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The Impact of COVID-19 Fear on Mental Health of Community Behavioral Health Providers

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Abstract

Objective: The COVID-19 pandemic has impacted communities worldwide. Behavioral health providers are at the forefront providing services and are thus vulnerable to psychological sequalae. This study hypothesizes that the fear of COVID-19 predicts depression and anxiety among these providers.

Methods: A questionnaire was delivered to community behavioral health providers to assess fear of COVID-19 using the Fear of COVID-19 Scale (FCV-19S). Anxiety and depression were assessed using Generalized Anxiety Disorder (GAD-2) scale and Patient Health Questionnaire (PHQ-2). Demographic data were analyzed using descriptive statistics, and the relationship between explanatory variables and outcomes was assessed using univariate generalized linear models and 1-way analysis of variance (ANOVA).

Results: FCV-19S scores were significantly higher among persons who smoked ($z = 2.4$, $P < 0.05$) or had a predisposing health condition. The multivariate models showed significant association with fear of COVID-19 and having a predisposing health condition, belonging to an ethnic minority group, not been diagnosed positive, and having a high total anxiety score.

Conclusions: The study indicated that 50% of the behavioral health providers screened had poor mental health owing to multiple factors identified. Hence, it is essential to strengthen their support to better mitigate situations contributing to fear.

Introduction

The COVID-19 pandemic has adversely impacted individuals' mental health. Accordingly, the Centers for Disease Control and Prevention (CDC) estimates that 30% of United States residents have experienced symptoms of depression or anxiety.[1] Public health, health-care, and behavioral health professionals are not immune to the mental health consequences of the pandemic. Between March 29 and April 16, 2021, over 30% of public health workers reported experiencing symptoms of depression and anxiety.[1]

Numerous factors contribute to this incidence of depression and anxiety among behavioral health providers. In New York, researchers identified contributing factors such as interruptions and changes in business operations, disruption in the provision of services, and rapid adaptation to telehealth and technology, as well as concerns about personal safety and PPE supplies, a lack of community resources for clients, providers' own concerns about illness, grief and loss, adjustments to working at home, and a lack of communication with colleagues.[2] Social workers echoed similar concerns, emphasizing a lack of preparedness, concerns about personal safety, and poor communication as well as grief, resulting in severe anxiety.[3,4]

This study seeks to augment the existing qualitative literature and characterizes the relationship between COVID-19, depression, and anxiety among community-based mental health providers. Numerous studies across countries, language, gender, and ethnicity have demonstrated the positive relationship between fear of COVID-19, depression, anxiety, and impaired functioning in various populations, including college students and the general population.[5-12] In one study conducted in the United States, researchers found a positive correlation between scores on the Fear of COVID-19 Scale (FCV-19S) and anxiety in college students who were married or self-reported as Asian.[5] Another study conducted in Japan found that people who were elderly, female, considered a sexual minority, and unemployed or who had psychiatric history reported high scores on this scale.[6] A Chinese study found significant associations between FCV-19S scores and symptoms of anxiety, depression, and stress.[7] One study found a moderately positive association between scores on the FCV-19S and scores on the Generalized Anxiety Disorder-7 Scale (GAD-7), which measures generalized anxiety.[10] A healthy level of fear or respect is an adaptive response, but when fear becomes too great, individuals' coping skills are overrun, leading to depression, anxiety, and impaired functioning. There may also be specific

factors that interact positively or negatively with the relationship between fear, depression, anxiety, and functioning.

