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Research Article

EFFECT OF THE COVID 19 PANDEMIC'S EARLY PHASE ON THE PSYCHOLOGICAL HEALTH OF HEALTHCARE PROFESSIONALS COMPARED TO THE ESSENTIAL WORKERS AND GENERAL POPULATION

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ABSTRACT

The Corona virus has affected the mental health of primary frontline healthcare workers as well as those who are working in supermarkets and drivers referred as essential workers. The present prospective cross sectional study was thoroughly planned to compare the mental health status of healthcare workers versus other essential workers in the initial phases of the COVID-19 pandemic in India.

The participants were selected by snowball sampling technique from Bareilly, Uttarpradesh, India. The present prospective cross sectional study was divided into 3 groups: Group A (Healthcare workers), Group B (Essential Workers), and Group C (general population). All the group participants were associated with five points: :1. a loved one dying from COVID 19, 2. family/loved ones' health and well-being, 3. a loved one contracting COVID19, 4. one's own health and well-being, and 5. society's health and well-being. Data was collected as per General Health Questionnaire (GHQ) method which contained questions about the individuals' sociodemographic traits and COVID-19-related questions.

The depression ($p<0.001$), anxiety ($p<0.003$), stress ($p<0.564$), and quality of life levels ($p<0.001$), were checked in all the three groups and it was found that group A had the best mental stability and maintained the levels of depression. Another finding in our study showed that group C had high levels of depression and anxiety, whereas essential workers had very poor quality of life during the COVID-19 pandemic period. Healthcare workers have higher mental health stability than other groups. Moreover, essential workers need more protected equipment and good training for their safety.

INTRODUCTION

Wuhan, China, was the first city in the world where COVID-19 was reported in December 2019(Sharma, Ahmad Farouk, and Lal 2021). The attack by the COVID-19 virus was declared a Public Health Emergency of International Concern by the World Health Organization in January 2020. Symptoms of COVID-19 patients include respiratory uneasiness, impaired lung function, and cardiac failure with gastrointestinal manifestations (Aghagoli *et al*. 2020; Baig 2020; Henry *et al*. 2020). We polled healthcare professionals and other essential employees about their mental health. These two groups of persons have experienced significant psychological discomfort and require assistance with mental health. Health care workers (HCWs) include doctors, nurses, sanitary staff members, pharmacists, laboratory technicians, clerks, etc., who are in contact with the infected person with COVID-19 in a hospital (Asselah *et al*. 2021; Chua *et al*. 2004) and are directly involved in the treatment and primary assessment of COVID-19-infected people and are in an ambiguous situation between self-preservation and professional obligations and they also have to protect their loved ones against exposure (Perrin *et al*. 2009; Robertson *et al*. 2004).

According to earlier research by Lu *et al*. (2006) on the Middle East respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS), 17.3%, 5%, and 20% of HCWs, respectively, were experiencing mental health symptoms, acute stress disorder, stigmatisation (Konduru L *et al*. 2022), Das N, and community rejection (Lu *et al*. 2006) and also have fears and concerns about infecting others (family members). This stress has a positive correlation with post-traumatic stress symptoms and psychological distress in infected HCWs (Khalid *et al*. 2016; Lee *et al*. 2018).The effects of stress on HCWs have been covered in a number of studies. Frontline Chinese medical employees were found to be much more afraid, worried, and sad than non-medical staff at the same institute, according to research by Lu *et al*. in 2020.

In a survey conducted online by Zhang *et al*. in 2020, it was discovered that non-medical workers had higher prevalence and severity of depression, anxiety, sleeplessness, and

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obsessive-compulsive symptoms. These non-medical workers (having non-healthcare occupations) include police, firefighters, supermarket workers, and transport workers, like all types of delivery drivers, are referred to as other essential workers (OEWs). These are important as HCWs because of their requirements in the smooth functioning of daily life. Both HCWs and OEWs have equal chances of being affected by COVID-19 and suffer from an equal level of stress and depression. but their mental health has not been examined in previous pandemic research.

In this study, the mental health of HCWs and OEWs in the Bareilly district of Uttar Pradesh, India, during the COVID-19 epidemic were compared. The initial goal was to gauge how the general public felt about the main issues raised by the two organisations. Second, to evaluate whether either group has higher levels of negative emotions than the overall population, such as depression, anxiety, and stress symptoms.

METHODS

The purpose of the current study was to evaluate the mental health of healthcare professionals and other critical professions. The investigation was carried out with the aid of an online survey due to the COVID-19 epidemic.

Ethical approval

The present prospective cross sectional study was conducted from July 12th, 2019 to December 31st, 2019 at the Rajshree Medical Research Institute, Bareilly, Uttarpradesh, India. The study received ethical approval from the local ethical committee of Rajshree Medical Research Institute with number RMRI/ Ethical/ 2019-20/342 on dated 01st July 2019.

