



Research Article

JMR 2020; 6(5): 193-196

September- October

ISSN: 2395-7565

© 2020, All rights reserved

www.medicinarticle.com

Received: 27-08-2020

Accepted: 29-09-2020

Mental stress, and burnout among COVID warriors – A new healthcare crisis

Sumit Kumar¹, MN Vijai²

MBBS, Medical Officer, Indian Air Force

MD Anaesthesia, Anaesthesiologist, Indian Air Force

Abstract

Background: COVID-19 has put the healthcare workers in an unprecedented situation where they must care for patients while facing a shortage of protective equipment and risk of infection. COVID-19 has put tremendous pressure on healthcare workers, making them prone to burnout, depression, stress, and anxiety. Aim: To provide data on the prevalence of burnout and the physical and psychological symptoms among healthcare workers employed at COVID centres and to assess the relationship between burnout and the psychological and physical symptoms. Methodology: An online questionnaire comprising of: demographics, physical symptoms, burnout (Copenhagen Burnout inventory), and DASS-21 (Depression Anxiety and Stress Scale) was sent to 580 healthcare workers. Responses from 512 healthcare workers were received. Results: 512 healthcare workers participated in the study, with a mean age of 29 years. Among the study population, 84.3% showed physical symptoms with a change in food habits being the commonest symptom (61.5%). On the CBI questionnaire, 34.3% of the participants met the criteria of burnout. On the DASS-21 questions, 48.6% showed evidence of depression, 41.3% showed evidence of stress, and 14.2% showed evidence of stress—a positive correlation between the CBI score and high score in each subscale of DASS-21. A positive correlation between symptoms and CBI score and duration of work in COVID care and symptoms experienced was found. Conclusion: There is significant physical and psychological morbidity and burnout among healthcare workers. Active steps need to be taken to address the stressors to prevent long-term effects among these frontline workers.

Keywords: Burnout, Copenhagen Burnout Inventory, DASS-21, COVID-19, Mental health.

INTRODUCTION

China first reported WHO regarding the development of cases of pneumonia of unknown etiology on 31 Dec 19, and it was declared as a pandemic on 11 Mar 20. At the time of writing (05 Sep 20), WHO reported 26,809,292 cases worldwide, with 879,187 deaths [1]. India has been one of the hardest-hit countries with 4,027,718 cases and 69,668 deaths [1]. This has put significant stress on our healthcare system and the healthcare workers who are managing these cases. Along with the inherent risks of handling such cases, healthcare workers have also been subjected to widespread stigma and fear. The stress is also exaggerated due to prolonged separation from families, prolonged working hours, and risk of developing COVID-19 infection.

COVID-19 has caused significant loss of COVID warriors, with over 2200 doctors getting infected and 382 losing their lives in the line of duty. There is unprecedented pressure on the healthcare workers for which most of them have not been trained. The stress is also compounded because many of these COVID warriors have to work in scenarios outside their field of specialty, causing them to relearn many of the basics again and familiarize themselves with new equipment and procedures in a very short period of time.

There is a lack of data regarding the effects of working in such environments on the physical and psychological health of the medical professionals, especially in India, where in addition to the large patient loads, they have to work in resource-poor conditions, with long working hours, very few breaks, the inadequacy of protective measures, separation from families for prolonged periods, fear of getting infected and passing the infection to family members. There has been evidence that these circumstances cause significant psychological stress, depression, PTSD.

Burnout is a psychological syndrome with three components: emotional exhaustion, depersonalization, and reduced personal accomplishment resulting from prolonged, emotionally exhaustive work. It affects all aspects of personal and professional life, including job performance, job satisfaction, and psychological health. Varied physical and psychological symptoms accompany burnout. There are multiple methods to assess burnout, MBI-HSS (Maslach Burnout Inventory Human Services Survey), Oldenburg Burnout Inventory, Single Item Burnout Measure, Copenhagen Burnout Inventory, Stanford Professional Fulfilment

*Corresponding author:

MN Vijai

MD

Anaesthesia,

Anaesthesiologist, Indian Air

Force

Email: vijaymn7@yahoo.co.in

Index. MBI is the oldest and one of the most used tools to assess burnout, but it also has many drawbacks. In this study, we used the Copenhagen Burnout Inventory (CBI), which uses negatively and positively framed questions that assess three areas: Personal, work, and client related. Our questionnaire included the personal burnout portion of CBI to assess overall physical and psychological fatigue.