While mental health professionals are aware of positive coping strategies and the importance of stress management and self-care, the nature of their interactions with patients (i.e., addressing fears of others, grief/ loss, 45-to-60-minute appointments near patients, etc.) in the context of the COVID-19 pandemic may lead to increased fear and adverse psychological consequences among some providers. As the provision of behavioral health services is crucial during the pandemic, identification of factors related to depression and anxiety among these frontline providers is of utmost importance. Therefore, we hypothesized that the fear of COVID-19 would predict depression and anxiety among mental health providers. Based on our previous research, it was further hypothesized that the relationship between COVID-19, depression, and anxiety would covary with factors such as preexisting conditions and risk factors for acquiring COVID-19.[8,9]

Methods

Sample and Data Collection Procedures

An Internet-based survey consisting of a demographic questionnaire and self-report measures, delivered by Qualtrics (Qualtrics Inc., Provo, Utah, USA), was distributed to community behavioral health providers between October and November 2020. Participants were members of a behavioral health provider distribution list maintained by the Department of Psychiatry and Behavioral Sciences at the OU Health Sciences Center. The study protocol was approved by the University of Oklahoma Health Sciences Center Institutional Review Board (IRB #12034) with reference number-703412. Informed consent was obtained from all participants prior to completing the questionnaire. There was no monetary compensation associated with the study. The questionnaire took less than 10 minutes for most respondents to complete.

Survey

The demographic questionnaire was constructed by this research group and consisted of 56 closed-ended and multiple-choice questions covering demographic, employment, and predisposing health condition characteristics. A minority ethnic status was assigned to respondents that identified as Black or African American, American Indian, Native Pacific Islander, and/ or Hispanic; this categorization matches that of the National Science Foundation Institute of Health underrepresented minority.[10] Predisposing health conditions included self-reported diabetes, chronic lung condition, being immunocompromised, and severe obesity, as well as chronic kidney disease or liver disease, and being over 65 years of age. Severe obesity is defined by the CDC as having a body mass index (BMI) of 40 or higher. Respondents with reported ages of 65 and older were automatically assigned a predisposing health condition indicator, as age was determined to be a pre-disposing risk factor for developing severe COVID-19 by the CDC.[11]

Fear of COVID-19, depression, and anxiety during the past 30 days were self-reported by respondents. To assess the fear of COVID-19, we used the Fear of COVID-19 Scale (FCV-19S), which was originally developed by Ahorsu et al. and has been further validated in multiple countries.[12,13] The FCV-19S consists of 7 items with response values ranging from strongly disagree (1) to strongly agree (5). Scores for each item were summed to produce a total fear score (ranging from a low of 7 to a high of 35), then categorized as low (< 14), moderate (> 14 and < 28), and high (> 28) based on the original parameters of the scale. Anxiety and depression were assessed using the 2-item Generalized Anxiety Disorder (GAD-2) scale and the 2-item Patient Health Questionnaire (PHQ-2), respectively.[14,15] Each of these scales awards scores ranging from 0 (not at all) to 5 (nearly every day). Scores from these questions were summed to produce composite scores for anxiety and depression, ranging from 0 to 10, with higher scores indicating more severe anxiety or depression. A score of ≥ 3 on the GAD-2 scale has been identified as an acceptable cutoff for identifying clinically significant anxiety in the general population, while a PHQ score ≥2 suggests clinical depression; both of these require further evaluation and diagnosis.[14,15]

Data Analysis

We analyzed demographic data using descriptive statistics and mean scores, standard deviations (SD), medians, and inter quartile range (IQR) to assess the survey questions. The relationship between explanatory variables (age, gender, occupation, and predisposing health conditions, as well as ethnicity and education) and outcomes was assessed using univariate generalized linear models and 1-way analysis of variance (ANOVA). We used stepwise backward multivariate generalized linear models to determine the impact of multiple explanatory variables and their interactions on the different outcomes. For the modeling, we excluded all answers/persons with explanatory variables that were 'unknown' as highlighted in Table 1. The impact of this was investigated using

Table 1. Demographic characteristics of the study population, Oklahoma City, May - June 2020 (n = 170)

Variable	Number (%)
Sex	
Female	105 (61.8)
Male	18 (10.6)
Unknown	47 (27.7)
Age (years)	
18 – 21	2 (1.2)
25 – 34	9 (5.3)
35 – 44	25 (14.7)
45 – 54	26 (15.3)
55 – 64	34 (20.0)
65 – 74	27 (15.9)
74 +	6 (3.5)
Unknown	41 (24.1)
Minority	
Yes	30 (17.7)
No	140 (82.3)
Predisposing health condition	
Yes	73 (42.9)
No	55 (32.4)
Unknown	42 (24.7)
Smoker	
Yes	93 (54.7)

