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# Mental wellness among psychiatric-mental health nurses during the COVID-19 pandemic

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## ABSTRACT

Psychiatric nursing providers and their unique challenges in the face of the COVID-19 pandemic are not well-represented in the literature. Therefore, this study sought to describe mental well-being of psychiatric nurses, and sought to elucidate factors related to mental wellness during the COVID-19 pandemic. This study utilized cross-sectional survey methodology to evaluate burnout, mental wellness, COVID-related anxiety, professional fulfillment, depressive symptoms, and anxiety symptoms among psychiatric nurses. There was a total of 151 respondents. A linear regression model was employed to identify predictors of mental wellness. The final regression model included the following predictors: depressive symptoms, burnout, professional fulfillment, and educational status. These predictors together accounted for 73% of the variance for the outcome variable of mental well-being.

## Introduction

The COVID-19 pandemic has brought about unprecedented hardship across the globe—from astronomical mortality and morbidity rates ([Centers for Disease Control and Prevention, 2020](#)) to economic and financial hardship, the lives of patients and families have been undoubtedly affected. Initial reports in early 2020 showed demonstrable concern regarding the subsequent impact of the pandemic on the development of stress, anxiety, mood symptoms, sleep disturbances ([Shuja et al., 2020](#); [Torales et al., 2020](#)), and their resulting public health and diagnostic implications ([Dong & Bouey, 2020](#); [Heitzman, 2020](#)).

While initial literature focused on promoting the identification of comorbid mental health symptoms among patients diagnosed with COVID-19 ([Pfefferbaum & North, 2020](#)), health care providers and other frontline workers simultaneously faced a significant proportion of the pandemic burden. Presently, health care providers, the celebrated heroes of the global pandemic, are tasked with extraordinary challenges in their work. A study in China from February 9, 2020, to March 15, 2020, indicated that nurses who took care of patients with COVID-19 went through three stages of reactions: ambivalence toward their role (e.g., patient care vs. concern of infection), emotional exhaustion (e.g., anxiety, depression, fear), and psychological adaptation ([Zhang et al., 2020](#)). Specifically, mental health care providers are entrusted with providing comprehensive psychological and psychiatric care while

facing their own novel challenges.

The mental health and overall well-being of frontline workers in the face of COVID-19 is undoubtedly affected, and akin to previously mentioned studies, increased levels of anxiety, depression, insomnia, and stress have been reported ([Garcia-Iglesias et al., 2020](#)). The effect of the COVID-19 pandemic on burnout and professional fulfillment in physicians has also been highlighted ([Amanullah & Ramesh Shankar, 2020](#)). Likewise, mental health nursing providers may experience burnout because patients with mental health problems have reported significant psychiatric symptoms such as anxiety, depression, and insomnia during the peak of the pandemic ([Hao et al., 2020](#)). However, there is an evident gap in the literature surrounding the identification of COVID-19-related mental health and well-being concerns among certain providers. Specifically, mental health nursing providers and their unique challenges in the face of the pandemic are not well-represented in the literature. Therefore, this study sought to describe mental well-being of mental health nurses, and sought to elucidate factors related to mental wellness during the COVID-19 pandemic.

## Background

Health workforce stress and resulting burnout is not a novel concept—in fact, as some authors note, burnout syndrome was initially described in the literature in the 1900s ([Roy, 2018](#)). However, it was

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officially included in the International Classification of Diseases in 2019 by the World Health Organization (WHO) as an occupational syndrome (Valeras, 2020; World Health Organization, 2019). The WHO defines burnout as a cluster of three dimensions of symptoms, which arise as a consequence of chronic, unmanaged workplace stress. These dimensions include anergia/exhaustion, increased detachment or negative feelings related to one's work, and reduced professional efficacy (World Health Organization, 2019). Prior to the pandemic, burnout prevalence among mental health nurses was studied, and contributory variables identified included work overload, work-related stress, professional seniority, male gender, single status, and work-place aggression (Lopez-Lopez et al., 2019). In the context of the pandemic, risk factors for burnout among nurses include younger age, social isolation, and increased workload (Tiete et al., 2020). Estimated burnout prevalence among 868 nurses included 25% for emotional exhaustion, 15% for depersonalization, and 22% for low personal accomplishment (Lopez-Lopez et al., 2019). Burnout is a serious condition that can lead to feelings of failure and shame while negatively affecting patient care (Foster et al., 2019). Additionally, compassion fatigue, defined as stress from repeated exposure to human suffering (Cocker & Joss, 2016), has been studied among many health care professions, but, notably, advanced practice providers have been underrepresented in the past (Sorenson et al., 2016).

