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Effect of initial phase of COVID 19 Pandemic on Mental Health Condition of Health Care Professionals Verses Essential Workers

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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, named as essential workers. The present 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. For this purpose, the participants were selected using the snowball sampling technique. The study population 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 The depression, anxiety, stress, and quality of life levels 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. In conclusion, healthcare workers have higher mental health stability and essential workers need more protected equipment and good training for their safety.

Keywords:- *Corona virus, Health- care workers, Essential workers, Mental health ,Depression , Anxiety.*

I. INTRODUCTION

Wuhan, China, was the first city in the world where COVID-19 was reported in December 2019[1]. Symptoms of COVID-19 patients include respiratory uneasiness, impaired lung function, and cardiac failure with gastrointestinal manifestations[2–4]. In January 2020, the World Health Organization announced the COVID-19 virus attack as a Public Health Emergency of International Concern[5]. We conducted a mental health survey of healthcare professionals and essential workers. These two segments of people have faced high psychological distress and need mental health support. 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[5,6]. Some HCWs are not 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. HCWs also have to protect their loved ones against exposure[7,8].

As per previous studies done by Lu et al. (2006) on severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), 17.3%, 5%, and 20% of HCWs were suffering from mental health symptoms, acute stress disorder, and stigmatisation and community rejection, respectively[9]. Besides, HCWs 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[10,11].

Several studies have discussed the impact of stress on HCWs. Lu et al. 2020 found that frontline Chinese medical workers were significantly more fearful, anxious, and depressed as compared to non-medical staff of the same institute[12]. Zhang et al. 2020 conducted an online survey where HCWs had a higher prevalence and severity of depression, anxiety, insomnia, and obsessive-compulsive symptoms as compared to non-medical workers[13]. These non-medical workers (having non-healthcare occupations) include police, firefighters, supermarket workers, and transport workers, like all types of delivery drivers, are affected by COVID-19 and 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.

The present study has been planned to compare the mental health of HCWs and OEWs in the district of Bareilly, Uttar Pradesh, India, in the COVID-19 pandemic. The first objective was to assess the primary concerns endorsed by the two groups with the general population. Second, to assess the increased negative emotions like depression, anxiety, and stress symptoms in both the groups as compared to the general population.

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II. METHODS

The present study was planned to assess the mental health condition of healthcare professionals and essential workers. Because of the COVID-19 pandemic, the study was conducted with the help of an online survey. The 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.

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 (Essential workers, a person with an essential occupation that requires them to leave home) included police, firefighters, supermarket workers, and transport people were selected. 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. 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.

The General Health Questionnaire (GHQ) was prepared as per the guidelines mentioned by Hutchings J et al 1998 and Milojevich HM et al 2016[14,15]. The purpose of the questionaries was to assess the current mental health status of the participants. Higher scores on the GHQ-12 indicate more mental health problems, and it also included items on the sociodemographic characteristics of the participants and COVID-19-related items. To access the levels of depression, anxiety, and stress, the Depression, Anxiety, and Stress scales (including 21 item self-reported measures) and Likert scales (0–3) were used[16]. 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 an abbreviated index measuring quality of life across eight principal domains, rated on five-point Likert scales (1-5)[17].

Statistical analyses were conducted using SPSS (v.26), and involved chi-squared tests of independence for categorical variables. Group-wise comparisons employed analyses of variance (ANOVAs) using general linear models, controlling for age, sex, and state of residence. Owing to multiple comparisons, a stringent alpha level of .01 was set for statistical significance.

III. 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.

Similarly, group B showed significantly higher rates of anxiety than group C, which in turn was significantly more anxious than group A. Furthermore, group B was significantly more stressed than group A and also reported a significantly poorer overall quality of life relative to group A and group C (who did not differ from each other). When specific life domains were assessed, groups B and C rated their activities of daily living, self-satisfaction, and finances as significantly poorer than group A. No significant group differences were uncovered for positive or negative affect, or satisfaction with other life domains.

IV. 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. The primary concern of our study was to assess the emotional experiences possessed by different groups in the COVID-19

pandemic and the quality of life spent by the participants in each group.The primary concern of the study was primarily associated with the health and well-being 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[18]. This leads to a significant increase in EWs' depression and anxiety levels when it comes to their own health and well-being, as well as the health and well-being of family or loved ones. 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[19].

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[20]. It has also been noted that HCWs (speciallydoctors and nurses) have significantly better mental health and a lower life satisfaction domain as compared to GPs.

Lu et al., 2020 and Zhang et al., 2020 found that it may be logically inferred that psychological experiences could differ considerably[12,13], depending on time of sampling and work context. We can offer two possible explanations for our findings. First, our initial wave of data collection occurred early in the COVID-19 outbreak in India, when the number of active cases was low. Second, our healthcare system was better prepared in that it had learned lessons drawn from earlier affected nations' experiences by ensuring that medical staff, special facilities, and safety processes were in place. Previous studies by Bai et al. (2004) showed that 20% of HCWs were infected with the SARS outbreak[21]. 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[22,23]. In contrast, health-related services are seemingly aware of the importance of having an adequate supply of protective and other safety apparel. but also conveying timely information in a sensitive manner, and providing psychological support, where needed, to manage the mental health of employees[7]. In previous pandemics, HCWs have cited satisfactory preparedness and systematic training, including a clear understanding of relevant risks involved[6].

In our study, we did not consider whether HCWs and EWs were working in high or low risk environments because, as per Lu et al 2020 and Styra et al 2008, workers in high-risk units have reported greater distress, which conversely decreased with increasing numbers of patients treated. 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.

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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

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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**
	Health	14.02±0.32	15.24±0.21	13.22±0.15	0.036	**GPs< HCWs< EWs**
2	Activities in daily life	15.23±0.21	13.03±0.26	13.43±0.16	0.291	**EWs < GPs< HCWs**
3	Self-satisfaction	16.25±0.31	13.29±0.28	14.05±0.18	0.001	**EWs < GPs< HCWs**
4	Personal relationship	13.02±0.23	14.72±0.25	13.82±0.17	0.001	**HCWs< EWs< GPs**
5	Finances	16.41±0.26	13.53±0.28	14.21±0.18	0.001	**EWs< GPs< HCWs**
6	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.