(*Continued*)

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Table 1. (*Continued*)

Variable	Number (%)
No	36 (21.2)
Unknown	41 (24.1)
Education	
Associate's	3 (1.8)
Bachelor's	3 (1.8)
High school	2 (1.2)
Masters'	111 (65.3)
PhD	9 (5.3)
Professional doctorate	1 (0.6)
Unknown	41 (24.1)
Practice setting	
CMHC	29 (17.1)
Hospital	8 (4.7)
Indian health services	7 (4.1)
K – 12 education	6 (3.5)
Private practice	56 (32.9)
University	7 (4.1)
VA Medical Center	8 (4.7)
Unknown	49 (28.8)
Practice specialty	
LADC/CADC	42 (24.7)
LBHP	1 (0.6)
LMFT	6 (3.5)
LPC	41 (24.1)
MD/OD/DDS/PA	1 (0.6)
Nursing	1 (0.6)
Psychology	3 (1.8)
Social work	31 (18.2)
Unknown	44 (25.9)
Require mask	
Yes	77 (45.3)
No	93 (54.7)
Military	
No	42 (24.7)
Yes	120 (70.6)
Prefer not to say	1 (0.6)
Unknown	42 (24.7)
Self or family diagnosed with COVID	
Yes	34 (20.0)
No	136 (80.0)

a sensitivity analysis by running the models with and without the 'unknown' answers/persons and comparing the overall results. Because being aged 65 or older was considered a predisposing health condition, this age group was excluded from the multivariate analyses to avoid bias by accounting for persons in this category twice. All analyses were performed using STATA 16.0 (StataCorp., College Station, Texas) and SAS Enterprise Guide© (SAS Institute, Cary, North Carolina, USA).

Results

A total of 170 community-based behavioral health providers responded to the survey. Of those, 61.8% were female and 50% were between 35 and 64 years old (Table 1). Most respondents (65.3%) had a master's degree and 32.9% worked in a private practice setting (Table 1). Thirty respondents (17.7%) reported being part of a minority ethnic group (i.e., identifying as Black or African American, American Indian or Native Pacific Islander, and/ or Hispanic; Table 1). Predisposing health conditions (comorbidities), including being aged 65 or older, were reported by 73 persons (42.9%).

The total FCV-19S score for all questions ranged between 7 and 35, with an average summed score of 12.5 (Table 2). Participants scored highest on being most afraid of COVID-19 and becoming nervous and afraid when watching news stories about COVID-19 (Table 2). Eighty-five respondents (50%) had a low total fear score, while 3 (1.8%) had a high total fear score. The overall scores for depression and anxiety were 3.2 and 3.6, respectively, with participants scoring highest on feeling down, depressed, or hopeless, and nervous, anxious, or on edge during the past 30 days (Table 3). Forty-six respondents (27.1%) scored 6 or higher on the GAD scale, indicating clinically significant anxiety (Figure 1), while 81 persons (47.6%) scored 4 or higher on the PHQ scale, suggesting substantial depression (Figure 1).

There was no significant association between FCV-19S scores and gender, age, or ethnicity ($P > 0.05$). However, FCV-19S scores were significantly higher among persons who smoked ($z = 2.4$, $P < 0.05$) or had a predisposing health condition, including being 65 or older ($z = 2.8$, $P < 0.01$). Respondents who reported that they or any family members had not previously been diagnosed with COVID-19 also scored significantly higher on fear of COVID-19 ($z = 2.9$, $P < 0.01$). With respect to depression and anxiety, we found no significant association with gender, age, or ethnicity, as well as

Table 2. Scores for assessment of fear of COVID-19 (over the last 30 days) among community health providers in Oklahoma City, May - June 2020

