Health Care Workers' Mental Health and Quality of Life During COVID-19: Results From a Mid-Pandemic, National Survey

Kevin P. Young, Ph.D., Diana L. Kolcz, Psy.D., David M. O'Sullivan, Ph.D., Jennifer Ferrand, Psy.D., Jeremy Fried, M.D., Kenneth Robinson, M.D.

Objective: The authors sought to quantify the rates of psychological distress among health care workers (HCWs) during the COVID-19 pandemic and to identify job-related and personal risk and protective factors.

Methods: From April 1 to April 28, 2020, the authors conducted a national survey advertised via e-mail lists, social media, and direct e-mail. Participants were self-selecting, U.S.-based volunteers. Scores on the Patient Health Questionnaire–9, General Anxiety Disorder–7, Primary Care Posttraumatic Stress Disorder Screen, and Alcohol Use Disorders Identification Test–C were used. The relationships between personal resilience and risk factors, work culture and stressors and supports, and COVID-19–related events were examined.

Results: Of 1,685 participants (76% female, 88% White), 31% (404 of 1,311) endorsed mild anxiety, and 33% (427 of 1,311) clinically meaningful anxiety; 29% (393 of 1,341) reported mild depressive symptoms, and 17% (233 of 1,341) moderate to severe depressive symptoms; 5% (64 of 1,326) endorsed suicidal ideation; and 14% (184 of 1,300) screened positive for posttraumatic stress disorder. Pediatric HCWs reported greater anxiety than did others. HCWs' mental health history increased risk for anxiety (odds ratio [OR]=2.78, 95% confidence interval [CI]=2.09–3.70) and depression (OR=3.49, 95% CI=2.47–4.94), as did barriers to working, which were associated with moderate to severe anxiety (OR=2.50, 95% CI=1.80–3.48) and moderate depressive symptoms (OR=2.15, 95% CI=1.45–3.21) ($p<0.001$ for all comparisons).

Conclusions: Nearly half of the HCWs reported serious psychiatric symptoms, including suicidal ideation, during the COVID-19 pandemic. Perceived workplace culture and supports contributed to symptom severity, as did personal factors.

Psychiatric Services 2021; 72:122–128; doi: 10.1176/appi.ps.202000424

Disease outbreaks such as COVID-19, which has resulted in >1.3 million deaths worldwide (1), cause broad effects on society's psychological functioning, including depression, anxiety, panic attacks, somatic symptoms, posttraumatic stress disorder (PTSD), psychosis, and suicidality (2). In a Chinese study, researchers found that 54% of respondents rated the psychological impact of the COVID-19 outbreak as moderate to severe, 17% reported moderate to severe depressive symptoms, and 29% endorsed moderate to severe anxiety (3). Huang et al. (4) found that levels of anxiety and stress were high among health care workers (HCWs) during the COVID-19 pandemic.

HCWs often have to respond to demanding and unforeseen medical emergencies, which may be compounded by staff shortages, worry about contracting and spreading the disease, competency concerns when redeployed without adequate training, inadequate and cumbersome personal protective equipment (PPE), and frequent exposure to patients' suffering and dying. Additionally, quarantine may result in prolonged separation from family and other support systems. Many HCWs feel conflicted between their sense of

HIGHLIGHTS

- A considerable percentage of health care workers (HCWs) reported serious psychiatric symptoms during the COVID-19 pandemic.
- Perceived workplace culture, availability of supports, and static and dynamic personal factors contributed to the symptom severity experienced by HCWs.
- Health care administrators and HCWs share responsibility to design and implement programs that best support HCWs during crisis events; these interventions should be pragmatic, flexible, and responsive to unique system pressures as modified by individual needs.

duty and their willingness to work during a pandemic (5–8), and trying to strike a balance between professional responsibility and altruism and personal fear and anxiety can result in further dissonance and moral distress (9).

