Analysis of Psychosocial Impact on Health Care Workers and General population of India during COVID 19 Pandemic using HAM-A scale

Nimarpreet Kaur¹, Hatinder Jeet Singh Sethi²*, Sharad Bedi², Deepti Dwivedi³

Abstract

Background and Objectives: The frequency of outbreaks, pandemics is increasing across the globe which can be probably due to increased medical tourism, expansion of international exchange, travel and global warming. COVID-19 outbreak spread across the world within a few months of initiation from Wuhan City of China and affected all the countries across the globe except Antarctica. From the psychopathological view, this current COVID-19 is a stressor, trauma or stigma for health care workers as well as general population. Mental health and psychosocial consequences of COVID 19 has a serious impact on various categories of people: a) those directly involved with viral overload b) health care workers c) general population who are following social media d) quarantined individuals and their family members. The aim of our study was to determine the unforeseen psychosocial impact of COVID 19 pandemic on mental status of health care workers and general population.

Material and Methods: A cross sectional online survey using an anonymous questionnaire using snowball sampling strategy was done. The study included 480 respondents, out of which 197 were health care workers and 283 were general population. The participation was totally voluntary. Data collection took place over fifteen days. We included additional questions which were related to COVID-19 outbreak. The structured questionnaire used, consisted of questions that covered several areas. Anxiety level was assessed based on Hamilton Anxiety Rating scale ranging from 0-4, consisted of 14 items.

Results and Conclusion: According to Hamilton anxiety rating scale it was seen that out of 197 health care workers, 27% had mild anxiety (<17), 18.7% had mild to moderate (18-24), 17.7% had moderate to severe (25-30), and 35.5% had very severe (>31). Out of 283 respondents representing general population, 26.14% had mild anxiety (<17), 17.31% had mild to moderate (18-24), 19.08% had moderate to severe (25-30), 37.45% had very severe (>31). The two groups were analyzed statistically, Z test applied.
between the two groups and it was found that the difference between the mean was found to be statistically significant with p value < 0.0001. The confidence interval was kept at 95%. Concerns about one's own health and that of their beloved ones (particularly elderly or suffering from any physical illness), as well as uncertainty about the future, can generate or exacerbate fear, depression, and anxiety.

### Introduction

The World Health Organisation (WHO) declared the outbreak of new Corona virus disease in January 2020, COVID 19 a public health emergency of international concern. In March 2020, WHO declared, COVID 19 as pandemic. COVID 19 pandemic is the defining global health crisis of our time and greatest challenge we have faced since World War II. This virus invaded every continent of the world except Antarctica. The current outbreak of COVID 19 caused by SARS-Cov-2 continues to spread and as of Aug 5th 2020, it has reached close to 18 million confirmed cases and more than 7 lakh deaths worldwide according to WHO.

Even in this modern era, out breaks are nearly constant, not every outbreak reaches pandemic level as corona virus has. This visualization outlines some of history’s deadly pandemics from Antonine plague to COVID 19. As the population of the world is increasing day by day which is about to reach 11 billion by 2100, this increasing rate is likely to boost new infectious diseases caused by emerging viruses and drug resistant bacteria/ microorganisms. This can be traced back from the history, in 2003 Chinese population was infected with SARS, a decade later in 2012, Middle East Respiratory Syndrome (MERS) in Saudi Arab both by corona virus.

Since the WHO declared pandemic, the response efforts by Indian Government has been very swift to handle this situation. On March 24th 2020, Indian Prime Minister Mr. Narendra Modi declared a complete lock down of whole country for 21 days with effect from midnight of the same day with travel restrictions which was further extended lockdown till 17th May 2020 seeing the condition of out breaks. This situation created panic, anxiety, and fear among the general population as well as the health care workers. The ongoing COVID 19 pandemic is inducing fear and timely understanding of the mental health status is urgently needed for the society. Previous research has revealed a profound and wide range of psycho-social impact on the people at the individual level, people are likely to experience fear of death, feeling of helplessness and stigma. As the closure of offices, schools and business, uncertainty with no time line, negative emotions experienced by individuals are compounded.