Question	Mean (SD)	Median	Min, Max
I am most afraid of COVID-19	3.3. (1.2)	2	1, 5
It makes me uncomfortable to think about COVID-19	2.9 (1.2)	2	1, 5
My hands become clammy when I think of COVID-19	1.7 (0.8)	1	1, 5
I am afraid of losing my life because of COVID-19	2.5 (1.2)	3	1, 5
When watching news stories about COVID-19, I become nervous and anxious	2.8 (1.3)	2	1, 5
I cannot sleep because I am worried about getting COVID-19	1.5 (0.8)	1	1, 5
My heart races or palpitates when I think about getting COVID-19	1.8 (1.0)	1	1, 5
Total assessment of fear score	12.5 (8.6)	14.5	7, 35

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Table 3. Scores for assessment of indicators of depression and anxiety (over the last 30 days) among community health providers in Oklahoma City, May - June 2020

Question	Mean (SD)	Median	Min, Max
1. Little or no interest in doing things	2.2 (1.1)	2	1, 5
2. Felt down, depressed, or hopeless	2.3 (1.1)	2	1, 5
3. Felt nervous, anxious, or on edge	2.7 (1.0)	3	1, 5
4. Unable to stop or control worrying	2.3 (1.0)	2	1, 5
Total depression score (sum questions 1, 2)	3.2 (2.6)	3	2, 10
Total anxiety score (sum questions 3, 4)	3.6 (2.7)	4	2, 10

Table 4. Multivariate analysis of fear of COVID-19 among community health providers in Oklahoma City, May - June 2020

Variable	Coefficient (SD)	*z*	95% CI	*P*
Predisposing health condition	1.9 (0.9)	2.1	1.6 – 3.6	< 0.05
Ethnic minority	2.2 (1.0)	2.1	1.7 – 4.1	< 0.05
Anxiety	1.2 (0.2)	5.1	0.8 – 1.7	< 0.001
Self or family not having been diagnosed with COVID-19	2.4 (1.2)	5.8	1.9 – 5.3	< 0.001

predisposing health conditions ($P > 0.05$). Both depression and anxiety scores were significantly higher among persons who reported that neither themselves nor family members had previously been diagnosed with COVID-19 ($z = 2.7$ - 3.4, $P < 0.01$).

In the multivariate models, there was no significant association between depression or anxiety and any of the explanatory variables. The multivariate models for fear of COVID-19 showed that fear of COVID was significantly associated with having a predisposing health condition, belonging to an ethnic minority group, self or family not having been diagnosed with COVID-19, and having a high total anxiety score (Table 4).

The sensitivity analysis for persons with 'unknown' explanatory variables showed that both univariate and multivariate model outcomes were the same regardless of whether these persons were included or excluded.

Discussion

Numerous studies have documented the high prevalence of psychological distress among health-care workers, including behavioral health providers, during the COVID-19 pandemic. A cross-sectional survey analysis of the mental health impact on health-care workers due to the COVID-19 pandemic during the time of this study reported that approximately 22.5% of study respondents had moderate to severe anxiety, while 50% of survey respondents reported more than minimal levels of anxiety.[16] Congruent with such findings, depression and anxiety were clearly high among this sample of community behavioral health providers. Over 50% of the sample screened positive for anxiety and depression and, based on World Health Organization (WHO) guidance, should receive a comprehensive evaluation to rule out a diagnosis of major depression and/ or generalized anxiety disorder. Our results suggest a relationship between the respondents' dysphoric mood and a fear of COVID-19.

Some of the respondents' negative moods may be related to other factors, such as changes in practice patterns, work stress, and loss of income, as well as family concerns and other social disruptions.[2,3] Social isolation caused by lockdowns and stay-at-home orders can have negative mental health impacts, including symptoms of depression and generalized anxiety.[17] In addition, COVID-19-related routine changes have been associated with demotivation, loss of meaning, and decreased self-worth.[18,19] An important routine change for many individuals was decreased physical activity, which may have exacerbated mental health issues.[20] Studies show that those who exercised during COVID-19 lockdowns had better overall mental health.[21]