HCWs are at risk for increased psychological symptoms and burnout (e.g., emotional exhaustion, depersonalization, and reduced professional efficacy) during a crisis (10), but their response is unique and multifactorial. Li et al. (11) investigated signs of vicarious traumatization (e.g., loss of appetite, fatigue, physical decline, sleep disorder, irritability, inattention, numbness, fear, and despair) in China during the COVID-19 pandemic and compared incidence of these signs among the general public with those among both frontline and non-frontline nurses. Frontline nurses had fewer symptoms than the public and their non-frontline colleagues, who both exhibited signs of elevated vicarious traumatization (11). This finding suggests that some frontline workers have unique psychological endurance, at least while in the midst of the crisis, whereas others are more vulnerable.

Physicians are a high-risk group for suicide, with male physicians having a 40% higher risk and female physicians a 130% higher suicide risk than members in the general population (12). Depression is a significant suicide risk factor for both groups (13), and >50% of physicians have reported at least one symptom of burnout at some point (14). Reger et al. (15) suggested that suicide rates could increase nationwide during and after the COVID-19 pandemic because of myriad factors, including social isolation, reduced access to supports such as mental health treatment, illness and fear of illness, and increased depression and anxiety.

Delineating the rates of psychological pain in HCWs related to pandemic stress is useful and necessary. Even more important is identifying the underlying causes of emotional pain to accelerate creation of distress-mitigating interventions. Burnout and psychological distress among HCWs severely affect personal health and wellness, patient safety and quality of care, and health care system costs (16). Research has highlighted the importance of social support, communication, training, and effective coping (17). It has been reported that creating resilience in the health care industry, either during or in the absence of a crisis, is a responsibility shared between HCWs and their organizations (14, 18).

Further investigation of the complex relationships among specific job tasks and responsibilities, work conditions and culture, personal and situational risks, protective factors, and general mental health is critical. The objectives of this study were to evaluate the prevalence and extent of the negative psychological impact of the COVID-19 pandemic on a self-selected sample of U.S.-based HCWs surveyed in order to determine whether the professionally diverse HCW sample displayed variation in responses to this health crisis and to identify the factors associated with adverse psychological effects.

METHODS

A 125-item survey, approved by the Hartford HealthCare Institutional Review Board (HHC-2020-0069) and administered through the online survey platform REDCap, was sent to participants via professional e-mail lists and social media (i.e., health care groups on Facebook, with moderator permission) and to individuals who were specialists or applying for board certification by the American Board of Professional Psychology. Electronically obtained informed consent was required to participate. The survey was sent out up to three times, as permitted by list rules between April 1 and April 28, 2020.

The survey included questions concerning demographic characteristics, perceived risk factors, medical history, COVID-19 exposure, workplace environment and culture, and standard brief screens of emotional health, including the Patient Health Questionnaire–9 (PHQ-9) (19), General Anxiety Disorder–7 (GAD-7) (20), Primary Care Posttraumatic Stress Disorder Screen (PC-PTSD) (21), and the Alcohol Use Disorders Identification Test–C (22).

Inclusion Criteria

Respondents were included in this study if they identified (or were identified by membership on a professional roster or e-mail list) as a health care provider, were ages 18–89 years, were working in the United States, and communicated in English.

Statistical Analysis

The REDCap data were exported to and analyzed with IBM SPSS Statistics, version 26. Categorical comparisons were evaluated with a chi-square test. Continuous data were evaluated for distribution and analyzed with one of the following, depending on number of groups and normality of distribution: Student's t test or Mann-Whitney U test for two groups and analysis of variance or Kruskal-Wallis H test for more than two groups. Correlations were evaluated with a Spearman rank correlation coefficient. A forward, conditional logistic regression model was constructed to evaluate the strength of contribution of many of the variables with univariate differences on outcomes indicating at least moderate anxiety and depression. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated.

All results with $p<0.05$ were deemed statistically significant. Because the number of responses was not known initially, no a priori power analysis was performed.

