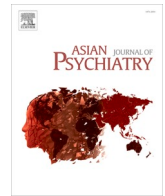




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## Letter to the Editor

## Factors associated with psychological outcomes among frontline healthcare providers of India during COVID-19 pandemic



Dear Editor,

The world is facing a pandemic of unparalleled magnitude and scope, with an outbreak of novel coronavirus. India, with its limited health-care resources has been combating coronavirus disease-2019 (COVID-19) relentlessly since January 2020 and total cases reached 9.76 million on December 9, 2020 [WHO Coronavirus Disease \(COVID-19\) Dashboard \(2020\)](#) Many factors viz. inadequate protective gears, strained infrastructure, under-exposure to past epidemics, and the existing family systems have psychologically affected the frontline health-care workers. ([Gupta et al., 2020](#); [Xiang et al., 2020](#)) Till date, 2 studies have addressed the factors associated with psychological symptoms among frontline health care providers (HCPs).([Lai et al., 2020](#); [Wilson et al., 2020](#)) In this context, current study aimed to evaluate the factors associated with psychological outcomes among frontline HCPs of India during COVID-19 pandemic.

After obtaining permission from the institute ethics committee; an online survey was conducted between June 01 to July 25, 2020 among frontline HCPs (doctors and nurses) working in India, by adopting an exponential snowball sampling technique. Study participant profile, depression, anxiety, and stress scale (DASS-21) ([Coker et al., 2018](#)), and screener for somatoform disorder (SSD)([Janca et al., 1995](#)) were used to assess respective parameters. Mann-Whitney *U* test was used to compare the psychological symptoms between doctors and nurses. Binomial logistic regression was used to identify the predictors of psychological impact.

Out of 803 respondents received, 700 respondents were included in the analysis after removing duplicates and incomplete responses. The mean age of the study participants was  $30.95 \pm 5.8$  years, 55.3 % were females, 65 % were married, 87.4 % were nurses, 27.6 % cared for COVID-19 patients, 68.7 % did not have work experience during past epidemics, 65 % were presently living with family, and 28.1 % were living with high-risk family members (age > 60 years, diabetes mellitus, hypertension, cardiovascular disorder, chronic liver/kidney/lung disease, pregnant women, under-5 child).

Almost half (49.8 %) of HCPs had screened positive for at least one of the negative psychological states of depression, anxiety, stress, or somatoform symptoms. 35.4 % HCP's reported symptoms of anxiety whereas, 27.4 %, 23 % and 14 % had reported for somatoform disorders, depression and stress respectively. Nurses had a significantly higher prevalence of anxiety (36.4 % Vs 28 %;  $p = 0.02$ ) and somatoform symptoms (28.8 % Vs 18.2 %;  $p = 0.01$ ) compared to doctors.

Binomial logistic regression revealed that female HCPs are more prone to anxiety. HCPs living with high-risk family members are found to be at risk for anxiety and somatoform symptoms. Whereas living with family acted as a protective factor against anxiety and somatoform symptoms among HCPs. Furthermore, HCPs, who had past work

experience during the epidemic, were at lower risk for Somatoform symptoms. ([Fig. 1](#))

The present study finding is in concordance with a study conducted in China ([Lai et al., 2020](#)); which reported that 50.4 % of study participants had symptoms of depression, 44.6 % had anxiety, 34 % had insomnia, and 71.5 % had distress. In a recent meta-analysis, the pooled prevalence of anxiety, depression, and insomnia was reported to be 36.92 %, 22.93 %, and 34.32 % respectively ([Pappa et al., 2020](#)). A heightened level of anxiety and somatoform symptoms among frontline HCPs of India may be attributed to factors such as inadequate personal protective equipment, constrained infrastructure, and surge in the number of cases; creating fear of being infected and transmitting infection to the family. ([Grover et al., 2020](#)) On the contrary, a higher level of depression and anxiety in China may be imputed to the fact that study was conducted in February 2020; when China was the epicenter of COVID-19. ([Lai et al., 2020](#))

The present study found that female HCPs are at higher risk for anxiety and the same was reported in a study from China, OR, 1.94; CI, 1.26–2.98. ([Lai et al., 2020](#)) In present study, living with family acted as a protective factor against anxiety and somatoform symptoms among HCPs. This may be attributed to the close-knit or three-generation family system prevalent in India. On the contrary, HCPs living with high-risk family members were more prone for anxiety and somatoform disorders, which may be due to the increased susceptibility and mortality among high-risk population. HCPs having a past experience of epidemic were found to be less prone to somatoform symptoms, which may be attributed to increased mental preparedness and better infection control practices; courtesy of past epidemics. ([Tan et al., 2020](#))

However, our study has limitations. Despite attempting to reach a vast number of frontline HCPs, the final respondents were less than expected, possibly owing to the snowball sampling technique. The majority of the participants were nurses than doctors, possibly imputed to a larger workforce among frontline HCPs. But considering the lockdown and COVID protocols, this was the best possible methodology in present circumstances.

Owing to the higher prevalence of psychological symptoms among frontline HCPs during COVID-19, this study calls forward for apt psychological and administrative interventions for frontline HCPs, especially females and HCPs living with high-risk family members.

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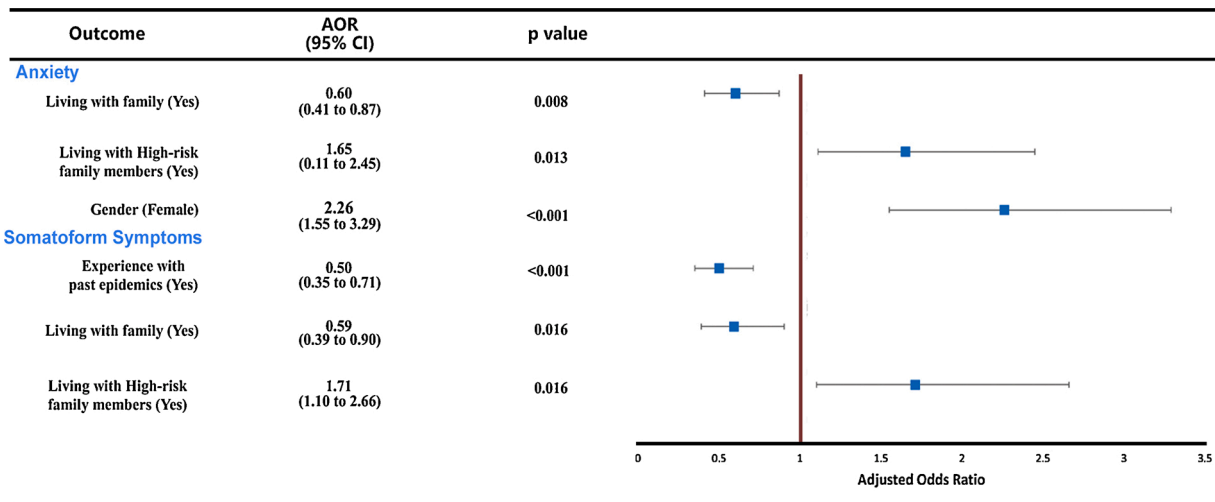


Fig. 1. Predictors of anxiety and somatoform symptoms among frontline healthcare providers during COVID-19 pandemic.

**Ethical approval**

The approval obtained from institution’s ethical committee T/IMNF/ Nursing/20/012.

**Declaration of Competing Interest**

None

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