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Original Research Article.

Mental Health Parameters among Primary Health Care Workers Exposed to Corona Virus Disease

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ABSTRACT

Background: Studies showed that healthcare workers felt uncertainty and stigmatization and reported experiencing high levels of stress, anxiety, and depression symptoms which could have long-term psychological implications. Similar concerns about the mental health, psychological adjustment, and recovery of health care workers treating and caring for patients with COVID-19 are now arising.

Methods: This is a hospital-based study conducted in family medicine department with random sampling of doctors and nurses working in family medicine department, outpatient service as front-line workers in King Khalid military hospital, North Western Armed Forces Hospital (NWAFH). Accordingly, the 9-item Patient Health Questionnaire (PHQ-9; range, 0-27), the 7-item Generalized Anxiety Disorder (GAD-7) scale (range, 0-21), the 7-item Insomnia Severity Index (ISI; range, 0-28) are applied for assessment.

Results: Regarding the age and title, there was statistically significant difference between both physician and nurses groups. Regarding PHQ-9, depression symptoms; statistically significant difference was found in relation to gender and working position. Regarding GAD-7, anxiety symptoms; statistically significant difference was found in relation to gender, working position and title and regarding ISI, insomnia symptoms; statistically significant difference was found in relation to gender, working position and title. When multivariate regression analysis was applied to detect predictive value of different risk factors as related to PHQ-9, GAD-7 and ISI; results were statistically significant regarding gender, working position and title for depression, anxiety and insomnia symptoms.

Conclusion: Given the rapid global spread of SARS CoV-2 and the difficulty for the overburdened front-line providers and policymakers to stay up to date on emerging literature to face this exponential threat. In this study, we describe the early experience of primary health care workers in King Salman Armed Forces Hospital in the Northwestern region as a response to the psychological and occupational impact of the COVID 19 outbreak.

Keywords: Corona Virus, Primary Workers, Mental Health, Risk Factors.

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INTRODUCTION

The first cases of coronavirus disease 2019 (COVID-19) were reported from Wuhan, China in early December 2019, now known to be caused by a novel beta-coronavirus, named as Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Within a span of months COVID 19 has become pandemic due to its transmissibility, spreading across continents with the number of cases and deaths rising daily. Although most infected individuals exhibit a mild illness (80% +), 14% have serious and 5% have critical illness. Approximately including invasive ventilation due to acute respiratory distress syndrome (ARDS).[1]

Mortality appears to be more common in older individuals and those with comorbidities, such as chronic lung disease, cardiovascular disease, and diabetes, young people with no comorbidities also appear to be at risk for critical illness including multi-organ failure and death.

There have been an expanding number of studies rapidly published online and in academic journals; however, some of these may be of limited quality and are pre-published without sufficient peer-review.[2]

Critical appraisal of the existing studies is needed to determine if the existing evidence is sufficient to support currently proposed management strategies.[3]

Given the rapid global spread of SARS CoV-2 and the difficulty for the overburdened front-line providers and policymakers to stay up to date on emerging literature to face this exponential threat.[4]

Facing this critical situation, health care workers on the front line who are directly involved in the diagnosis, treatment, and care of patients with COVID-19 are at risk of developing psychological distress and other mental health symptoms. The ever-increasing number of confirmed and suspected cases and widespread media

coverage, lack of specific drugs, and feelings of being uncertainly immune from infection may all contribute to the mental burden of these health care workers. Previous studies have reported adverse psychological reactions to the 2003 SARS outbreak among health care workers and showed that those health care workers feared contagion and infection of their family, friends, and colleagues. Studies showed that healthcare workers felt uncertainty and stigmatization and reported experiencing high levels of stress, anxiety, and depression symptoms which could have long-term psychological implications.

Similar concerns about the mental health, psychological adjustment, and recovery of health care workers treating and caring for patients with COVID-19 are now arising.[5]

Psychological assistance services, including telephone-, internet-, and application-based counseling or intervention, have been widely deployed by local and national mental health institutions in response to the COVID-19 outbreak.[6]

Announcement of setting up nationwide psychological assistance hotlines to help during the epidemic situation was conducted in Saudi Arabia. However, evidence-based evaluations and mental health interventions targeting front-line health care workers are relatively scarce.