The significant factors contributing to these findings include high workload, inadequate compensation, long working hours, poor job progression, poor patient outcomes, fear of litigation, separation from family, workplace relationships. The consequences of burnout in patient care include poor clinical judgment resulting in medical errors, and patient dissatisfaction. Healthcare workers suffering from burnout are more likely to leave their jobs. Another probable cause and result of burnout is "Second Victim Syndrome," which involves emotional trauma sustained by healthcare workers due to adverse events, typically resulting in poor patient outcomes and the physician becoming the second victim. Burnout is also frequently associated with depression among professionals. While many physicians may seek professional help, many go into isolation, and many develop dangerous coping methods like drinking and substance abuse. High rates of depression result in increased suicide rates among physicians as compared to the general population.

Along with burnout, psychological morbidity among healthcare workers also increases significantly. There is evidence that these stresses lead to long-lasting effects, resulting in symptoms of stress, anxiety, depression, post-traumatic stress disorder long after the pandemic is over. The significant factors causing psychological symptoms include long work hours, isolation, separation from family, risk of infection, exhaustion, patient with negative emotions, bad patient outcomes, lack of protective measures, social stigma, and lack of psychological support systems.

These circumstances make it essential for us to understand the health-related consequences of working in such scenarios and provide timely intervention to avoid any long-term effects. Our study aims to provide first-hand data regarding these symptoms in the Indian scenario.

METHODOLOGY

Our study is a cross-sectional study to estimate the prevalence of physical symptoms, psychological stress and burnout among healthcare workers involved in COVID patient care.

Approval for the study was taken from an independent ethics committee. A convenience sample of 580 healthcare workers was invited to voluntarily fill an online questionnaire. The study questionnaire, written in English, was comprised of four main components- demographic characteristics, physical symptoms in the last week, personal burnout questions (6-items based on Copenhagen Burnout Inventory), Depression Anxiety Stress Scales (DASS-21).

Essential demographic characteristics were recorded, including age, gender, duration of engagement at COVID Centre, main work settings, and their personal experience with COVID-19. Participants were asked to indicate if they had developed any of the 10 listed physical symptoms and grade their general health. The study questionnaire was based on the questionnaire by Negin Talaei *et al.* [2]

Depression and anxiety were assessed by DASS-21, a validated screening instrument (Lovibond and Lovibond 1995). [3] The scores of each three components were calculated by summing them up and then multiplied by 2 to calculate a final score. A cut-off score of >9, >7, and >14 indicate depression, anxiety, and stress, respectively.

To evaluate job burnout, six questions out of the Copenhagen Burnout Inventory (CBI), whose validity and reliability was confirmed by the NEXT study (Estryn-Behar *et al.* 2008) [4]. A score between 0(never/almost never) and 1(everyday/almost every day) was assigned

to each item. An average score of less than 2.99 suggests no burnout and score greater than 3.0 indicate burnout.

Pearson formula was used to establish correlation between the parameters. The responses (n, %) and average scores were calculated for each question.

Inclusion criteria: Healthcare workers involved in COVID patient care.

Exclusion criteria: Healthcare workers not involved in COVID patient care.

RESULTS

Participants

Of the 580 invited participants from COVID care Centres in Central India and Karnataka, 512 agreed to join the study, 48.3% were male, and 51.3% were female, and the mean age was 29 years. 52.7% (n = 270) of them were married and 47.3% (n = 242) of them were unmarried. (Table 1)

32.8% of participants have been working in COVID Centre for 5-6 months, 34.2% for 3-4 months, and 32.8% for less than two months.

54.8% of the participants were working in ICU, 24.7% in HDU, 20.5% in ambulatory care (Table 2)

Prevalence of physical symptoms

The commonest symptoms were change in food habits (61.5%), increased irritability (58.6%), difficulty in falling asleep (52.7%), Gastro-intestinal problems (38.5%), generalised weakness (38.5%), exaggerated response to stimulus (38.5%), nightmares (19.9%), palpitation (15.6%), shortness of breath (21.5%). (Table 3)

While 15% of all respondents did not report any symptoms within the seven days preceding the survey. 11% reported one symptom, 11% reported two symptoms, 16.4% reported three symptoms, and 13.6% reported four symptoms, 11% reported five symptoms, 11% reported six symptoms, 5.4% reported seven symptoms, 1.4% reported eight symptoms, 2.8% reported nine symptoms, and 1.4% reported ten symptoms.