In regard to professional fulfillment, there is little literature related to professional fulfillment in nurses, and even less within the context of the COVID-19 pandemic. A recent study by Li et al. (2020) evaluated the impact of the pandemic on nurses' professional identity. The study utilized cross-sectional data obtained from a survey of over 5500 nurses residing in China. Utilizing quantitative survey data and qualitative content analysis, the authors found high levels of professional fulfillment and strong professional identity within the context of the COVID-19 pandemic. Nurses expressed a strong sense of responsibility to care for patients with COVID-19, and found their work during the pandemic to be meaningful. It is unclear how professional fulfillment might act as a protective factor to prevent burnout and adverse mental health outcomes among nurses. In a sample of physician trainees, lower rates of professional fulfillment were associated with higher rates of burnout, mood symptoms, and anxiety symptoms (Kannampallil et al., 2020). Other studies of health care workers have found high rates of mental health symptoms within the context of the COVID-19 pandemic. A recent systematic review highlighted pooled rates of depression and anxiety among health care workers at 23% and 22%, respectively (Pappa et al., 2020). In a study of over 3200 nurses in China at the onset of the pandemic, the incidence of depression and anxiety was estimated at 34% and 18%, respectively (Zheng et al., 2021). Another study reported that 45% of frontline nurses experienced depression or anxiety, and those with mental health symptoms were more likely to report burnout (Hu et al., 2020). In addition to the high rates of mental health symptoms among nurses related to the pandemic, nurses qualitatively report that work challenges and working conditions during the pandemic precipitated both physical and psychological symptoms, however also reported that commitment to nursing and organizational support mitigated mental health symptoms (Goh et al., 2020).

## Methods

### Design and sample

This study utilized a cross-sectional design to investigate challenges faced by psychiatric-mental health nurses during the COVID-19 pandemic. Psychiatric mental health nurses participated in the study. Eligibility criteria included age over eighteen years and current or former work within the mental health industry.

### Procedure

The University Institutional Review Board (IRB) reviewed and approved the study protocol. Surveys included an abbreviated version of the Professional Fulfillment Index (PFI) (Trockel et al., 2018), the Coronavirus Anxiety Scale (CAS) (Lee, 2020), the Patient Health Questionnaire 8-item scale (PHQ-8) (Kroenke et al., 2009), the Generalized Anxiety Disorder 7-item scale (GAD-7) (Williams, 2014), the Warwick-Edinburgh Mental Wellbeing Scale (Stewart-Brown et al., 2011), additional burnout questions developed by the authors, and a demographic inquiry. The survey was distributed through the International Society of Psychiatric-Mental Health Nurses (ISPN) e-mail list server after approval from the organization's board of directors. ISPN represents practicing registered nurses and advanced practice psychiatric nurses, thus survey respondents comprised a convenience sample. Of note, non-ISPN members were eligible to participate. All data were collected via web based Qualtrics survey software.

Participants were incentivized to complete the survey via the provision of randomly selected and distributed electronic gift cards. To assure anonymity, after survey completion, participants were redirected to a separate, unlinked survey page where they input their email addresses for contact should they have been chosen to receive the electronic gift card. Electronic consent for all participants was obtained prior to survey commencement.

### Measurements

#### Demographic characteristics

Demographic data was obtained via free text response and included age, gender, highest level of education, description of current role, and description of current practice setting.

#### Professional fulfillment

An abbreviated, 6-item version of the Professional Fulfillment Index (PFI) with a Likert response format was utilized. Participants were asked to report the extent to which they felt happy at work, worthwhile at work, satisfied with their work, in control of their work, in addition to the extent that they derived meaning in their work or felt they were contributing professionally over the past two weeks (Trockel et al., 2018). Scores for each item range from 0 to 4, with a range of 0 to 24 for the 6-item version utilized. Total scores of the PFI were used for this analysis. Higher scores equated to greater degrees of professional fulfillment. In a sample of physicians, the 6-item PFI was associated with a Cronbach's alpha of 0.91 and test-retest reliability of 82% (Trockel et al., 2018).

