

## RISK ASSESSMENT AND SCREENING FOR DEPRESSION AND SUICIDE AMONG FRONTLINE WORKERS: INDIAN SCENARIO

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### Abstract

**Background:** Introduction: Corona virus disease (COVID-19) outbreak globally led to an urgent need to expand scientific knowledge on this new virus. Front line workers or “key workers” are employees providing the essential public health services to treat and manage the COVID crisis including its prevention. Front line workers mainly include health workers, police personnel, social workers and many others who form a response team to manage hazards of this pathogenic exposure. COVID crisis has exposed these front line workers to exhaustive long working hours, fatigue, occupational burnout, stigma and stress. As a result, making these key workers susceptible to mental health disorders. This research project is an initiative to understand the role of Indian front line workers and facilitate their care. **Methodology:** The ongoing original research project is a cross sectional study conducted using a self assessment questionnaire. An online survey module has been used including a semi structured questionnaire and Beck Depression Inventory with interpretation in local language. Participants include individuals above 18 years performing front line duties and who consent to be part of survey. This anonymous and protected database has been used for the interpretation of the results. **Results:** The preliminary results of the ongoing research reflects 80% of the participants being in age group of 20-30 years with males being in majority. Doctors formed the primary (42%) participants. 82% of the participants were single in status. The results highlight key issues like “fear being infected” being a front line worker in 47% of the participants. Interesting finding is the incidences of violence being faced by 67% of the front line workers and 46% of the persons involved in violence are the relatives of the patients. This finding reflects the outrage and anger as a means of mourning among the relatives of the death and deceased. Results of the current sample size shows 50% in the normal range and 5% in moderate depression in Beck Depression Inventory. **Conclusion:** The original research aims at the barriers and the facilitators needed to support front line workers critical to community prevention and management of COVID crisis. The psychological stress, violence and stigma have long term effects on the front line workers who form the foundation of the public health system. This research can be instrumental in not only screening but also providing psychological support to the required individuals. Also the finding of the research project can be helpful to form guidelines for any future events.

## INTRODUCTION

In December 2019, a highly infectious serious acute respiratory syndrome caused by a novel corona virus (SARS-CoV-2) emerged in Wuhan, China.<sup>[1]</sup> Within a month, a rapid wave of infection affected more than two hundred countries of the world outside China.<sup>[2]</sup> It was declared COVID-19 a pandemic by

the World Health Organization (WHO) on March 11th 2020. By the end of April, the cases exponentially increased to affect more than 3 million population with more than 200,000 deaths attributable to COVID-19 globally.<sup>[1]</sup>

Frontline workers include healthcare workers, protective service workers (police and defence), cashiers in grocery stores, production and food

processing workers, janitors and maintenance workers, agricultural workers, and truck drivers. Frontline workers faced the pressure of a high risk of infection, inadequate protection from contamination, high working load, frustration, discrimination, isolation, patients with negative emotions, a lack of contact with their families, and exhaustion.<sup>[3]</sup> The severe status during any infection outbreak may develop many mental health issues, including stress, anxiety, depressive symptoms, anger, insomnia, fear, and sleep disorders.

These mental health issues do not impact healthcare workers' attention, understanding, and decision making, yet there is an impact on front line workers overall health status. To control the epidemic and long-term wellbeing of front line workers it is necessary to protect them from mental health problems and prevent fatalities like suicide.<sup>[4]</sup>

There is a consensus that the COVID-19 pandemic has not only an effect on physical health, but also on mental health and mental wellbeing.<sup>[5,6]</sup> On previous studies it was found that who work in the frontline during viral epidemic outbreaks are at high risk for developing mental health issues.<sup>[7]</sup> From a psychopathological perspective this pandemic is a relatively new kind of stressor or trauma.<sup>[4]</sup>

The anxiety coming from the perceived unfamiliarity and uncontrollability of the hazards involved could be reduced by clear communication, limitation of shift hours, provision of rest areas as well as broad access and detailed rules on the use and management of protective equipment and specialized training on handling COVID-19 patients. Immediate interventions are essential in order to enhance psychological resilience and strengthen the healthcare systems' capacity.<sup>[8]</sup>

Providing timely and appropriately tailored mental health support through hotline teams, media or multidisciplinary teams, including mental health professionals is also vital.<sup>[9]</sup>

## MATERIALS AND METHODS

This is a cross-sectional study done among the frontline workers presently working in COVID crisis. A questionnaire with 36 questions was developed which includes Beck Depression Inventory (BDI). The questions pertaining to topics regarding availability of proper PPE kit, fear of infection, fear of death and violence against frontline workers.