Among the participants 2.9% (n=15) reported their health as excellent, 24.3% (n=124) as very good, 51.4% (n=263) as good, 17.1% (n=88) as fair, and 4.3% (n=22) as poor. (Table 4)

Pearson's correlation revealed a positive correlation between duration of work and development of physical symptoms ($R = .27, P < .00001$)

Prevalence of burnout

Using our predefined cut-off for CBI scoring n = 176 (34.3%) of the participants met the criteria for burnout. Pearson coefficient indicates a positive correlation between duration of work in COVID Care and score on the CBI scale ($R = .30, P < .00001$) and between CBI score and perceived physical symptoms ($R = .73, P < .00001$)

Married individuals suffered from burnout more ($R = .23, P < 0.00001$). No significant relationship between age and burnout, and sex and burnout could be established.

Prevalence of psychological symptoms

Using our predefined cut-off for the scoring of DASS21, n = 66 (12.9%) showed evidence of mild depression and n = 110 (21.5%) showed evidence of moderate depression, n = 36 (7.0%) showed evidence of severe depression, n=22 (4.3%) showed evidence of extremely severe depression.

Pearson's coefficient shows a positive correlation between duration of work and a higher score on the depression scale ($R=0.37, P=.0016$).

n = 52 (10.1%) showed evidence of mild anxiety, n = 58 (11.3%) showed evidence of moderate anxiety, n = 14 (2.8%) showed evidence of severe anxiety, and n = 88 (17.1%) showed evidence of extremely severe anxiety.

N = 22 (4.3%) showed evidence of mild stress, n = 14 (2.7%) showed evidence of moderate stress, n = 37 (7.2%) showed evidence of severe stress.

Pearson's coefficient shows positive correlation between relation between CBI score and the depression scale in DASS21 ($R = .72, P < .00001$), CBI score and anxiety score in DASS21 ($R = 0.75, P < .00001$), CBI score and stress score on DASS21 ($R = .70, P < .00001$)

DISCUSSION

Studies by Ruchira W Khanse *et al.*, 2020 [5] assessed the prevalence of burnout among healthcare workers involved in COVID care. Ridhima Sharma *et al.*, 2020 [6] and prevalence of depression, anxiety, and stress in healthcare workers amidst the COVID pandemic. Our study corroborated the findings of these two studies and is the first study in India to assess burnout among healthcare workers involved in COVID care and correlate that data with experienced physical and psychological symptoms faced and the psychological strain of working in such an environment

The result requires attention as previous studies have shown burnout and psychological distress is frequently associated with fall in the quality of medical care and have an adverse impact of the long term physical and mental health of the healthcare professionals.

In this study, we established a positive correlation between duration of work in COVID patient care with the symptoms experienced by the healthcare workers with their score on the CBI scale and the depression subscale on DASS-21. Indicating that prolonged continuous work in these centres contributes to higher burnout, depression, and a sense of poor health among the COVID warriors. Over a third of the participants (34.3%) met our criteria of burnout on the CBI scale. Married individuals were more prone to burnout than unmarried individuals ($r = .23, p < .00001$). With this data, we were also able to establish a positive correlation between the higher score on CBI with a higher score on all three subscales on DASS-21. We were able to find that 84% of the participants experienced at least one physical symptom in the last seven days and 63% showing three or more symptoms in the last seven days. With a change in food habits (61.5%), increased irritability (58.6%), difficulty in falling asleep (52.7%) being the commonest symptoms. A high prevalence of psychiatric morbidity was detected with 48.6% of the participants showed evidence of depression, of which 4.35 showed evidence of extreme depression, 41.3% showed evidence of anxiety, of which 17.1% showed evidence of extreme anxiety, and 14.2% showed evidence of stress, of which 7.2% showed evidence of severe stress. Our study could not establish any relation between sex and anxiety, depression, or stress among the healthcare workers.

