ORIGINAL ARTICLE

Anxiety, depression, stress, burnout, and professional quality of life among the hospital workforce during a global health pandemic

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Abstract: Purpose: Working in a hospital setting during a global health pandemic can lead to increased levels of anxiety, stress, burnout, and depression. Anecdotal evidence exists, but there is little research utilizing clinically validated tools to measure hospital staff psychological distress.

Methods: In Summer 2021, 771 hospital staff in North Dakota responded to an electronic survey collecting demographic data and employing validated behavioral health screening tools to assess anxiety, depression, emotional distress, and work-related quality of life.

Findings: Compassion satisfaction was significantly higher for those who worked in rural areas than urban [$t(769) = -1.99, P = .0467$]. The burnout rating was significantly higher for those who worked in urban areas than rural [$t(769) = 2.23, P = .0261$]. There was no significant geographic variation in stress, anxiety, or depression. Anxiety, depression, burnout, and stress were all significantly higher for those who worked directly with COVID-19 patients than those who did not, regardless of hospital location.

Conclusions: Hospital staff caring for COVID-19 patients experienced equitable (and high) levels of depression and anxiety. However, data indicate that rural providers experienced greater protective factors, resulting in lower rates of burnout and higher compassion satisfaction. Rural communities, hospitals, and health systems may have characteristics that could be duplicated in urban areas to support hospital staff well-being. Support and promotion of mental wellness must also come from the hospital system, and health care and policy leaders. If we do not care for our hospital staff, there will not be hospital staff left to care for the community.

KEYWORDS
behavioral health, burnout, compassion fatigue, COVID-19, provider well-being

INTRODUCTION

On January 30, 2020, the World Health Organization (WHO) declared COVID-19 an "international public health state of emergency."[1] The outbreak has placed hospital workers under appreciable stress manifested by fatigue, psychological distress, insomnia, depression, anxiety, social stigmatization, and physical exhaustion.[2] These individuals also experience the same stressors as the public which include the impact of social distancing, quarantine, variable work and school schedules, inability to physically interact with relatives and friends, and the possibility of personal and family illness and death.[3]

Understanding that providers and hospital employees have been under prolonged stress, and recognizing the need to provide supports to maintain a healthy workforce, it is imperative to examine the well-being of our hospital workforce and to determine risks and risk mitigations to support their mental health. Workplace stress, moral injury, and comparison fatigue among our hospital workforce lead to workforce shortages as people leave their careers. Simultaneously, it increases the risk of those who stay making errors or providing lower quality of patient care.[4,5]

Hospital workforce mental wellness before the pandemic

According to the *2018 Physician Workload Survey*, before the pandemic, 74% of physicians reported frequently seeing symptoms of burnout in others and more than half (52%) indicated feeling burned out themselves.[6] Nearly, 1 in 4 (23%) admitted that their means of coping with the stress was to drink alcohol; 41% stated they self-isolate, and 32% indicated they eat junk food. Stress and unhealthy coping habits do not support a physically and mentally fit health care workforce.[6]

On average, 1 physician dies by suicide each day, nearly double the rate of the general population.[7–10] The stress of working in a caring industry is not isolated to physicians and a large body of literature has examined the stress and levels of retention for the nursing workforce as well.[3,11,12] Among the nursing workforce, those working in emergency rooms or emergency settings tend to report higher rates of mental duress and prolonged stress than those in a general hospital setting.[12,13] Although persons working in health professions may recognize signs of psychological stress, there may be stigma in seeking care, perception they can care for themselves, or fear of losing their medical licenses if diagnosed with a mental illness. Seeking care can be especially problematic in a rural community because care may not be local, and if it is, anonymity may be a challenge.

Mental health and wellness among the health care working during a global health pandemic

Mainstream media has been covering the hospital workforce crisis and continues to report on workforce shortages throughout the United States. Although there is a depth of information being reported in print and broadcasting media, little reputable research has been conducted on the mental wellness of hospital staff in the United States (though there is growing international literature). Even less has been done with a focus on the persons working in, and serving, rural communities.