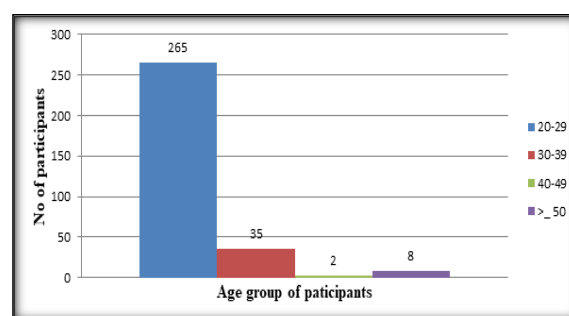
Beck Depression Inventory was invented by psychiatrist Aaron T. Beck. The BDI-II contains 21 items on a 4-point scale from 0 (symptom absent) to 3 (severe symptoms). Scoring is achieved by adding the highest ratings for all 21 items. The minimum score is 0 and maximum score is 63. Higher scores indicate greater symptom severity.<sup>[10]</sup>

The questionnaire was prepared using Google Forms and the form was then circulated on various social media platforms and also through emails.

After receiving 310 responses, the form was closed for further responses. Total duration of the study was 5 months.

## RESULTS

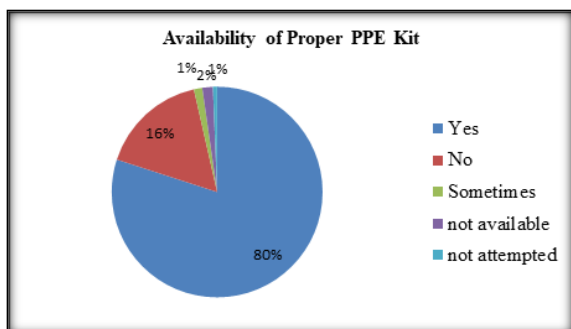
The research study was done on an internet-based model. An online survey was conducted using social media applications like whatsapp, facebook and emails. A total of 310 responses were received through online survey, out of which 176 (56.7%) were males and 134 (43.3%) females participants working as frontline workers. Maximum individuals belonged to the age group 20 –29 years of age 85.5% (265), in 30-39 years of age 11.3% (35), in 40-49 years of age 1% (3) and rest were more than or equal to age of 50 2.2% (8) [Figure 1].



**Figure 1: Distributions of the age groups of participants**

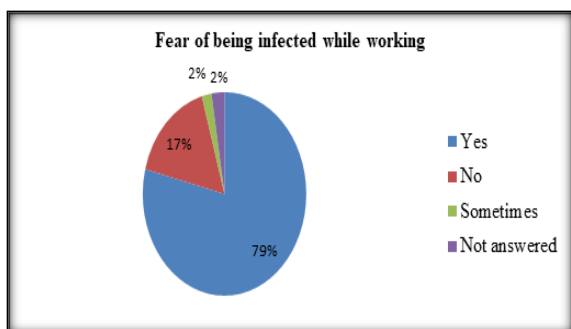
Among the participants, 86.4% (267) were single, 12.6% (39) married and 1% (3) divorced. Majority of the participants were doctors 91.3% (283) and rest constituted nurses 7% (22), policeman 1% (3), army people 0.33% (1) and banker 0.33% (1). Some were private employees 39.9% (122), government employees 38.9% (119) and few were volunteers 12.2% (65).

Since the frontline workers are recommended to wear PPE kit as a protective gear against this highly infective Corona virus infection.<sup>[11]</sup> Some also inquired about the availability of proper Personal Protective Equipment (PPE) kits. Fortunately, for majority of participants 80% (248) proper PPE kits were available, while around 16.5% (51) didn't have proper PPE kits as per the norms. Despite demands it was not available to 1.6% (5) frontline workers and they had to work risking their lives, approximately for the same percent of participants i.e. 1.3% (4) it was available sometime. [Figure 2].



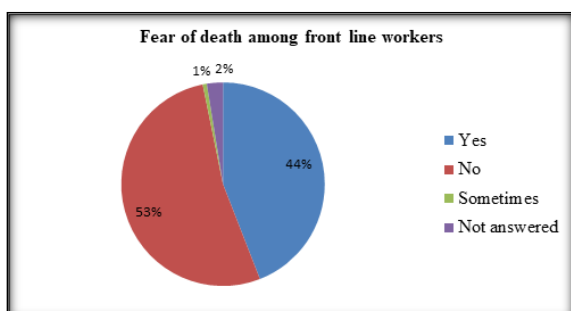
**Figure 2: Responses to availability of proper personal protective equipments to frontline workers**

Being the frontline worker, the participants are the most exposed to corona virus so survey included questions about “fear of getting infected” while working. Frontline workers are at highest risk of acquiring, for the foreseeable future, will continue to be. Therefore, proper practices to prevent infection are important to both ensuring safety and combating fear.<sup>[12]</sup> The results showed that majority 79.7% (247) had fear of getting infected, 16.7% (52) didn't fear while 2% (6) sometimes had fear. [Figure 3].



