Professional Challenges Encountered by Healthcare Professionals and its Impact on their Well-Being during the COVID-19 Pandemic

Supreet Kaur Bhasin*, Vanya Gupta**, Triptish Bhatia***

Abstract

Background: The unprecedented public health concern of COVID-19 pandemic poses challenges at structural and psychosocial levels, increases the risk of psychological morbidity and affects the well-being of healthcare professionals (HCPs).

Objective: The study aimed to understand the professional challenges faced by HCPs during the COVID-19 pandemic in India. It also aimed to understand the psycho-social impact of these challenges on the subjective well-being of HCPs.

Method: A cross-sectional web-based survey was designed, consisting of twenty-eight multiple choice or Likert-type questions. The survey had four mental health domains to be explored.

It was an anonymous survey with online informed consent and was circulated on social media groups of doctors and nurses in Delhi, India using snow-ball method.

Multivariate analysis of variance (MANOVA) was performed to study demographic and COVID-19 related factors on psychological and occupational variables. Further, thematic analysis and Latent Dirichlet Allocation (LDA) were used for short answer qualitative questions.

Results: Results of 253 HCPs showed that those dealing with COVID-19 patients, scored lower on perceived occupational preparedness ($F_{1,251} = 6.266$, $p < 0.0001$), work satisfaction ($F_{1,251} = 40.998$, $p < 0.0001$) and well-being ($F_{1,251} = 53.529$, $p < 0.0001$) as compared to non-COVID-19 duty HCPs; although they displayed less challenges in adaptation and protection ($F_{1,251} = 17.413$, $p < 0.0001$). Based on LDA and thematic analysis, seven clusters were identified each- to understand the greatest struggle and subsequent support needed by HCPs during the pandemic.

Conclusions: The study highlights the immediate need to protect the mental health of HCPs by establishing comprehensive psychological interventions and services.

Key words: Covid-19, Well-being, Healthcare professionals, Latent Dirichlet Allocation.

Introduction

The COVID-19 pandemic reached the Indian subcontinent in January 2020[4], and impacted the healthcare, lifestyles, and economy of the country. In India, the first case of COVID-19 was reported on January 30, 2020 and by 17th May, 2020 the number of cases stood at an enormous 90,927 (approx.) infected individuals and 2,872 deaths; and these numbers have only been surging higher since then[5].

In facing and fighting COVID-19, the role of health care professionals (HCPs) is of prime importance[6]. However, emerging literature around COVID-19 in India shows that healthcare workers face unparalleled challenges. With the increasing number of cases, overwhelming workload, lack of PPE kits, wide media coverage and difficulties in implementing health policies, serious concerns about the safety of frontline medical staff have been raised[7,8]. Previous research focusing on SARS or H1N1 disease has also highlighted, how these circumstances result in adversities for HCPs[9]. High levels of psychological distress, extreme uncertainty, vulnerability, threat to life, anxiety, and increased depressive symptoms among healthcare workers, across different countries were reported[10-12]. Recent studies, centering specifically on the mental health of frontline healthcare workers, during COVID-19, have also established similar symptoms[6].

Risks to healthcare workers, can be intensified by pre-existing gender roles as well. For instance, it was observed in a study, that most healthcare workers in emergency departments were female nurses, and they experienced amplified distress due to the gendered expectations[6, 13]. Distress and disengagement are further elevated in

*Assistant Professor, Department of Psychology, University of Delhi, **Child Psychologist, Healing Self, Ghaziabad, Uttar Pradesh, ***Senior Research Scientist, Department of Psychiatry, Centre of Excellence in Mental Health, ABVIMS, Dr Ram Manohar Lohia Hospital, Baba Kharak Singh Marg, New Delhi - 110 001.
Corresponding Author: Dr Triptish Bhatia, Senior Research Scientist, Department of Psychiatry, Centre of Excellence in Mental Health, ABVIMS, Dr Ram Manohar Lohia Hospital, Baba Kharak Singh Marg, New Delhi - 110 001. Tel: 9910107210, E-mail: bhatiatriptish@gmail.com.

healthcare workers during such pandemics due to the additional fear of risk of infection to family, relatives, and colleagues[9].

Working in difficult conditions often leads to dissatisfaction and negative organisational performance[14]. Further, psychosocial and work environment factors have a direct impact on job satisfaction[15]. However, in India, in addition to fighting the deadly disease, healthcare workers are also facing out-turns of stigma[16]. Cases of physical violence and assault of health workers have been reported at several places[8].