RESULTS

The demographic data of the survey participants are shown in Table 1. In total, 1,685 individuals consented to participate in the survey. Of those who responded, 76% identified as female, 88% identified as White, and 69% were married. Nearly half (778 of 1,685; 46%) identified as mental health professionals (psychiatrist, psychologist, or social worker),

TABLE 1. Demographic data of U.S. health care workers who responded to a nationwide, mid-pandemic survey in April 2020

Characteristic	N (N=1,685)	%[a]
Racial background		
American Indian or Alaska Native	7	1
Asian	63	5
Native Hawaiian or other Pacific Islander	4	0
Black or African American	52	4
White	1,225	88
More than one race	42	3
Total	1,392	100
Did not identify	292	
Gender		
Female	1,096	76
Male	353	24
Total	1,449	100
Did not identify	236	
Marital status		
Single	311	21
Married	1,002	69
Divorced	105	7
Separated	10	1
Widowed	24	2
Total	1,452	100
Did not identify	233	
Academic/professional degree		
Ph.D. or Psy.D.	695	42
M.D. or D.O.	307	19
A.P.R.N. or R.N.	232	14
L.C.S.W., L.M.F.T., or M.S.W.	47	3
M.A. or M.S.	90	6
B.A. or B.S.	125	8
Other	148	9
Total	1,644	100
Did not identify	41	
Employee category		
Resident or fellow	76	5
Student or trainee	23	2
Clinical or medical staff	1,290	86
Previously retired or returned for COVID-19	9	1
Administration	110	7
Total	1,508	100
Did not identify	177	
Specialty		
Psychology	674	42
Emergency medicine	242	15
Pediatrics	170	11
Psychiatry	62	4
Internal medicine	60	4
Social work	51	3
Other	341	21
Total	1,600	100
Did not identify	85	

[a] Percentages are based on the totals for each characteristic subcategory.

15% identified as emergency medicine providers, and 11% identified as pediatric providers. Of the sample, 33% (464 of 1,399) were at least age 60, and 1% had returned from retirement to serve during the COVID-19 crisis.

Emotional Functioning: Overview

About 22% (N=374) of the survey participants did not respond to items on the GAD-7, resulting in 1,311 respondents on this screen. Almost two-third (63%, N=831) of these respondents scored ≥5 on the GAD-7 (range 0–21; a score of 5–9 indicates mild anxiety), with 31% (N=404) endorsing mild anxiety and 33% (N=427) having scores of ≥10 (i.e., in a clinically significant range), much higher than the 3% of adults in the general population with generalized anxiety disorder in the past year (23).

Of the participants who completed the PHQ-9, 47% (626 of 1,341) scored ≥5 (range 0–27; a score of 5–9 indicates mild depressive symptoms), and 17% (N=233) scored ≥10 (representing clinically significant scores). For comparison, 7% of U.S. adults have at least one major depressive episode annually (23). Women had higher PHQ-9 scores than men (median=4, interquartile range [IQR]=1–8 vs. median=2, IQR=0–5, respectively), and a significantly greater percentage of women scored ≥10 on the PHQ-9 ($p<0.001$).

About one of seven (184 of 1,300; 14%) respondents answered "yes" to at least three questions on the PC-PTSD (range 0–4; a score of ≥3 is considered positive for PTSD), about four times the estimate of PTSD prevalence in the United States (i.e., 3.5%) (24). In total, 39% (507 of 1,288) of the surveys indicated clinically significant symptoms on the PHQ-9 or GAD-7 or indicated a positive PC-PTSD screen.

Suicidal Ideation

In response to the PHQ-9 question, "How often do you have thoughts that you would be better off dead or of hurting yourself in some way?" 4% (46 of 1,326) of the respondents answered "several days"; 1% (13 of 1,326), "more than half the days"; and 0.4% (5 of 1,326), "almost every day."

Those respondents with a self-reported psychiatric history reported more frequent suicidal ideation than those without such history (48 of 572 [8%] vs. 16 of 754 [2%], respectively; $p<0.001$). Mental health workers endorsed less frequent ideation than did non–mental health workers (20 of 707 [3%] vs. 44 of 619 [7%], respectively; $p<0.001$).

Emotional Functioning: Cohort Effects

We noted a statistically significant difference in the degree of anxiety across the response spectrum among those in a pediatric profession versus all others. Compared with non-pediatric professionals, pediatric professionals reported a lower level of minimal anxiety (446 of 1,164 [38%] vs. 34 of 147 [23%], respectively), an approximately equal level of mild anxiety (358 of 1,164 [31%] vs. 46 of 147 [31%], respectively), and higher levels of both moderate (192 of 1,164 [16%] vs. 35 of 147 [24%], respectively) and severe (168 of

1,164 [14%] vs. 32 of 147 [22%], respectively) anxiety (p=0.001).

