks to restaurant opening policies to return-to-school gating criteria to vaccination mandates, not to mention whether the existence of the virus was a hoax or developed and purposefully released by foreign adversaries.^{28,29} Opinions posted on social media were frequently inflammatory, intimidating and scientifically incorrect or misleading.^{30,31}

Family physicians worried that they might be the vector that infected their family members.³² The stress of caring for sick and dying patients, many of whom could not be admitted to local hospitals due to inadequate surge capacity, was apparent. All the while, a sense of uncertainty and peril lingered over the health care workforce as reports of patients, friends and colleagues who had died from COVID-19 circulated.^{27,33–35} Given the significant turmoil during the COVID-19 pandemic, this study was conducted to evaluate burnout and other types of emotional distress experienced by family physicians in Kansas during the second year of the pandemic. We compared the findings conducted before the pandemic started and during its first few months.

Methods

Study Design

This study was a cross-sectional survey of community-based family physicians and faculty physicians in Kansas. The 2021 survey used methods similar to those of a study previously published in 2021²² to focus on the emotional well-being of physicians in Kansas during the second year of the pandemic from September 15 to October 18, 2021. We

employed a mixed methods approach to collect, analyze, and interpret the data.³⁶ The University of Kansas School of Medicine-Wichita (KUSM-W) Institutional Review Board granted exemption for the study.

Study Instrument

A 34-item questionnaire (Appendix), similar to the 2020 study,²² was used to measure family physicians' levels of burnout, depression, anxiety, and stress. The questionnaire included items regarding demographic information (age, gender, years in clinical practice, and the Kansas county where the physicians primarily practiced); whether the physicians had been vaccinated against COVID-19; whether the physicians engaged in activities related to their wellness, mindfulness, or mental well-being since the declaration of the pandemic; and the type of wellness, mindfulness, or mental well-being activities in which they had engaged.

Burnout

We used 2 single-item measures of emotional exhaustion and depersonalization adapted from the previously validated full Maslach Burnout Inventory (MBI-22)³⁷ to assess respondents' manifestations of burnout. The emotional exhaustion item ("I feel burnout from my work") and depersonalization item ("I've become more callous toward people since I became a physician") have been shown to be useful screening questions for burnout.^{22,38-40} These 2 items have shown the highest factor loading^{37,41} and strongest correlation^{38,42} with their respective emotional exhaustion and depersonalization domains in the MBI-22.³⁸ The 2 single items have been used in previous studies to measure emotional exhaustion, depersonalization, and manifestations of burnout among physicians.⁴³⁻⁴⁶ The physicians recorded the degree to which each item applied to themselves on a 7-point Likert scale (0 = never, 6 = every day). The scores of each item were classified into low, moderate, and high burnout categories using established cutoffs.^{37,43,45,46} Higher scores are indicative of greater exhaustion and depersonalization and higher levels of burnout. Consistent with convention, we considered physicians who scored high (score of greater than 3) on exhaustion and/or depersonalization domains as having at least 1 manifestation of professional burnout.^{43,45,46}

Depression, Anxiety, and Stress

The respondents' emotional state was measured using the Depression Anxiety Stress Scales-21 (DASS-21), which is a validated research tool that has been used widely to assess quality of life and consists of 21 questions in 3 scales designed to measure negative emotional states of depression, anxiety, and stress.⁴⁷⁻⁴⁹ These scales have been found to have high internal consistency and can be used in a variety of settings to measure an individual's current emotional state and changes over time.⁴⁸ Respondents recorded how much a statement applied to them over the past week on a 4-point Likert scale (0 = never, 3 = almost always). Scores for the 7 questions specific to each of the 3 scales were summed with a possible score ranging from 0 to 21. Higher scores indicate greater levels of the corresponding emotional state.

Data Collection Process

The questionnaire was hosted in SurveyMonkey, a secure web-based survey system. A generated link to the 34-item questionnaire was sent via e-mail to potential participants. The Department of Family and Community Medicine (DFCM) of the KUSM-W uses an e-mail system called FM-RADIO (Family Medicine Research and Data, Information and Outcomes Practice-Based Research Network) as a survey collection tool. The FM-RADIO is an electronic practice-based research network composed of actively practicing family physicians throughout the state of Kansas who are KUSM-W family medicine residency program graduates, family physician non-KUSM-W graduates, faculty physicians, and resident physicians. The link to the survey was sent only to the 272 actively practicing community physicians and KUSM-W family medicine faculty physicians who were on the FM-RADIO list. Participation was voluntary, and responses were anonymous. The data were collected from September 15, 2021 to October 18, 2021. No compensation was provided to participants.

Statistical Analysis

Standard descriptive statistics were used to create a demographic profile and describe the levels of personal depression, anxiety, stress, and burnout among the family physicians. Associations between variables were evaluated using the Mann-Whitney

U test/independent samples *t*-test (for continuous variables) and likelihood ratio χ^2 (for categorical variables), as appropriate.