Selection of participants

Professional health care workers (doctors, nurses, sanitary staff members, pharmacists, laboratory technicians, and clerks) were working in the Rajshree Medical Research Institute, Bareilly, consisted Group A whereas Group B: The police, firefighters, supermarket employees, and transport personnel were chosen as examples of essential workers (a person having an essential vocation that forces them to leave home). All the other participants that did not belong to groups A and B were kept in group C. Therefore, the participants present in group C were designated as the general population. Every member has given a consent form, and only those participants were selected who were willing to sign the consent form.

Sampling method

Participants with an age greater than 21 years were selected to complete the survey via Google form, and before registering for the online survey, every participant has to upload a document related to their age proof. Because of the absence of a randomization method, online face-to-face interviews were conducted. To avoid selection errors, a non-discriminative snowball sampling method was used. After that, sociodemographic information, emotional experiences, and primary concerns were examined with the help of an questionnaire online survey method.

Guidelines for survey method

The General Health Questionnaire (GHQ) was prepared as per the guidelines mentioned by Hutchings J *et al* 1998 and Milojevich HM *et al* 2016(Hutchings *et al*. 1998; Milojevich and Lukowski 2016). The questionnaires were designed to gauge the individuals' present state of mental health. More mental health issues are indicated by GHQ-12 scores, which also contained questions about the individuals' sociodemographic traits and COVID-19-related questions. The Depression, Anxiety, and Stress scales (containing 21 item self-reported measures) and Likert scales (0-3) were utilised to determine the levels of depression, anxiety, and stress (Lovibond and Lovibond 1995). Participants were asked to respond to the topics related to the COVID 19 pandemic via an online questionnaire method. The European Health Interview Surveys-Quality of Life is a condensed index that rates quality of life on a five-point Likert scale (1-5) in eight major dimensions (1-5)(da Rocha *et al*. 2012).

Statistical analyses

Chi-squared tests of independence for categorical variables were used in the statistical analyses, which were carried out using SPSS (v.26). ANOVAs with general linear models were used for group-wise comparisons, adjusting for age, sex, and state of residence.

RESULTS

A study was planned to investigate the effect of the initial phase of the COVID-19 pandemic on the mental health condition of healthcare workers versus essential workers. For the study, the population was divided into health care professionals (HCPs) i.e. group A (n = 245), essential workers (EWs) i.e. group B (n = 266), and the general population (GPs) i.e. group C (n n = 238). Most of the participants were found to be aged between 18 and 34 years. Only 3.6% of the participants were found to be older than 34 years. 88% of the participants belonged to the Bareilly, Uttar Pradesh region only. Table No. 1 showed the sociodemographic information of all the participants and their lifestyle in COVID-19. The amount of time spent on routine exercise workouts and daily sleep (in hours) varied slightly between groups A and B, but group C has significantly more daily sleep than the other groups. No significant increase in alcohol consumption was observed in all the groups in the 12 months of observation.

Table 2 showed the stress levels of participants in concern with five points i.e. 1. Loved one dying from COVID 19, 2. Health and well being of family/loved ones, 3. loved one catching COVID19, 4. health and well being of self and 5. health and well being of society. There was found a significantly high increase in the stress levels in group c when health and well being of self was concerned. Interestingly, participants of group A has significantly high stress levels in concern to the health and well being of society as compare to all the other groups. Notably, participants in group C were significantly less concerned with the health and well-being of society. Table 3 shows the emotional experiences and quality of life among the groups. Participants of group essential workers and general population has significantly higher levels of depression as compare to healthcare professionals Moreover, the participants of general population has significantly higher levels of depression as compare to participants of group of essential workers.

Table 1 Sociodemographic profile (n=749) of selected participants and their lifestyle during COVID 19 pandemic

