



Original Article

A Comparative Cross-Sectional Psychological analysis of psychosocial and mental health issues faced by frontline healthcare professionals during COVID- 19 pandemic across various countries

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Abstract

Background: COVID-19 was declared as global pandemic by WHO by March 2020. Since then, overwhelming workload, inadequate human resources, technology, personal protective gear and workplace harassment, could cause stress, anxiety or depression among the healthcare professionals. Being care givers to the society it was imperative to evaluate and assess the impact of the pandemic to find a potential ground to make adequate amendments to ensure good mental health of our professionals.

Aim: The present study was designed with the objectives to evaluate and compare levels stress, anxiety and depression in healthcare professionals working in India and countries other than India.

Setting and Design: This was a cross-sectional study conducted among 200 participants (100 Indians and 100 from other countries-USA, Canada).

Method: A questionnaire link through Google form was distributed among healthcare professionals after taking consent. The study was approved by the institutional ethical committee.

Statistical Analysis: The results of the two groups were compared using chi square test to observe a difference of significance among them.

Result and Conclusion: On analysis of questionnaire regarding mental health of health care professionals, Severe stress and anxiety were significantly higher among Indian female HCPs (17% and 50% respectively) compared to other countries (6% and 22% respectively) while borderline stress (69%), anxiety (39%) and depression(26%) was more prevalent among healthcare professionals of other countries. Media projection about workplace violence and workplace job security needs to be taken well care of to protect the mental health of HCPS in India.

Keywords: COVID-19, Healthcare professionals, Stress, Anxiety, Depression, Frontline workers.

Background

An outbreak of novel corona virus was reported in Wuhan city, China in December 2019 which eventually spread through other countries^[1]. On January 30, 2020, the World Health Organization declared the COVID-19 outbreak a global public health emergency of international concern and by 11 March, 2020 this outbreak was declared as global pandemic.^[2,3] The disease was soon seen to spread across India also. This led to the evolution of the first wave of COVID 19 in India which was soon followed by the second wave of COVID 19. On May1, 2021 India recorded over 4 lakh new cases of COVID 19 and over 3,000 deaths throughout the country^[4]. A fall in the number of cases was noticed ever since with 30,948 new cases reported on 22 August 2021 and 403 deaths throughout the country^[5]. The COVID-19 virus, belonging to coronavirus family is believed to have originated in bats, similar to sars-2 virus found in china in 2002. It gets transmitted through inhalation or contact with respiratory secretions with an incubation period of 2 to 14 days. During the incubation period, affected individual although asymptomatic is able transmit the virus to others. Also, many have been found to develop no symptoms after acquiring the infection, making early diagnosis of this disease very difficult^[6]. The role of Medical and paramedical workers is indispensable during this global pandemic. Frontline workers are facing critical situations, being directly involved in the screening, diagnosis, treatment, and care of patients with COVID-19. Factors having significant impact on mental health of our health care professionals are: working in isolation at high-risk position and exposure to infected people. During this period workload for health care professionals was overwhelming due to constantly rising cases and high infectivity. Moreover, widespread media coverage regarding lack of human resources, infrastructure, drugs & personal protective equipment and frequent violence at workplace contributed to affect the mental health of healthcare professionals. The healthcare

professionals were the soldiers who fought the disease from frontline, their psychological fitness had to be essential for the safety of the country. Feelings like stress, anxiety and depression might reduce their efficiency to provide adequate protection to the diseased and to help control the pandemic. Healthcare professionals, being the prime care givers, if they are psychologically stressed, anxious or depressed, then the recovery of the infected individuals would face an atrocious affect. Thus, it is very important not only to identify such cases but their cause too so as to develop strategies working on providing a healthy environment for the health care professionals to work efficiently. With the suspected risk of third wave of COVID 19 addressing the psychological impacts of the disease becomes a necessity to prevent breakdown of mental health of healthcare professionals. Hence the present study was designed with the objectives to evaluate compare levels stress, anxiety and depression in healthcare professionals working in India and countries other than India and to determine the main reason for psychological difficulties.