Generalized linear mixed models were used to calculate associations between the responses to the question “Since the declaration of the COVID-19 pandemic (March 2020), have you engaged in any activities related to your wellness, mindfulness, or mental well-being?” modeled as a binary outcome (yes/no) against a single fixed effect for independent variables (depression, anxiety, stress, burnout, emotional exhaustion, depersonalization, age, gender, and years in clinical practice). Adjusted odds ratios (aOR) were estimated by modeling all significant independent variables against the responses to the question “Since the declaration of the COVID-19 pandemic (March 2020), have you engaged in any activities related to your wellness, mindfulness, or mental well-being?” controlling for physicians’ age, gender, and years in clinical practice. A sample size of 100 was calculated as necessary for adequate power (>0.85) to detect significant relationships among the variables with 1 degree of freedom, $P < .05$, and 0.5 effect size.⁵⁰

The study team used an immersion-crystallization approach^{36,51,52} to qualitatively analyze the content of respondents’ open-ended responses individually and in a group meeting. Immersion-crystallization is a process where researchers examine collected data in detail and periodically suspend the immersion process to reflect on emerging findings until consistent themes are identified.^{36,52} This multidisciplinary team was composed of a health psychologist (SO-D) and 2 family physicians (CL-G, RK).

Results

Respondents Characteristics

The response rate was 48.9% (133/272). As Table 1 shows, the demographic characteristics of the 2021 respondents were not statistically different from those of the 2020 survey, suggesting that the 2020 and 2021 respondents were generally similar. Analysis of the 2021 study sample compared demographically to the 272 actively practicing community physicians and KUSM-W family medicine faculty physicians who were on the FM-RADIO list showed a statistical no difference between the groups on gender, age, and years in clinical

Table 1. Respondents’ Characteristics

Characteristics	2020 (N = 113)	2021 (N = 133)	P Value
Gender, no. (%)			0.543
Male	53 (46.9)	68 (51.1)	
Female	43 (38.1)	51 (38.3)	
Prefer to not answer	1 (0.9)	1 (0.8)	
Missing*	16 (14.2)	13 (9.8)	
Age	(n = 95)	(n = 118)	0.933
Mean (SD), y	48.4 (11.9)	48.6 (11.7)	
Median	49	47	
Minimum	28	29	
Maximum	70	74	
Year in clinical practice	(n = 88)	(n = 116)	0.510
Mean (SD), y	16.7 (11.8)	17.8 (11.0)	
Median	17.5	17	
Minimum	<1	1	
Maximum	44	45	
Kansas county the physicians primarily practiced, no. (%)			0.326
Butler	5 (4.4)	7 (5.3)	
Saline	6 (5.3)	6 (4.5)	
Sedgwick	39 (34.5)	54 (40.6)	
All other counties	45 (39.8)	56 (42.1)	
Missing*	18 (15.9)	10 (7.5)	

Abbreviation: SD, standard deviation.

*The number of participants who completed the survey but did not provide an answer to this specific question.

Table 2. Relationship of Patient Volume and Concerns About Some Patients Forgoing Care Compared With Participating Years (2020 and 2021)

Variable	Participation Year		χ^2	P Value	ϕ
	2020 N (%)	2021 N (%)			
Current patient volume			54.11	<0.001	0.49
More patients	3 (2.3)	35 (26.3)			
Fewer patients	74 (65.5)	26 (19.5)			
About the same number of patients	35 (31)	65 (48.9)			
Missing	1 (0.9)	7 (5.3)			
Total	113 (100)	133 (100)			
Concerned that some patients may forgo care?			14.09	<0.001	0.25
Yes	94 (83.2)	95 (71.4)			
No	6 (5.3)	31 (23.3)			
Missing	13 (11.5)	7 (5.3)			
Total	113 (100)	133 (100)			

practice. There was a $\pm 5.1\%$ margin of error at a 95% confidence interval between the 2021 study sample and the population of all practicing family physicians in Kansas, demonstrating that our sample generally represented the population of the practicing family physicians in Kansas.⁵³

Quantitative Results

Concerns About Patient Volume

The proportion of the respondents who reported seeing fewer patients was significantly lower in 2021 than in 2020 (19.5% vs 65.5%; $\chi^2[2, n = 226] = 54.11$; $P < .001$; $\phi = 0.49$; Table 2). The majority (83.2%, $n = 94$) of the 2020 respondents were concerned that some of their patients were forgoing preventive or chronic medical care because they were afraid of being exposed to the COVID-19 virus. This number was significantly less in 2021 as 71.4% ($n = 95$) expressed such concern, compared with 83.2% ($n = 94$) in 2020 ($\chi^2[1, n = 226] = 14.09$; $P < .001$; $\phi = 0.25$; Table 2).