A recent study among adults broadly (United States and other) indicated that level of worry or concern around COVID-19 was strongly associated with generalized anxiety disorder and probability of depression.[14] This study also examined variability between those working in health care and the general population. Although health care workers were more likely to worry about contracting COVID-19, they did not report greater rates of anxiety nor depression when compared to nonhealth care providers.[14] This study, however, was a convenience sample and recognized crowdsourcing research methods as a limitation. The study also specifically called for work to be done with a focus on the hospital workforce with "data regarding exposure to COVID-19 patients."[14] Conducted early in the pandemic and among a small sample (140) of US providers, Korkmaz and team noted that 71% of those surveyed reported mild, moderate, or severe anxiety.[15]

International research is reporting anxiety, stress, and depression among those who do, or do not, care for COVID-19 patients; or, are assessing those who do, and do not, live close to disease epicenters. Health care workers in China exposed to patients with COVID-19 reported a high risk of developing "unfavorable mental health outcomes," which included measures of depression, anxiety, insomnia, and distress.[16] The tools utilized to measure anxiety and depression in this study included the 9-item Patient Health Questionnaire (PHQ-9) and the 7-item Generalized Anxiety Disorder scale (GAD-7).[16] More than 70% of those surveyed reported psychological distress. The authors also found that nurses had higher rates of symptoms of depression and anxiety than did physicians.[16] In Spain, researchers found that emotional distress and intensity of stress among the health care workforce was more intense in the territories with the highest rates of COVID-19 and COVID-19 deaths per day.[17]

Similar research in Peru found that roughly 22% of health care workers experienced severe anxiety and 26% reported severe mental distress.[18] In this case, higher levels of anxiety and turnover were reported among those working closer to the epicenter of the pandemic, those who were working more hours, and those working in the private (vs public) sector.[18] A study in Nepal found that 38% of health care workers were suffering from anxiety and/or depression while on COVID-19 duty.[19] Although some of these studies took into consideration proximity to geographic epicenters of disease spread, they did not explore rural or urban variability and only included clinical providers and not all hospital staff.

Research purpose

This research sought to assess the levels of anxiety, depression, stress, and professional quality of life among all hospital staff in North Dakota.

TABLE 1 Experiences and variability of anxiety, depression, stress, and professional quality of life by participant demographics

		Total		Anxiety: categorical (%)			Depression: categorical (%)				PSS	Professional QoL: mean		
		N	%	No anxiety	Anxiety	Sig.	No or minimal	Mild to moderate	Moderately severe to severe	Sig.	Mean	Compassion satisfaction	Burnout	STS
Location	Rural	344	44.62%	36.58%	8.04%	ns	27.01%	15.02%	2.37%	ns	9.37	38.9	22.1	19.3
	Urban	427	55.38%	45.53%	9.86	ns	31.36%	20.55%	3.69%	ns	9.58	37.9	23.1	19.3
COVID-19 patients	Yes, interacted	421	54.60%	43.19%	11.41%		29.91%	20.95%	3.43%	ns	9.81	38	23.7	20.6
	No, did not interact	350	45.40%	38.91%	6.49%	P = .017	28.46%	14.62%	2.64%	ns	9.10	38.9	21.5	17.8
Gender	Man	118	15.30%	12.58%	2.72%	ns	9.49%	4.74%	0.79%	ns	8.41	38.5	22.5	18.9
	Woman	643	83.40%	68.48%	14.92%	ns	48.09%	30.30%	5.27%	ns	9.71	38.29	22.7	19.4
	Other/no answer	10	1.30%	1.04%	0.26%	ns	0.79%	0.52%	0.00%	ns	7.7	43	19.8	17.7
Age	18-24	43	5.58%	4.02%	1.56%		2.77%	1.98%	0.66%	ns	10.84	36.9	23.9	21.9
	25-40	341	44.23%	34.24%	9.99%		24.24%	16.47%	3.69%	ns	9.94	37.5	23.8	19.8
	41-56	238	30.87%	26.07	4.80%		17.79%	12.12%	0.79%	ns	9.42	38.7	22.2	18.8
	57-64	114	14.79%	13.49%	1.30%		9.88%	4.08%	0.92%	ns	8.3	40.0	21	18.3
	65-75	34	4.41%	4.15%	0.26%		3.56%	0.92%	0.00%	ns	7.68	40.7	18.9	17.7
	76+	1	0.13%	0.13%	0.00%	P = .002	0.0%	0.0%	0.00%	ns	10	45	15	18
Hospital position	Nursing staff	262	33.98%	27.63%	6.36%	ns	17.52%	14.62%	1.84%	ns	9.67	37.5	23.7	20.6
	Hospital leader	57	7.39%	6.10%	1.30%	ns	4.35%	2.37%	0.40%	ns	9	39.4	21.9	19.4
	Physicians	12	1.56%	1.30%	0.26%	ns	1.19%	0.4%	0.00%	ns	8.25	39.4	22.4	17.4
	PA or NP[a]	30	3.89%	3.11%	0.78%	ns	2.64%	1.19%	0.13%	ns	9.07	38.8	22.9	19.1
	Other direct-care	128	16.60%	12.97%	3.36%	ns	9.49%	5.8%	1.58%	ns	10	39.1	23.3	20.1
	Pharmacy, lab	62	8.04%	6.61%	1.43%	ns	4.87%	2.77%	0.53%	ns	9.66	37.9	22.8	18.2
	Business office, support[b]	121	15.69%	13.49%	2.20%	ns	9.49%	5.53%	0.92%	ns	9.36	38.7	20.6	17.8