**Figure 3: Responses to question on fear of being infected while working**

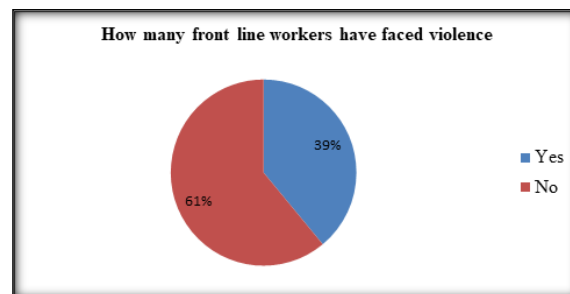
Apart from this “fear of death” has been a vital element of COVID crisis due to early infectivity and fatality. 44.5% (138) frontline workers admitted having “fear of death” and 53.2% (165) didn't have any sort of fear for death [Figure 4].



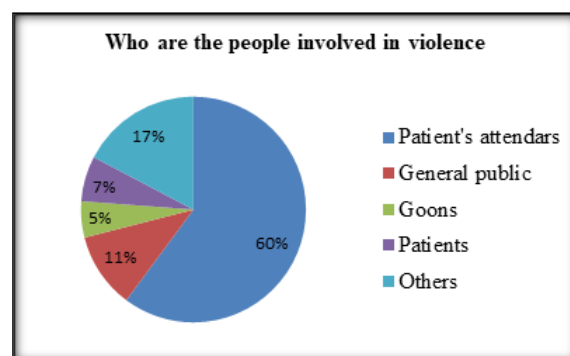
**Figure 4: Responses to fear of death among frontline workers**

Being frontline workers, the individuals risked their lives and are serving the humanity.<sup>[13]</sup> However, 39% (121) faced violence for at least once [Figure 5] and majority claimed that people involved in violence

were the patient's attenders 60.2% (139), general public 10.8% (25), goons 5.2% (12), patient themselves 6.5% (15) and others 17.3% (40). [Figure 6].



**Figure 5: Violence faced by frontline workers**



**Figure 6: Responses to who are the people involved in violence**

Communication gap/isolation was a main reason for violence as stated by the frontline workers, around 29.4% (91). As the people were not much aware about the disease prognosis and the sudden rapid spread of the COVID pandemic, the information about the patient's status couldn't be communicated well to the attenders. The doctor- patient ration was also disturbed due to increase load of patients and shortage of beds in hospitals. The patients being in isolation and not being in contact with their family members, got very anxious about their illness. As the lockdown drastically changed the lives of people causing anxiety and fear about contracting the virus and the outcomes of getting the disease which accounted for 7.4% (23) of violence faced by frontline workers doing door to door sampling. One of the reason, stated for the violence was emotional outburst of the family members 3.5% (11) of admitted patients. As they faced lots of difficulties when a family member got infected like shifting to isolation ward, home quarantine to other members, discrimination from nearby people. These all led to inbuilt anger, sadness and aggression. Along with these sometimes lack of administration control and security in emergency units also led to violence 3.2% (10). Like lack of proper availability of beds, lots of family members accompanying the patient, lack of proper critical care management equipment were shortcomings faced in COVID crisis. Also some people acted violently on death of the patient as they couldn't accept the death 2.5% (8) and some

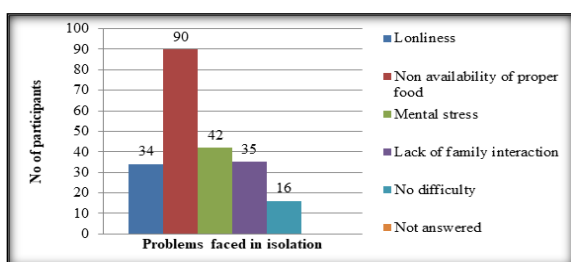
faced lots of financial burden of treatment costs and this therefore led to anger and violence 1.3% (4). The “declaration of death” with restricted mourning and cremation also brought incidents of violence against health workers being the soft targets. Media plays a very crucial role in the public health, some people attributed the media hyped about the

pandemic towards the incidence of violence 3.3 % (10). Broad media coverage with widespread global connections led to repeated exposure to such reports resulting in increased psychological distress and ultimately uncontrolled anger.<sup>[14]</sup> The majority couldn't illustrate the reasons 49% (152).