Persistent challenges during the COVID-19 pandemic in India have thus heightened the psychological burden experienced by HCPs, posing a threat to their well-being. Studies pertaining to HCPs mental health outcomes and interventions during COVID-19 outbreak are the need of the hour, but are relatively scarce in India. To address this gap, the present study had two aims. The primary aim was to explore the professional challenges encountered by HCPs during COVID-19 pandemic. Secondarily, the study aimed to understand the psycho-social impact of these challenges on the subjective well-being of HCPs. Through this, it aims at providing insights into the mental health of Indian HCPs and pave the way for timely and comprehensive actions to be taken to protect their mental health.

Material and Methods

Study design

The current study was conducted from the first phase till the second phase of lockdown during the COVID-19 pandemic in India, i.e., from 25th March 2020 - 17th May 2020. For this purpose, a cross-sectional web-based survey was designed to explore the nature of professional challenges encountered by HCPs and its impact on their well-being.

Development of the Survey: The survey questions were based on previous pandemic researches and available literature on COVID-19. Furthermore, brief informal interviews were conducted with five experienced physicians, to identify the key challenges faced by HCPs and its bearing on their mental health, relationship with family, and occupational engagement and satisfaction. Utilizing these anchor points, questions were formulated, which were further subjected to face validity by a working group of senior researchers and practicing physicians and were accordingly reviewed and revised. These questions were thereafter pilot tested on a subset of intended participants. Based on the validation process, some questions were discarded from the item pool and subsequently, final survey consisted of 28 questions apportioned into three sections.

1. Socio-Demographics: This section focused on the demographic details and professional characteristics such as age, sex, region, occupational designation (doctors, nurses, or paramedics) and workplace details.

2. Changing dynamics and negotiating professional challenges explored the psycho-social impact of the pandemic on the HCPs professional and personal roles and responsibilities. A total of 21 questions were distributed among three domains, i.e., Perceived Occupational Preparedness, Work Satisfaction, and lastly Adaptation and Protection.

    These sub-domains were chosen, based on researches highlighting the impact of a pandemic on HCPs, bringing to attention factors like-overwhelming workload, insufficient knowledge, depleted safety resources, inadequate support, and fear of contagion to one's family, as sources of psycho-emotional stress[17,18]. Additionally, with the confinement norms, increased teleconsulting, managing multiple COVID-19 related queries, and indirect patient care, further manifested as dissatisfaction and discontent among the HCPs[9,19].

3. Well-Being and coping was directed at investigating the HCPs overall well-being status and the coping mechanisms adopted by them. This becomes critical, since occupational and emotional distress, directly impinge on one's subjective well-being[6]. The well-being profile assessed physical, behavioural, cognitive and emotional parameters, as well as the sense of autonomy experienced. These domains were borrowed from the well-being models of Diener[20] and Ryff[21]. Furthermore, inspiration from various scales of subjective well-being was drawn, to identify the key aspects, while ensuring a short well-being profile.

Questions were then transferred in a Google form. For multiple-choice questions, response options were organised on a 5-point Likert scale, ranging from lowest to highest, in the form of "not at all to extremely" respectively. Two short answer questions were also incorporated to gain insights about the biggest struggle confronted and the consequent aid required by the HCPs. Lastly, a brief question aimed at understanding the multiple coping mechanisms adopted, was included. Some of the questions were negatively directed to warrant valid responses amongst participants. The survey was designed to be comprehensive yet short and user friendly, requiring 8 - 10 minutes for completion. The form was then shared with the target population using a URL link.

Participants

Participants were recruited through purposive and snowball sampling. The inclusion criteria for participants was: to be a practicing medical professional, i.e., doctor, nurse, and paramedic. Those without an encounter with COVID-19 patients were also eligible. Those without completion of their medical degrees, were excluded.

Procedure

The link along with a brief rationale of the study was circulated among professional networks of practicing medical professionals, which was further shared with their professional colleagues and friends. The reach of the study was widened by spreading it on social media platforms such as Facebook groups of doctors' and nurses' bodies, groups of working residents across government and private hospitals, WhatsApp groups and the like. Gentle reminders were consistently sent once a week to ensure maximum participation. After explaining the study, informed consent was obtained using an electronic agreement, and the survey was available for completion for a period of 54 days.

Statistical methods

Data gathered was analysed using descriptive and inferential statistics, by employing SPSS for windows version 23[22]. Multivariate analysis of variance (MANOVA) was used to see effect of all socio-demographic and COVID-19 related factors on four main domains, i.e., Perceived Occupational Preparedness, Work Satisfaction, Adaptation and Protection, and Well-being Parameters.