The anxiety and concerns in society are affecting each and every individual and to a variable extent. As lots of research has been done, focusing on epidemiology, genomic characteristics of virus, so this present study represents the psychological impact on the health care workers, general population and medical students with in first month of COVID 19 outbreak. The inclusion of medical students in the study is to enquire about their mental state of mind and toughness, since they are budding clinicians, are just at the start of their career in this field and it’s going to be a long way.

In an era of uncertainty of the prognosis of disease, severe shortage of resources for testing and treatment, imposition of unfamiliar public health measurements that infringe on personal freedom, large financial losses and conflicting messages from authorities are among the major stressors that undoubtedly contribute to wide spread emotional distress and increased risk of psychiatric illness associated with COVID 19.

Health care providers are most vulnerable to emotional distress in this ongoing pandemic due to risk of exposure to the virus on treating the COVID patients, concerns and anxiety about infecting their family members by being a carrier of the disease, shortage of N-95 masks and Personal Protective Equipment (PPE) kits, long working hours, no assurance from the setups where they are working. These concerns are there in the health care workers.

So the authors of this article anticipated that the outbreak of COVID 19 would be stressful, not only for the health workers but also for the general population. Brooks et al. 2020 informs that psychological impact of quarantine and lockdown is wide ranging, substantial and long lasting, so taking into consideration this situation, this web based survey was planned to evaluate the anxiety among the general population and health care workers, so this survey was planned and based on Hamilton Anxiety Rating Scale.

### Table 1: Anxiety score

<table>
<thead>
<tr>
<th>Anxiety score range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;17</td>
<td>Mild anxiety</td>
</tr>
<tr>
<td>18-24</td>
<td>Mild to moderate</td>
</tr>
<tr>
<td>25-30</td>
<td>Moderate to severe</td>
</tr>
<tr>
<td>&gt;31</td>
<td>Severe anxiety</td>
</tr>
</tbody>
</table>

### Fig. 1: Classification of participants

- Total participants N=480
- None Excluded
- Group I N=197
  - Health Care Workers
- Group II N=283
  - General Population
is a psychological questionnaire used by the clinicians to rate the severity of patients anxiety.

**Material and Methods**

We adopted a cross sectional online survey design, to assess the psychosocial impact on Health care workers and general population during COVID 19 pandemic using an anonymous questionnaire. A snowball sampling strategy, focused on involving health care workers and general population living in different parts of India during this pandemic was utilized. As the Government of India recommended the public to stay at home- Lockdown was announced, so potential respondents were electronically invited by “whatsapp” link via Google forms. The participation was totally voluntary. Data collection took place over fifteen days.

We included additional questions which were related to COVID-19 outbreak. The structured questionnaire consisted of questions that covered several areas.

**Table 2: Mean and standard deviation of anxiety scores in two groups**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>SD</th>
<th>SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I</td>
<td>15.77</td>
<td>7.88</td>
<td>0.56</td>
</tr>
<tr>
<td>N = 197 Health Care Workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group II</td>
<td>25.56</td>
<td>11.42</td>
<td>0.67</td>
</tr>
<tr>
<td>N = 283 General Population</td>
<td></td>
<td></td>
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</tbody>
</table>

**Table 3: % age of anxiety scores among two groups**

<table>
<thead>
<tr>
<th>Anxiety score</th>
<th>Group I Health Care Workers</th>
<th>Group II General Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild &lt;17</td>
<td>55</td>
<td>74</td>
</tr>
<tr>
<td>Moderate 18-24</td>
<td>37</td>
<td>49</td>
</tr>
<tr>
<td>Severe 25-30</td>
<td>35</td>
<td>54</td>
</tr>
<tr>
<td>Very Severe &gt;31</td>
<td>70</td>
<td>106</td>
</tr>
</tbody>
</table>

**Results**

The survey received responses from 480 respondents within fifteen days of surveillance. 480 Participants were further divided into two groups as depicted in Figure 1. Group I (197) included Health care workers and Group II (283) included General population.