S.l.	Variables	HCWs (n=245)	EWs (n=266)	GPs (n=238)	Statistics χ2	Significance
		Group A	Group B	Group C		
1	Age (18-34 years old/ more than 34 year old)	123/122	132/134	121/117	23.8	<.001
2	Sex (Male /Female)	139/106	182/84	127/101	42.7	<.001
3	Self-described (%^{age})	0.6	2.7	2.1	66.1	<.001
	Exercise				18.9	0.022
1	More than 2hours (%^{age})	6.8	4.2	6.5		
2	In between 1-2 hours(%^{age})	22.1	19.2	33.2		
3	In between 0-1 hours(%^{age})	25.4	14.1	29.4		
4	No exercise(%^{age})	45.7	62.5	30.9		
	Sleep patterns				36.1	<.001
1	More than 7 hours	5.8	4.5	24.5		
2	In between 6-7 hours	12.2	11.9	35.6		
3	In between 5-6 hours	34.6	31.9	19.6		
4	Less than 5 hours	47.4	51.7	20.3		
	Alcohol consumption				10.9	0.265
1	More than 200ml	3.9	21.2	27.9		
2	In between 100-200ml	24.5	31.3	29.6		
3	In between 0-100 ml	36.2	24.7	25.2		
4	No consumption	35.4	22.8	17.3		
	Impact of government restrictions on mental health				7.8	0.446
1	Very positive	3.5	7.3	4.5		
2	Somewhat positively	20.4	18.8	18.9		
3	Not at all	16.1	15.9	16.9		
4	Somewhat negatively	8.5	9.9	11.1		
5	Very negatively	51.5	48.1	48.6		

Note Statistics refer to chi-squared tests for independence, with significance set at p<.01.

Table 2 Five crucial and concerning points relating to COVID 19 among the groups

Priority	Concerning points	HCWs (n=245)			EWs (n=266)			GPs(n=238)		
		Group A			Group B			Group C		
		Mean ±S.D	n	%age	Mean ±S.D	n	%age	Mean ±S.D	n	%age
1	Loved one dying from COVID 19	6.43±3.65	223	91.07	6.53±3.88	250	93.98	6.12±3.77	211	88.65
2	Health and well being of family/loved ones	5.21±2.88	211	86.12	5.21±2.87	231	86.8	5.21±3.01	209	87.81
3	Loved one catching COVID19	3.22±3.54	242	98.77	5.76±3.57	254	95.48	5.63±3.87	232	97.47
4	Health and well being of self	3.43±3.12	205	83.67	3.46±3.12	249	93.60	3.04±3.26	225	94.53
5	Health and well being of society	3.65±3.01	216	88.16	3.02±3.32	261	98.12	2.64±3.65	201	84.45

Note – Priority from 1 (higher concern) to 5 (least concern) were computed and "0"(zero) was given to the missing concern, S.D.= standard deviation

Table 3 Emotional experience and quality of life in COVID 19 pandemic among the groups via DASS scale, PANAS scale, Likert scale and EUROHIS scale

S.L.	Emotional experience DASS scale (0-3)&PANAS scale(0-10)	HCWs (n=245)	EWs (n=266)	GPs (n=238)	P value	Group comparison
		Group A	Group B	Group C		
		Mean ±S.D	Mean ±S.D	Mean ±S.D		
1	Depression	2.43±0.05	3.79±0.02	3.93±0.03	0.001	HCWs< EWs< GPs
2	Anxiety	2.81±0.08	3.23±0.04	3.91±0.04	0.003	HCWs <EWs < GPs
3	Stress	3.12±0.04	3.45±0.05	3.98±0.06	0.564	HCWs <EWs < GPs
4	Positive effect	3.46±0.02	4.72±0.06	5.03±0.07	0.437	HCWs < EWs< GPs
5	Negative effect	5.75±0.06	3.95±0.07	4.24±0.04	0.004	EWs < GPs< HCWs
	Quality of life (EUROHIS scale 1-5)					
1	Life	15.31±0.23	15.11±0.24	16.21±0.12	0.187	EWs< HCWs <GPs
2	Health	14.02±0.32	15.24±0.21	13.22±0.15	0.036	GPs< HCWs< EWs
3	Activities in daily life	15.23±0.21	13.03±0.26	13.43±0.16	0.291	EWs < GPs< HCWs
4	Self-satisfaction	16.25±0.31	13.29±0.28	14.05±0.18	0.001	EWs < GPs< HCWs
5	Personal relationship	13.02±0.23	14.72±0.25	13.82±0.17	0.001	HCWs< EWs< GPs
6	Finances	16.41±0.26	13.53±0.28	14.21±0.18	0.001	EWs< GPs< HCWs
7	Conditions of living	18.05±0.32	18.65±0.24	14.15±0.14	0.182	GPs< HCWs <EWs

Note-

DASS-21=Depression Anxiety Stress Scales (three seven-item subscales assessing negative emotions, rated on four-point Likert scales ranging from 0-3, with higher scores indicating greater psychopathology);

PANAS=Positive and Negative Affect Schedule (two 10-item subscales assessing positive and negative affect, rated on five-point Likert scales ranging from 1-5, with higher scores indicating stronger emotional experiences);

EUROHIS-QoL=European Health Interview Surveys Quality of Life (eight-item measure assessing quality of life, rated on five-point Likert scales ranging from 1-5, with higher scores indicating greater levels of satisfaction).

Statistics involved with significance set at p<.01 and only significant group contrasts are shown, and missing data was managed by case-wise deletion for each measure.