Comparing the responses of emergency medicine workers (including emergency medical services) with those from other respondents, we found no significant differences in the GAD-7 or the PHQ-9 responses. Among HCWs who reported using at least one of seven common coping skills, emergency medicine workers reported using significantly more of these skills than nonemergency medicine workers (mean±SD=3.23±1.24 vs. 2.97±1.21, respectively; p=0.004). Compared with non–mental health professionals, mental health professionals were less likely to endorse severe anxiety (134 of 609 [22%] vs. 66 of 702 [9%], respectively; p<0.001), moderate depression (38 of 625 [6%] vs. 23 of 716 [3%], respectively; p<0.001), severe depression (28 of 625 [4%] vs. 6 of 716 [1%], respectively; p<0.001), or significant PTSD symptoms (124 of 605 [21%] vs. 60 of 695 [9%], respectively; p<0.001).

Impact of Perception

Respondents were asked whether they had any of the medical conditions on a list of identified risk factors for serious COVID-19 illness curated by the Centers for Disease Control and Prevention (CDC). They also rated their perceived risk for developing a serious illness should they become infected with COVID-19. Those who endorsed a CDC-defined risk factor did not have elevated GAD-7 scores (p=0.315). However, those with a perceived risk for a serious complication due to a COVID-19 infection also endorsed more severe anxiety (p<0.001).

The severity of depression symptoms endorsed on the PHQ-9 differed between those who did and did not endorse a CDC risk factor (p≤0.003), such that having a risk factor was associated with higher depression scores. Similarly, the perception of greater risk for a serious complication after COVID-19 infection was consistently associated with increased depression (p<0.001).

Those with a PC-PTSD score of ≥3 had significantly higher levels of anxiety, depression, and perceived risk for developing serious complications resulting from a COVID-19 infection than those with a PC-PTSD score of ≤2 (p<0.001). Endorsing the presence of a CDC-defined risk factor did not significantly affect a report of PTSD (p=0.185). Individuals with a PC-PTSD score of ≥3 were significantly more likely to respond that they were unable to say no to work demands that made them feel uncomfortable than those who did not screen positive for PTSD and to disagree with items asking whether their training related to COVID-19 was adequate, whether their organization was dedicated to safety, whether their organization cared about employee health and wellness, and whether they had adequate access to PPE (p<0.01). Individuals with a positive PC-PTSD screen were more likely to have worked outside of their area of expertise and to have lost a colleague to COVID-19 (p≤0.01).

TABLE 2. Symptoms of anxiety among U.S. health care workers responding to a nationwide, mid-pandemic survey in April 2020[a]

Variable	β	p	OR	95% CI
Mental health professional	−.86	<.001	.42	.30–.60
Emergency medicine worker	−.49	.019	.61	.41–.92
Endorsed history of mental health issues	1.02	<.001	2.78	2.09–3.70
Perceived risk of contracting coronavirus		.004		
Low (reference: very low)	.29	.547	1.34	.52–3.48
Moderate (reference: very low)	.70	.140	2.02	.79–5.14
High (reference: very low)	.99	.045	2.70	1.02–7.11
Very high (reference: very low)	1.26	.015	3.52	1.28–9.70
Age ≥60 years	−.69	.003	.50	.32–.80
Endorsed barriers to working	.92	<.001	2.50	1.80–3.48
Away from home for at least 1 week	.39	.021	1.48	1.06–2.06
Have access to adequate PPE[b]	−.59	<.001	.55	.41–.75
Can say no to work demands	−.51	.001	.60	.45–.81

[a] Likelihood of symptoms among health care workers. Anxiety was assessed with the General Anxiety Disorder–7 scale; a score of ≥10 indicates at least moderate anxiety symptoms.
[b] PPE, personal protective equipment.