The data gathered was transported onto a spreadsheet and coded, to ensure confidentiality of all the participants. For analysis, all tests were conceived to be 2-tailed and the significance level was set at $\alpha = 0.05$.

Short answer questions were analysed using thematic analysis and run through an unsupervised Machine Learning model, known as Latent Dirichlet Allocation (LDA), to ensure rigour in analysis.

Results

Demographic and Psychological Profile of the sample
(Table 1): A total of 264 participants responded to the survey. Out of these 11 were from abroad and were excluded. Sample (N = 253) was equally represented by both sexes, and also among those who were posted for COVID-19 duty (hereafter referred as CoD) and those not involved in COVID duty (Non-COVID-19, hereafter referred as N-CoD). CoD participants were significantly younger than N-CoD participants ($F_{1,251}$ =27.08 (p < 0.0001). Sample included 176 doctors, 66 nurses and only 11 paramedics. 31% of

doctors were on CoD while 48% nurses were performing COVID-19 related duties. Significantly more government employees took the survey among CoD persons while among N-CoD participants significantly more were private practitioners ($F_{1,251}$ = 39.39, p < 0.0001). Majority of CoD participants were from outside Delhi NCR ($F_{1,251}$ = 19.31, p < 0.0001).

In case of psychological profile, N-CoD participants perceived better occupational preparedness ($F_{1,251}$ = 28.606, p < 0.0001), more work satisfaction ($F_{1,251}$ = 77.205, p < 0.0001); more difficulty in adaptation and protection ($F_{1,251}$ = 36.031, p < 0.0001) and better score on wellbeing parameters ($F_{1,251}$ 98.135, p < 0.0001), than CoD participants (Table I).

Table I: Demographic and psychological profile of the sample.

	COVID-19 duty (CoD)	No COVID-19 duty (N-CoD)	Chi square/ F-value	p-value
Gender Male/Female	45/45	81/82	0.002	0.534
Age in years	35.28 ± 8.842	42.92 ± 12.282	27.077	< 0.0001
Occupation Doctor/Nurse/Paramedic	54/32/4	122/34/7	6.57	0.038
Type of working place Government/private	68/22	56/107	39.39	< 0.0001
Type of duty 1/2/3/4*	43/29/10/8	2/20/50/91	124.57	< 0.0001
Region Delhi NCR/Outside Delhi	40/118	50/45	19.31	< 0.0001
Perceived occupational Preparedness	9.74 ± 3.33	12.05 ± 3.20	28.606	< 0.0001
Work satisfaction	34.56 ± 6.78	42.55 ± 7.01	77.205	< 0.0001
Adaptation and protection	8.33 ± 2.97	10.95 ± 3.50	36.031	< 0.0001
Well-being parameters	61.60 ± 9.68	74.14 ± 9.61	98.135	< 0.0001

COVID-19 ward/ Emergency ward/General ward/General OPD

Changing dynamics and negotiating professional challenges: MANOVA was performed to see the effect of various demographic and COVID-19 related factors on all outcome variables (Table II). Analysis suggested that male ($F_{1,246}$ = 3.89, p = 0.041); participants working in private facilities ($F_{1,246}$ = 19.163, p < 0.0001) and participants from Delhi ($F_{1,246}$ = 4.207, p = 0.049) had higher Occupational Preparedness scores than their counterparts. Those on CoD perceived lower Occupational Preparedness than N-CoD participants ($F_{1,246}$ = 6.266, p = 0.013).

Delhi/NCR participants had better work satisfaction than outside Delhi participants ($F_{1,246}$ = 4.135, p = 0.043) and CoD participants had less work satisfaction ($F_{1,246}$ = 40.998,

p < 0.0001). There was no difference between males and females, and doctors and nurses.

Older participants had higher scores, indicating greater difficulty in adaptation and protection ($F_{1,246}$ = 9.358, p = 0.002), and participants on CoD had better ability to adapt and protect themselves and their family ($F_{1,246}$ = 17.413, p < 0.0001).

Further, participants with higher age had better well-being than younger age groups ($F_{1,246}$ = 19.426, p < 0.0001. Similarly, those on CoD perceived less well-being than N-CoD participants ($F_{1,246}$ = 53.529, p < 0.0001).