(Continues)

TABLE 1 (Continued)

	Total		Anxiety: categorical (%)			Depression: categorical				PSS		Professional QoL: mean		
	N	%	No anxiety	Anxiety	Sig.	No or minimal	Mild to moderate	Moderately severe to severe	Sig.	Mean	Sig.	Compassion satisfaction	Burnout	STS
Custodial, similar[c]	33	4.28%	3.37%	0.91%	ns	2.77%	0.92%	0.40%	ns	8.81	ns	39.6	21.6	19.7
Other	66	8.56%	7.52%	1.04%	ns	6.06%	1.98%	0.26%	ns	9		38.6	22.4	17
Total	771	—	82.1%	17.9%	—	58.37%	35.57%	6.06%	—	9.49	—	38.4	22.66	19.32

[a] Physician assistant or nurse practitioner.
[b] Administrative support, billing, medical records, coding, or similar.
[c] Laundry, custodial, housekeeping, maintenance, and kitchen.

Based on print media in the United States[20–24] and literature from outside of the United States,[16–19,25–27] the research team explored levels of anxiety, depression, stress, and professional quality of life among all hospital staff to include those working in auxiliary roles, sanitation, billing, and leadership. In response to previous researchers' calls to action, this study also specifically explored variable levels of mental duress based on the individual's exposure to patients with COVID-19 and the geographic location of the hospital (rural or urban). Recognizing that previous international research has correlated working with COVID-19 patients or in epicenters with increased psychological distress, this study included additional hospital staff who may frequently come into contact with COVID-19 patients in a hospital setting. Hospital workforce included hospital leadership positions, pharmacy or lab, housekeeping, custodial, laundry, maintenance, business office, administrative support, billing, medical records, and coding or similar functions. However, it is important to note that the final sample was largely persons working in nursing professions.

