A cross-sectional analysis of prevalence and factors related to depression, anxiety, and stress in health care workers amidst the COVID-19 pandemic

INTRODUCTION

COVID-19 pandemic has presented unprecedented challenges to the healthcare workers (HCWs) fraternity, leading to a substantial impact on their psychological health. Adequate care should be taken for decreasing this occupational stress to ensure a healthy and robust clinical workforce.[1] The current study was designed primarily to outline the prevalence of depression, anxiety, and stress among the HCWs and administrative staff. The secondary outcome was to compare depression, anxiety, stress score (DASS) between the first-line and the second-line HCWs and other common factors associated with increased DASS scores.

MATERIAL AND METHODS

After obtaining institutional ethical clearance (Ethics number-2020-20-IM-02) and CTRI registration (CTRI/2020/07/026798), a questionnaire-based observational cross-sectional study was conducted. All the HCWs working in our tertiary care unit were encouraged to participate in the study. The HCWs who were not willing to participate or already having clinically diagnosed depression, anxiety, or any other mental illness was excluded from the study. After the exclusion, the data from 200 HCWs were collected. A personal direct clinical interview was conducted for the current analysis after obtaining written informed consent from the participants.

The data obtained was divided into two groups. The first group included the HCWs involved in the delivery of care and services to the COVID-19 patients either directly as doctors and nurses or indirectly as house-keeping staff, lab-technicians, biomedical waste handlers. The second group comprised of staff working in the administrative section of the hospital, that was not directly involved in patient care.

HCWs were further divided into first-line and second-line. First-line HCWs were working directly with COVID-19 patients such as those working in intensive care unit (ICU), isolation wards, emergencies. Second-line HCWs were not in direct contact with the COVID-19 patients and included those working in the blood bank, microbiology, and pathology laboratory.

The first set of in-house designed questionnaire comprised of various demographic, lifestyle, and work-related data such as average working hours per week, duration of staying away from family during last 3 months, children < 5 years of age or elderly > 60 years of age in household, experience of any new medical problem during last 3 months, any documented change in weight, any worsening of previous medical condition, worry about family members who are at higher risk of getting infected, colleague’s exposure to COVID-19 infection, satisfaction with personal protective equipment and family dysfunction.

The second set of questionnaires were aimed at assessing the prevalence of DASS, using the 21-item depression anxiety stress scale (DASS scale). Both Hindi and English versions of DASS scale were available and used as per participant’s preference. It contained three sub-scales with seven parameters each to signify three different mental statuses. Total score summed up to 21. For each item, the score was an integer number between 0 (it does not apply to me at all) and 3 (it applies to me exactly).[2]

The data obtained were analysed using the Statistical Package for the Social Science (SPSS, Chicago, IL, USA) version 17.0. The comparison of normally distributed variables was done using Students t-test. Nominal categorical data was compared using Chi-square test or Fisher’s exact test as appropriate. $P < 0.05$ was considered statistically significant.

RESULTS

In this study, all the participants were of Indian origin and could comprehend either English or Hindi. A total of 200 participants, including 50 (25%) administrative staff and 150 (75%) HCWs were included in the study. Among the HCWs, the first-line and second-line were 47.33% and 52.67%, respectively. Among the administrative staff (total 50); 9/50 (18%) were anxious, 4/50 (8%) were stressed, and 11/50 (22.0%) were depressed when compared to HCWs demonstrating a significantly higher prevalence of anxiety: 85/150 (56.7%), stress: 82/150 (54.7%), and depression: 72/150 (48.0%) ($P < 0.001$) exhibiting higher DASS-21 scores [Table 1].
A subsequent analysis of the factors that contributed to an increased prevalence of DASS among the HCWs was performed. The following factors like staying away from family, children <5 years or elderly >60 years at home, fear of infecting the family members were more prevalent in HCWs as compared to the administrative staff ($P < 0.001$). Other associated factors were more frequent weight changes (weight loss more common), acquiring new health problems (gastritis and headache), and worsening of previous health problems in the HCWs compared to the administrative group ($P < 0.001$).

Within the HCWs group, the front-line HCWs were more anxious and stressed compared to the second-line HCWs. Various factors that facilitated the stress in the front-line compared to the second-line HCWs were: staying more away from home, family dysfunction, and higher average working hours more in front-line workers ($P < 0.001$) [Figure 1].

**DISCUSSION**

In our study, the HCWs demonstrated greater DASS score than administrative staff. Factors related to it included staying away from family due to fear of infecting them and having vulnerable population at home, that is, children less than 5 years and elderly more than 60 years. Brooke *et al.* and other researchers have also pointed out that the new normal norms of isolation, quarantine can lead to stress and anxiety symptoms.\[^3^–^5^\]

Further in our study, among the HCWs, the first-line workers were more anxious and stressed as compared to second-line workers. The noteworthy factors related to the precipitation of increased stress in the first-line HCWs is a remarkable finding of the study. Moreover, an assortment of factors exclusive to the first-line HCWs including direct contact with the confirmed patients, increased family dysfunction, and more colleges exposed to COVID-19 virus infection may have contributed to more DASS compared to second-line workers in our study. Elshaer *et al.* and Naushad *et al.* also evaluated the high level of job burnout among HCWs working as the front-line worker.\[^6^,^7^\]

Interestingly our study revealed that most of the HCWs were satisfied with the personal protective equipment (PPE) in contrast to other studies during COVID-19 pandemic.\[^8^\] The reason could be that most of the HCWs have adapted the new normal and were assured about the quality, supply of PPE, and felt safe in PPE.

Our study highlighted that females were more stressed than males. In a recently published study, Jain *et al.* also found that female HCWs (anaesthesiologists) were more anxious 82.8% (188) compared to male HCWs 67.4% (192) and exhibited generalised anxiety score-7 (GAD-7) ≥5. Concomitant to our findings, the authors also concluded that HCWs posted on COVID-19 duty were more anxious, that is, 78% (245) than those posted on non-COVID-19 duty, that is, 68% (135). This could be attributed to increased personal and professional commitments in this time of various new-normal changes in the COVID-19 pandemic.\[^9^\]

Mohindra *et al.* and other researchers suggested solutions for stressed HCWs comprising of an enhanced manpower, acknowledgement of work, and projection as role models.\[^10^,^11^\] Besides, mandatory insurance and ensuring proper diet, adequate rest can play an important tool in battling against the stress and anxiety among the HCWs.\[^12^\] Assurance and conducive work environment avoiding undue physical stress by decreasing the number of hours, rotation of duties, and mental relaxation can help to decrease the stress of HCWs.

Although direct communication with the responder minimises any language or comprehension barriers, our study has a few limitations; this was a single-centre
study limiting the generalisation potential of the study results.

CONCLUSION

Our study concluded that the prevalence of DASS is more in HCWs compared to administrative staff. Various factors recognised during this study need to be addressed and the necessary steps in support can help in propitiating the same.

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Conflicts of interest

There are no conflicts of interest.

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