Substance Use

To examine whether psychiatric symptoms were associated with increased alcohol use, we first correlated anxiety symptoms with ethyl alcohol volume consumed when drinking (Spearman's ρ=0.07, p<0.05) and with number of days consuming five or more drinks (Spearman's ρ=0.08, p=0.01). We found similar results when levels of depressive symptoms were associated with drinks per drinking day (Spearman's ρ=0.12, p<0.01) and frequency of drinking five drinks (Spearman's ρ=0.09, p=0.003). In addition, the reported frequency of having at least five drinks in a day correlated with PTSD symptoms (Spearman's ρ=0.11, p<0.001), as did the number of drinks consumed on days drinking (Spearman's ρ=0.11, p<0.001).

Logistic Regression Models

We evaluated several factors that had both clinical and statistical significance in univariate analyses by using a logistic regression model to examine the main outcomes of anxiety (as measured by the GAD-7) and depression (as measured by the PHQ-9), both dichotomized by presence or absence of at least moderate symptoms (scores of ≥10).

The factors used in the multivariate model were mental health professional (vs. all others), emergency medicine worker (vs. all others), any preexisting health conditions, any mental health history, perceived risk of getting infected with COVID-19 or experiencing complications, age ≥60 years, endorsing any supports, increased use of precautions, any barriers to working during this time (e.g., personal risk for infection [all among 1,685 respondents], N=738 [44%]; risk of spreading infection, N=711 [42%]; and responsibilities

TABLE 3. Symptoms of depression among U.S. health care workers responding to a nationwide, mid-pandemic survey in April 2020[a]

Variable	β	p	OR	95% CI
Mental health professional	−1.15	<.001	.32	.22–.45
Endorsed history of mental health issues	1.25	<.001	3.49	2.47–4.94
Perceived risk for contracting coronavirus		.001		
Low (reference: very low)	.18	.524	1.19	.69–2.06
Moderate (reference: very low)	.73	.011	2.08	1.19–3.66
High (reference: very low)	.37	.297	1.44	.73–2.87
Very high (reference: very low)	1.14	.028	3.13	1.13–8.64
Endorsed barriers to working	.77	<.001	2.15	1.45–3.21
Away from home for at least 1 week	.43	.023	1.54	1.06–2.23
Have access to adequate PPE[b]	−.36	.049	.70	.48–1.00
Can say no to work demands	−.77	<.001	.46	.32–.66

[a] Likelihood of symptoms among health care workers. Assessed with the Patient Health Questionnaire–9; a score of ≥10 indicates at least moderate depressive symptoms.
[b] PPE, personal protective equipment.

of caring for others such as children [N=329, 20%], older adults [N=86, 5%], or pets [N=58, 3%]), access to PPE, belief that one's organization cared about one's health and wellness, perception of ability to say no to work demands, and whether the respondent had been isolated or quarantined for at least a week.

Table 2 shows significant findings for anxiety, and Table 3 summarizes significant findings for depression. Notably, among other factors, having a history of mental health issues (a static factor) increased the risk for experiencing anxiety (OR=2.78, $p<0.001$) or depression (OR=3.49, $p<0.001$). This finding was fairly consistent with the effects of a single modifiable factor, presence of barriers to willingness to work, which affected presence of at least moderate anxiety (OR=2.50, $p<0.001$) and presence of at least moderate depression (OR=2.15, $p<0.001$).

DISCUSSION

Consistent with findings in previous studies of HCW functioning during pandemics, more than half of our sample of HCWs endorsed at least mild psychiatric symptoms, and approximately 40% endorsed symptoms suggesting a clinically significant emotional disorder. HCWs with a history of mental illness were at greatest risk for significant emotional symptoms. Other risk factors were related to beliefs (e.g., not believing in the values and actions of their organization, thinking one is in a high-risk group if infected with COVID-19, and being concerned about barriers to working), perceptions (e.g., feeling unable to say no to specific organizational demands), and events (e.g., limited access to PPE and isolation from family).

A concerning finding embedded in the depression data is the rate of individuals reporting positive responses to PHQ-9 item 9 ("How often do you have thoughts that you would be better off dead, or of hurting yourself in some way?"). Of the respondents, about 5% reported any thoughts of suicide, 1% reported suicidal ideation half of the days, and 0.4% reported experiencing them nearly every day. This finding indicated elevated suicidal ideation in light of national estimates that 4% of U.S. adults experience suicidal thoughts annually (23).