Similar to group A, group B displayed noticeably higher levels of anxiety than group C, which in turn displayed noticeably higher levels of anxiety than group A. Additionally, group B

reported much lower overall quality of life compared to groups A and C and was significantly more stressed than group A. (who did not differ from each other). When specific life domains were evaluated, groups B and C scored significantly worse than group A in terms of daily activities, self-satisfaction, and finances. For either good or negative affect, or satisfaction with other life areas, no significant group differences were found.

DISCUSSION

The study was planned to assess stress levels in terms of five major check points, i.e., 1. loved one dying from COVID 19, 2. health and well-being of family/loved ones. 3. loved one catching COVID 19, 4. health and well being of self, and 5. health and well-being of society. Our study's main goal was to evaluate the emotional reactions that various groups had to the COVID-19 epidemic and the participants' overall quality of life. The study's main interest was mostly related to the health and welfare of loved ones. In this study, HCWs and EWs showed altruistic behavior in the COVID 19 pandemic. Moreover, the HCWs and EWs lived significantly lower quality of life as compared to participants in GPs. Additionally, HCWs were also concerned with the welfare of the whole society. EWs were also engaged with insufficient safety protocols, so a large number of EWs were infected with COVID 19 because of a lack of training, proper personal protective equipment, and social distancing procedures(Tsang *et al*. 2021). When it comes to their own health and wellbeing as well as the health and wellbeing of family or loved ones, this causes a considerable increase in the levels of despair and anxiety in EWs. Similarly, higher levels of depression and anxiety were found in HCWs, but significant levels were not much more pronounced as compared to participants of EWs.

Significant differences were observed in the demographics and lifestyle among the participants of different groups. Concerning points mentioned in our research work are directly linked to the mental health of the group participants. A significant decrease in the sleep patterns of HCWs (especially doctors and nurses) has significantly increased negative emotions. But this significant increase in negative emotions was much more pronounced in EWs as compared to HCWs. This significant decrease in sleep patterns was also correlated with a decrease in life satisfaction in the COVID 19 pandemic (Deng *et al*. 2021).

In our study, it was found that the impact of government restrictions (for 3 months) also had a significantly adverse impact on the mental health status of participants in all the groups. In addition, HCWs believed that government restrictions should have increased the negative emotions in GPs. A study has found similar results, where a significant increase in the levels of negative emotions was observed in GPs as compared to HCWs (Gómez-Ochoa *et al*. 2021). It has also been noted that HCWs (specially doctors and nurses) have significantly better mental health and a lower life satisfaction domain as compared to GPs.

According to Lu *et al*., 2020 and Zhang *et al*., 2020, psychological experiences might logically be inferred to vary significantly depending on the sample period and the workplace environment. We can provide two explanations for our results. First, when there were few active cases during the early stages of the COVID-19 outbreak in India, our initial wave of data collecting took place. Second, our healthcare system was better prepared since it had implemented safety procedures, medical staff, and specific facilities after learning from the experiences of other impacted countries. Previous studies by Bai *et al*. (2004) showed that 20% of HCWs were infected with the SARS outbreak(Bai *et al*. 2004). This is not similar to our findings because of prior preparation required by Indian government restrictions. But the impact of COVID 19 on HCWs should be monitored more closely in further studies. Our findings also suggest that EWs have significantly higher anxiety and poorer life satisfaction as compared to GPs. Significantly higher/ worse levels of elevated stress and dissatisfaction were observed in HCWs because of their risky occupations (specially doctors and nurses) and financial incentives (drivers). Inadequate training and the scarcity of protection items for HCWs and EWs was another point of dissatisfaction that significantly increased their depression levels and mental health(Mazza *et al*. 2020; Styra *et al*. 2008 , Konduru L *et al*. 2022). Directly in opposition, health-related services appear to understand the significance of maintaining a sufficient stock of protective and other safety clothing. but also sensitively disseminating pertinent information and, when necessary, offering psychological support to manage employees' mental health. HCWs have cited adequate preparation and systematic training in previous pandemics, as well as a clear understanding of the pertinent risks involved. (Chua *et al*. 2004).

According to Lu *et al* 2020 and Styra *et al* 2008, employees in high-risk units have reported greater distress, which on the other hand decreased with an increase in the number of patients treated. For this reason, we did not take into account whether HCWs and EWs worked in high- or low-risk environments in our study. The aim of our study was to draw attention to the mental health status and support for HCWs and GPs. But additional support was required for overlooked and vulnerable EWs.

CONCLUSION

In our study, we found that compared to other groups, HCWs not only deal with greater levels of life danger, but also enjoy greater mental health stability. On the other hand, essential personnel require more protective gear and quality training to ensure their safety.

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