Comparing data of burnout to previous data was difficult due to the scarcity of Indian data and the usage of various assessment methods. Among various studies, burnout has been reported anywhere from 20% to 80%. A study by Serena Barello *et al.* [7] on burnout and somatic symptoms in the early phase of COVID-19 in Italy showed a significant physical and psychological burden among healthcare workers. With over half reporting Increased irritability (58.8%), change in food habits (55.6%), insomnia (55.3%), with other significant symptoms being nightmares (39.9%), exaggerated response to a stimulus (39.9%), nervous breakdown (37.8%), increased sweating (37.2%), gastrointestinal problems (37.2%), palpitation (29.8%), shortness of breath (23.1%), chest pain (14.4%) and 6.5% characterized their health as fair, and 0.5% said their health was poor. Their study used MBI as a tool to measure burnout. The study by Ruchira W Khanse *et al.*, 2020, to study burnout among healthcare workers during

COVID -19 using a modified CBI scale revealed a prevalence of personal, work-related, and pandemic related burnout at 53.7%, 32.9%, and 49.7%. The findings of our study mimic the finding in these studies. The main difference in the findings being that our study could not establish any relationship between age and sex of the participants with symptoms experienced or burnout, and Ruchira W Khanse *et al.* detected a higher rate of burnout.

A literature review of the psychological impact of epidemic and pandemic on healthcare workers (Emanuele Preti *et al.*) [8] showed evidence of significant psychological morbidity, with 73.4% of HCWs reporting post-traumatic stress symptoms during the outbreak. Symptoms lasting till 1-3 years in 10-40% cases, 27.5-50% reported depressive symptoms, and anxiety symptoms were reported by 45%, stress reported by 18.1-80.1%.

There is an urgent need to develop methods to detect burnout and emotional distress among healthcare workers in the current scenario and provide interventions to address their physical and emotional symptoms. Dedicated counselling sessions at regular intervals should be considered for workers involved in COVID care, and other avenues to boost the morale of the healthcare workers must be explored.

The HCWs should have access to adequate high quality personal protective equipment as the lack of these items leads to additional stress and fear among the HCWs. Training of healthcare workers relating to coping and resilience to stress of work in epidemic or pandemic scenarios should be done as a part of their primary studies. Short training sessions at the time of pandemic may also improve the psychological health of the HCWs. The HCWs employed in COVID care should have free access to psychological counseling as felt necessary by them either in person or by psychological helplines. The provision of adequate breaks for HCWs needs to be instituted to protect them from prolonged exposure to patients and to give them time to better adapt to the stressful conditions being faced.

Government policies like financial aid and additional life and health insurance to the healthcare workers involved in COVID patient care would provide an additional incentive to boost their morale in their fight against COVID.

No single approach can tackle all the factors behind the psychological strain experienced, so there is a need to develop a multifaceted approach to tackle the situation that requires the participation of both the healthcare and the administrative authorities.

The study has certain limitations. Firstly, it was an anonymous survey, so the accuracy of the data cannot be ensured; the variability of responses, regional bias, and pressure from institutions cannot be ruled out. Secondly, the data may not be representative of all the healthcare workers in India as the questionnaire was sent only to specialized COVID Centres, and differentiation among various job profiles and specialties cannot be made. Thirdly, past medical and psychiatric history was not included in the questionnaire. Further research in this area with a larger, the more representative population is required to understand the various factors in play and to institute adequate measures to combat this problem.

CONCLUSION

This study shows evidence of significant burnout, physical, and psychological strain among healthcare workers, which results in poor patient care and long-term effects on the mental health of the COVID warriors. These results indicate an urgent need for the establishment of measures to help the frontline workers to cope with the current scenario to avoid long-term physical and psychological morbidity in the health care workers.

