

# COVID-19 and medical staff's mental health in educational hospitals in Alborz Province, Iran

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The COVID-19 pandemic is ongoing. To date (1 June 2020), more than 6 million people around the world have been infected with the disease, and more than 370 000 have died.<sup>1</sup> COVID-19 is a very different condition to previous conditions experienced by most societies and this novel disease has created especially perplexing conditions for many members of the public and health-care workers (HCW). HCW have many concerns, including: (i) safety and personal protective equipment; (ii) assigned tasks in the inpatient department of COVID-19 patients; (iii) the potential need to quarantine after work; (iv) getting infected and transmitting the infection to their families; and (v) stigma.<sup>2,3</sup>

In the early days of the spread of the disease at the community level, there were other concerns for HCW. Restrictions on financial and human resources and hospital beds, drug shortages and problems related to restrictions on the possibility of using special hospital facilities (such as the use of intensive care units) in managing the situation caused many problems.<sup>4, 5</sup> Another problem that arose from the limited resources and spread of the disease at the community level was the use of physicians and other personnel of unrelated specialized disciplines in the field of

COVID-19 to help advance diagnostic and therapeutic processes. This seemed inevitable to health policy-makers and raised other concerns about the abilities of staff groups to manage the difficult conditions of hospitalized patients with COVID-19 diagnosis.<sup>6</sup>

In this situation, in addition to the need to pay attention to the state of mental health among the masses,<sup>7,8</sup> who may experience fear, anxiety, depression, sleep disorders, suicidal thoughts, and other related disorders,<sup>9,10</sup> it is important to pay attention to the mental health status of the HCW of COVID-19 patients.

Due to the need to determine the mental health status of HCW for further diagnostic, therapeutic, and supportive measures and related planning, in this study, we examined the mental health status of HCW during the COVID-19 pandemic at the level of all university hospitals in Alborz Province, Iran. The ethics committee of Alborz University of Medical Sciences, Iran, has confirmed this study (IR.ABZUMS.REC.1399.011, date: 06-04-2020). The patients have given informed consent, and their anonymity has been preserved.

This was a cross-sectional, multicenter study conducted in nine educational hospitals in Alborz Province that had accepted COVID-19 patients. The study was conducted by sending an online questionnaire to the staff and collecting and evaluating its results. We used the 21-item Depression, Anxiety and Stress Scale to assess the depression, anxiety, and stress of HCW.

Among HCW, 41.7%, 51.2%, and 33.9%, respectively, had degrees of depression, anxiety, and stress. Depression was more common in women, those with a bachelor's degree, medical residents, those aged over 40 years, and doctors and staff in direct contact with patients. Anxiety was more prevalent in women, those with bachelor and higher education, medical residents, those aged 30 to 40 years, nurses, those with a bachelor's degree, and personnel and staff in direct contact with patients. Also,

**Table 1** Association of demographic characteristics with depression, anxiety and stress in logistic regression analysis

		Anxiety		Stress		Depression	
		Cases with outcome/ total cases	Adjusted OR	Cases with outcome/ total cases	Adjusted OR	Cases with outcome/ total cases	Adjusted OR
Sex	Male	109/250	1	68/249	1	92/245	1
	Female	352/619	1.53 (1.089–2.149)*	237/621	1.857 (1.257–2.744)*	283/620	1.435 (1.012–2.035)*
Education	<Diploma	49/124	1	32/123	1	38/121	1
	Bachelor	314/575	1.341 (0.854–2.107)	200/575	1.278 (0.759–2.154)	252/573	1.513 (0.941–2.433)
	>Bachelor	94/159	1.269 (0.681–2.367)	71/162	0.93 (0.457–1.889)	83/162	1.248 (0.66–2.359)
Hiring	Official	237/387	1	155/386	1	188/389	1
	Unofficial	186/434	0.566 (0.416–0.771)*	111/436	0.55 (0.393–0.770)*	154/430	0.629 (0.461–0.859)*
	Medical resident	32/41	3.266 (1.117–9.549)*	32/41	4.398 (1.419–13.625)*	28/40	1.541 (0.55–4.319)
Age (years)	<30	152/293	1	117/293	1	132/292	1
	30–40	197/364	1.248 (0.883–1.764)	128/367	1.026 (0.709–1.485)	160/365	1.085 (0.767–1.534)
	>40	110/205	1.216 (0.805–1.837)	55/199	0.701 (0.443–1.111)	79/197	0.869 (0.572–1.322)
Occupation	Physician	50/78	1	45/80	1	48/79	1
	Nurse	303/533	1.213 (0.528–2.788)	191/530	0.611 (0.246–1.517)	228/531	0.487 (0.211–1.052)
	Technician	100/244	0.857 (0.375–1.959)	62/245	0.627 (0.252–1.560)	92/241	0.577 (0.252–1.321)
Front line staff	No	227/463	1	126/460	1	180/456	1
	Yes	235/408	1.282 (0.945–1.740)	180/412	1.985 (1.43–2.755)*	196/411	1.377 (1.015–1.867)*

