

Prevalence of Anxiety and Depression among Healthcare Workers During the Omicron Pandemic and Its Impact on Gastrointestinal Symptoms

Sir,

The COVID-19 pandemic, particularly during its Omicron phase, challenged the healthcare systems worldwide and placed unprecedented stress on healthcare workers.¹ This stress manifested not only in an increased psychological burden but also in physical symptoms, particularly gastrointestinal complaints, which may have reflected the profound impact of sustained high stress, and anxiety levels.² In response to this crisis, a detailed cross-sectional study was conducted at Quanzhou's First Hospital. A total of 360 healthcare workers, including doctors, nurses, and administrative staff, were assessed for mental health disorders and gastrointestinal symptoms during the height of the Omicron pandemic. The generalised anxiety disorder-7 (GAD-7) with

scores ≥ 5 indicating anxiety;³ the patient health questionnaire-9 (PHQ-9) with scores ≥ 5 suggesting depression;⁴ and the insomnia severity index (ISI) with scores ≥ 8 indicating insomnia, were utilised alongside a gastrointestinal symptom questionnaire.⁵ This questionnaire rated symptoms such as abdominal pain, diarrhoea, bloating, and nausea on a scale from 0 (no symptoms) to 4 (symptoms more than four times per week), generating a total gastrointestinal symptom score (TGSS) by summing these individual scores. All analyses were performed using R statistical software (version 4.2.2, <http://www.R-project.org>, The R Foundation) and free statistics analysis platform (version 1.8, Beijing, China).

The findings revealed high prevalence rates of mental health disorders, with 51.9% of participants reporting anxiety, 45.8% depression, and 41.7% experiencing insomnia. Doctors exhibited the highest rate of insomnia at 50.3% (Table I). The logistic regression analysis was adjusted for a comprehensive set of covariates: Age, gender, marital status, education level, underlying health conditions, profession, and the risk level of the work area. This adjustment was crucial to isolate the effects of gastrointestinal symptoms on mental health from other potential confounders. The analysis showed that a higher total gastrointestinal symptom score (TGSS) was significantly associated with an increased likelihood of both anxiety (OR = 1.23, 95% CI: 1.10 - 1.38, $p < 0.001$) and depression (OR = 1.46, 95% CI: 1.26 - 1.70, $p < 0.001$).

Table I: The basic characteristics of the participating healthcare workers.

Variables	Total (n = 360)	Doctors (n = 151)	Nurses (n = 184)	Administrative staff (n = 25)	p-value	Statistics
Gender, n (%)					<0.001	98.076
Male	86 (23.9)	69 (45.7)	4 (2.2)	13 (52)		
Female	274 (76.1)	82 (54.3)	180 (97.8)	12 (48)		
Age, n (%)					0.53	Fisher
20-29 year	107 (29.7)	43 (28.5)	53 (28.8)	11 (44)		
30-39 year	178 (49.4)	71 (47)	95 (51.6)	12 (48)		
40-49 year	57 (15.8)	29 (19.2)	26 (14.1)	2 (8)		
50-59 year	18 (5.0)	8 (5.3)	10 (5.4)	0 (0)		
Marriage, n (%)					0.117	4.299
Single	107 (29.7)	43 (28.5)	52 (28.3)	12 (48)		
Married	253 (70.3)	108 (71.5)	132 (71.7)	13 (52)		
Education, n (%)					<0.001	Fisher
Associate's degree	109 (30.3)	2 (1.3)	97 (52.7)	10 (40)		
Bachelor's degree	154 (42.8)	56 (37.1)	87 (47.3)	11 (44)		
Master's degree	93 (25.8)	89 (58.9)	0 (0)	4 (16)		
Ph.D.	4 (1.1)	4 (2.6)	0 (0)	0 (0)		
Underlying conditions, n (%)					0.478	Fisher
Yes	14 (3.9)	8 (5.3)	6 (3.3)	0 (0)		
No	346 (96.1)	143 (94.7)	178 (96.7)	25 (100)		
Risk level of the work area, n (%)					<0.001	24.211
Low risk	117 (32.5)	67 (44.4)	38 (20.7)	12 (48)		
High risk	243 (67.5)	84 (55.6)	146 (79.3)	13 (52)		
Insomnia, n (%)					0.004	11.25
Yes	150 (41.7)	76 (50.3)	61 (33.2)	13 (52)		
No	210 (58.3)	75 (49.7)	123 (66.8)	12 (48)		
Anxiety, n (%)					0.704	0.701
Yes	187 (51.9)	80 (53)	96 (52.2)	11 (44)		
No	173 (48.1)	71 (47)	88 (47.8)	14 (56)		
Depression, n (%)					0.2	3.216
Yes	165 (45.8)	77 (51)	79 (42.9)	9 (36)		
No	195 (54.2)	74 (49)	105 (57.1)	16 (64)		
ISI score, Median (IQR)	9.0 (5.0, 14.0)	7.0 (4.0, 11.0)	11.0 (5.0, 15.0)	7.0 (4.0, 14.0)	0.001	13.667
GDA-7 score, Median (IQR)	4.0 (1.0, 7.0)	4.0 (1.0, 7.0)	4.0 (1.0, 7.0)	5.0 (3.0, 7.0)	0.364	2.019
PHQ-9 score, Median (IQR)	5.0 (2.0, 9.0)	4.0 (2.0, 8.0)	6.0 (2.0, 9.0)	5.0 (3.0, 8.0)	0.102	4.572
TGSS, Median (IQR)	1.0 (0.0, 3.0)	1.0 (0.0, 3.0)	1.0 (0.0, 4.0)	0.0 (0.0, 2.0)	0.422	1.727