It is imperative that research assesses the health status of those individuals who continue to work on the frontlines of the pandemic, and that we utilize these results to invest in programs and workforce supports for those at greatest risk of prolonged stress, anxiety, and depression. The health care workforce has always needed behavioral health investments, but it is hypothesized that those working directly with COVID-19 patients and in our rural hospital systems may be at an increased risk of psychological distress.
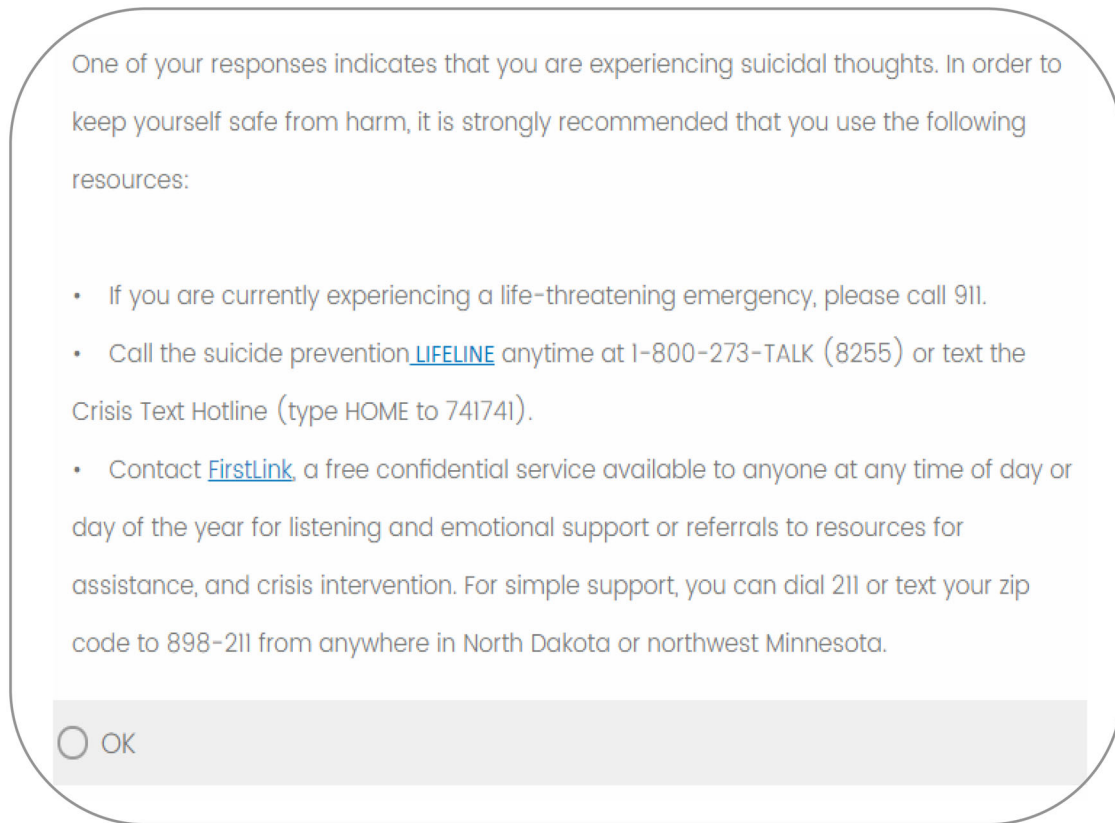
METHODS

We developed an electronic survey utilizing clinically and statistically validated tools for assessing anxiety, depression, stress, and professional quality of life. The survey, sampling, and research method were approved by the university's Institution Review Board. The survey was disseminated electronically between May and June 2021. The research team includes a rural critical access hospital (CAH) chief executive officer (CEO), a professor and health services researchers, and a health care workforce data analyst.

Survey design

The survey included 2 demographic questions (age and gender identify) and 5 questions about the participant's employment (professional role, years working in health care, rural or urban designation of their hospital, hospital location on eastern or western half of state, and if the hospital where they worked was a CAH). Finally, respondents also indicated if they had provided care to a COVID-19 patient (yes or no).

Because this study sought to assess the impact of the pandemic on all hospital staff, the survey question on professional role included all possible hospital staff. See Table 1. Hospital staff completed 4 scales measuring mental wellness. In order, the scales included measures of anxiety, depression, stress, and professional quality of life.

