

Psychological impact of COVID-19 on health care workers

Srishti Kukreja^{1*}, Shakeel Ansari², Mayank Jain³, Shakila Mulla⁴

¹Senior Resident, Department of Community Medicine, RUHS College Of Medical Sciences, Jaipur, Rajasthan, India

²Associate Professor and Head, Department of Psychiatry, Jhalawar Medical College, Jhalawar, Rajasthan, India

³Associate Professor, Department of Community Medicine, Jhalawar Medical College, Jhalawar, Rajasthan, India

⁴Professor, Department of Community Medicine, Jhalawar Medical College, Jhalawar, Rajasthan, India

Received: 26-11-2021 / Revised: 21-12-2021 / Accepted: 09-01-2022

Abstract

Background: Entire world witnessed unusual situations during COVID-19 pandemic. Along with physical health, mental health was also recognized at stake due to uncertainty, fear and lack of knowledge. When general population was advised to stay at home, health workers were required to serve sick by stepping out of their homes. This added mental pressure on them. Hence it was desired to assess psychological impact on health care workers who had been posted at COVID-19 outdoor and indoor centres. **Methodology:** An online survey was conducted on medical and paramedical staff of a tertiary health care centre. Impact of Event– Revised (IES-R) Scale was applied to measure mild, moderate or severe psychological impact. Stress coping behavior scale was used to assess coping strategies of study participants. Epi Info software version 7.2.2.6 was used for statistical analysis. **Result:** 249 eligible staff participated in current study after applying inclusion and exclusion criteria. Various grades of psychological impact (IES-R score more than 23) were seen in 35.34% of study participants. Younger age and female gender were significantly associated with presence of psychological impact. Use of adaptive coping strategy was more than maladaptive strategies. **Conclusion:** Psychological impact was observed in about one third of participated health workers which is quite high as compared to general population. As female health workers showed significantly higher impact than males, they need more psychological support. Mental health needs equal attention in current pandemic especially among health workers.

Keywords: COVID-19, Health workers, IES-R, Psychological impact.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

The whole mankind has faced never seen before situations in the form of COVID-19 pandemic. Though the impact has started reducing, the battle is not yet over. In India, the first and foremost response to the pandemic has been fear and a sense of clear and imminent danger[1]. The initial focus is necessarily on the physical consequences of the infection per se. However, there is recognition that the significant psychological consequences emerging out of this catastrophe need to be addressed[1]. Health care personnel are working round the clock to confront it head-on. A rapid systematic review suggests that the psychological implications to health workers are variable with an increased risk of acquiring stress-related disorders, depression and anxiety[2].

Health care providers are also particularly vulnerable to emotional distress in the current pandemic, given their risk of exposure to the virus, concern about infecting and caring for their loved ones, shortages of personal protective equipment (PPE), longer work hours, and involvement in emotionally and ethically fraught resource-allocation decisions[3]. Corona virus has the potential of instilling a sense of fear among health-care professionals regarding their own lives. Several coping strategies were used by health care workers and these coping strategies refers to the specific efforts, both behavioral and psychological that people employ to master, tolerate, reduce or minimize stressful events. With this background, it was decided to assess the psychological impact of COVID-19 on health care workers

through online survey using Impact of Event Scale–Revised (IES-R) scale, the socio-demographic and clinical factors associated with it and various coping strategies practiced by study participants using Stress coping behavior scale.

Material and Methods

An online survey was conducted on medical and paramedical staff who had been posted in the COVID blocks of a tertiary health care centre situated in south Rajasthan. This survey was conducted in October and November 2020. Study participants were both male and female staff with exclusion of those who denied participation. A total of 312 medical and paramedical staff was found to be eligible for the current study but out of them 63 staff denied participation either by declining to give consent or by not submitting their responses. All participants had done their COVID duties one to two months prior to the study recruitment. Each Staff member was required to stay at a separate quarantine centre for one week after doing one week duty in COVID-19 centers.

Ethical approval was obtained from Institutional Ethics Committee before commencing data collection. Study tool was an online form prepared in the format of a Google document with three parts. One part for socio-demographic and clinical variables related to COVID-19 and second part for measuring psychological impact with the help of Impact of Event– Revised (IES-R) scale. Third part was used to assess various coping strategies by stress coping behavior scale of Indian context. These forms were sent through social media to the health workers to follow the COVID-19 protection guidelines of social distancing. Along with this form informed consent was obtained through online consent form.