**Sociodemographic Variables**

Sociodemographic characteristics shows that majority of the respondents were females (53.1%) as compared to males (46.7%). Out of 480 persons surveyed 42.9% were of age group (30-45 yrs), 34.4% (30yrs), 18.5% (45-60 yrs) and 4.2% were >60 yrs. Out of 197 health care workers, 81.7% were doctors 6.1 % were nursing staff and rest were other paramedics. Most of the Health care workers were employed in private sector (41.1%) and 33.5% were self employed. As around 81.7% were doctors and 6.1% were nursing staff so 41.1% were going to work as usual that means they did not have any effect of lockdown on their working routine, 9.1% were working more than usual, 22.3% were working from home and only 20.3% were not going to work who were mostly self employed.

As regards the general population they belonged to varied professions from engineers, entrepreneurs, IT industry, business class, bankers to homemakers. Among them 33.6% were employed in private sector while 25.1% self employed and only 4.2% were in government sector. So, during this pandemic their level of working was 47% were working from home, 33.9% were not going to work at all and only 3.1% were working more than usual. Relationship with the family members was asked in both the groups. It was seen that among health care workers 52.8% had no change, 24.9% had slightly improved, 11.7% had markedly improved and 8.1% had slightly worsening of relationship with the family members. While in general population 47% had no change, 32.2% had slightly improved, 14.1% had marked improvement in the relationships and 5.7% had slightly worsening of relationship with the family members.

Psychosocial impact of COVID -19

**Statistical analysis**

Continuous data was summarized as Mean ± SD and discrete data in number and %age. The study subjects were compared, Z test was performed. P value < 0.0001 is considered statistically highly significant while p value > 0.5 is considered non-significant. Statistical significance was set at conventional 5% threshold (alpha=0.05). Effect sizes were estimated with 95% confidence intervals (CIs).
pandemic and their anxiety level score on 14 items was assessed using HAR-S ranging from 0-56.

**Mean and Standard Deviation of HAM-A**

The mean score of Group I is 15.77 ± 7.88 and mean score of group II is 25.56 ± 11.42 as shown in Table 2 and Graph 1 and the difference of mean of group I and group II equals to 9.79 which is corresponding to 95% confidence interval as shown in Graph 1.

According to this scale as shown in Table 3 it was seen that out of 197 health care workers, 27% had mild anxiety (<17), 18.7% had mild to moderate (18-24), 17.7% had moderate to severe (25-30), and 35.8% had very severe (>31) as depicted graphically in Graph 2. Out of 283 respondents representing general population, 26.14% had mild anxiety (<17), 17.31% had mild to moderate (18-24), 19.08% had moderate to severe (25-30), 37.45% had very severe (>31) as shown in Graph 2.

The two groups were analyzed statistically, Z test applied between the two groups and it was found that the difference between the mean was found to be statistically significant with p value < 0.0001. The confidence interval was kept at 95%.

**Discussion**

The outbreak of COVID 19 caused not only an extraordinary public health concerns but also a tremendous psycho social impact on health care workers and general population. Confirmed COVID-19 pandemic’s figures demonstrate the global scale severity of the current public health challenges. Though the full extent of social and economic consequences currently cannot be foreseen but can be intuitively understood from the fact that various countries have implemented full or partial lockdowns, despite of economic losses to the nations. The rumours, myths, lack of awareness, fear and anxiety and intense media coverage of the outbreak exacerbated the perceptions of potential danger. So all these factors were the contributing cause to the increased anxiety score. These outbreaks, epidemics and pandemics are periodically occurring which are challenging for the community as well as the health care workers. Impact of these pandemics is so intense that it affects the community psycho socially as well as economically. So this study was aimed to see the psycho social impact of COVID 19 outbreak on the health care workers and general population.

Our study findings suggest that on the basis of Hamilton Anxiety Rating scale, as in Group I (health care workers) out of 197 HCW’s 35.5% had a score of high severity i.e >31 while in Group II among the general population of 283, it was 38.8%. The two group’s statistical analysis was done using Z test and it was found that the difference between the mean and standard deviation was found to be statistically significant with p<0.0001. Cuyiiyan et al had conducted a similar study during the initial stage of COVID 19 pandemic in China.11