Working with a clinical sample, Simon et al. (25) reported that individuals with positive responses to PHQ-9 item 9 were six times more likely to attempt suicide and five times more likely to die by suicide within 1 year than those who did not report such thoughts. Rossom et al. (26) later showed that patients with any level of suicidal ideation on PHQ-9 item 9 were approximately three times more likely to attempt suicide in the next 30 days and were nearly twice as likely to attempt suicide in the following year. Depression severity, substance use disorders, and comorbid anxiety (all of which were seen to some degree among participants in our sample) are significant predictors of suicide attempts among individuals with suicidal ideation (27–29).

Proactive interventions may reduce the negative impact of the COVID-19 pandemic on the mental health and quality of life of HCWs. As noted by Petterson and colleagues (30), many more Americans could lose their lives unless the United States immediately takes "meaningful and comprehensive action as a nation." We know that unaddressed mental health conditions among HCWs have an impact on burnout rates, which, in turn, affects a health care system's capacity to provide safe and effective care. We expect that HCWs who proactively address their mental health are better able to care for patients and maintain resilience in the face of stress.

In the health care setting, solutions to professional burnout should be a shared responsibility of HCWs and their workplace (13, 31), which necessitates awareness of leaders to the potential for adverse effects on HCWs. Team cohesion and a strong social support network should be encouraged, and peer support should be readily available (26, 32, 33). Shanafelt et al. (34) suggested that specific steps should be taken before, during, and after a crisis to care for HCWs and to create a resilient organization. During a crisis, organizations must assess needs at regular intervals, change course when necessary, develop new support services and resources, and connect with other organizations to learn from and grow together (17). Many approaches can improve resilience among HCWs during a crisis, including keeping them informed, teaching them to monitor their own stress reactions, and facilitating triage to formal behavioral health treatment when necessary (35).

Pragmatically, staff benefit from feeling heard; therefore, creative and alternative feedback loops should be developed. Staff should be involved in decision making, feel adequately

protected, have sufficient training, and must understand *why* an organization cannot meet their needs. The reasons underlying decisions need to be communicated frequently, clearly, and transparently. Work cultures that do not allow for honesty, vulnerability, or openness lead to feelings of nonsupport and increased risk.

Successful organizations should remember that each HCW is different; psychological and emotional support should be offered from both internal and external providers and from various modalities (e.g., group and individual, education, validation, skills, and process). Help with basic needs, such as ensuring hydration and nourishment while HCWs work, and proactively scheduling breaks in the workday to "reset" can also reduce stress. Organizations should also aim to assist in other aspects of workers' lives, such as child care, transportation, and providing places to rest (18). In the event of HCW illness or quarantine, staff and their families must feel cared for, and preferential access to care should be considered.

Our study offers a tool and justification for surveying HCWs within an organization. By assessing attitudes and psychosocial experiences at multiple time points, leaders can assess the needs of their staff in real time, differentiate between the specific needs during and after the crisis, and utilize this information to better prepare for future crises. Attention to HCWs' emotional experiences allows organizations to better engage, assist, and retain their staff. These data may help guide leaders as they develop methodologies for mitigating the emotional impact on HCWs during a pandemic or similar health emergencies.

The survey was sent out nationally during the worst pandemic to hit the United States (and indeed, the world) in a century. We knew that our response rates would be affected by various factors, so we used a self-selecting sample to gain access to a diverse set of health care professionals. The data may have been skewed by who was willing and able to complete the survey, but we note that the survey was open for 4 weeks to mitigate the effects of time constraints. Our study was not as racially diverse as we had hoped. Still, our survey indicated similar rates of psychiatric symptoms as were reported in recent studies from China, and we had additional details of our participants' personal and work lives, enabling novel analyses. We therefore anticipate that many HCWs may benefit from our findings.

CONCLUSIONS

Our survey was conducted 2–3 months into the first COVID-19 wave, and approximately 40% of HCWs who responded reported serious psychiatric symptoms. HCWs with preexisting mental health issues are at increased risk for experiencing psychiatric symptoms, and it is critical that organizations find meaningful interventions for those at greatest risk. HCW culture must change to allow for discussion and addressing of emotional needs with the aim of increasing workforce resiliency.