Methods

This was a cross sectional study that was conducted between June 2020 to March 2021 through sharing a questionnaire link among healthcare professionals working as frontline workers in COVID-19 pandemic in India, Canada and the USA for the purpose of analysing the severity of impact of COVID-19 on healthcare staff. Recognised scales had been used to assess levels of stress, anxiety and depression among frontline workers^[7,8]. The questionnaire consists of four parts. Part-1 described questions related to individuals' sociodemographic profile. This part also consists of questions related to previous history of any psychiatric disease or previous use of medications related to any such problems to evaluate the impact of pandemic on such individuals. Part-2 consists of questions aimed at assessing values of stress among our participants based on **perceived stress scale (PSS)**. Part-3

consists of questions concerning anxiety and depression among our participants using **Hospital Anxiety and Depression Scale (HADS)**. The part-4 of our study contained questions concerning the possible factors responsible for all psychological problems faced by the healthcare professionals. A 7-point Likert scale has been used to evaluate the result in this part. The health care professionals who were unwilling to participate and not working in frontline for COVID -19 were excluded from the study. The data collected, tabulated and analysed in excel using appropriate statistical methods. The results

of the two comparative groups were compared using chi square test to observe a difference of significance among them.

Results

The study was conducted on 200 health care professionals working in frontline out of which 100 participants were from India and 100 were from four other countries. Among the participants, number of females were significantly higher, especially in health professionals belonging to countries other than India.

Table no. 1: Sociodemographic Profile

S.No.	Parameter	HCP in India (%)	HCP in other countries (%)	Overall P value	
1.	Gender	Male	43	35	.000027
		Female	57	64	
		Other	-	01	
		P value	.065992	.000075	
2.	Age	20-30	60	45	.047437
		31-40	8	17	
		41-50	20	21	
		51-60	12	13	
		61-70	0	4	
	20- 30 yrs: other age groups	P value	.00721	.203092	
3.	Profession	Doctors	87	61	0.00003
		Nurses	12	29	
		Paramedical	1	10	
4.	Institution of work	Government	66	65	
		Private	34	35	
5.	Working experience	<5y	56	15	<0.00001
		5-10y	44	85	<0.00001
		>10y	34	17	0.009439
6.	Prior experience in a quarantine ward	Yes	26	19	0.309629
7.	Prior history of any psychiatric illness	Yes	9.33(7/75)	20.27(15/74)	0.06
8.	Prior history of any medication for stress, anxiety or depression	Yes	5.33(4/69)	22.98(17/77)	0.005
9.	Working hours/day during pandemic	<8h/d	46	23.37(18/77)	0.003199
		>8h/d	54	76.62 (59/77)	0.003199
10.	Hours of night shift per day during pandemic	<6h	42	78	<0.00001
		>6h	58	22	<0.00001

In India 60% of health care professionals working in frontline belonged to the age group of 20-30 years and this was significantly higher than subjects of other age groups in India as well as subjects of same age group of other countries. Maximum participation in the study was by doctors in comparison to other health care professionals. In India, majority health care

professionals working in frontline were majorly those having work experience less than 5years while in other countries most of the participants had work experience of 5-10years (table no.1). Among all the study participants only 22.5% (45/200) had prior experience of working in a quarantine ward. Prior history of any psychiatric illness was present in 14.76% of total participants

while 14.38% individuals were already taking medications of stress, anxiety or depression. The prevalence of prior psychiatric illness and prior history of medications for mood disorders were significantly higher among healthcare professionals from other countries than in India. Among Healthcare professionals in the countries

other than India 76.6% had working hours of more than 8 hours in a day, which was significantly higher than Indian participants. (p= 0.003). 58% of Indian hcps were working nights of more than 6h, whereas only 22% of hcps in other countries had night shifts of more than 6h. This was a significant difference (p= <0.00001) (table-1).