METHODS AND PARTICIPANTS

Ethics: The study was approved by the ethical committee of academic affairs of NWAFH.

The aim of current study was to evaluate mental health outcomes among health care workers treating patients with COVID-19 by quantifying the magnitude of symptoms of depression, anxiety and insomnia and by analyzing potential risk factors associated with these symptoms. The virus has been named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

According to data released by the National Health Commission of China, the number of confirmed cases in mainland China has increased to 80 151 as of March 2, 2020, and confirmed cases have been reported in more than a dozen other countries.

Moreover, person-to-person transmission has been recorded outside mainland China.

To address this gap, the aim of current study was to evaluate mental health outcomes among health care workers in contact with patients with COVID-19 by quantifying the magnitude of symptoms of depression, anxiety, insomnia and by analyzing potential risk factors associated with these symptoms.

Participants are health care workers dealing with patients from Tabuk city (Northwestern Region of Saudi Arabia) and patients from other areas inside and outside Tabuk were enrolled in this study. This study aimed to provide an assessment of the mental health burden of health care workers, which can serve as important evidence to direct the promotion of mental wellbeing among health care workers.

Study Design: The study is a cross-sectional observational hospital-based study conducted in family medicine department with random sampling of doctors and nurses working in family medicine department, outpatient service as front-line workers in King Khalid military hospital from May 2020, to August 2020. The study looks at responses on a battery of mental health measurements from 50 frontline healthcare workers.

Demographic data will be reported by the participants, including occupation (physician or nurse), gender (male or female), age (25-60 years), marital status, educational level, job title (resident, registrar or consultant). Both genders will be included from any nationality with exclusion of presence of previous psychiatric disorder or previous intake of psychiatric medications. We focus on symptoms of depression, anxiety and insomnia for all participants. Accordingly, the 9-item Patient Health Questionnaire (PHQ-9; range, 0-27)[7], the 7-item Generalized Anxiety Disorder (GAD-7) scale (range, 0-21)[8], the 7-item Insomnia Severity Index (ISI; range, 0-28)[9] are applied for assessment.

The cutoff score for detecting symptoms of major depression, anxiety, insomnia, and distress were 10, 7 and 15 respectively.

Although GAD and depression symptoms frequently co-occur with each other, factor analysis confirmed them as distinct dimensions. Moreover, GAD and depression symptoms had differing but independent effects on functional impairment and disability.

ISI is a measure intended both for screening and assessing the efficacy of treatment. ISI original items generated based on concerns and issues of clinical relevance to patients seeking treatment for insomnia.

Informed consent will be provided by all participants prior to their enrollment and confidentiality of information is assured.

Table 1: Sociodemographic characteristics of participants:

Characteristic	Physician	Nurse	Total	P value
Overall	34	16	50	
Gender				
Male	6	4	10	0.5
Female	28	12	40	
Age				
20 - 40	28	13	41	< 0.001***
>40	6	3	9	
Marital Status				
Married	30	9	39	0.3
Unmarried	4	7	11	
Title				
Junior	4	12	15	
Intermediate	23	1	25	0.001***
Senior	7	3	10	

As regard the age and title, there was highly statistically significant difference between both physician and nurses groups

Table 2: Scores of depression, anxiety and insomnia measurements in total sample and subgroups with identification of risk factors:

	Gender		Working Position			Title	
	Male	**Female**	**Physician**	**Nurse**	**Junior**	**Intermediate**	**Senior**
PHQ-9 Depression symptoms							
Median	3.0	0.5	3.5	5.0	4.0	4.5	5.0
P value [a]	0.005**		0.008**			0.2	
Number of cases	1/10	6/40	4/34	3/16	2/15	4/25	1/10
	10%	15%	11.7%	18.7%	13.3%	16%	10%
P value [b]	0.001**		< 0.001**			0.005**	
GAD-7 Anxiety symptoms							
Median	2.0	4.0	3.0	4.0	4.0	5.0	6.0
P value [a]	0.001**		0.4			0.01*	
Number of cases	2/10	12/40	9/34	5/16	3/15	9/25	2/10
	20%	30%	26.4%	31.2%	20%	36%	20%
P value [b]	0.001**		0.02*			0.04*	
ISI Insomnia symptoms							
Median	4.0	5.0	3.0	5.0	4.0	5.5	6.0
P value [a]	0.001***		0.9			0.07	
Number of cases	3/10	14/40	10/34	7/16	5/15	10/25	2/10
	30%	35%	29.4%	43.7%	33.3%	40%	20%
P value [b]	0.004***		0.003***			< 0.001***	

[a] P value identified by comparison tests

[b] P value identified by multivariate logistic regression analysis

RESULTS

Statistics: The results were analyzed using the statistical package for the social science (SPSS) version number 20. Student T test was used to compare 2 independent mean of parametric distribution. Comparison of qualitative (categorical) variables was carried out using CHI square test (X2) and multivariate regression analysis was used for determination of risk factors.

Regarding PHQ-9, depression symptoms; statistically significant difference was found in relation to gender and working position.

Regarding GAD-7, anxiety symptoms; statistically significant difference was found in relation to gender, working position and title. Regarding ISI, insomnia symptoms; statistically significant difference was found in relation to gender, working position and title.

When multivariate regression analysis was applied to detect predictive value of different risk factors as related to PHQ-9, GAD-7 and ISI; results were statistically significant regarding gender, working position and title for depression, anxiety and insomnia symptoms.

DISCUSSION

This cross-sectional survey enrolled 50 respondents and revealed a high prevalence of mental health symptoms among health care workers treating patients with COVID-19 in Saudia Arabia. Overall; 14%, 28% &34% of all participants reported symptoms of depression, anxiety and insomnia respectively.

In a previous study during the acute SARS outbreak, 89%of health care workers who were in high-risk situations reported psychological symptoms.[10] The psychological response of health care workers to an epidemic of infectious diseases is complicated. Sources of distress may include feelings of vulnerability or loss of control and concerns about health of self, spread of virus, health of family and others, changes in work, and being isolated.[11]

The fact that COVID-19 is human-to-human transmissible associated with high morbidity, and potentially fatal may intensify the perception of personal danger. Additionally, predictable shortages of supplies and an increasing influx of suspected and actual cases of COVID-19 contribute to the pressures and concerns of health care workers.[12]

Of note, 80%of all participants were women, and 32% were nurses (75%of whom were female). Our findings further indicate that women reported more severe symptoms of depression, anxiety, and distress. Frontline nurses treating patients with COVID-19 are likely exposed to the highest risk of infection because of their close, frequent contact with patients and working longer hours than usual. Moreover, 75%of all nurses had junior titles, indicating that most had fewer years of work experience. During the SARS outbreak, a study conducted among health care workers in emergency departments also showed that nurses were more likely to develop distress and use behavioral disengagement than physicians. Frontline nurses treating patients with SARS were physically and psychologically challenged when committing themselves to providing high-quality nursing care for patients.[13] During t the early stage of the SARS epidemic, primary health care workers may have been less likely to be warned about exposure or provided with adequate protections. Particular attention is warranted regarding the mental health well-being of doctors and nurses treating patients with COVID-19.[14] Multivariable logistic regression analysis showed that being female, nurse and in a junior position was associated with higher risk of experiencing depression, anxiety and insomnia. These findings indicated more stress among health care workers in our study. In addition, working as a frontline health care worker with direct engagement of patients with COVID-19 was an independent risk factor for all symptoms.

As frontline health care workers in Tabuk were at especially high risk for symptoms of depression, anxiety and insomnia, their mental health may require special attention.

CONCLUSION

COVID 19 outbreak is unique in recent history in its rapidity of transmission, its concentration in health care settings and the large number of health care workers who have been infected. In this study, we describe the early experience of primary health care workers in King Salman Armed Forces Hospital in the Northwestern region as a response to the psychological and occupational impact of the COVID 19 outbreak.

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