AUTHOR AND ARTICLE INFORMATION

Psychological Testing Service (Young), Department of Neuropsychology (Kolcz), and Department of Health Psychology (Ferrand), Hartford Hospital's Institute of Living, Hartford, Connecticut; Department of Psychiatry (Young) and Department of Trauma and Emergency Medicine (Robinson), University of Connecticut School of Medicine, Farmington; Department of Research Administration, Hartford HealthCare, Hartford (O'Sullivan); Emergency Department, Midstate Medical Center, Meriden, Connecticut (Fried); Department of Emergency Medicine, Hartford Hospital, Hartford (Robinson). Send correspondence to Dr. Young (kevin.young@hhchealth.org).

Dr. Young was supported by the American Academy of Child and Adolescent Psychiatry Senior Scientist Travel Award, 2018 and 2019.

The authors report no financial relationships with commercial interests.

Received June 8, 2020; revision received July 21, 2020; accepted July 21, 2020; published online December 3, 2020.

REFERENCES

1. COVID-19 Global Map. Baltimore, Johns Hopkins Coronavirus Resource Center, 2020. coronavirus.jhu.edu/map.html. Accessed Nov 22, 2020
2. Müller N: Infectious diseases and mental health; in Comorbidity of Mental and Physical Disorders. Edited by Sartorius N, Holt RIG, Maj M. Basel, Switzerland, Karger, 2015
3. Wang C, Pan R, Wan X, et al: Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. Int J Environ Res Public Health 2020; 17:1729
4. Huang JZ, Han MF, Luo TD, et al: Mental health survey of medical staff in a tertiary infectious disease hospital for COVID-19. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi 2020; 38: 192–195
5. Damery S, Draper H, Wilson S, et al: Healthcare workers' perceptions of the duty to work during an influenza pandemic. J Med Ethics 2010; 36:12–18
6. Gershon RR, Magda LA, Qureshi KA, et al: Factors associated with the ability and willingness of essential workers to report to duty during a pandemic. J Occup Environ Med 2010; 52:995–1003
7. Basta NE, Edwards SE, Schulte J: Assessing public health department employees' willingness to report to work during an influenza pandemic. J Public Health Manag Pract 2009; 15:375–383
8. Stergachis A, Garberson L, Lien O, et al: Health care workers' ability and willingness to report to work during public health emergencies. Disaster Med Public Health Prep 2011; 5:300–308
9. Ho CS, Chee CY, Ho RC: Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. Ann Acad Med Singapore 2020; 49:155–160
10. Shanafelt TD, Bradley KA, Wipf JE, et al: Burnout and self-reported patient care in an internal medicine residency program. Ann Intern Med 2002; 136:358–367
11. Li Z, Ge J, Yang M, et al. Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. Brain Behav Immun (Epub March 10, 2020).
12. Schernhammer ES, Colditz GA: Suicide rates among physicians: a quantitative and gender assessment (meta-analysis). Am J Psychiatry 2004; 161:2295–2302
13. Gold KJ, Sen A, Schwenk TL: Details on suicide among US physicians: data from the National Violent Death Reporting System. Gen Hosp Psychiatry 2013; 35:45–49
14. Shanafelt TD, Noseworthy JH: Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. Mayo Clin Proc 2017; 92:129–146
15. Reger MA, Stanley IH, Joiner TE: Suicide mortality and coronavirus disease 2019—a perfect storm? JAMA Psychiatry (Epub April 10, 2020).