The Impact of Event Scale–Revised (IES-R) is an easy to administer questionnaire used to evaluate the degree of distress a patient feels in

*Correspondence

Dr. Srishti Kukreja

Senior Resident, Department of Community Medicine, RUHS College Of Medical Sciences, Jaipur, Rajasthan, India

E-mail: kukrejasrishti1@gmail.com

response to trauma[4]. It provides a structured way for a patient to communicate distress when she or he may not have the words to do so[4]. The IES-R is a 22-item self report scale that assesses subjective distress caused by traumatic events[5]. The IES-R total score is obtained by summing the answer scores (ranging from 0 to 4) of each item. Categorization of the score ranges from 24 to 32, 33 to 36 and more than 37 which signify mild, moderate and severe psychological impact respectively[6]. In this scale, the Intrusion subscale is mean item response of items 1, 2, 3, 6, 9, 14, 16, 20[6]. The Avoidance subscale is the mean item response of items 5, 7, 8, 11, 12, 13, 17, 22[6]. The Hyperarousal subscale is the mean item response of items 4, 10, 15, 18, 19, 21[6]. The IES-R was designed and validated using a specific traumatic event as a reference, in the directions to the patient while administering the tool[5]. A meta-analysis of 72 studies that used the IES-R, confirmed its validity as a measure of responses to stress in various populations and sensitivity as 74.5%[7]. Stress coping behavior scale was originally developed by Carver during 1997. It has 28 items with 14 dimensions (namely self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting, positive reframing, planning, humor, acceptance, religion, and self-blame) every dimension includes two items. Respondents rate items on a 4-point Likert scale, ranging from 1 - "I haven't been

doing this at all" to 4 - "I've been doing this a lot." Each of the 14 scales is comprised of 2 items; total scores on each scale range from 2 (minimum) to 8 (maximum). Higher scores indicate increased utilization of that specific coping strategy. In this scale they classify coping into two broad forms eg. adaptive and maladaptive coping. The adaptive coping dimension includes positive ways of coping while the maladaptive coping includes negatives ways of coping from stress[8]. Statistical analysis was done with the help of Epi Info software version 7.2.2.6. Chi square test was used to find association between independent and dependent variables and p value of less than 0.05 was considered statistically significant. Quantitative analysis was used for coping strategies utilized by study participants. Mean and standard deviations were calculated for each of 14 dimensions of coping behavior.

Result

A total of 159 male and 90 female health workers participated in the current study. Out of total 249 study participants, 180 were doctors and 69 were paramedical staff. Different grades of psychological impact was found using IES-R score among 35.34% of study participants; ranging from mild (7.69%), moderate (6.02%) to severe (21.68%) as shown in Fig. 1.

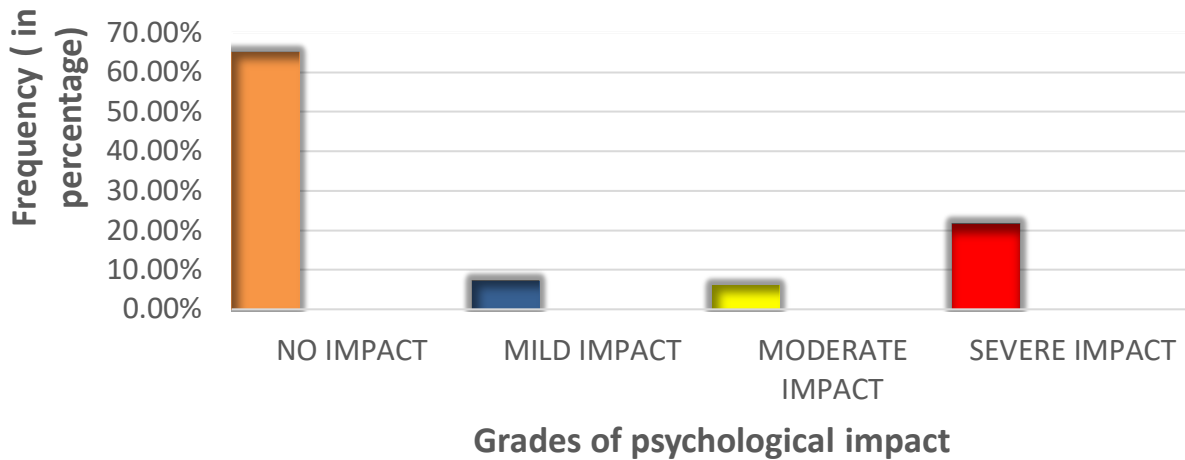


Fig. 1: Psychological impact among health workers using IES-R scores

Medical and nursing staff members with severe psychological impact were more interested in seeking help from mental health professionals. Forty two (16.87%) health workers tested positive after their duty in COVID block. Among them higher scores for hyperarousal subscale was found than COVID-negative participants. Among COVID positive health workers, 3 developed serious illness and needed to be hospitalized. Half of the study participants who

were tested positive were asymptomatic. No mortality occurred among COVID positive health workers. Underlying co-morbidity was found in 92 (36.95%) study participants in the form of hypertension, diabetes, heart disease and asthma. Presence of psychological impact was significantly associated with younger age and female gender as shown in Table 1.