Ph.D., Doctor of Philosophy; GAD-7, Generalised anxiety disorder-7; PHQ-9, Patient health questionnaire-9; ISI, Insomnia severity index; TGSS, Total gastrointestinal symptom score.

These results underscore the strong correlation between increased gastrointestinal symptoms and the likelihood of experiencing mental health disorders among the healthcare workers. The study's findings advocate for an integrated approach to healthcare that simultaneously addresses mental health and gastrointestinal issues, potentially improving the overall well-being and effectiveness of healthcare professionals working under the pandemic-induced stress.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

XL, CL: Research design and data collection.

YZ: Technical support and data collection.

PC: Specialised knowledge, literature, revision, and comprehensive analysis of the research.

YH: Supervision and guidance of the research.

All authors approved the final version of the manuscript to be published.

REFERENCES

1. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. *Lancet* 2020; **395** (10223):470-3. doi: 10.1016/S0140-6736(20)30185-9.
2. Kang L, Ma S, Chen M, Yang J, Wang Y, Li R, et al. Impact on mental health and perceptions of psychological care among

medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. *Brain Behav Immun* 2020; **87**:11-7. doi: 10.1016/j.bbi.2020.03.028.

3. Plummer F, Manea L, Trepel D, McMillan D. Screening for anxiety disorders with the GAD-7 and GAD-2: A systematic review and diagnostic meta-analysis. *Gen Hosp Psychiatry* 2016; **39**:24-31. doi: 10.1016/j.genhosppsy.2015.11.005.
4. Glazer K, Rootes-Murdy K, Van Wert M, Mondimore F, Zandi P. The utility of PHQ-9 and CGI-S in measurement-based care for predicting suicidal ideation and behaviors. *J Affect Disord* 2020; **266**:766-71. doi: 10.1016/j.jad.2018.05.054.
5. Bastien CH, Vallieres A, Morin CM. Validation of the insomnia severity index as an outcome measure for insomnia research. *Sleep Med* 2001; **2**(4):297-307. doi: 10.1016/s1389-9457(00)00065-4.

Xiaoqiang Liu, Chanchan Lin, Yilin Zeng, Peizhong Chen and Yisen Huang

Department of Gastroenterology, First Hospital of Quanzhou Affiliated to Fujian Medical University, Fujian, China

Correspondence to: Dr. Yisen Huang, Department of Gastroenterology, First Hospital of Quanzhou Affiliated to Fujian Medical University, Fujian, China
E-mail: liuxiaoqianghusina@126.com

Received: September 12, 2023; Revised: April 27, 2024;

Accepted: May 02, 2024

DOI: <https://doi.org/10.29271/jcpsp.2024.07.858>