**Table 1: Most commonly illustrated reason for violence against frontline workers stated by participants**

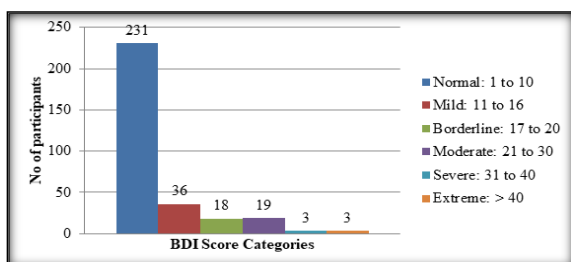
Reasons	No of participants
Lack of administrative control	10
Emotional outburst	11
Anxiety about pandemic and the outcome	23
Communication gap/ isolation	91
Death of patient	8
Fear of getting infected	1
Financial burden of treatment	4
Media hyped about the pandemic	10
Not attempted	152

The questionnaire also inquired about the problems faced in isolation as frontline workers had to stay in isolation during COVID duties. Majority of people reported there were problems related to non availability of proper food 29% (90), mental stress 13.5% (42), loneliness 11% (34), lack of interaction with family members 5.2% (16), while 11.3% (35) didn't face any difficulty. [Figure 7].



**Figure 7: Illustrating the problems faced in isolation**

Beck depression inventory was a used as a screening tool in the research study. On Beck Depression Inventory, it was found that 74.5% (231) participants' scored within normal range, 11.6% (36) were in mild category, 5.8% (18) participants were in borderline category and approximately the same 6.1% (19) were in moderate category. Severe and extreme categories accounted for 1% (3) each [Figure 8]. Although majority of front line workers' score were in normal range still 47.7% (144) participants were felt “sad” in their life while 68.3% (207) were optimistic about the future.



**Figure 8: Scores of participants on Beck Depression Inventory scale**

The research study showed that the questions about getting much satisfaction about things it was found that around 26.8% (82) don't enjoy things as they used to, 2.6% (8) were not getting real satisfaction, 3.6% (11) were dissatisfied with everything and 67% (205) were found satisfied. These finding point towards depressed mood with future evaluation.

Working in front line causes lots of stress resulting in irritability. The results showed that about 28.8% reported to be slightly more irritable than before, 5.6% (17) were quite annoyed/ irritable and 2.6% (8) were irritated a good deal of time. Another question was pertaining to decreased motivation to work, which reported that 23.1% (70) had to put extra efforts to start working, 5.9% (18) had to push themselves hard, 1% (3) didn't had motivation to work. 70% (212) were able to work well. The above findings have significant impact on the Qol of frontline workers.

Highly stressed job and irregular working hours affects the sleep of the front line workers. It was found on study that 71.3% (216) slept as usual, 22.4% (68) couldn't sleep as well as they used to. Waking up earlier than usual is a vital sign of depression which was reported by 4.6% (14) participants that they woke up 1-2 hours earlier while 1.7% (5) woke up several hours earlier. It is speculative that deregulation of circadian rhythms such as that occurs in night shift workers or with jetlag could play a disease-specific role as it alters the susceptibility to infection and can modify the clinical manifestations of COVID-19.<sup>[15]</sup> The strict relationship between sleep disorders and cognitive and mental disorders should be considered and also their clinical implications on mental health. Thus, early detection of sleep disorders in front line personal should be emphasized.<sup>[16]</sup>

Furthermore, 65% (197) participants didn't feel more tired, 29.4% (89) got tired more easily, 3.6% (11) got tired doing almost anything and 2% (6) felt too tired to do anything reflecting as signs of fatigability. Health and appetite are also a great concern for front line workers. On the study it was



reported that around 21.2% (64) were worried about physical problems like aches and pains, 5% (15) were very much worried about physical problems that they couldn't think of anything much and 2.3% (7) were so worried that they couldn't think of anything else. While appetite was normal as before in 76.6% (229) participants but 20.1% reported to have reduced appetite, 2.3% (7) appetite was much worse and 1% (3) had no appetite at all.

Working for hours continuously has pushed the limits of front line workers. The burden of COVID-19 led to failure of essential management systems that have resulted in devastating outcomes and one of these is suicide.<sup>[17]</sup> In our questionnaire we touched this sensitive topic and results were that in our setup 89.7% (271) participants didn't had thoughts of killing themselves but there was some population which require attention as 7.9% (24) have such thought but won't carry out, 0.7% (2) would like to kill and 1.7% (5) would kill themselves if they had a chance. The results of the research study have pointed various significant findings as well as subtle signs leading to a future directions and implementation of long term policies.