#### COVID-19 pandemic-related anxiety

The Coronavirus Anxiety Scale (CAS) is a 5-item instrument, in which participants were asked to report the frequency in which they felt dizzy, lightheaded, or faint when exposed to information related to COVID, had trouble sleeping because of thinking about COVID, felt paralyzed when thinking about COVID, had appetite disturbances when thinking about COVID, and felt nauseous or had gastrointestinal distress when thinking about COVID (Lee, 2020). In a sample of United States adults, the CAS was associated with 90% sensitivity and 85% specificity when a cut-off score of 9 was utilized (Lee, 2020). Internal reliability was  $\alpha = 0.93$  (Lee et al., 2020). Scores for each item range from 0 to 4, with a range of 0 to 20 for the entire instrument. Total CAS scores were used for this study. Higher scores equated to more frequent COVID-related anxiety symptoms.

#### Depressive symptoms

Depressive symptoms were measured with the PHQ-8. The psychometric properties of the PHQ-8 have been well established in adults. In a study of nearly 200,000 United States adults through the 2006 Behavioral Risk Factor Surveillance Survey (BRFSS), the PHQ-8 was associated

with 100% sensitivity and 95% specificity for major depressive disorder when a cut-off score of 10 was utilized. With the same cut-off score, sensitivity and specificity for any depressive disorder were 70% and 98%, respectively (Kroenke et al., 2009). Cronbach's alpha was 0.89 in a sample of adults seeking outpatient mental health treatment (Shin et al., 2019). The PHQ-8 was utilized as opposed to the PHQ-9 for ethical purposes. Given the anonymous nature of the study, it was not possible to contact those who endorsed suicidality within the past two weeks for safety purposes. The PHQ-8 evaluates the frequency of depressive symptoms over a two-week period, excluding suicidality. The PHQ-8 utilizes a Likert response format, with scores for each item ranging from 0 to 3. Overall PHQ-8 scores range from 0 to 24, with higher scores equating to more frequent depressive symptoms.

**Anxiety symptoms**

Anxiety symptoms were measured with the GAD-7. The GAD-7 is associated with adequate psychometric properties in adults. In a sample of adults within a primary care setting, the GAD-7 was associated with 89% sensitivity and 82% specificity when a cut-off score of 10 was utilized (Spitzer et al., 2006). Scale reliability  $\rho$  was 0.85 in a sample of adults seeking treatment for anxiety (Rutter & Brown, 2017). The GAD-7 evaluates the frequency of anxiety-related symptoms over a two-week period, including feeling nervous, anxious, or on edge; not being able to control worrying; worrying about different things; trouble relaxing; restlessness; irritability; and feeling afraid as though something awful might happen. The GAD-7 utilizes a Likert response format, with scores for each item ranging from 0 to 3. Overall GAD-7 scores range from 0 to 21, with higher scores equating to more frequent anxiety-related symptoms.

**Burnout**

The authors also included additional questions related to burnout. Participants were asked to rate on a scale of 0 to 5 the extent to which: they have found that professional boundaries are clear, they feel that the demands of family life interfere with their job, they feel that the demands of their job interfere with family life, and they feel socially, emotionally, and physically connected to those around them. Higher scores on these items were associated with greater degrees of burnout. Participants were also asked to describe their current level of burnout on a scale of 0 to 5, with 0 equating to "I enjoy my work and have no symptoms of burnout," and 5 equating to "I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help." Total scores of burnout ranging from 0 to 25 were used for this study.

**Mental well-being**

The Warwick-Edinburgh Mental Wellbeing Scale was utilized following permission from the developers. The Warwick-Edinburgh Mental Wellbeing Scale is a 14-item instrument that evaluates general mental well-being. Participants were asked to report the frequency of which they felt optimistic, useful, relaxed, interested, energized, able to cope with problems, mentally clear, self-confident, close to others, able to make decisions, loved, and cheerful over the past two weeks. Individual item scores ranged from 1 to 5, with overall instrument scores ranging from 14 to 70, with higher scores equating to greater degrees of mental well-being (Stewart-Brown et al., 2011). In a sample of United Kingdom adults, Cronbach's alpha was 0.91, and test-retest reliability was 0.83 (Tennant et al., 2007). Social desirability bias was thought to be comparable or lower to that of similar instruments (Tennant et al., 2007).