Health Care workers are the frontline workers in case of any outbreak be it epidemic or pandemic and risk their lives during the hardcore duties.12 These hospital staff are under huge stress not only during the epidemic, but they can also suffer from long-term psychological consequences. This was evident with the SARS outbreak and most recently with the Ebola virus outbreak.13,14 However, each outbreak of an infectious disease differs in its geographical location, pathogenesis, transmissibility, infectivity, and fatality. No two disease outbreaks are alike, and each has its own unique impact on the hospital staff facing that disease.13,14 During a respiratory illness outbreak all hospital workers are exposed to some risk of infection; however, the extent of this risk is not distributed equally. Some specialties, like emergency room and critical care staff, are likely to be at a higher risk. For this reason, we also included HCWs from these high risk areas in our study. We only included nurses, respiratory therapists, and physicians in our study and did not include other staff like housekeepers, security staff, unit clerks, etc., as they were not assigned to these high risk areas on a continuous basis. According to a study conducted by Khalid et al during MERS-CoV epidemic, showed that the staff experienced emotional turmoil during this period. The anxiety and nervousness felt by their staff was common during in any epidemic, although their intensity varied15, the results of our study was analogous with this study. Expectation of extra compensation, special recognition, and avoidance of overtime during a disaster were strongly anticipated by their staff, as reported in other disease epidemics.16,17 However, the most important emotion that drove them to continue working was their ethical and professional obligation towards their profession. This study was concordant to our study during COVID 19 Pandemic.

According to Rubin et al, the government and health authorities need to provide accurate health information during the epidemic to reduce the impact of rumors.19 Higher satisfaction with the health information received was associated with a lower psychological impact of the outbreak and lower levels of stress, anxiety, and depression. The content of health information provided during the epidemic needs to be based on evidence to avoid adverse psychological reactions. Our results also show that there was increased severity of anxiety score in general population due to myths, rumors and lack of up-date and accurate health information.

According to Mishra et al, 2016 study, the health professionals often have better awareness, positive attitudes towards epidemics and pandemics and they often experience low levels of anxiety but the results of our study was not in accordance to this study.20

Maunder and colleagues reported that some health care workers at Toronto’s Mount Sinai Hospital experienced intense emotional reactions during the SARS outbreak, including the fear of contagion, feelings of stigmatization, loneliness, boredom, anger, anxiety and a sense of uncertainty.21 Similar reactions have been described in health care workers in the context of a previous botulism outbreak.22 These psychological responses may be associated with certain health-seeking behaviors. Leung and colleagues found that individuals in their community sample who had greater risk perception as well as moderate anxiety were more likely than those without taking precautions against SARS.23 Kang et al., 2020 in his study quotes that in the COVID-19 emergency, medical workers in Wuhan had been dealing with high risk of
infection and inadequate protection against contamination, overwork, frustration, discrimination, isolation, patients with negative emotions, a lack of contact with their families and exhaustion. Another study by Jones et al, such situations caused mental health problems such as stress, anxiety, depressive symptoms, insomnia, denial, anger and fear. These mental health problems not only affect attention, understanding and decision-making capacity of medical workers, which could hinder the fight against COVID-19, but they could also have a lasting effect on their overall well-being.

Conclusion

The impetus of our study was to establish the unforeseen impact of COVID 19 on the mental status of the health care workers and general population, which has also been shown in other various studies, during different outbreaks and pandemics at different times, that has increased anxiety levels in various groups of population which is in concurrence to the results of our study. So we can come to a conclusion that uncertainty, fear of the unknown leads to high level of anxiety levels in both the groups (health care works and general population). The degree of psychological stress on health professionals and others adversely affect the mental well being so global health measures should be employed to address the psychosocial stressors, fear and vulnerability among the two groups.

Limitations

This study has several limitations. Due to lockdown and social distancing in the country the resources available and time-sensitivity of the COVID-19 outbreak, we adopted the snowball sampling strategy. The snowballing sampling strategy was not based on a random selection of the sample, and the study population did not reflect the actual pattern of the general population as this study was limited to a particular group of individuals who had smart phones, available on whatsapp group. Due to ethical requirements on anonymity and confidentiality, we were not allowed to collect contact details and personal information from the respondents. As a result, we could not conduct a prospective study that would provide a concrete finding to support the need for a focused public health initiative.

References