Table II: Effect of demographic parameters in CoD on perceived occupational preparedness, work satisfaction, adaptation and protection, and well-being parameters (only significant factors).

| Outcome variable	Correlates	Mean sum of squares	F (1,246)	p-value
Perceived	Gender	36.610	3.897	.049
Occupational	Type of working place	180.000	19.163	.000
Preparedness	Region	39.521	4.207	.041
	COVID-19 duty	58.857	6.266	.013
Work satisfaction	Age	245.986	5.219	.023
	Region	194.905	4.135	.043
	COVID-19 duty	1932.211	40.998	.000
Changing dynamics and	Age	99.005	9.358	.002
perceived risk to family	COVID-19 duty	184.227	17.413	.000
Well-being	Age	1666.476	19.426	.000
Parameters	COVID-19 duty	4592.102	53.529	.000

Well-Being parameters of Health Professionals: MANOVA was computed to see the effect of socio-demographic and COVID-19 participation on the subdomains of wellbeing (Table III). Contrary to expectations, older persons had better physical health ($F_{1,246}$ = 8.16, p = 0.005) while CoD participants had deterioration in physical health ($F_{1,246}$ = 26.097, p < 0.0001). Younger professionals felt more behavioural disturbances ($F_{1,246}$ = 30.82, p < 0.0001). In case of cognitive operations, older HCPs had better cognition than younger ($F_{1,246}$ = 10.343, p = 0.001); persons with CoD had more cognitive disturbances than N-CoD ($F_{1,246}$ = 25.41, p < 0.0001); and females experienced greater struggle in maintaining their cognitive operations than males ($F_{1,246}$ = 4.46, p = 0.036). Males also showed fewer negative emotions ($F_{1,246}$ = 12.12, p = 0.001) and more positive emotions ($F_{1,246}$ = 3.92, p = 0.049). Higher age ($F_{1,246}$ = 9.12, p = 0.003) and N-CoD professionals ($F_{1,246}$ = 39.09, p < 0.0001) showed fewer negative emotions, while nurses expressed more negative emotions than

doctors ($F_{1,246}$ = 5.37, 0.021). Better sense of autonomy was related to higher age ($F_{1,246}$ = 19.52, p < 0.0001), professionals working in Delhi NCR ($F_{1,246}$ = 5.73, p = 0.017), and N-CoD ($F_{1,246}$ = 53.026, p < 0.0001).

Table III: Effect of demographic parameters on various well-being parameters (only significant factors).

Outcome variable	Correlates	Mean sum of squares	F (1,246)	p-value
Physical health	Age	15.284	8.156	0.005
	COVID	48.903	26.097	0.000
Behavioral disturbances	Age	89.718	30.819	0.000
	COVID	132.564	45.537	0.000
Cognitive operations	Gender	8.992	4.463	0.036
	Age	20.840	10.343	0.001
	COVID	51.197	25.410	0.000
Negative emotions	Gender	273.075	12.121	0.001
	Age	205.475	9.120	.003
	Occupation	121.051	5.373	.021
	COVID	880.724	39.091	.000
Sense of autonomy	Age	49.603	19.518	.000
	Region	14.562	5.730	.017
	COVID	162.981	64.131	.000
Positive emotion	Gender	37.925	3.916	.049
Well being	Age	1902.205	21.348	.000
	COVID	4724.952	53.026	.000

Lastly, triangulation analysis, by employing thematic analysis
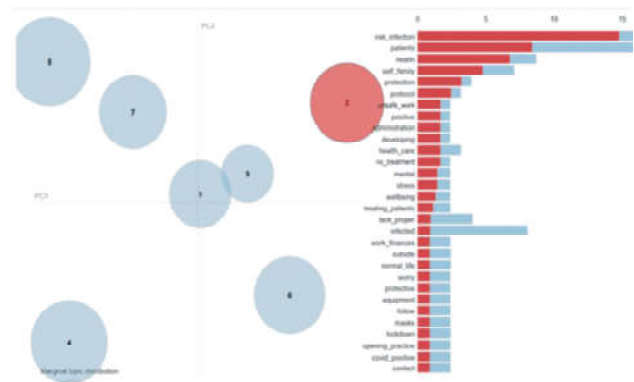
[1] Other themes, as represented by different circular clusters are:-
1: On-field obstacles impacting professional role and duties, 3: Concerns over callous public behaviour, 4: Challenged work-life balance, 5: Struggling with financial insecurity, 6: Maintaining positive outlook and productivity, and 7: Bearing with constraints of lockdown in everyday life.