**Data collection and analysis**

All data were collected via web based Qualtrics survey software. The survey was distributed through the ISPN e-mail list server after approval from the organization's board of directors. ISPN represents practicing

registered nurses and advanced practice psychiatric nurses across, and survey respondents comprised a convenience sample. No participant identifiers were attached to collected data. All data were stored and downloaded on institutional servers that were secured via Firewall and password control. Data were analyzed with IBM SPSS Statistics for Windows, Version 25 (IBM, Corp., Armonk, NY, USA). Data were screened for anomalies using exploratory analysis. Descriptive statistical analyses were utilized to first describe the data, including demographic data and findings related to the aforementioned scales. *t*-Tests were used to make comparisons between demographic data and mental wellness scores. Pearson's correlation coefficients were utilized to compare mental well-being to other variables. A linear multiple regression was utilized to evaluate predictors of mental well-being.

**Results**

A total of 164 individuals opened the survey link. One participant declined to participate, and twelve declined to answer the survey questions. A total of 151 participants provided valid, complete data, which are included in the analysis. In regard to demographic data, the majority of participants were women ( $n = 116, 76.8\%$ ). Table 1 displays demographic information and descriptive statistics of survey data. The majority of participants were registered nurses ( $n = 74, 49.0\%$ ), and 54 (35.8%) reported that they were advanced practice registered nurses. The majority of participants were employed in direct patient care settings, including both inpatient and outpatient settings ( $n = 115, 76.2\%$ ). The majority of participants reported post-graduate education ( $n = 94, 62.3\%$ ).

Mean scores and standard deviations for the PFI, CAS, PHQ-8, GAD-7, Warwick-Edinburgh Mental Wellbeing Scale, and burnout scores are displayed in Table 1. Table 2 describes internal consistency for the aforementioned instruments based on the sample utilizing Cronbach's alpha. All instruments were associated with high degrees of internal

**Table 1**  
Demographics and descriptive statistics.

	n (%) or Mean (SD)	
Sex	Male	23 (15.2%)
	Female	116 (76.8%)
	Non-binary	1 (0.7%)
Role	APRN	54 (35.8%)
	RN	74 (49.0%)
	Others (e.g., educator, researcher, manager, etc.)	10 (6.6%)
Working settings	Non-direct patient care settings (e.g., academia, government, organizations, etc.)	20 (13.2%)
	Direct-patient inpatient settings	61 (40.4%)
	Direct-patient outpatient settings	54 (35.8%)
Education	Undergraduate education	44 (29.1%)
	Graduate education	94 (62.3%)
Professional Fulfillment Index	12.07 (5.53)	
COVID Anxiety Scale	2.85 (3.82)	
Burnout items	12.38 (5.41)	
PHQ-8	7.72 (5.78)	
GAD-7	7.48 (5.96)	
Warwick Edinburgh Mental Wellbeing Scale	45.09 (9.98)	

**Table 2**  
Internal consistency of study instruments (Cronbach's alpha).

Professional Fulfillment Index	0.910
COVID Anxiety Scale	0.873
Burnout items	0.741
PHQ-8	0.884
GAD-7	0.923
Warwick Edinburgh Mental Wellbeing Scale	0.939

consistency, exceeding 85%. Overall, participants reported mild anxiety and depressive symptoms, and average levels of mental well-being and professional fulfillment. In regard to burnout, 64% of participants reported that the demand of their job interfered with family life most of the time or all of the time.

In regard to mental well-being, *t*-tests were utilized to compare demographic variables to mental well-being, conceptualized through scores on the Warwick-Edinburgh Mental Wellbeing Scale. Advanced practice nurses ( $t = 3.53, p = 0.001$ ), individuals with post-graduate education ( $t = -4.27, p < 0.001$ ), or those working in outpatient settings ( $t = -2.33, p = 0.022$ ) reported higher degrees of mental wellness than their counterparts (see Table 3).