Table 2 Comparison of stress, anxiety and depression among two groups

S.NO	Parameter		HCP in India (%)	HCP in other countries (%)	P VALUE
1.	Stress levels (140/200)	Medium	48	69	0.004
		High	17	6	0.03
2.	Anxiety levels (129/200)	Borderline case	18	39	0.05
		Abnormal case	50	22	0.00007
3.	Depression levels (58/200)	Borderline case	12	26	0.02
		Abnormal case	11	9	0.8

On analysis of questionnaire regarding mental health of health care professionals, moderate level stress was seen in 48% of individuals in India in comparison to 69% of those belonging to countries other than India which was found to be a significant difference (p value= 0.004). High levels of stress were present in 17% of individuals in India which was significantly higher than that in other countries which was 6%. (p value= 0.026658). Borderline cases of anxiety were seen in 39% of participants in other countries which was significantly higher than that in India (18%).

(p value= 0.047). Of all the participants, there were 50% abnormal cases of anxiety in India which was significantly higher than those in other countries. (p value > 0.0001). Varying degrees of depression was observed in 29% of our total study population. It was found that 26% of individuals in countries other than India had borderline depression. This was significantly higher than the participants with borderline depression in India. (p value= 0.019). Abnormal cases of depression were 11% and 9% among participants from India and other countries respectively (table-2)

Table no:3a: relation of stress levels with gender, work experience and working hours per day

Parameters		Moderate Stress			Severe Stress		
		Healthcare professionals of India	Healthcare professionals in other countries	P value	Healthcare professionals in India	Healthcare professionals in other countries	P value
Gender	Male	26/43 (60.5)	24/35 (68.6)	0.5	3/43 (9.30)	NIL	
	Female	22/57 (38.6)	45/64 (70.31)	0.0005	15/57 (26.32)	5/64 (7.81)	0.006
Working Experience	<10Y	33/66 (50)	22/32(68.75)	0.08	14/66 (21.21)	Nil	
	>10Y	15/34 (44.1)	46/68 (67.7)	0.02	5/34 (14.71)	5/68 (7.35)	0.23
working hours	<8H/day	16/46 (34.78)	6/18 (33.3)	0.9	19/46 (41.30)	2/18 (11.11)	0.42
	>8H/Day	32/54 (59.3)	17/59 (28.81)	0.001	18/54 (33.33)	10/59(17)	0.043

Table no. 3b: relation of Anxiety levels with gender, work experience and working hours per day

Parameters		Borderline Anxiety			High anxiety		
		Healthcare professionals of India	Healthcare professionals in other countries	P value	Healthcare professionals in India	Healthcare professionals in other countries	P value
Gender	Male	9/43 (20.93)	13/35(37.14)	0.001	18/43(41.86)	5/35 (14.29)	0.003
	Female	9/57(15.8)	26/64 (40.63)	0.003	32/57 (56.14)	17/64 (26.6)	0.0009
Working Experience	<10Y	15/66 (23.21)	10/32 (26.7)	0.4	33/66 (50)	8/32 (25)	0.02
	>10Y	3/34 (8.82)	29/68(42.65)	0.0005	17/34 (50)	14/68 (20.58)	0.002
Working Hours	<8H/Day	10/46 (21.74)	8/18 (44.4)	0.2	25/46 (54.35)	5/18 (27.7)	0.04
	>8H/Day	11/54 (20.37)	26/59(44.07)	0.03	28/54 (51.85)	16/54 (29.63)	0.005

Table no: 3c: Relation of depression levels with gender, work experience and working hours per day

Parameters		Borderline depression			Abnormal case of depression		
		Healthcare professionals of India	Healthcare professionals in other countries	P value	Healthcare professionals in India	Healthcare professionals in other countries	P value
Gender	Male	7/43 (16.28)	10/35 (28.6)	0.2	5/43 (11.620)	NIL	-
	Female	5/57 (8.8)	16/64 (25)	0.02	7/57 (12.28)	8/64 (12.5)	1.0
Working experience	<10Y	4/66 (6.06)	7/32(21.9)	0.02	7/66 (10.6)	4/32 (12.5)	0.9
	>10Y	8/34 (23.53)	19/68 (28)	0.6	4/34 (11.8)	5/68(7.35)	0.5
Working hours	<8H/Day	5/46 (10.86)	6/18 (33.33)	0.048	4/46 (8.7)	3/18 (16.66)	0.31
	>8H/Day	8/54 (14.81)	17/59 (28.81)	0.03	10/54 (18.51)	5/59 (8.47)	0.10