Fig. 1: Theme 2, titled- "Risk of Infection to self and family" with its salient codes, deduced by using statistical model- LDA (unsupervised machine learning technique).
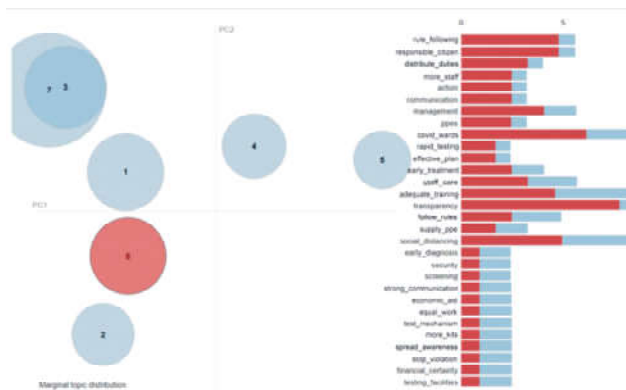
2 Other themes as represented by different circular clusters are:-
1: Improved availability of safety measures, 2: Responsible citizen behaviour, 3: Transparent communication and transmission of reliable information, 4: Regulated teamwork, 5: Financial assistance, and 7: Stern measures for implementation of safety norms.

Fig. 2: *Theme 6, titled- "Keen surveillance and Organised planning" with its salient codes, deduced by using statistical model- LDA (unsupervised machine learning technique).*

and LDA, led to seven prominent clusters each, for both the questions, aimed at understanding the biggest struggle and subsequent support mechanisms needed by HCPs respectively (Fig. 1 and 2).

Coping strategies adopted

Question 27 required participants to choose coping mechanisms, from a list of coping strategies which they believed were helpful for them. Family support (81.4%) and receiving sufficient knowledge about the pandemic (76.3%) were two chief coping strategies adopted by all the HCPs. Further, those professionals engaged in N-CoD also employed other coping mechanisms like maintaining adequate connectivity, relying on the solidarity of their co-workers,
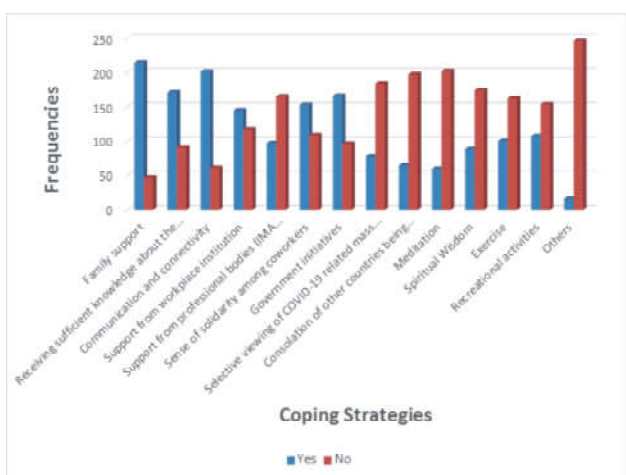

Fig. 3: *Comparison of coping strategies adopted by COVID-19 and Non-COVID-19 healthcare professionals.*

and exercising, etc. The CoD professionals, however, could not employ much of these strategies. Fig. 3 illustrates the perceived coping strategies of all participants.

Discussion

This cross-sectional survey revealed a severe impact on HCPs occupational and psychological well-being during COVID-19 pandemic in India. It revealed that HCPs on CoD had significantly lesser perception of occupational preparedness, due to close encounter with the practical challenges of adhering to protocols for infection control measures[7]. Though N-CoD professionals received similar training for new barrier precautions and hygiene recommendations[23], but being physically distant from the field, their appraisal of various shortcomings like lack of protective gear, and intensive workload, could have been relatively diminished[17]. Males were found to have significantly better occupational preparedness than females. This could be because relatively more males are often found in high-level positions at workplace, making it easier for them to be a part of a quick information loop, and avail resources easily, thus feeling more prepared, as found in previous studies[25]. Also, women have more household and caretaking roles in our society in general, making it more difficult to maintain work-life balance[26]. Professionals working in private settings, perceived better occupational preparedness, since the load to deal with Covid-19 patients has been majorly borne by government institutions[27]. Further, professionals working in Delhi/NCR experienced higher occupational preparedness, which could be because of frequent training measures, greater sense of awareness and improving infrastructure.