Pearson's correlation tests were utilized to examine correlations between COVID-related anxiety, burnout, depressive symptoms, anxiety-related symptoms, and mental well-being. Scores on the Warwick-Edinburgh Mental Wellbeing scale were positively correlated with professional fulfillment ( $r = 0.696, p < 0.001$ ), but were negatively correlated with COVID-related anxiety ( $r = -0.390, p < 0.001$ ), burnout ( $r = -0.668, p < 0.001$ ), depressive symptoms ( $r = -0.764, p < 0.001$ ), and anxiety-related symptoms ( $r = -0.637, p < 0.001$ ). Therefore, to further evaluate predictors of mental well-being, a linear multiple regression was employed. Based on the regression, gender, work setting, work role, COVID-related anxiety, and overall anxiety were not considered to be strong predictors of mental well-being, and were subsequently removed from the model. The final regression model included the following predictors: depressive symptoms, burnout, professional fulfillment, and educational status. These predictors together accounted for 73% of the variance for the outcome variable of mental well-being. Within this model, depressive symptoms ( $\beta = -0.394$ ), burnout ( $\beta = -0.254$ ) and professional fulfillment ( $\beta = 0.325$ ) were strong predictors of mental well-being ( $ps < 0.001$ ), as was educational status ( $\beta = 0.101, p = 0.031$ ).

**Discussion**

While the adverse mental health outcomes related to the COVID-19 pandemic have been well documented among the general population and among healthcare workers, to the authors' knowledge, this is the first study that has evaluated mental health outcomes, burnout, and professional fulfillment among psychiatric-mental health nurses during the COVID-19 pandemic. Coronavirus anxiety was lower in this sample

**Table 3**  
Mental well-being by demographic variables.

		Mean (SD)	t scores	p value
Sex	Female	44.64 (10.13)	-1.32	0.191
	Male	47.65 (9.58)		
Role	APRN	48.54 (9.72)	3.53	0.001
	RN	42.55 (9.29)		
Working settings	Direct inpatient care settings	42.10 (9.44)	-2.33	0.022
	Direct outpatient care settings	46.31 (9.98)		
Education	BSN	40.55 (8.15)	-4.27	<0.001
	Master or doctorate	47.41 (10.09)		

compared to previous reports, although participants experienced a moderate level of COVID-related burnout. Interestingly, our results diverge from previously reported literature on burnout among mental health workers, in which professional seniority and male gender were found to be contributing factors to burnout among mental health nurses (Lopez-Lopez et al., 2019).

While 64% of participants reported that the demand of their job interfered with family life frequently, overall burnout scores were moderate, with an average score of about 12 out of 25. Psychiatric-mental health nurses endorsed high degrees of work demands, although this finding indicates that the participants were generally able to effectively cope with the demands of work, thereby reducing overall burnout. This sample also endorsed average to above average levels of professional fulfillment, which may have also been a protective factor from the perspective of burnout. Similar studies have found that family life has been a supportive factor for nurses during the COVID-19 pandemic, and that family was an external source of support that mitigated burnout (Goh et al., 2020).

In regard to mental well-being, advanced practice nurses, those with post-graduate education, and those working in outpatient settings generally reported higher degrees of mental wellness than their counterparts. It is possible that multiple factors contribute to mental well-being, in that those with post-graduate education are more likely to be advanced practice nurses, and thereby more likely to work in outpatient settings. Those working in outpatient settings are more likely to utilize telepsychiatry services, and therefore may be less likely to be exposed to COVID, which may have also been a protective factor from a mental wellness perspective. This is supported by Rapisarda and others' work (2020), who found that outpatient mental health workers initially experienced a reduction in workload during the early period of the COVID-19 pandemic, compared to an increase in the utilization of inpatient services, and also found that those working on an outpatient basis endorsed less direct contact with patients. However, these authors did not find statistically significant differences in levels of burnout among inpatient versus outpatient mental health workers (Rapisarda et al., 2020).