Table 1: Association between socio-demographic/ clinical variables and presence of psychological impact (IES score >23)

Variables	Psychological impact Absent	Psychological impact Present	'p' value
Age (in years)			
≤ 30	84 (59.15%)	58 (40.85%)	0.036*
>30	77 (71.96%)	30 (28.04%)	
Gender			
Male	120 (75.47%)	39 (24.53%)	0.0001*
Female	41 (45.56%)	49 (54.44%)	
COVID-19 Test			
Positive	30 (71.43%)	12 (28.57%)	0.44
Negative	132 (63.77%)	75 (36.23%)	
Type of staff			
Doctors	117 (65.0%)	63 (35.0%)	0.85
Paramedical staff	44 (63.77%)	25 (36.23%)	

Co-morbidity			
Yes	60 (65.22%)	32 (34.78%)	0.88
No	101 (64.33%)	56 (35.67%)	
COVID positive family member			
Yes	69 (69.0%)	31 (31.0%)	0.24
No	92 (61.74%)	57 (38.26%)	

* Statistically Significant

Table 2: Stress coping behavior scale score for 14 sub-scales

Stress coping behavior scale (SCBS)	Mean Score \pm SD*
Self-distraction, items 1 and 19	5.32 \pm 1.46
Active coping, items 2 and 7	5.64 \pm 1.52
Denial, items 3 and 8	5.20 \pm 1.28
Substance use, items 4 and 11	2.05 \pm 0.33
Emotional support, items 5 and 15	5.74 \pm 1.48
Use of informational support, items 10 and 23	5.84 \pm 1.72
Behavioral disengagement, items 6 and 16	4.82 \pm 1.18
Venting, items 9 and 21	5.23 \pm 1.28
Positive reframing, items 12 and 17	4.98 \pm 1.12
Planning, items 14 and 25	5.55 \pm 1.58
Humor, items 18 and 28	3.47 \pm 1.92
Acceptance, items 20 and 24	6.58 \pm 1.42
Religion, items 22 and 27	6.84 \pm 1.74
Self-blame, items 13 and 26	4.32 \pm 1.10

*SD- Standard Deviation

Presence of psychological impact was also compared between those tested COVID positive and those who tested negative. Surprisingly, stress was found more among those who tested negative although the association was statistically not significant ($p=0.44$). Other factors like presence of co-morbidity, type of staff (Medical/ Paramedical) and family members tested positive were non-significant when tested for association with presence of psychological impact.

By using Stress coping behavior scale, various coping strategies were assessed. Highest score was found for religion (6.84 ± 1.74) followed by acceptance (6.58 ± 1.42) and emotional support (5.74 ± 1.48) while substance use (2.05 ± 0.33) as coping strategy was considered only by few.

Discussion

The current study assessed psychological impact of COVID-19 on health workers using IES-R scale. Strikingly about one third (35.34%) of the health workers were found to have psychological impact with IES-R score more than 23. Presence of severe psychological impact was exceedingly higher than mild and moderate psychological impact. Another study on Indian population also found that 33.2% participants had significant (mild/ moderate /severe) psychological impact regarding COVID-19[7], although they found mild psychological impact more than the severe. However one Chinese study reported the overall impact of COVID-19 outbreak on health workers at a mild level[9].

One study reported 23.6% moderate or severe psychological impact of the COVID-19 outbreak among general population[9]. Compared to the general population, observed psychological impact in current study among health workers during COVID pandemic was alarmingly high. COVID-19 pandemic added stress to their lives because of long working hours, high probability of getting infected, quarantine after COVID duty and staying away from family.

Psychological impact among female health workers was found significantly more in comparison to males, which is also reported by other studies[7,11]. Gender has been described as a critical determinant of mental health and mental illness[12]. There is considerable evidence of stress due to dual role of women at home and work place which is inherent in health care system[13].

Presence of stress was less among those tested positive as compared to those tested negative which might be due asymptomatic and mild status of many health workers who tested positive. This might have allayed the fear in their minds.