HCPs positioned at the COVID care units, experienced much lower work satisfaction. This may be due to exponential increase in workload and numerous challenges thrust upon them, like-fluctuating work shifts, wearing PPE for long hours, high-risk environments, and facing misconducts[29 30]. Furthermore, the absence of well-established management guidelines, inefficient communication, depleted workforce, and working with scarce resources also held implications for their mental well-being and work satisfaction[7]. This was seen more in younger HCPs because they constituted the bulk of frontline workers. Although unfamiliarity of disease was persistent among all HCPs, these younger professionals lacked experience, adequate knowledge, attitude and appropriate preparedness towards the pandemic, as found in corresponding research[31]. Since elderly are more vulnerable to fatal infection of COVID-19, the private institutions in India avoided engaging HCPs of >60 years, unless absolutely necessary, further resulting in their higher work satisfaction[32, 33]. Work satisfaction was also found to be higher among HCPs working in Delhi, since they felt occupationally better prepared at their work environment.

Additionally, Delhi being the capital, the medical associations have been more influential in warranting better safeguarding measures against the stigmatisation, violence and harassment faced by the HCPs[28].

N-CoD professionals struggled more with the challenges of adaptation and protection. In congruence with former studies, the current study revealed that individuals working with COVID patients for some time now, experienced less anxiety, because of having adjusted to their roles and new protocols[6]. Age is another influencing variable primarily for two reasons. Firstly, for the older HCPs, newer challenges like adapting to rapid digitalisation with virtual/telemedicine generated frustration being available for their patients at uncertain hours and longer periods of time posed additional challenges of work life balance and burnout[34,35]. Secondly, the presence of comorbidities with increasing age, and thereby greater risk from COVID, added to the fear of infection and difficulty in adapting to the changed healthcare dynamics[36].

Lastly, the overall well-being of all the HCPs was compromised. Feelings of uncertainty, fear of contagion, psycho-social impact of confinement and the challenge of disrupted healthcare delivery systems were common among all medical staff[17,37,38]. These factors can act as distressing agents, inducing a sense of helplessness and powerlessness[39]. Well-being of CoD professionals was found to be significantly lower in comparison with the N-CoD professionals, in congruence with other researches, highlighting the numerous challenges confronted by them, like, irregular working hours, heightened workload, anxiety, apprehension of unfamiliar clinical roles and critical decisions about patient care[40,41]. Additionally, while on one end persistent exposure to the virus posed the grave risk of infection to self and family, on the other end was the challenge to provide physical and emotional support to one's family[42]. This was more pronounced among the female HCPs, who showed more negative emotions, especially the nursing staff, frequently involved in direct COVID patient care. Similar trends of gendered nature of occupational distress and amplified challenge of work life balance have been observed in former studies[43,13]. These stressors, undoubtedly, exhaust physically, strain emotionally and lead to psychological burdening of frontline workers, severely impacting their well-being. However, the older HCPs showed higher well-being. This could be, because most of the younger professionals were incorporated in COVID-related responsibilities. Also, it is the tendency of older people to perceive hassles as less stressful and wisdom helps them remain emotionally stable in times of distress[44].

Hence, uncertainties like fear of risk of infection, ensuring performativity during confinement and adhering to professional and personal responsibilities were the most prominent stressors for the HCPs, as observed through LDA and thematic analysis. To deal with these stressors various coping strategies were used by HCPs though, more prominently by the N-CoD professionals. The CoD professionals had lesser opportunity to employ many of the coping strategies due to limited flexibility in working hours and lack of adequate mental health intervention at workplaces. Further, majority of participants emphasized the need for improved availability of safety measures, stern measures for implementing safety norms/principles, and keen surveillance and organised planning. Therefore, intensive intervention at the psychological and administrative level is critical for improving well-being of HCPs.

Conclusion and Implications

The present study on HCPs has highlighted the various struggles being faced by them at structural and psycho-social level, especially those placed in CoD. The study further showed that their overall mental health and well-being was negatively impacted. Mental health of these professionals is important for ensuring quality of care, keeping the healthcare system running and for their personal health and quality of life. Hence, services of psychological assistance and counselling, targeted at HCPs should be deployed immediately at workplaces. In addition, coping strategies like "containment" and "buddying-up" can further improve their well-being.

Limitations

The study has certain limitations. First, the sample size is small and taken from different regions of India, without equal distribution. Therefore, representation of the sample is skewed, limiting the generalisation of our findings. Second, the study was carried out during the first two months of the pandemic in India; thereafter, the number of cases has overwhelmingly risen. Consequently the study cannot account for the changing dynamics of HCPs well-being. Lastly, since there was no prior assessment of the mental health of these HCPs, effectively distinguishing between the pre-existing symptoms and newer symptoms of declined well-being is not feasible.

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