When variables were combined into a regression model, work setting and role were not found to be strong predictors of mental well-being, despite their association, although educational status was found to be a strong predictor. Depressive symptoms, burnout, and professional fulfillment significantly predicted outcomes related to mental wellness. Similarly, Rapisarda and colleagues found that burnout, GAD-7 scores, and PHQ-9 scores predicted burnout in a sample of Italian mental health workers during the early COVID-19 pandemic. It is possible that educational status is related to professional fulfillment, and thereby influences both depressive symptoms and burnout, ultimately improving degrees of mental wellness. These four variables should be considered when identifying psychiatric-mental health nurses at-risk for adverse mental wellness, and are important considerations when

**Table 4**  
Correlation between mental well-being and other variables.

	PFI	CAS	Burnout items	PHQ-8	GAD-7
CAS	-0.249 (0.002)				
Burnout items	-0.512 (<0.001)	0.402 (<0.001)			
PHQ-8	-0.566 (<0.001)	0.501 (<0.001)	0.602 (<0.001)		
GAD-7	-0.497 (<0.001)	0.576 (<0.001)	0.581 (<0.001)	0.774 (<0.001)	
Warwick Edinburgh Mental Wellbeing Scale	0.696 (<0.001)	-0.390 (<0.001)	-0.668 (<0.001)	-0.764 (<0.001)	-0.637 (<0.001)



developing interventions (Table 4).

Interestingly, similar phenomena have been reported in both epidemics and pandemics that preceded the COVID-19 pandemic. A recent review examined mental health impacts among health care workers in the context of not only the COVID-19 pandemic, but also the sudden acute respiratory syndrome (SARS) pandemic, the Middle Eastern respiratory syndrome (MERS) pandemic, Ebola outbreaks, and influenza A epidemics. About 27–50% of health care workers endorsed depressive symptoms and 45% of health care workers endorsed anxiety symptoms (Preti et al., 2020). While our study is a cross-sectional survey, Preti and others concluded that mental health symptoms persisted between one and three years in up to 40% of health care workers, highlighting the importance of identifying mental health symptoms in health care workers related to COVID-19 and expeditiously addressing them (Table 5).

#### Limitations

Three are a few caveats to keep in mind when interpreting the findings. Because of the cross-sectional nature of the study, the authors are unable to infer causal relationships based on the aforementioned variables. The convenience sample precludes generalizing the results to the wide population. Self-reported data collection introduces the possibility for recall bias or social desirability bias. Additionally, due to the breadth of information sought, respondents may have experienced survey fatigue, which could have resulted in survey discontinuation or inaccurate responses.

#### Areas for future research and clinical practice

Additional studies with larger sample sizes should continue to explore the aforementioned variables in the context of the COVID-19 pandemic. Furthermore, additional research is needed to better understand resiliency among psychiatric-mental health nurses in the context of the COVID-19 pandemic or other crises or disasters. This work, in addition to future work, will inform best practices related to policies or workforce interventions that support the mental well-being of psychiatric-mental health nurses providing care in high-stress situations. The efficacy of such policies and interventions should be evaluated via high-quality research studies to promote optimum outcomes among the psychiatric-mental health nursing workforce.

In regard to clinical practice, these findings have implications for nursing administrators and health care executives. It is critical that the mental health of frontline nurses is well supported, not only during times of crisis such as the COVID-19 pandemic, but also as a general practice. Nurses should be provided with access to timely mental health resources including peer support, employee assistance programs, and formalized mental health treatment. Administrators and health care executives should be mindful of risk factors for burnout, and should actively seek to promote work environments that provide nurse support, equitable workload, and appropriate amount of time off of work for mental and physical recuperation.

#### Conclusions

Our findings highlight that psychiatric-mental health nurses are generally resilient. In this sample, participants reported only mild levels of depressive and anxiety-related symptoms, and average levels of professional fulfillment and mental wellness. Furthermore, COVID-specific anxiety was lower in this sample compared to previously reported literature. Predictors that influenced mental wellness included depressive symptoms, burnout, professional fulfillment, and educational status. When considering interventions to promote mental wellness among psychiatric-mental health nurses in the context of the COVID-19 pandemic, these predictors should be considered. Psychiatric-mental health nurses struggling with depression, high levels of burnout, and

**Table 5**

Summary of regression analysis for variables predicting mental wellness.

	B	SE	$\beta$	p-Value
PHQ-8	-0.676	0.107	-0.394	<0.001
Burnout	-0.465	0.108	-0.254	<0.001
Professional fulfillment	0.579	0.100	0.325	<0.001
Education	2.169	0.997	0.101	0.031

low levels of professional fulfillment should be identified, and additional support and resources should be offered. These results can inform nursing administrators and general policy makers to best improve resources and subsequent mental health outcomes among frontline psychiatric-mental health nurses, not only during the COVID-19 pandemic, but also for future crises or disasters.

