



## **Survey of Mental Health Effects among Health Care Workers Involved with the COVID-19 Outbreak**

**Yaoyao SUN<sup>1</sup>, Wei GENG<sup>2</sup>, Yang HE<sup>1</sup>, Zhijun LI<sup>1</sup>, Mengdi JIN<sup>1</sup>, Yang LIU<sup>1</sup>, \*Qiong YU<sup>1</sup>**

1. Department of Epidemiology and Biostatistics, School of Public Health, Jilin University, Changchun 130021, China
2. Department of Gastrointestinal Surgery, The First Hospital of Jilin University, Changchun 130021, China

**\*Corresponding Author:** Email: yuqiong@jlu.edu.cn

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### **Dear Editor-in-Chief**

The coronavirus disease 2019 (COVID-19) has spread rapidly around the world, such widespread outbreaks can lead to adverse mental health consequences (1). Facing the sudden epidemic situation, health care workers are at the frontiers in fighting against the spread and control of COVID-19 outbreaks. The risk of mental health symptoms was significantly increased among health care workers. The aim of present study was to assess psychological symptoms among the health care workers working at frontline during the COVID-19 outbreak, and to identify factors associated with depression and anxiety.

A cross-sectional study was conducted among health care workers using an electronic questionnaire for collecting socio-demographic and occupational details. We used the Patient Health Questionnaire (PHQ-9), Zung Self-Rating Anxiety Scale (SAS) and Social Support Rate Scale (SSRS) to assess depression, anxiety and social support, respectively. A PHQ-9 score of  $\geq 5$  was used to define symptoms of depression. Participants were categorized as having anxious symptoms if SAS scored 50 or higher. A  $P$ -value  $< 0.05$  was considered as statistical significance.

During the period of investigation, 127 health care workers completed the survey. The participants' median age was 32 yr (interquartile range: 27-38 yr), and most of the study participants were females (62.2%). A significant proportion of re-

sponders reported symptoms of depression (37.8%) and anxiety (27%). In the aspect of depressive symptoms, there were statistically significant differences in only child and frontline working time between participants with and without depressive symptoms ( $P < 0.05$ ). Symptoms of depression were more prevalent among only child (47.9% vs. 29.1%). The participants with depressive symptoms had a longer frontline working time than those without (39.00 vs. 36.00). In terms of anxious symptoms, a significant difference was observed in education level ( $P < 0.05$ ). The percentage of senior high school and below in responders with anxious symptoms was higher than those without (11.1% vs. 0.0%) (Table 1).

In this study, a considerable proportion of participants experienced symptoms of depression and anxiety, which is similar to Lai et al. (2). Depressive symptoms were significantly associated with only child and frontline working time. Proper work management is the key in maintaining mental health; long working hours can be a main source of stress that causes depression (3). A previous study about health care workers during SARS outbreak suggested that shortening work hours could reduce the tremendous stress caused by a SARS outbreak (4). Participants with middle education and below are more likely to suffer from anxiety, which may be due to lack of confidence in their professional abilities.



**Table 1:** The relationship between demographic and occupational characteristics of responders and mental health symptoms

<i>Characteristics</i>	<i>Depression</i>			<i>Anxiety</i>		
	<i>PHQ9 ≥5</i> <i>(n=48)</i>	<i>PHQ9 &lt;5</i> <i>(n=79)</i>	<i>P</i>	<i>SAS ≥50</i> <i>(n=27)</i>	<i>SAS &lt;50</i> <i>(n=100)</i>	<i>P</i>
Age, median (IQR), y	32.50 (30.00-38.00)	31.00 (27.00-39.00)	0.700	32.00 (30.00-37.00)	31.50 (27.00-38.75)	0.981
Gender (Male)	15 (31.3)	33 (41.8)	0.236	8 (29.6)	40 (40.0)	0.324
Marital status			0.303*			0.096*
Married	32 (66.7)	43 (54.4)		21 (77.8)	54 (54.0)	
Unmarried	15 (31.3)	35 (44.3)		6 (22.2)	44 (44.0)	
Divorced	1 (2.1)	1 (1.3)		0 (0.0)	2 (2.0)	
Have children (Yes)	29 (60.4)	38 (48.1)	0.178	18 (66.7)	49 (49.0)	0.103
Only child (Yes)	23 (47.9)	23 (29.1)	0.033	12 (44.4)	34 (34.0)	0.316
Education level			0.059*			0.014*
≤Senior high school	3 (6.3)	0 (0.0)		3 (11.1)	0 (0.0)	
Undergraduate	34 (70.8)	65 (82.3)		20 (74.1)	79 (79.0)	
≥Postgraduate	11 (22.9)	14 (17.7)		4 (14.8)	21 (21.0)	
Experienced trauma (Yes)	4 (8.3)	3 (3.8)	0.493	1 (3.7)	6 (6.0)	1.000
Participated in the national emergency rescue mission (Yes)	1 (2.1)	7 (8.9)	0.251	0 (0.0)	8 (8.0)	0.284
Technical title			0.836			0.906
Junior	23 (47.9)	42 (53.2)		13 (48.1)	52 (52.0)	
Intermediate	15 (31.3)	23 (29.1)		9 (33.3)	29 (29.0)	
Senior	10 (20.8)	14 (17.7)		5 (18.5)	19 (19.0)	
Occupation			0.683*			0.920*
Physician	13 (27.1)	25 (31.6)		7 (25.9)	31 (31.0)	
Nurse	33 (68.8)	52 (65.8)		19 (70.4)	66 (66.0)	
Other	2 (4.2)	2 (2.5)		1 (3.7)	3 (3.0)	
Main work type in the original hospital			0.545			0.821
ICU	21 (43.8)	30 (38.0)		12 (44.4)	39 (39.0)	
General ward	19 (39.6)	39 (49.4)		12 (44.4)	46 (46.0)	
Other	8 (16.7)	10 (12.7)		3 (11.1)	15 (15.0)	
Colleagues or relatives infected with COVID-19 (Yes)	4 (8.3)	4 (5.1)	0.720	1 (3.7)	7 (7.0)	0.858
Frontline located in Wuhan (Yes)	42 (87.5)	59 (74.7)	0.083	25 (92.6)	76 (76.0)	0.058
Frontline working time, median (IQR), d	39.00 (36.00-39.75)	36.00 (27.00-39.00)	0.016	39.00 (28.00-39.00)	37.00 (29.00-39.00)	0.650
Social support, median (IQR)	44.00 (38.25-48.75)	44.00 (39.00-50.00)	0.498	46.00 (41.00-50.00)	43.00 (37.25-48.00)	0.094

\*Fisher's exact test

Despite the common psychological problems found among health care workers, most of those involving with the COVID-19 outbreak have not received training about mental health care. Government agencies and hospitals should take a series of measures to promote mental health and prevent mental disorders, such as shortening

work hours, enhancing professional competence, and providing suitable accommodation to avoid to pass the infection to their family. Developing comprehensive countermeasures is necessary to address occupational and psychological challenges caused by such disease outbreaks in the future.

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## Conflict of interest

The authors declare that they have no conflict of interest.

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