Burnout, Depression, Anxiety, and Stress: 2021 Results

In aggregate, 69.2% (92 of 133) of respondents reported at least 1 manifestations of professional burnout. As Table 3 shows, there was a wide range of depression (20), anxiety (17), and stress (21) scores among the respondents, with average scores of 3.06 (S.D. = 3.99), 1.38 (S.D. = 2.51), and 7.0 (S.D. = 5.46), respectively. The respondents who reported at least 1 manifestation of professional burnout were more likely to screen positive for

depression (aOR = 1.87; 95% CI, 1.31-2.66, $P \leq .01$), report higher levels of anxiety (aOR = .53; 95% CI, 1.04-2.24, $P = .013$), and higher levels of stress (aOR = 1.39; 95% CI, 1.17-1.66, $P \leq .001$).

Burnout: Comparing 2021 and 2020 Results

In aggregate, 69.2% (92 of 133) of respondents reported at least 1 manifestation of professional burnout in 2021 compared with 50.4% (57 of 113) in 2020 ($P < .01$; Table 3). The 2021 respondents were at higher odds of experiencing professional burnout compared with 2020 respondents, even after adjusting for age, gender, and years in clinical practice (aOR = 1.86; 95% CI, 1.00 to 3.57; $P = .046$).

As Table 3 shows, the combined rates of moderate and high scores on emotional exhaustion were significantly higher among the 2021 respondents (85.7% [114 of 133]) than the 2020 respondents (61.9% [70 of 113]; aOR = 1.29; 95% CI, 1.09-1.51; $P \leq .001$). There was a higher combined rate of moderate to high scores on the depersonalization scale among the 2021 respondents (78.9% [105 of 133]) compared with the 2020 respondents (44.2% [50 of 113]; aOR = 1.31; 95% CI, 1.13-1.50; $P \leq .001$).

Though not statistically significant, there were modest increase in mean scores of depression, anxiety, and stress from 2020 to 2021 (Table 3).

Emotional Distress and Activities Related to Wellness, Mindfulness, or Mental

Of the 133 respondents in the 2021 survey, 101 (75.9%) reported to have engaged in activities

Table 3. Respondents' Burnout, Depression, Anxiety, and Stress in 2021 Compared with 2020^a

Variables	2020 (N = 113)	2021 (N = 133)	P Value
Burnout indices			
Manifestations of burnout			
Burnout	57 (50.4)	92 (69.2)	<0.01
Emotional exhaustion			
Median	4	4	–
Mean (SD)	3.95 (1.69)	3.24 (2.19)	<0.01
High score	53 (46.9)	75 (56.4)	0.136
Moderate score	17 (15.0)	39 (29.3)	<0.01
Low score	31 (27.4)	13 (9.8)	<0.001
Missing*	12 (10.6)	6 (4.5)	NA
Depersonalization			
Median	4	1	<0.001
Mean (SD)	3.25 (2.22)	2.05 (2.25)	<0.001
High score	33 (29.2)	83 (62.4)	<0.001
Moderate score	17 (15.0)	22 (16.5)	0.748
Low score	51 (45.1)	22 (16.5)	<0.001
Missing*	12 (10.6)	6 (4.5)	NA
Depression			
Median	1	1	–
Mean (SD)	2.66 (4.13)	3.06 (3.99)	0.472
Minimum	0	0	
Maximum	18	20	
Missing*	15 (13.3)	12 (9.0)	NA
Anxiety			
Median	0	0	
Mean (SD)	1.06 (1.51)	1.38 (2.51)	0.274
Minimum	0	0	
Maximum	7	17	
Missing*	14 (12.4)	11 (8.3)	NA
Stress			
Median	6	6	–
Mean (SD)	6.0 (5.44)	7.0 (5.46)	0.193
Minimum	0	0	
Maximum	21	21	
Missing*	13 (11.5)	10 (7.5)	NA

Abbreviation: NA, not applicable; SD, standard deviation.
^aData are presented as number (percentage) unless otherwise.
 *The number of participants who completed the survey but did not provide an answer to this specific question.

related to their own personal wellness, mindfulness, or mental well-being since the declaration of the COVID-19 pandemic. About 38% (n = 51) reported that their activities increased, 23.3% (n = 31) reported no change, and 28.6% (n = 38) reported a decrease compared with before the pandemic. The respondents who did not engage in activities related to wellness, mindfulness, or mental well-being were more likely to experience

emotional distress (aOR = 1.33; 95% CI, 1.01–1.73, P = .037), and screen positive for depression (aOR = 1.10; 95% CI, 1.00 to 1.21, P = .048) than those who engaged in activities related to wellness, mindfulness, or mental well-being.

Qualitative Results

Nearly 76% (n = 101) of the respondents reported that they had engaged in activities related to wellness, mindfulness, or mental well-being since the declaration of the pandemic. Eight themes regarding the type of wellness, mindfulness, or mental well-being activities emerged: engage in regular physical activities/exercises, engage in religious activities, engage support from family and friends, take time away from work, practice meditation and yoga, attend counseling sessions, engage in hobbies, and other (reading books, listening to music, using mindfulness apps, participating in seminars, enjoying nature, etc.; Table 4).