A counterintuitive finding is the association between not being diagnosed with COVID-19 or having a family member who has not been diagnosed with COVID-19 and increased anxiety and depression. Research suggests that illness uncertainty, characterized by unpredictability and ambiguity regarding the course, prognosis, and severity of illness, can lead to significant distress and impairment in functioning.[22,23] Based on the results of the present study, we hypothesize that personally experiencing COVID-19 or

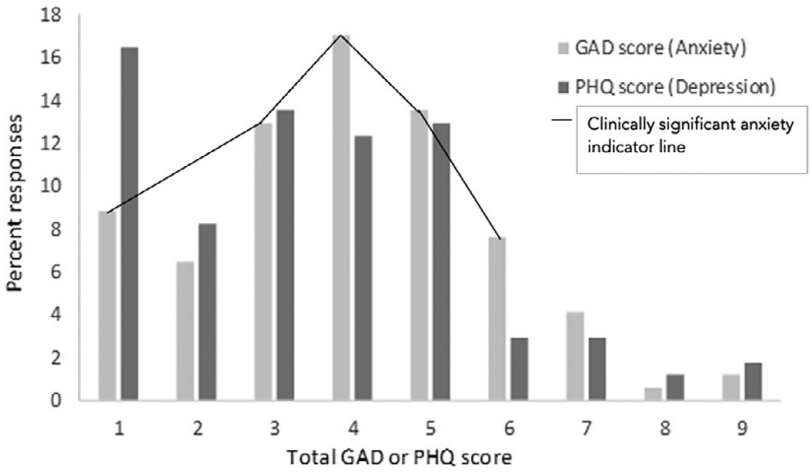

Figure 1. Distribution of total GAD and PHQ scores (%) for community health providers, Oklahoma City, May - June 2020.

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witnessing a family member experience COVID-19 may alleviate such uncertainty and resulting distress by providing new information and may account for this finding.

Our findings suggest the possibility that mediating or moderating factors, such as health behaviors (i.e., smoking, and preexisting conditions), safety concerns (i.e., having not been diagnosed or a family member not being diagnosed with coronavirus), and race, may have an effect on the interaction between fear of COVID-19, depression, anxiety, and functioning. During the pandemic, vaccination became a critical mediating and moderating factor that would have significant implications for the mental health of individuals, particularly health-care providers. The availability, acceptance, and perceived effectiveness of the COVID-19 vaccine could potentially influence the level of fear, and anxiety, as well as depression among health-care providers. However, the current study did not specifically address vaccination status or perceptions regarding the COVID-19 vaccine or other vaccinations because the vaccine was unavailable at the time of the survey. Additionally, telehealth was not a common health-care option in Oklahoma at the time of the survey. Future research could beneficially incorporate these aspects to provide a more comprehensive understanding of the factors influencing the mental health of community behavioral health providers during the pandemic.

The results of our study should be considered with respect to several limitations. First, most participants from our sample population were White and highly educated (i.e., having a master's degree), limiting the findings' generalizability. As such, we may expect that more diverse study populations would experience different levels of anxiety and depression. Second, all outcomes and explanatory variables, such as comorbidities, were self-assessed, leaving the study results at risk of recall bias. Third, when answering the questionnaire, some participants could have had a particularly challenging day that may not have been representative of their whole week. Because our study followed a cross-sectional observational approach, we cannot accurately infer that the relevant 'exposures' were, in fact, driving the outcomes over more extended periods. Fourth, this article was specific to the fear of COVID-19, and the study was conducted as the COVID-19 pandemic emerged in the United States. This metric could be modified to address potential future outbreaks of Ebola, SARS, and similar pathogens; however, the psychological effects measured in this study may not be like those observed during potential future epidemics. Fifth, the literature indicates that frontline workers are susceptible to high levels of stress, anxiety, and depression due to factors that include direct exposure to the virus, high workload, and the emotional toll of dealing with affected patients.[24,25] The psychological intensity of these experiences might vary based on the nature of the job, the level of exposure to the virus, and the resources available to manage the challenges encountered. Thus, it would be beneficial to have comparative studies that assess the psychological impact of COVID-19 on distinct groups of frontline workers to understand the breadth and depth of the issue and tailor support mechanisms accordingly. Sixth, at the onset of the pandemic and during this study's data collection period, there was a lack of pre-pandemic mental health data for these providers in our study region.