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All authors meet the following authorship criteria:

- Made substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

#### References

- Amanullah, S., & Ramesh Shankar, R. (2020). The impact of COVID-19 on physician burnout globally: A review. *Healthcare (Basel)*, 8(4). <https://doi.org/10.3390/healthcare8040421>.
- Centers for Disease Control and Prevention. (2020). COVID data tracker. <https://covid.cdc.gov/covid-data-tracker/#data-tracker-home>.
- Cocker, F., & Joss, N. (2016). Compassion fatigue among healthcare, emergency and community service workers: A systematic review. *International Journal of Environmental Research and Public Health*, 13(6). <https://doi.org/10.3390/ijerph13060618>.
- Dong, L., & Bouey, J. (2020). Public mental health crisis during COVID-19 pandemic, China. *Emerging Infectious Diseases*, 26(7), 1616–1618. <https://doi.org/10.3201/eid2607.200407>.
- Foster, K., Roche, M., Delgado, C., Cuzzillo, C., Giandinoto, J. A., & Furness, T. (2019). Resilience and mental health nursing: An integrative review of international literature. *International Journal of Mental Health Nursing*, 28(1), 71–85. <https://doi.org/10.1111/inm.12548>.
- Garcia-Iglesias, J. J., Gomez-Salgado, J., Martin-Pereira, J., Fagundo-Rivera, J., Ayuso-Murillo, D., Martinez-Riera, J. R., & Ruiz-Frutos, C. (2020). Impact of SARS-CoV-2 (Covid-19) on the mental health of healthcare professionals: A systematic review. *Revista Española de Salud Pública*, 94.
- Goh, Y. S., Ow Yong, Q. Y. J., Chen, T. H. M., Ho, S. H. C., Chee, Y. I. C., & Chee, T. T. (2020). The impact of COVID-19 on nurses working in a University Health System in Singapore: A qualitative descriptive study. *International Journal of Mental Health Nursing*, 30, 637–646.
- Hao, F., Tan, W., Jiang, L., Zhang, L., Zhao, X., Zou, Y., ... Tam, W. (2020). Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. *Brain, Behavior, and Immunity*, 87, 100–106.
- Heitzman, J. (2020). Impact of COVID-19 pandemic on mental health. *Psychiatria Polska*, 54(2), 187–198. doi:10.12740/PP/120373.
- Hu, D., Kong, Y., Li, W., Han, Q., Zhang, X., Zhu, L. X., ... Zhu, J. (2020). Frontline nurses' burnout, anxiety, depression, and fear statuses and their associated factors during the COVID-19 outbreak in Wuhan, China: A large-scale cross-sectional study. *EclinicalMedicine*, 24, Article 100424.
- Kannampallil, T. G., Goss, C. W., Evanoff, B. A., Strickland, J. R., McAlister, R. P., & Duncan, J. (2020). Exposure to COVID-19 patients increases physician trainee stress and burnout. *PLoS One*, 15(8), Article e0237301.
- Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders*, 114(1-3), 163–173.
- Lee, S. A. (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Studies*, 44(7), 393–401.
- Lee, S. A., Mathis, A. A., Jobe, M. C., & Pappalardo, E. A. (2020). Clinically significant fear and anxiety of COVID-19: A psychometric examination of the Coronavirus Anxiety Scale. *Psychiatry Research*, 290, 113112.