Discussion

The results of this study showed a significant increase in family physicians reporting at least 1 manifestation of burnout in 2021 (69.2%) compared with 2020 (50.4%). This finding correlates with previous research that showed that stress and other factors related to the pandemic have increased physician reported burnout, increasing from 40% in 2018 to 61% of physicians in 2021.⁵⁴ In addition, 1 review reported that multiple studies have demonstrated clinically significant symptoms of anxiety, depression, stress, PTSD, and burnout among physicians during the COVID-19 pandemic, consistent with the mental health effects on physicians during previous infectious disease outbreaks.⁵⁵ Our findings are particularly notable given the timing of the data collection in the surveys, with the first being approximately 3 months into the COVID-19 pandemic, and the latter being conducted 15 months after the first study. Family physicians, along with other front-line personnel, have continued to face unprecedented challenges in the ongoing response to COVID-19, and this study suggests that the effects include a substantial and worsening psychological toll.

Compared with results from the initial survey conducted in 2020,²² for most physicians, clinic volume had returned to prepandemic levels in 2021. Some may consider this an encouraging sign in the

Table 4. Open-Ended Comments Regarding Respondents' Activities Related to Wellness, Mindfulness, or Mental Well-being (Responses = 191)

Theme	Percentage of Responses	Quotes from Participants
Engage in regular physical activities/exercises	29%	<p>"Lots of exercise."</p> <p>"Continued Routine Exercising."</p> <p>"I Have Continued to exercise: run, bike, lift weights and go the gym when it was safer."</p>
Practice Meditation and yoga	14%	<p>"Meditation Podcasts in the car on my way to work."</p> <p>"Most Important is I have done different yoga classes and meditation."</p> <p>"Meditation on Christian readings."</p> <p>"Yoga and mindfulness activities."</p>
Engage in religious activities	12%	<p>"I Attend Mass Every Week and sometimes during the week. I frequent reconciliation as well."</p> <p>"Going to Mass, Reading the Bible, and Prayer."</p> <p>"Quiet Times Reading the Bible."</p>
Engage Support from family and friends	10%	<p>"I Seek Guidance from friends and family."</p> <p>"Mostly Having Dedicated Time with other physicians experiencing similar things to me. It helps to have great friends."</p> <p>"Increased Reaching out to colleagues and friends to share our trials and tribulations."</p>
Take Time Away from work	9%	<p>Taking Vacation intentionally - Even a 'staycation.'</p> <p>"Vacation and extra days off."</p> <p>"Vacations as much as possible."</p>
Engage in hobbies	6%	<p>"Spending Time on activities I enjoy such as reading, avoiding social media."</p> <p>"Spending More Time Cooking and hanging out with family."</p> <p>"Creative Projects."</p> <p>"Creative Arts/Crafts."</p>
Attend Counseling Sessions	4%	<p>"Weekly Therapy Sessions."</p> <p>"Counseling."</p>
Other Activities	17%	<p>"Routine Medical Care, Usual Stress Relief Activities,"</p> <p>"Attend Zoom Seminar."</p> <p>"Listening to wellness podcasts."</p> <p>"Avoiding Social Media."</p> <p>"Quit my Job."</p>

return of the health care system to "normal" and a positive sign for patients and physicians given the long-term health consequences and financial impact when people are too fearful to seek routine and preventive medical care and elective procedures were suspended. However, 71.4% of family physicians still indicated in the 2021 survey that they felt patients were forgoing recommended preventive care and needed ongoing care for chronic conditions. This may suggest that a significant proportion of appointments are being allotted to acute and sick patient visits, particularly during a community surge in COVID-19 cases. A shift in visit types and increased frequency in caring for acutely ill patients, frequently changing guidelines, concerns about potential exposure to a highly infectious

agent, and the need to implement inconvenient safety precautions including use of personal protective equipment, may further contribute to the already existing stress experienced by family physicians.

In one study, 14% of physicians who experienced burnout during the COVID-19 pandemic had sought medical care for mental health issues.⁵⁴ Our study sought to assess potential mitigating factors on negative mental health effects of the COVID-19 pandemic on family physicians. Our findings indicate that since the start of the pandemic, most respondents (75.9%) had engaged in activities related to wellness, mindfulness, or mental well-being, and that those respondents were less likely to experience emotional distress and

depressive symptoms. This is consistent with previous studies, including a systematic review that showed that self-awareness and mindfulness, including hospital-based mindfulness programming, helped to reduce physician burnout.⁵⁶ Furthermore, this protective effect was seen among physicians who reported positive support in both their personal and professional relationships.^{54–56} However, wellness activities alone may not be sufficient to fully address this problem, particularly as nearly 76% of participants had increase in wellness activities and yet burnout remains high across the population. Greater resources within hospitals, institutional systems, and through policy makers are needed.