One of your responses indicates that you are experiencing suicidal thoughts. In order to keep yourself safe from harm, it is strongly recommended that you use the following resources:

- If you are currently experiencing a life-threatening emergency, please call 911.
- Call the suicide prevention LIFELINE anytime at 1-800-273-TALK (8255) or text the Crisis Text Hotline (type HOME to 741741).
- Contact FirstLink, a free confidential service available to anyone at any time of day or day of the year for listening and emotional support or referrals to resources for assistance, and crisis intervention. For simple support, you can dial 211 or text your zip code to 898-211 from anywhere in North Dakota or northwest Minnesota.

○ OK

FIGURE 1 Screenshot of survey skip logic for participants indicating thoughts of self-harm

Anxiety: Generalized Anxiety Disorder 7-Item Scale

The GAD-7 is a clinically validated tool utilized in multiple clinic settings and research.[15,16,27,28] The 7-item scale measures how often the respondent has been distracted by symptoms of anxiety during the previous 2-week period.[29] Questions are based on Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) criteria. Individuals' scores range from 0 to 21; 10 or more is noted symptomology associated with GAD.[30]

Depression: Patient Health Questionnaire

The PHQ-9 is a standardized, self-report questionnaire designed to measure depressive symptoms in alignment with the DSM-IV diagnostic criteria for depression.[31] The questionnaire consists of 9 main questions and 1 supplementary question. Individuals may indicate a total score between 0 and 27. A composite score of 0-4 is indicative of minimal depression; 5-9 is mild; 10-14, moderate; 15-19, moderately severe; and severe, 20-27.[32] Cronbach's alpha demonstrates the internal consistency of the PHQ-9 measuring alpha+0.86-0.89 and a test-retest reliability of $r = 0.84$ z924.[33] If any respondent indicated having thoughts of harming themselves, the survey proceeded to offer mental health supports. See Figure 1.

Stress

The Perceived Stress Scale (PSS) is a validated questionnaire measuring perception of personal stress. The PSS is reverse scored and includes 10 items.[34] The PSS-10 has been shown to reflect statistically sound internal reliability with Cronbach's alpha coefficients ranging from 0.067 to 0.91.[35] Scores ranging 0-13 are considered low stress; 14-26 is moderate stress; and 27-40 is high perceived stress. Cronbach's alpha for the PSS in this sample was $\alpha = 0.811$, indicating a high level of internal consistency.

Professional Quality of Life

The Professional Quality of Life is a Likert-based survey using a scale ranging from 1 (never) to 5 (very often). Three subscales are used to measure compassion satisfaction, secondary traumatic stress (STS), and burnout.[36] Compassion satisfaction is the pleasure an employee gains from helping others that comes from direct interaction or the general positive feeling that the person is adding to the betterment of society.[37] STS is characterized as the negative consequences secondary to work-related fear and trauma, which may result in exhaustion, frustration, anger, and depression.[37] Burnout is characterized by exhaustion, frustration, anger, and depression, which may result

from high workloads and an unsupportive work environment.[38] The instrument has been demonstrated to have good construct validity and reliability.[37]

Survey dissemination

The electronic survey was distributed to all hospital personnel in the state of North Dakota between the end of May and the end of June, 2021. The survey was distributed through the State's Hospital Association, Office of Rural Health, Rural Health Association, and statewide network mailing lists for hospital CEOs, directors of nursing, and CAH staff. Announcements ran in 3 electronic newsletters: the State's Hospital Association, Medical Association, and Office of Rural Health. The survey link was also shared through Facebook and Twitter, utilizing a snowball sample in which the cover letter encouraged sharing the link with colleagues. Reminders to complete the survey were sent on 2 occasions. There was no financial incentive for completing the survey.