- Li, Z., Zuo, Q., Cheng, J., Zhou, Y., Li, Y., Zhu, L., & Jiang, X. (2020). Coronavirus disease 2019 pandemic promotes the sense of professional identity among nurses. *Nursing Outlook* (article in press).
- Lopez-Lopez, I. M., Gomez-Urquiza, J. L., Canadas, G. R., De la Fuente, E. I., Albendin-Garcia, L., & Canadas-De la Fuente, G. A. (2019). Prevalence of burnout in mental health nurses and related factors: A systematic review and meta-analysis. *International Journal of Mental Health Nursing*, 28(5), 1032–1041. <https://doi.org/10.1111/inm.12606>.
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907.
- Pfefferbaum, B., & North, C. S. (2020). Mental health and the Covid-19 pandemic. *The New England Journal of Medicine*, 383(6), 510–512. <https://doi.org/10.1056/NEJMp2008017>.
- Preti, E., Di Mattei, V., Perego, G., Ferrari, F., Mazzetti, M., Taranto, P., ... Calati, R. (2020). The psychological impact of epidemic and pandemic outbreaks on healthcare workers: Rapid review of the evidence. *Current Psychiatry Reports*, 22(8), 1–22.
- Rapisarda, F., Vallarino, M., Cavallini, E., Barbato, A., Brousseau-Paradis, C., De Benedictis, L., & Lesage, A. (2020). The Early impact of the Covid-19 emergency on mental health workers: A survey in Lombardy, Italy. *International Journal of Environmental Research and Public Health*, 17(22), 8615.
- Roy, I. (2018). Burnout syndrome: Definition, typology and management. *Soins. Psychiatrie*, 39(318), 12–19. <https://doi.org/10.1016/j.spsy.2018.06.005>.
- Rutter, L. A., & Brown, T. A. (2017). Psychometric properties of the generalized anxiety disorder scale-7 (GAD-7) in outpatients with anxiety and mood disorders. *Journal of Psychopathology and Behavioral Assessment*, 39(1), 140–146.
- Shin, C., Lee, S. H., Han, K. M., Yoon, H. K., & Han, C. (2019). Comparison of the usefulness of the PHQ-8 and PHQ-9 for screening for major depressive disorder: analysis of psychiatric outpatient data. *Psychiatry Investigation*, 16(4), 300.
- Shuja, K. H., Aqeel, M., Jaffar, A., & Ahmed, A. (2020). COVID-19 pandemic and impending global mental health implications. *Psychiatria Danubina*, 32(1), 32–35. doi:10.24869/psyd.2020.32.
- Sorenson, C., Bolick, B., Wright, K., & Hamilton, R. (2016). Understanding compassion fatigue in healthcare providers: A review of current literature. *Journal of Nursing Scholarship*, 48(5), 456–465. <https://doi.org/10.1111/jnu.12229>.
- Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097.
- Stewart-Brown, S. L., Platt, S., Tennant, A., Maheswaran, H., Parkinson, J., Weich, S., ... Clarke, A. (2011). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a valid and reliable tool for measuring mental well-being in diverse populations and projects. *Journal of Epidemiology and Community Health*, 65(Suppl 2), A38–A39.
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., ... Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, 5(1), 1–13.
- Tiete, J., Guatteri, M., Lachaux, A., Matossian, A., Hougard, J. M., Loas, G., & Rotsaert, M. (2020). Mental health outcomes in healthcare workers in COVID-19 and non-COVID-19 care units: a cross-sectional survey in Belgium. *Frontiers in Psychology*, 11, 3542.
- Torales, J., O'Higgins, M., Castaldelli-Maia, J. M., & Ventriglio, A. (2020). The outbreak of COVID-19 coronavirus and its impact on global mental health. *The International Journal of Social Psychiatry*, 66(4), 317–320. <https://doi.org/10.1177/0020764020915212>.
- Trockel, M., Bohman, B., Lesure, E., Hamidi, M. S., Welle, D., Roberts, L., & Shanafelt, T. (2018). A brief instrument to assess both burnout and professional fulfillment in physicians: reliability and validity, including correlation with self-reported medical errors, in a sample of resident and practicing physicians. *Academic Psychiatry*, 42(1), 11–24.
- Valeras, A. S. (2020). Healthcare provider burn-out: A war with uncertainty. *Families, Systems & Health*, 38(1), 96–98. <https://doi.org/10.1037/fsh0000473>.
- Williams, N. (2014). The GAD-7 questionnaire. *Occupational Medicine*, 64(3), 224.
- World Health Organization. (2019). Burn-out an “occupational phenomenon”: International classification of diseases. <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>.
- Zhang, Y., Wei, L., & Li, H. (2020). The psychological change process of frontline nurses caring for patients with COVID-19 during its outbreak. *Issues in Mental Health Nursing*, 41(6), 525–530. <https://doi.org/10.1080/01612840.2020.1752865>.
- Zheng, R., Zhou, Y., Fu, Y., Xiang, Q., Cheng, F., Chen, H., ... Li, J. (2021). Prevalence and associated factors of depression and anxiety among nurses during the outbreak of COVID-19 in China: A cross-sectional study. *International Journal of Nursing Studies*, 114, 103809.