Healthcare administration and standard-setting agencies should consider reviewing and eliminating regulations, policies, and laws that contribute little or nothing to patient care yet are sources of burnout among health care professionals.⁵⁷ Improved EHR systems and payment for scribes should be considered to reduce documentation demands among clinicians.^{57–59} In addition, policy makers and healthcare organizations can help by recognizing the harmful effects of emotional distress on health care professionals' well-being and then to ensure that appropriate programs are in place to provide emotional, mental health, and social support to health care professionals, especially those on the forefront of the pandemic. The US Senate recently passed a bill to address the stigma that health care professionals often face when seeking mental health services. The Dr. Lorna Breen Health Care Provider Protection Act is named after an emergency medicine physician who died by suicide in April 2020 after treating patients with COVID-19. More of this type of legislation is needed to allow health care professionals to seek help without fear of looking weak or losing licensure.⁵⁹

Several common themes of wellness, mindfulness, and mental well-being activities emerged in the analysis of study responses, as previously described. Notably, results of one study indicated that those who felt valued by their organizations were 40% less likely to experience burnout,^{60,61} and appreciation and recognition of service have also been shown to be a protective factor against negative mental health outcomes.⁵⁵ Physicians have indicated interest in organizational support through access to counseling interventions.⁵⁵ This information should be further explored and applied in the development of future physician support and

resilience initiatives. Additional potential workplace interventions may include mindfulness-based programs or a motivational fitness curriculum, which also have been shown to have positive impacts on physician mental well-being.^{62–65}

There are limitations to this study. The overall response rate of 48.9% and the specific target population of family physicians in Kansas may limit the generalizability of results. However, our findings do seem to be consistent with those of similar studies and may be particularly applicable in areas with comparable community and population characteristics. Data were collected via a self-reported online survey, which may have allowed for recall and selection biases. In addition, the cross-sectional nature of this study does not establish a direct causal effect between the COVID-19 pandemic and psychological distress, though the timing of the data collection and comparison of results to prepandemic levels suggest that the impact of the pandemic on the findings is likely. Finally, data collected regarding physician wellness and mindfulness activities were subjective. Additional studies evaluating the effectiveness of such activities on mental health symptoms are needed.

Strengths of this study include the comparison of family physician burnout and mental health symptoms from 2 different time frames during the COVID-19 pandemic. This provides insight into the concerning long-term effects of the ongoing pandemic on physicians and other health care personnel. While many previous similar studies have focused on physicians working in hospital settings, our study population represents family physicians working across a range of clinical settings.

Conclusion

As the COVID-19 pandemic continues, burnout and other negative mental health effects are posing a significant and worsening burden on family physicians. This indicates a particularly timely need for further advances in implementing appropriate psychological supports.

To see this article online, please go to: <http://jabfm.org/content/35/5/921.full>.

References

1. Holshue ML, DeBolt C, Lindquist S, et al. First case of 2019 novel coronavirus in the United States. *N Engl J Med* 2020;382:929–36.