16. West CP, Dyrbye LN, Shanafelt TD: Physician burnout: contributors, consequences and solutions. J Intern Med 2018; 283:516–529
17. Naushad VA, Bierens JJ, Nishan KP, et al: A systematic review of the impact of disaster on the mental health of medical responders. Prehosp Disaster Med 2019; 34:632–643
18. Shanafelt T, Ripp J, Brown M, et al: Caring for Health Care Workers During Crisis: Creating a Resilient Organization. Chicago, American Medical Association, 2020. www.ama-assn.org/system/files/2020-05/caring-for-health-care-workers-covid-19.pdf
19. Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med 2001; 16:606–613
20. Spitzer RL, Kroenke K, Williams JB, et al: A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med 2006; 166:1092–1097
21. Prins A, Ouimette P, Kimerling R, et al: The Primary Care PTSD Screen (PC-PTSD): development and operating characteristics. Prim Psychiatry 2003; 9:9–14
22. Bradley KA, DeBenedetti AF, Volk RJ, et al: AUDIT-C as a brief screen for alcohol misuse in primary care. Alcohol Clin Exp Res 2007; 31:1208–1217
23. National Comorbidity Survey (NCS): Table 2: 12-Month Prevalence DSM-IV/WMH-CIDI Disorders by Sex and Cohort. Boston, Harvard Medical School, 2007. www.hcp.med.harvard.edu/ncs/ftpdir/table_ncsr_12monthprevgenderxage.pdf
24. Kessler RC, Chiu WT, Demler O, et al: Prevalence, severity, and comorbidity of 12-month *DSM-IV* disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry 2005; 62:617–627
25. Simon GE, Rutter CM, Peterson D, et al: Does response on the PHQ-9 depression questionnaire predict subsequent suicide attempt or suicide death? Psychiatr Serv 2013; 64:1195–1202
26. Rossom RC, Coleman KJ, Ahmedani BK, et al: Suicidal ideation reported on the PHQ9 and risk of suicidal behavior across age groups. J Affect Disord 2017; 215:77–84
27. Nepon J, Belik SL, Bolton J: The relationship between anxiety disorders and suicide attempts: findings from the National Epidemiologic Survey on Alcohol and Related Conditions. Depress Anxiety 2010; 27:791–798
28. Fazel MD, Runeson B: Suicide. N Engl J Med. 2020; 382:266–274
29. Risk factors and warning signs. New York City, American Foundation for Suicide Prevention. https://afsp.org/risk-factors-and-warning-signs#suicide-risk-factors. Accessed November 12, 2020
30. Petterson, S, Westfall JM, Miller BF: Projected Deaths of Despair From COVID-19. Oakland, CA, Well Being Trust, 2020. wellbeingtrust.org/wp-content/uploads/2020/05/WBT_Deaths-of-Despair_COVID-19-FINAL-FINAL.pdf
31. Pfefferbaum B, North CS: Mental health and the COVID-19 pandemic. N Engl J Med (Epub April 13, 2020).
32. Hedegaard H, Curtin SC, Warner M: Increase in Suicide Mortality in the United States, 1999–2018. NCHS Data Brief, no 362. Hyattsville, MD, National Center for Health Statistics, 2020
33. Brooks SK, Dunn R, Amlôt R, et al: A systematic, thematic review of social and occupational factors associated with psychological outcomes in healthcare employees during an infectious disease outbreak. J Occup Environ Med 2018; 60:248–257
34. Shanafelt T, Ripp J, Trockel M: Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. JAMA (Epub April 7, 2020).
35. Wu PE, Styra R, Gold WL: Mitigating the psychological effects of COVID-19 on health care workers. CMAJ 2020; 192:E459–E460

New Column: Controversies in *Psychiatric Services*

Psychiatric Services is pleased to welcome Matthew D. Erlich, M.D., Patrick Runnels, M.D., and Rachel M. Talley, M.D., as coeditors of the Controversies in *Psychiatric Services* column.

Controversies in *Psychiatric Services* highlights topical areas to the field of psychiatry where there may be debate, disagreements, or divisiveness. Submissions will focus on a specific topic and will feature two separate columns with differing viewpoints on that topic. The goal is to foster new perspectives, promote further discourse, and, hopefully, generate new conclusions while maintaining the civility and intellectual rigor appropriate to an academic journal. Topics will be chosen by the editors based on the timeliness and importance of the controversy. Interested authors may submit papers describing one viewpoint on the topic (limited to 1,200 words and 5 references that are core to the argument; no abstract, tables, or figures). The editors may also reach out to individuals to request column submissions based on specific topics.

> **Topic 1:** A value-base system of payment for psychiatric services that places financial responsibility for behavioral health outcomes on the treating clinician is the best way to promote better outcomes and reduce unplanned care.

Contributions may be submitted at mc.manuscriptcentral.com/appi-ps.