North Dakota: rural and urban designations

North Dakota (population 779,094) has a large proportion of the population that lives in rural communities (49%). However, the state includes 4 large urban areas (cities), spread-out geographically which house 38% of the state's population. These 4 cities are considered urban by all federal definitions of rural (available through the Rural Health Information Hub). The respective city populations of these 4 areas are 72,777, 48,261, 56,500, and 121,889. Each of the urban communities have large and reliable health care systems with satellite health clinics in smaller communities. The state has 36 CAHs, 54 rural health clinics, 15 federally qualified health centers, and 3 short-term PPS hospitals.[39-41]

Data analysis

A continuous, composite variable was created for each independent scale: the GAD-7, PHQ-9, and PSS. The Professional Quality of Life scale is a tool with 3 subscales measuring compassion, burnout, and STS. A continuous, composite variable was created for each of the 3 subscales. To determine variability among, between, and within various groups, we ran several chi-square and independent sample T-test analysis. We used chi-squared tests to determine if there were statistically significant differences between groups of categorical variables. Independent sample T-tests were used to determine if the group means of the continuous variables were significantly different.

RESULTS

A total of 839 participants completed the survey, 68 observations were removed because of survey nonresponse. Of the 771 who completed the survey, a majority (83.40%) identified as women. The largest proportion of the sample were persons 25-40 years of age (44.23%) and

41-56 years (30.87%). The largest majority reported serving as nursing staff (33.98%). Over half (54.60%) had provided direct care to a COVID-19 patient; 44.6% worked in a rural hospital. See Table 1.

Reported depression, anxiety, stress, and quality of life among hospital staff

Broadly, 17.90% of respondents reported noted symptomology associated with generalized anxiety disorder; 57.50% indicated no or minimal depression (score of 0-4). The mean stress level was 9.49 with a maximum potential score of 20. On average, there was low compassion satisfaction (38.4), low burnout (22.7), and low levels of STS (19.3); a score of 50 is considered average and 57 or greater is high. See Table 1.

Rural and urban hospital staff

There was no statistically significant variability between rural and urban experiences of depression, anxiety, or stress (PSS) scores when tested as continuous variables. However, compassion satisfaction was significantly higher for those who worked in rural areas (M = 38.94, SD = 6.75) when compared to those who worked in urban (M = 37.94, SD = 7.10); $t(769)$ = −1.99, P = .0467). The burnout rating was significantly higher for those who worked in urban areas (M = 23.12, SD = 6.51) than rural (M = 22.08, SD = 6.35); $t(769)$ = 2.23, P = .0261). Meaning, those who worked in urban hospital settings experienced greater risk of burnout than rural and less compassion satisfaction with their work.

When exploring data categorically, the proportion of rural hospital staff was no greater nor less than the proportion of urban to indicate a score associated with GAD, or moderate to severe depression. See Table 1.

Hospital staff exposure to COVID-19 patients

When comparing mental health scales as continuous variables among hospital staff who had, and had not, interacted with COVID-19 patients, anxiety, depression, burnout, STS, and stress (PSS) were all significantly higher for those who worked directly with COVID-19 patients, regardless of rural or urban hospital location. See Table 2. When examining data categorically, a significantly greater proportion of those who had interacted with COVID-19 patients, than those who had not, reported GAD. See Table 1 and Figure 2. Additional variability has been identified by age and years of experience working in a hospital setting and will be explored further in future publications.

DISCUSSION

Without baseline data, it is not possible to compare hospital staff mental wellness during the pandemic to their mental wellness prior. However, these data do indicate a need to support hospital staff, especially those who have provided direct care or interaction to patients with
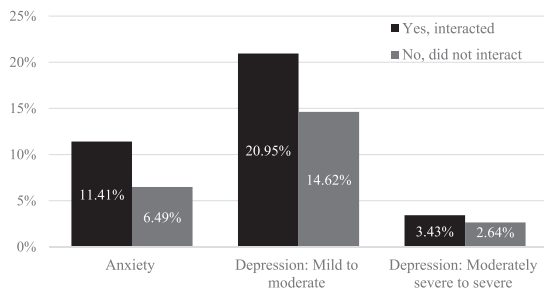
TABLE 2 Categorical variability of signs of mental illness by COVID-19 exposure

	Interacted with a COVID-19 patient		Did not interact with a COVID-19 patient			
	M	*SD*	*M*	*SD*	*t*-test	Cohen's *d*
Anxiety	5.39	5.18	4.26	4.84	3.11**	0.23
Depression	5.39	5.38	4.63	5.36	1.97*	0.14
Burnout	23.71	6.58	21.40	6.08	5.01**	0.36
STS	20.56	6.61	17.83	5.53	6.25**	0.45
Stress (PSS)	9.81	3.92	9.10	3.75	2.53*	0.18

*$P < .05$.
**$P < .001$.