2. Rolling updates on coronavirus disease (COVID-19) [Internet]. World Health Organization (WHO); 2021. (accessed November 30, 2021). Available from: <http://www.who.int/emergencies/diseases/novel-coronavirus2019/events-as-they-happen>.
3. What should be done about the physician burnout epidemic [Internet] American Medical Association; 2020 (accessed 30 November 2021). Available from: <https://www.ama-assn.org/practice-management/physician-health/what-should-be-done-about-physician-burnout-epidemic#:~:text=Focus%20on%20system%2Dlevel%20changes,are%20targeted%20to%20physician%20concerns>.
4. National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on Systems Approaches to Improve Patient Care by Supporting Clinician Well-Being. Taking action against clinician burnout: a systems approach to professional well-being. National Academies Press; 2019.
5. Salvagioni DAJ, Melanda FN, Mesas AE, et al. Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PLOS One* 2017;12:e0185781.
6. Oreskovich MR, Kaups KL, Balch CM, et al. Prevalence of alcohol use disorders among American surgeons. *Arch Surg* 2012;147:168–74.
7. Hakanen JJ, Schaufeli WB. Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. *J Affect Disord* 2012;141:415–24.
8. Shanafelt TD, Balch CM, Dyrbye L, et al. Special report: suicidal ideation among American surgeons. *Arch Surg* 2011;146:54–62.
9. Williams ES, Manwell LB, Konrad TR, Linzer M. The relationship of organizational culture, stress, satisfaction, and burnout with physician-reported error and suboptimal patient care: results from the MEMO study. *Health Care Manage Rev* 2007;32:203–12.
10. Weigl M, Schneider A, Hoffmann F, Angerer P. Work stress, burnout, and perceived quality of care: a cross-sectional study among hospital pediatricians. *Eur J Pediatr* 2015;174:1237–46.
11. Shirom A, Nirel N, Vinokur AD. Overload, autonomy, and burnout as predictors of physicians' quality of care. *J Occup Health Psychol* 2006;11:328–42.
12. Hayashino Y, Utsugi-Ozaki M, Feldman MD, Fukuhara S. Hope modified the association between distress and incidence of self-perceived medical errors among practicing physicians: prospective cohort study. *PLOS One* 2012;7:e35585.
13. Hamidi MS, Bohman B, Sandborg C, et al. Estimating institutional physician turnover attributable to self-reported burnout and associated financial burden: a case study. *BMC Health Serv Res* 2018;18:851.
14. Willard-Grace R, Knox M, Huang B, et al. Burnout and health care workforce turnover. *Ann Fam Med* 2019;17:36–41.
15. Sinsky CA, Dyrbye LN, West CP, et al. Professional satisfaction and the career plans of U.S. physicians. *Mayo Clinic Proc* 2017;92:1625–35.
16. Shanafelt TD, Dyrbye LN, West CP, Sinsky CA. Potential impact of burnout on the US physician workforce. *Mayo Clin Proc* 2016;91:1667–8.
17. Wright TA, Bonett DG. The contribution of burnout to work performance. *J Organiz Behav* 1997;18:491–9.
18. Windover AK, Martinez K, Mercer MB, et al. Correlates and outcomes of physician burnout within a large academic medical center. *JAMA Intern Med* 2018;178:856–8.
19. Ofei-Dodoo S, Kellerman R, Gilchrist K, Casey EM. Burnout and quality of life among active member physicians of the Medical Society of Sedgwick County. *KJM* 2019;12:33–9.
20. Ofei-Dodoo S, Eberwein C, Kellerman R. Assessing loneliness and other types of emotional distress among practicing physicians. *KJM* 2020;13:1–5.
21. McLean J. The first case of coronavirus in Kansas is confirmed in Johnson County [Internet]. *KCUR*; 2020 (accessed 30 November 2021). Available from: <https://www.kcur.org/health/2020-03-07/the-first-case-of-coronavirus-in-kansas-is-confirmed-in-johnson-county>.
22. Ofei-Dodoo S, Loo-Gross C, Kellerman R. Burnout, depression, anxiety, and stress among family physicians in Kansas responding to the COVID-19 pandemic. *J Am Board Fam Med* 2021;34:522–30.
23. Ranney ML, Griffeth V, Jha AK. Critical supply shortages—the need for ventilators and personal protective equipment during the COVID-19 pandemic. *N Engl J Med* 2020;382:e41.
24. Masson G. About 1 in 5 healthcare workers have left medicine since the pandemic began—here's why [Internet]. *Becker's Hospital Review*; 2021 (accessed 29 January 2022). Available from: <https://www.beckershospitalreview.com/workforce/about-1-in-5-healthcare-workers-have-left-medicine-since-the-pandemic-began-here-s-why.html>.
25. Basu S, Phillips RS, Phillips R, et al. Primary care practice finances in the United States amid the COVID-19 pandemic. *Health Aff (Millwood)* 2020;39:1605–14.
26. Scientific brief: SARS-CoV-2 transmission: summary of recent changes [Internet]. Centers for Disease Control and Prevention; 2021 (accessed 29 January 2022). Available from: <https://www.cdc.gov/coronavirus/2019-ncov/science/science-briefs/sars-cov-2-transmission.html>.
27. Weiler M. First person accounts of the impact COVID-19 had on Kansas family physicians and the communities they serve [Internet]. Center for the History of Family Medicine; 2022 (accessed 29 January 2022).