Severe cases of stress, anxiety and depression were more prevalent among females and those who had work experience less than 5years (table no: 3a,b,c)

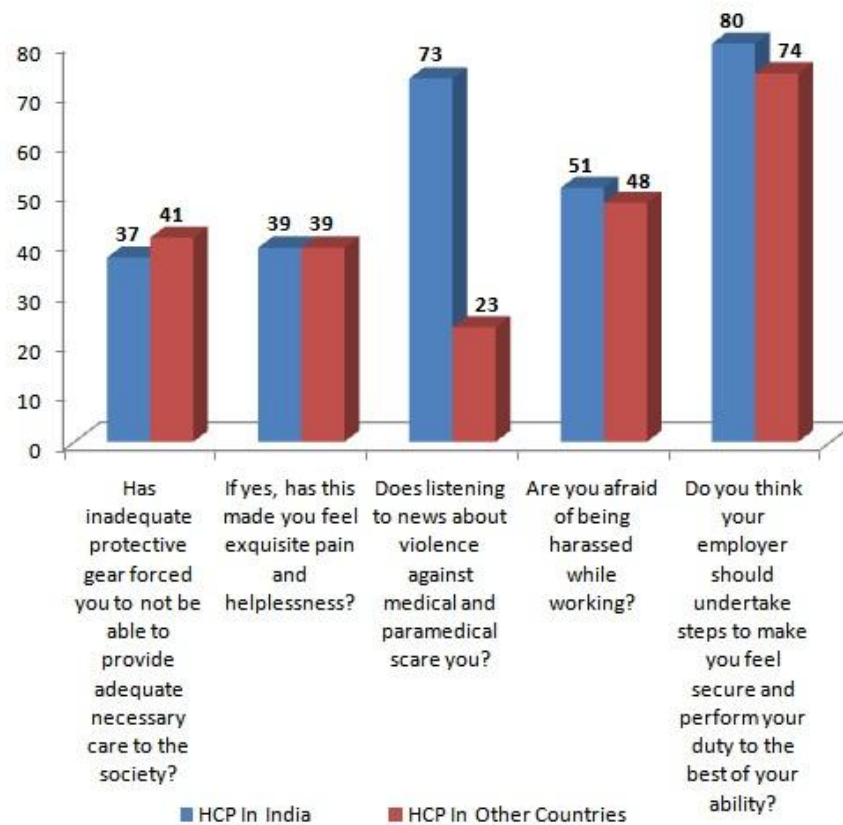


Figure no.1- causes affecting mental health of the study participants

Both groups agreed to the fact that inadequate protective gear has been a cause for feeling of helplessness to provide adequate necessary care to the society. HCP in India agreed more to that the news about violence against healthcare professionals frightens them, in comparison with HCP of other countries. Although both the groups were equally afraid of being harassed while working. HCP of both the study groups felt the need for employers to take steps to make them feel secure and perform their duty to the best of their ability (figure-1)

Discussion

COVID -19 pandemic has not only increased the burden on healthcare workers but has also exposed them to the risk of coming in contact with the disease itself. This has affected the mental health status and has scared the professionals to a variable extent. Variable prevalence of mental health issues has been reported from various countries^[9-12].

In present study it was observed that 66% participants were doctors and number of female participants was significantly higher among the entire study population which was 60.5% (121/200). Similar findings have been observed by Elbqry et al^[13]. More than 50% of our study participants were between 20 to 30 years of age. 74.5% participants working in frontline had work experience less than 10 years while Elbqryetal^[13] reported that 96.2% had experience less than 10 years. On other hand, in India healthcare professionals with work experience of less than 5 years were significantly higher. Only 22.5% among all participants had prior experience of working in a quarantine ward. Working hours were more than 8h per day in 76.62% participants of other countries (23 of the participants did not respond to this question) compared to 54% of Indian hcps. 58% of Indian hcps had night shifts of more than 6h which was significantly higher than the percentage of hcps who had nights shifts of more than 6h in other countries during the pandemic(Table1).