* Variability is significant between COVID_19 patient interaction for Anxiety only ($P = .017$)

FIGURE 2 Percentage of hospital staff reporting anxiety disorder, mild to severe depression by COVID-19 patient interaction*

COVID-19. The data also indicate greater professional quality of life among rural providers than urban, presented as lower risk of burnout and greater compassion satisfaction.

Levels of anxiety among hospital staff

According to the National Center for Health Statistics, during 2019, roughly 9.5% of the US population reported mild symptoms of anxiety; 3.4% and 2.7% of US adults reported moderate or severe anxiety (respectively). The 2019 data report much lower rates of anxiety than the 17.90% of hospital staff in North Dakota who noted symptomology associated with GAD in 2021.[42] It is likely that hospital staff have indicated an increasing rate of experienced anxiety in response to the pandemic more broadly (as anxiety increases regardless of profession), and in addition to responding to the pandemic as a frontline worker.

Regardless of profession, the US Census has been tracking feelings of anxiety and depression over the period of the pandemic and is reporting substantial increases of self-reported anxiety and depression among US adults with rates as high as 30%-42% during specific periods of time.[43] The US Census pulse surveys are bi-weekly assessments among US residents and are self-report. They do not employ the GAD-7.

However, while the rates of anxiety among US adults have been increasing regardless of profession, based on previous literature, it appears that hospital staff, during the pandemic, are now experiencing

levels of anxiety that were previously attributed to only those hospital staff working in emergency settings. For example, Alharthy and team identified that 20.7% of emergency health care workers reported mild anxiety and an additional 23.7% reflected moderate anxiety.[44]

Rural and urban hospital staff

Those who worked in urban hospital settings experienced significantly greater risk of burnout than rural, and reported less compassion satisfaction with their work. A recent study of health care workforce in China found results like that of this study. Health care workers from urban areas showed more anxiety and fear compared to those from rural areas.[45] However, there was no significant variability among reports of depression or anxiety in our study. It may be that, regardless of working in a rural or urban location, hospital staff working during a pandemic were experiencing equitable (and high) levels of depression and anxiety, particularly among those interacting with COVID-19 patients. However, the significant variability around burnout and compassion stratification may indicate that rural providers experienced protective factors that providers in urban areas did not. These protective factors have yet to be identified.

In contrast, a 2021 study examining burnout from a rural verses urban perspective among family physicians found no variation (45.1% vs 43.0%) in burnout rates between the 2 subgroups, though rates of burnout were high overall.[46] It is likely that comparing experience among hospital staff during a pandemic is far different than comparing the experiences of family physicians geographically. This is because of the increased variability between rural and urban hospitals around access to resources, the patient base, the emergent nature of care occurring in hospital settings during the global health pandemic, and other variabilities that exist between rural and urban hospitals for specialty and emergent services.

Hospital staff exposure to COVID-19 patients

When comparing mental health scales as continuous variables, hospital staff who had interacted with COVID-19 patients reported significantly greater levels of anxiety, depression, burnout, STS, and stress

(PSS), regardless of rural or urban hospital location. Similarly, when examining data categorically, a significantly greater proportion of those who had interacted with COVID-19 patients, than those who had not, reported GAD. Research out of China found similar results; employees working with COVID-19 patients had scores reflective of heightened anxiety and anger.[45]

Frontline health care workers serving patients with COVID-19 is an independent risk factor to exhibiting symptoms of stress, anxiety, depression, and burnout.[16] As health care workers exhibit stress during the pandemic, it is likely that residual symptomology may be present up to 2 years later. These symptoms include occupational burnout (19%-30%), depression symptoms (20%-45%), and increased smoking and alcohol consumption (8%-21%).[47] It is imperative to create supports early, and long-term, to support the well-being of all hospital staff.