- 2022). Available from: <https://www.aafpfoundation.org/content/dam/foundation/documents/who-we-are/cfhm/chfm-student-essay-contest/MorganWeilerEssay.pdf>.
28. Weber L, Barry-Jester AM. Underfunded and under threat: over half of states have rolled back public health powers in pandemic [Internet]. Kaiser Health Network; 2021 (accessed 29 January 2022). Available from: <https://khn.org/news/article/over-half-of-states-have-rolled-back-public-health-powers-in-pandemic>.
 29. Censky A. As COVID concern grows in Kansas, so does confusion over who is in charge. National Public Radio; 2021 (accessed 29 January 2022). Available from: <https://www.npr.org/2021/07/31/1022907425/as-covid-concern-grows-in-kansas-so-does-confusion-over-who-is-in-charge>.
 30. Imhoff R, Lamberty P. A bioweapon or a hoax? The links between distinct conspiracy beliefs about the coronavirus disease (COVID-19) outbreak and pandemic behavior. *Soc Psychol Personal Sci* 2020; 11:1110–8.
 31. Vasquez J. Researchers see an increase in fraudulent COVID-19 posts on social media [Internet]. UC San Diego Health; 2022 (accessed 29 January 2022). Available from: <https://health.ucsd.edu/news/releases/Pages/2020-08-25-researchers-see-increase-in-fraudulent-covid-19-posts-on-social-media.aspx>.
 32. Berg S. Physician health: how doctors can keep their families safe after providing COVID-19 care [Internet]. American Medical Association; 2020 (accessed 29 January 2022). Available from: <https://www.ama-assn.org/practice-management/physician-health/how-doctors-can-keep-their-families-safe-after-providing-covid>.
 33. Weiler M. *Interviews and written recollections of the COVID-19 pandemic in Kansas* [Archival record]. Center for the History of Family Medicine; 2022. (accessed 29 January 2022). Available from: <https://www.aafpfoundation.org/content/dam/foundation/documents/who-we-are/cfhm/chfm-student-essay-contest/MorganWeilerEssay.pdf>.
 34. Hybrid hearing on “upgrading public health infrastructure: the need to protect, rebuild, and strengthen state and local public health departments” [Internet]. Select Subcommittee on the Coronavirus Crisis; 2021 (accessed 30 November 2021). Available from: <https://coronavirus.house.gov/subcommittee-activity/hearings/hybrid-hearing-upgrading-public-health-infrastructure-need-protect>.
 35. Health official in Kansas target of anger, harassment over proposed COVID measures [Internet]. NBC News; 2020 (accessed 30 November 2021). Available from: <https://www.nbcnews.com/news/us-news/health-official-kansas-target-anger-harassment-over-proposed-covid-measures-n1249961>.
 36. Creswell JW. Mapping the developing landscape of mixed methods research. In: Tashakkori A, Teddlie C, eds. *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE; 2010:45–68.
 37. Maslach C, Jackson SE, Leiter MP. *Maslach Burnout Inventory manual* (3rd ed.). Consulting Psychologists Press; 1996.
 38. West CP, Dyrbye LN, Sloan JA, Shanafelt TD. Single item measures of emotional exhaustion and depersonalization are useful for assessing burnout in medical professionals. *J Gen Intern Med* 2009; 24:1318–21.
 39. Rafferty JP, Lemkau JP, Purdy RR, Rudisill JR. Validity of the Maslach Burnout Inventory for family practice physicians. *J Clin Psychol* 1986;42:488–92.
 40. Ofei-Dodoo S, Moser SE, Kellerman R, et al. Burnout and other types of emotional distress among medical students. *Med Sci Educ* 2019;29:1061–9.
 41. Vanheule S, Rosseel Y, Vlerick P. The factorial validity and measurement invariance of the Maslach Burnout Inventory for human services. *Stress Health* 2007;23:87–91.
 42. West CP, Dyrbye LN, Satele DV, et al. Concurrent validity of single-item measures of emotional exhaustion and depersonalization in burnout assessment. *J Gen Intern Med* 2012;27:1445–52.
 43. Dyrbye LN, West CP, Satele D. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med* 2014;89:443–51.
 44. Dyrbye LN, Thomas MR, Massie FS, et al. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med* 2008;149:334–41.
 45. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001;52:397–422.
 46. Shanafelt TD, Boone S, Tan L, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med* 2012;172:1377–85.
 47. Lovibond SH, Lovibond PF. *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation; 1995.
 48. Osman A, Wong JL, Bagge CL, et al. The Depression Anxiety Stress Scales–21 (DASS-21): further examination of dimensions, scale reliability, and correlates. *J Clin Psychol* 2012;68:1322–38.
 49. Gomez F. A guide to the Depression, Anxiety, and Stress Scale (DASS 21) [Internet]. Author; 2016 (accessed 2 September 2021). Available from: <https://jeanmartainnaturopath.com.au/wp-content/uploads/2016/10/Dass21.pdf>.
 50. Kim HY. Statistical notes for clinical researchers: chi-squared test and Fisher’s exact test. *Restor Dent Endod* 2017;42:152–5.
 51. Ofei-Dodoo S, Callaway P, Engels K. Prevalence and etiology of burnout in a community-based graduate medical education system: A mixed-methods study. *Fam Med* 2019;51:766–71.