Many studies reported more severe degrees of all measurements of mental health symptoms among nurses[11,14,15]. Few studies found higher psychological impact with younger age and co-morbid physical illness[7,15]. These factors were assessed in current study for association but were found non-significant except for younger age. Still, current study highlighted prevailing high level of psychological impact among health workers with many suffering from severe psychological impact.

The coping strategies refer to the specific efforts, both behavioral and psychological that people employ to master, tolerate, reduce or minimize stressful events. Religious strategy was adopted by many health care workers for coping their stress although very few used substance for the same.

Limitations of the study: Study used online survey methodology and self-report measures which have inherent limitations as it relies on respondent and lacks direct observation. As the study design is cross-sectional, it provides little evidence on the long-term psychological impact and treatment needs. Geographic factors may have influenced result due to unique social and cultural context of study area.

Conclusion

Mental health is grossly affected during COVID-19 pandemic, which is reflected in current study in the form of 35.34% health workers suffering from various grades of psychological impact. Severe psychological impact is found more than mild and moderate impact. Younger age and female gender are important predetermining factors for psychological impact among health workers. Health care workers used a variety of coping strategies during this pandemic phase. Notably, most reported high utilization was adaptive strategy in the form of acceptance and trust in GOD. Providing psychological support and counselling is essential during this pandemic especially to health workers who are fighting against this pandemic selflessly.

References

1. Mental health in the times of COVID-19 pandemic. Guidance for general medical and specialized mental health care settings, Department of Psychiatry, NIMHANS. April 2020. Pg 3, 12
2. Cabarkapa S, Nadjidai SE, Murgier J, Ng CH. The psychological impact of COVID-19 and other viral epidemics on frontline healthcare workers and ways to address it: A rapid systematic review. *Brain Behav Immun Health*. 2020; 8: 100144
3. Betty P and Carol SN. Mental health and the COVID-19 pandemic. *N Engl J Med*. 2020; 383 (6): 510-2

4. Hyer K and Brown LM. The Impact of Event Scale-Revised: A quick measure of a patient's response to trauma. *Am J Nurs*. 2008; 108 (11): 60-8
5. Christianson S, Marren J. The Impact of Event Scale-Revised (IES-R). *Medsurg Nurs*. 2012; 21 (5): 321-2
6. Varshney M, Parel JT, Raizada N, Sarin SK. Initial psychological impact of COVID-19 and its correlates in Indian Community: An online (FEEL-COVID) survey. *PLoS ONE*. 2020; 15(5): e0233874
7. Sundin EC, Horowitz MJ. Horowitz's Impact of Event Scale evaluation of 20 years of use. *Psychosom Med* 2003; 65(5): 870-6.
8. Janghel G, Shrivastav P. Coping Behavior Assessment Scale (Indian Adaptation): Establishing Psychometrics Properties. *Int J Indian Psychol* 2017; 4 (3): DIP: 18.01.077/20170403
9. Sun D, Yang D, Li Y, Zhou J, Wang W, Wang Q, Lin N, Cao A, Wang H, Zhang Q. Psychological impact of 2019 novel coronavirus (2019-nCoV) outbreak in health workers in China. *Epidemiology and Infection*. Cambridge University Press; 2020; 148: e96
10. AA Alkhamees, SA Alrashed, AA Alzunaydi, AS Almohimeed, MS Aljohani. The psychological impact of COVID-19 pandemic on the general population of Saudi Arabia. *Comprehensive Psychiatry*. 2020; 102: 152192
11. Giusti EM, Pedroli E, D'Aniello GE, Stramba Badiale C., Pietrabissa G., Manna C. et al. The Psychological Impact of the COVID-19 Outbreak on Health Professionals: A Cross-Sectional Study. *Front Psychol*. 2020; 11: 1684
12. Sharma I, Pathak A. Women mental health in India. *Indian J Psychiatry*. 2015; 57 (Suppl 2): S201-S204
13. Parashar M, Singh M, Kishore J, Pathak R, Panda M. Prevalence and correlates of stress among working women of a tertiary health centre in Delhi, India. *Indian J Med Spec*. 2017; 8 (2): 77-81
14. 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
15. Rossi R, Socci V, Pacitti F, et al. Mental Health Outcomes Among Frontline and Second-Line Health Care Workers During the Coronavirus Disease 2019 (COVID-19) Pandemic in Italy. *JAMA Netw Open*. 2020; 3 (5): e2010185

Conflict of Interest: Nil Source of support: Nil