\*Statistically significant.  
OR, odds ratio.

stress was most prevalent in women, those with a bachelor's degree, medical residents, those aged 30 to 40 years, and doctors and staff in direct contact with patients (Table 1). There was a positive linear correlation between depression and anxiety, depression and stress, and stress and anxiety among HCW.

This study found a high prevalence of depression, anxiety, and stress among COVID-19-related HCW in Iran. Nearly half of them had some degree of depression. About half of them suffered from anxiety and one-third experienced stress. Physicians and nurses, especially those in the front line, experienced a greater prevalence of these disorders. In terms of employment relations, medical residents experienced a higher prevalence of anxiety, stress, and depression than other employment groups (official and unofficial). In terms of sex, we also saw a higher prevalence of anxiety, stress, and depression in women than in men. The high correlation between these mental disorders also emphasizes the need to pay attention to other disorders when identifying one of them.

Health policy-makers should pay special attention to the mental health of HCW, as their roles are crucial, especially during the COVID-19 pandemic. The provision of adequate personnel in accordance with the capabilities of health systems, the prioritization of personal protective equipment, and the establishment of appropriate mental health-care systems, such as online systems and face-to-face counseling, could play an important role in improving the mental health of HCW.

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### Disclosure statement

The authors declare that they have no conflict of interest.

### References



- World Health Organization. Coronavirus Disease (COVID-19) Situation Report – 133, 1 June 2020. [Cited 8 July 2020]. Available from URL: [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200601-covid-19-sitrep-133.pdf?sfvrsn=9a56f2ac\\_4](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200601-covid-19-sitrep-133.pdf?sfvrsn=9a56f2ac_4)
- Grover S, Dua D, Sahoo S, Mehra A, Nehra R, Chakrabarti S. Why all COVID-19 hospitals should have mental health professionals: The importance of mental health in a worldwide crisis! *Asian J. Psychiatry* 2020; **51**: 102147.
- Badrfam R, Zandifar A. Stigma over COVID-19; New conception beyond individual sense. *Arch. Med. Res.* 2020. <https://doi.org/10.1016/j.arcmed.2020.05.006>
- Zandifar A, Badrfam R. Fighting COVID-19 in Iran: Economic challenges ahead. *Arch. Iran. Med.* 2020; **23**: 284.
- Badrfam R, Zandifar A. Coronavirus disease 2019 in Iran: The need for more attention to primary health care. *Public Health* 2020; **182**: 187.
- Shariati B, Ardebili ME, Shalbafan M. Working in the emergency and inpatient COVID-19 special wards: A different experience for Iranian psychiatric trainees amid the outbreak. *Asian J. Psychiatry* 2020; **51**: 102157.
- Zandifar A, Badrfam R. Iranian mental health during the COVID-19 epidemic. *Asian J. Psychiatry* 2020; **51**: 101990.
- Zandifar A, Badrfam R. COVID-19: Considering the prevalence of schizophrenia in the coming decades. *Psychiatry Res.* 2020; **288**: 112982.
- Ransing R, Adiukwu F, Pereira-Sanchez V *et al.* Early career psychiatrists' perspectives on the mental health impact and care of the COVID-19 pandemic across the world. *Asian J. Psychiatry* 2020; **51**: 102085.
- Goyal K, Chauhan P, Chhikara K, Gupta P, Singh MP. Fear of COVID 2019: First suicidal case in India! *Asian J. Psychiatry* 2020; **49**: 101989.

### Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

**Table S1.** Frequency and missing percentage of demographic and psychiatric characteristics.

**Table S2.** Median (IQR) of Depression, Anxiety, and Stress Scale score according to demographic characteristics.

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