Hospital staff experience the risk of exposure to infection, working with less-than-optimal staffing levels, societal shunning, unclear and inconsistent guidance on personal protection measures, quarantine standards, and pharmaceutical interventions. The novel nature of the disease made early medical interventions an exercise in "learning as you go" and provided little direction or protocol for hospital staff at all levels (to include billing, sanitation, and other nonclinical employees). The stress associated with caring for those with COVID-19 may manifest itself in varied fashion, such as insomnia, anxiety, physical exhaustion, stress, and depression. These individuals are also exposed to personal and social pandemic-stressors similar to the general population.[3] The prolonged exposure to these compounding conditions may result in deterioration of mental health status resulting in anxiety, depression, insomnia, increased anger, and fear among those caring for the most vulnerable.[15]

Limitations

This research is an attempt to better understand the mental health and well-being of all hospital staff in rural and urban areas in North Dakota. However, it is far more a reflection of support staff and nursing care than all hospital staff as the study had a small response from physicians (either MDs or DOs). We also recognize the risk of selection bias and understand that many health care providers who are, in fact, experiencing distress and overwork are likely over surveyed and may not have completed this assessment. Another disadvantage of the data is that there is no comparison to identify levels of duress prior to the pandemic among hospital staff. The survey was also conducted during a lull between when COVID-19 first challenged the US health care system and the second wave. If this survey was conducted during the height of either wave, the results may have been more pronounced.

CONCLUSIONS

Research is beginning to explore, with sound methodology, the impact of the 2019 global health pandemic on those working in health care settings. This study is one of the first to include other hospital staff who may have direct patient exposure (like sanitation or dietary staff). As anticipated, a significantly greater proportion of hospital staff who had direct exposure with COVID-19 patients reported depression, anxiety, and higher levels of stress than did those with no exposure. As previously noted, reported levels of depression, anxiety, and stress mirror those of health care workers providing care in similarly stressful circumstances, such as the emergency room or intensive care unit. However, staff in rural areas had higher levels of compassion satisfaction and less experience of burnout. This may indicate that there are protective or resiliency factors present in rural health care systems, hospitals, or communities that could be explored further and lifted as an exemplar to support mental wellness for all hospital staff. This finding is also important given that rural areas typically have less access to mental health services, and rural hospitals generally have fewer system supports for local wellness programs.

Recommendations

Programs like the Mountain Plains Mental Health Technology Transfer Center[48] and the Substance Abuse and Mental Health Services Administration[49] (among others) have begun to develop resources, training, and supports for health care providers experiencing stress, anxiety, depression, or substance misuse in response to the pandemic. However, health care workers are still overwhelmed with caring for patients beyond capacity of the health care system with little, or no, time to utilize these supports. Support and promotion for physical and mental wellness must come from changes within the hospital system and among health care leaders and policy makers. If we do not care for our hospital staff, there will not be hospital staff left to care for community.

The COVID-19 pandemic is the health care crisis of this decade. It has taxed health care systems and, therefore, the health care workforce. Employees have been forced to face the prospect of having a shortage of ventilators, the inability to transfer patients to an appropriate level of care, lack of pharmacologic interventions, and an inadequate staffing level. It is imperative that leadership provides the interventions that will mitigate the noted increase in psychological stress inherent in caring for our citizens. Leaders need to hear, protect, prepare support, and care for their workforce.[50] Job satisfaction resulting from these positive leadership actions can enhance employee wellness and retention. Enhanced wellness in turn is a powerful coping mechanism during times of heightened stress. These data also indicate a need to implement programs and supports throughout health care and preparatory programs so that our frontline workers begin from a baseline of mental health and wellness prior to potentially experiencing traumatic events (to include natural disasters, accidents, and pandemics).

survey, and the frontline workers in North Dakota and globally who continue to respond to the global health pandemic. Thank you so very much.

DISCLOSURE

The 3 authors have no personal or financial disclosures to report.

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