52. Miller WL, Crabtree BF. Clinical research. In: Denzin NK, Lincoln YS, eds. *Handbook of qualitative research*. SAGE; 1994:340–52.
53. What every researcher should know about statistical significance. Data Star; 2008 (accessed 19 January 2022). Available from: <http://www.surveystar.com/startips/oct2008.pdf>.
54. The Physicians Foundation 2021 Physician Survey: COVID-19 impact edition: a year later. The Physicians Foundation; 2021 (accessed 23 January 2022). Available from: <https://physiciansfoundation.org/wp-content/uploads/2021/08/2021-Survey-Of-Americas-Physicians-Covid-19-Impact-Edition-A-Year-Later.pdf>.
55. Fiest KM, Parsons Leigh J, Krewulak KD, et al. Experiences and management of physician psychological symptoms during infectious disease outbreaks: a rapid review. *BMC Psychiatry* 2021;21:91.
56. Amanullah S, Ramesh Shankar R. The impact of COVID-19 on physician burnout globally: a review. *Healthcare (Basel)* 2020;8:421.
57. Shryock T, Lutton L. Six ways healthcare leaders can reduce burnout. *Health Economics*; 2020 (accessed 11 April 2022). Available from: <https://www.medicaleconomics.com/view/six-ways-healthcare-leaders-can-reduce-burnout>.
58. Gidwani R, Nguyen C, Kofoed A, et al. Impact of scribes on physician satisfaction, patient satisfaction, and charting efficiency: a randomized controlled trial. *Ann Fam Med* 2017;15:427–33.
59. How scribes helped a hospitalist practice improve provider retention and decrease burnout [Internet]. Scribe America; 2021 (accessed 3 April 2022). Available from: <https://www.scribeamerica.com/story/how-an-outpatient-practice-freed-up-10-hours-per-week/>.
60. Berg S. Half of health workers report burnout amid COVID-19 [Internet]. American Medical Association; 2021. Available from: <https://www.ama-assn.org/practice-management/physician-health/half-health-workers-report-burnout-amid-covid-19>. Accessed on January 23, 2022.
61. Prasad K, McLoughlin C, Stillman M, et al. Prevalence and correlates of stress and burnout among U.S. healthcare workers during the COVID-19 pandemic: A national cross-sectional survey study. *EClinicalMedicine* 2021;35:100879.
62. Klatt MD, Bawa R, Gabram O, et al. Embracing change: a mindful medical center meets COVID-19. *Glob Adv Health Med* 2020;9:2164956120975369.
63. Tement S, Ketiš ZK, Mirošević Š, Selič-Zupančič P. The impact of psychological interventions with elements of mindfulness (PIM) on empathy, well-being, and reduction of burnout in physicians: a systematic review. *IJERPH* 2021;18:11181.
64. Nutting R, Grant JT, Ofei-Dodoo S, et al. Increasing resident physician well-being through a motivational fitness curriculum: a pilot study. *Kans J Med* 2020;13:228–34.
65. Ofei-Dodoo S, Cleland-Leighton A, Nilsen K, et al. Impact of a mindfulness-based, workplace group yoga intervention on burnout, self-care, and compassion in health care professionals: a pilot study. *J Occup Environ Med* 2020;62:581–7.

Appendix. Follow-up Survey on How Family Physicians are Responding to COVID-19

1. Since the declaration of the COVID-19 pandemic (March 2020), have you engaged in any activities related to your wellness, mindfulness, or mental wellbeing?
Yes ___ No ___
 - a. If yes, please describe the wellness, mindfulness, or mental wellbeing activities in which you have engaged since the declaration of the COVID-19 pandemic in March 2020 ____
 - b. How has your participation in these wellness, mindfulness, or mental wellbeing activities changed compared to before the pandemic?
 - i. Increased
 - ii. No Change
 - iii. Decreased
2. For each of the following statements, please check the box that most accurately reflects your response:
 - a. I feel burned out from my work as a result the COVID-19 pandemic
 - b. I've become more calloused towards people as a result the COVID-19 pandemicThe rating scale is as follows:
 0. Never
 1. A few times a year
 2. Once a month or less
 3. A few times a month
 4. Once a week
 5. A few times a week
 6. Every day
3. How are your patient volumes now, compared to before the pandemic?
 - a. I'm seeing more patients
 - b. I'm see fewer patients
 - c. I'm seeing about the same number of patients
4. Are you concerned that some of your patients may be foregoing preventive or chronic medical care because they are afraid of exposure to COVID-19 in an office or other clinical setting?
Yes ___ No ___
5. For each statement below, please indicate how you have been feeling during the past week:
 - I found it hard to wind down
 - I tended to over-react to situations
 - I felt that I was using a lot of nervous energy
 - I found myself getting agitated
 - I found it difficult to relax
 - I was intolerant of anything that kept me from getting on with what I was doing
 - I felt that I was rather touchy
 - I was aware of dryness of my mouth
 - I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)
 - I experienced trembling (e.g., in the hands)
 - I was worried about situations in which I might panic and make a fool of myself
 - I felt I was close to panic
 - I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)
 - I felt scared without any good reason
 - I couldn't seem to experience any positive feeling at all
 - I found it difficult to work up the initiative to do things
 - I felt that I had nothing to look forward to
 - I felt downhearted and blue
 - I was unable to become enthusiastic about anything
 - I felt I wasn't worth much as a person
 - I felt that life was meaninglessThe rating scale is as follows:
 0. Did not apply to me at all
 1. Applied to me to some degree, or some of the time
 2. Applied to me to a considerable degree or a good part of time
 3. Applied to me very much or most of the time
6. Are you vaccinated against COVID-19?
Yes ___ No ___
7. What is your gender?
 - a. Male
 - b. Female
 - c. Prefer to not answer
 - d. Other (*please specify*)
8. What year were you born? ____
9. In which Kansas county do you primarily practice? ____
10. How many years have you been in practice since residency? ____