Therefore, while this study highlights significant anxiety and depression during the pandemic, we cannot definitively attribute it solely to COVID-19. Finally, the proportion of people with 'unknown' explanatory variables was above 20% for most variables, which may have impacted the analysis results. However, the sensitivity analysis showed that excluding these answers/persons did not significantly change the study results, and these were not likely to have skewed results.

Overwhelming evidence indicates that mental health-care workers may struggle with existing mental health issues and that these issues may be exacerbated during pandemics or similar public health crises. Thus, it is essential to identify means by which mental health providers can be safeguarded before and during crises, and these efforts should be the proactive and strategic focus of health-care systems. Pollock et al. found that 3 factors facilitated intervention implementation. First, interventions could be adapted for local needs; second, effective formal and social communication should be implemented; and third, positive, safe, and supportive learning environments should be created for frontline workers.[26] The optimal interventions to be implemented, however, may differ based on many factors, including the population characteristics of health-care providers, the means of provision, and the professional competency of those who deliver the interventions. Interventions must be tailored to the specific providers so that they do not harm, even if well-intentioned.[27]

Sufficient evidence of interventions does exist to establish several critical concepts of implementation strategies. Leveraging online summits and online data collection methods was demonstrated to be appropriate for assessing the impact of the COVID-19 pandemic on mental health. It will likely be effective in larger scale implementations in the case of future pandemics.[28] These means, as well as other social technologies, can reduce social isolation or perceptions of isolation that are known contributors to anxiety and depression. Kisley et al. conducted a meta-analysis of emerging outbreaks among health-care workers. They found that clear communication with peers and leadership, access to adequate personal protection at all levels of care provision, effective sleep hygiene practices, and practical/ psychological support are key components of effective mental health maintenance and intervention strategies.[29] Overall, recognition that health-care and social care providers are also subject to the same mental health challenges faced by those they serve and interventions to address their psychosocial needs is critical to maintaining an effective health-care workforce.[25-29]

Conclusion

In this study, the FCV-19S was used to assess fear of COVID-19 in community behavioral health providers. Our results indicate that many behavioral health providers who we surveyed have poor mental health, with over 50% screening positive for anxiety and depression. We found that fear of COVID-19 was a significant predictor of anxiety among providers, even after controlling for age, gender, and occupation, as well as predisposing health conditions, ethnicity, and education. Contrary to our hypotheses, fear of COVID-19 was not a significant predictor of depressive symptoms after controlling for covariates. Fear of COVID-19 likely exacerbates negative mental health in these providers, especially among those who smoke, have a preexisting health condition, belong to an ethnic minority group, or have less personal experience with a COVID-19 diagnosis. These results indicate that the behavioral health workforce needs support and effective coping mechanisms to prevent further mental health exacerbation. Tailored counseling specific to frontline mental health community providers and policy changes centered on mitigating the fear of COVID-19 should be implemented with a focus on providing a wider variety of support

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systems and mechanisms to account for a broader range of situations that contribute to fear.

Ongoing research might track the fluctuations in the severity of COVID-19 and the differential impact this may have on fear of COVID-19 and provider mental health. Future research should examine these factors among behavioral health professionals with different educational backgrounds and different ethnic and cultural groups from different parts of the country who practice in different settings, as socially shared beliefs, values, and norms regarding the COVID-19 pandemic may influence mental health outcomes such as fear, anxiety, and distress.

Abbreviations

ANOVA	One-way Analysis of Variance
BMI	Body Mass Index
CDC	Center for Disease Control and Prevention
FCV-19S	Fear of COVID-19 Scale
GAD-2	Generalized Anxiety Disorder
IQR	Inner-quartile range
IRB	Institutional Review Board
PHQ-2	Patient Health Questionnaire
SD	Standard Deviation
WHO	World Health Organization

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