Table 1: Socio-demographics

Gender	n	%
Male	249	48.3
Female	263	51.3
Age		
Min	21	
Max	45	
Mean	29	
Marital Status		
Married	270	52.8
Unmarried	242	47.2
Personal Experience with COVID -19		
Have you been tested for COVID-19		
Yes	169	32.8
No	343	67.0
I'd rather not say	0	0
One of your family members have been detected with COVID-19		
Yes	29	5.7
No	468	91.4
I'd rather not say	15	2.8

Table 2: Professional Characteristics

Length of work experience	n	%
1-2m	168	32.8
3-4m	175	34.2
5-6m	169	32.8
Main work setting		
ICU	292	57.0
HDU	131	25.7
Ambulatory care	89	17.3
During your interaction with COVID patients were you wearing PPE?		
Yes	475	92.8
No	14	2.8
I'd rather not say	22	4.3

Table 3: Perceived psychological or physical symptoms

	Yes(n)	%	No(n)	%
Increased irritability	300	58.6	212	41.4
Change in food habits	315	61.5	197	38.5
Difficulty falling asleep	270	52.7	242	47.3
Exaggerated response to stimulus	197	38.5	315	61.5
Nightmares	102	19.9	410	80.0
Gastro-intestinal problems	197	38.5	315	61.5
Palpitations	80	15.6	432	84.3
Shortness of breath	110	21.5	402	78.5
Generalized weakness	197	38.5	315	61.4
Chest pain	22	4.3	490	95.7

Table 4: Perceived status of health

In general, would you say your health is	N	%
Excellent	15	2.9
Very Good	124	24.3
Good	263	51.4
Fair	88	17.1
Poor	22	4.3

Conflicts of interest

Nil.

Acknowledgements

Nil.

REFERENCE

- <https://www.worldometers.info/coronavirus/>
- Talae, N., Varahram, M., Jamaati, H. *et al.* Stress and burnout in health care workers during COVID-19 pandemic: validation of a questionnaire. *J Public Health (Berl.)*, 2020. <https://doi.org/10.1007/s10389-020-01313-z>
- Lovibond, P. F., & Lovibond, S. H. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, 1995; 33(3):335-343. [https://doi.org/10.1016/0005-7967\(94\)00075-U](https://doi.org/10.1016/0005-7967(94)00075-U)
- Madeleine Estryn-Behar, Beatrice van der Heijden, Donatella Camerino, Clementine Fry, Olivier Le Nezet, Paul Maurice Conway, Hans-Martin Hasselhorn, the NEXT Study group, Violence risks in nursing—results from the European 'NEXT' Study, *Occupational Medicine*, Volume 58, Issue 2, March 2008, 107-114, <https://doi.org/10.1093/occmed/kqm142>
- Khasne RW, Dhakulkar BS, Mahajan HC, Kulkarni AP. Burnout among Healthcare Workers during COVID-19 Pandemic in India: Results of a Questionnaire-based Survey. *Indian J Crit Care Med* 2020; 24(8):664–671.
- Barello S, Palamenghi L, Graffigna G. Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Res.* 2020;290:113129. <https://doi.org/10.1016/j.psychres.2020.113129>
- Preti, E., Di Mattei, V., Perego, G. *et al.* The Psychological Impact of Epidemic and Pandemic Outbreaks on Healthcare Workers: Rapid Review of the Evidence. *Curr Psychiatry Rep.* 2020; 22:43 <https://doi.org/10.1007/s11920-020-01166-z>
- Maunder RG, Lancee WJ, Balderson KE, *et al.* Long-term Psychological and Occupational Effects of Providing Hospital Healthcare during SARS Outbreak. *Emerging Infectious Diseases.* 2006; 12(12):1924-1932. doi:10.3201/eid1212.060584.
- Maunder R., Hunter J., Vincent L., Bennett J., Peladeau N., Leszcz M., *et al.* The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital. *CMAJ*, 2003; 168(10):1245-1251. pmid:12743065
- Lai J, Ma S, Wang Y, *et al.* Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open.* 2020;3(3):e203976. doi:10.1001/jamanetworkopen.2020.3976
- Nicholas W.S. Chew, Grace K.H *et al* A multinational multicentric study on the psychological outcomes and associated physical symptoms amongst healthcare workers during COVID-19 outbreak doi.org/10.1016/j.bbi.2020.04.049
- Zerbini G, Ebigbo A, Reicherts P, Kunz M, Messman H. Psychosocial burden of healthcare professionals in times of COVID-19 - a survey conducted at the University Hospital Augsburg. *Ger Med Sci.* 2020;18:Doc05. Published 2020 22 Jun. doi:10.3205/000281