An analysis of questionnaires regarding mental health of healthcare professionals it was observed that 70% of all participants had moderate to high stress. Another study has reported Prevalence of moderate to high stress to be 26.9% in general population from Uttar Pradesh while Elbqrietal from Egypt have reported a high prevalence (98.5%)^[13,14]. Medium level stress was seen significantly more prevalent among participants from countries other than India ($p = 0.004$) while higher level stress was more prevalent among Indian health care professionals ($p = 0.03$) (Table 2). Thus, it was concluded that high level stress was more prevalent among Indian study participants. Another study from India has reported prevalence of acute stress to be 9.5% among residents of Uttar Pradesh while^[14]. Moderate stress was found to be significantly higher among female healthcare professionals in other countries ($p < 0.05$). While, severe stress was more prevalent among female HCPS in India ($p < 0.05$) (Table 3a).

In present study anxiety was observed in 64.5% (129/200) of all participants. Although borderline anxiety was significantly more prevalent among participants from other countries (p value = 0.05), however abnormal case of anxiety was highly prevalent among Indian participants (p value = 0.00007) (Table 2). A study from Singapore has also reported only 14.46% prevalence of anxiety among healthcare personals^[15]. The prevalence reported is much less than that observed in present study. This difference was probably because of the fact that study in Singapore was performed early in outbreak when the impact of pandemic was not very high. Salazar de Pablo etal^[16]in their systemic review and meta- analysis, have reported anxiety among 29%. However, both the studies have not mentioned about severity of anxiety levels. It was also found that borderline anxiety was significantly prevalent in female HCPs of other countries than female HCPs in India ($p < 0.05$), while abnormal cases of anxiety were significantly higher among HCPs in India ($p < 0.001$) (Table 3b).

Depression was seen among 29.5% of all participants. As depression is considered to be a long-term impact of an event, not much evidence of it has been observed both in India and in other countries. Although, among all the cases of depression, borderline depression was significantly higher in female HCPs of countries other than India ($p=0.02$). (Table 2, 3c)

Severe stress and abnormal cases of anxiety were more common in females in India while borderline depression was more prevalent in male participants but this difference was not significant. Lai et al^[17] has also reported higher prevalence of anxiety and depression among females. More work experience was associated with moderate stress and borderline anxiety among participants from other countries as compared to their Indian counterparts and this difference was significant (Table 3a & 3b).

Prevalence of stress and anxiety was inversely related to the work experience among Indian participants while these parameters were directly proportional to the work experience among participants from other countries.

Probable reasons affecting mental health were: inadequate protective gears which caused feeling of helplessness in patient care, media projection of workplace violence especially among participants from India, whereas, both the study groups were equally afraid of getting harassed while working. Both the study groups felt an extreme need for employers to take steps for ensuring adequate workplace security for the frontline workers. (Figure no 1)

Limitation

In our study, female healthcare professionals from other countries participated more in comparison to males. Although, in India there was proportionate participation from both males and females. Healthcare professionals of age group of 20-30y participated much more than other age groups in India whereas the participation was proportionate from all age groups in other countries. Participation from doctors was higher in both

study groups whereas nurses and paramedical personals were reluctant to participate, especially in India. Healthcare professionals from private sector participates much less than government sector participants in both our study groups. Also, our study was completed before the onset of second phase of COVID-19 which was more severe than the first wave. Therefore, affects on mental health of our healthcare professionals is expected to be higher. There by, creating a need for follow up study of similar kind so that the actual impact on mental health can be evaluated.

Conclusion

Severe stress and abnormal cases of anxiety were significantly higher among Indian female HCPs compared to other countries while borderline depression was more prevalent among HCPs of other countries. This is even more significant because during this period of study although the COVID peak in India was less severe in comparison to the peak in other countries in the study, yet the level of severe stress and anxiety was found to be more significant in India. The pandemic has found to have a significant impact upon the mental health of both our study groups. Media projection about workplace violence and workplace job security needs to be taken well care of to protect the mental health of HCPS in India.

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