## DISCUSSION

The research study brought to light significant evidence of mental health issues and correlating factors affecting the front line workers during the Covid-19 pandemic. Almost equal number of male and female frontline workers participated in the study mostly single and in the age group of 20-29yrs. Primarily the participants were health care workers. Based on the findings of the online survey some major issues came forward.

### Rationalizing and prioritizing of care

According to a study, health care workers experienced high rates of infection and death partly because of inadequate access to PPE kit in Italy.<sup>[18]</sup> Front line workers are ready to care for their patient but the rationing, lack of PPE kit was a hurdle as seen in various countries like UK, Italy etc. The lack of adequate PPE kit for frontline health care workers, including respirators, gloves, face shields, gowns, and hand sanitizer was worrisome.<sup>[19]</sup> Failing to provide adequate PPE, delivery of safe healthcare was difficult leading to moral and ethical dilemmas of healthcare professionals, creating a sense of inadequacy and undervaluation resulting in workforce stress. Unlike the west, though it was a problem initially in our setup but eventually proper PPE kits were made available to the front line workers. Around 80% of the study participants reported to have proper PPE kits available. Hence forth this pandemic creates an alarm for better equipped healthcare system in view of future calamities.

### Work front ethics

Health care system was overly taxed during COVID 19 crisis and sadly the health workers, who are the

backbone of the system, were also victims of violence in most of the countries. Aggression and violence toward front line workers constitute a global public health issue. Work place violence was displayed more in health care workers among the front line workers as they are on the frontline of the healthcare system and have the closest contact with patients and their relatives.<sup>[20]</sup> Such violent attacks are cause of grave concern as they adversely affect the mental health of front line workers which results in poor job satisfaction,<sup>[21]</sup> poor quality of life and an increased risk of staff burnout and employee turnover.<sup>[22]</sup> Similar results have been highlighted in this study. Reasons varied with the local context however the underlying issues were

- Fear
- Panic
- Misinformation
- Misplaced anger

Such episodes not only jeopardize the delivery of proper healthcare but have also resulted in long term physical and mental issues to the frontline workers. Awareness and communication can bridge the gap between the individual and the healthcare system. Media can play a vital role by providing a platform for positive and healthy social learning in future course as high levels of coverage of COVID-19 in the media have been linked to depression and anxiety.<sup>[23]</sup>

We are mindful that mental health research in this time of crisis is as sensitive research topic, even though there is heterogeneity of the studies and different scales being used, resulting in variable results. These results identify the vulnerable group (front line workers) who require early intervention. More than the fatality "the fear of death" has taken a centre stage in this global pandemic. Based on screening and early intervention through such research studies can actively contribute to rehabilitation and planning of better public mental health care.

As COVID-19 pandemic has brought multi fold challenges leading to burden of mental health issues. A study performed in the original centre of the epidemic, Wuhan, showed that a large proportion of HCW in Wuhan were affected and that mental health support was necessary even for mild psychological reactions.<sup>[24]</sup> Similar finding of sad mood, fatigability, irritability, loss of appetite and sleep disturbances among the front line workers are cause of concern. Hence forth, it should be a key priority globally towards the welfare of frontline workers and provide protection to the frontline workers. As well as interactive and concrete framework of primary healthcare is vital in strengthening response to epidemics in near future.<sup>[25]</sup>

On 27th April, The New York Times reported suicide of frontline doctor working in emergency department and many more such news came up in this pandemic which is indeed a devastating thing

for the medical fraternity globally.<sup>[26]</sup> One of the examples of timely intervention is COVID-19-specific psychological interventions for medical staff in China which included psychological intervention support teams, psychological counselling, availability of helpline, establishment of shift systems in hospitals, online platforms for medical assistance, incentives, providing adequate breaks and time offs, providing a place to rest and sleep, leisure activities such as yoga, meditation and exercise, and motivational sessions.<sup>[27,28]</sup> Also the Turkish Health Ministry has set up psychiatric support units and help lines for the COVID19 pandemic in all the provinces of the country along with a Mental Health Support System (RUHSAD) application capable of use with smart phones was also developed.<sup>[29]</sup> These examples illustrate a global roadmap for better health care system.

There is a need of a fully structured and integrated model of mental health preparation and support for front line workers, including monitoring, support and health evaluation to maintain a healthy and productive workforce. Also the adequate quantity and quality supplies of PPE, COVID-19 compliant work practices and infection control measures are key to harmonize and reduce the burden of further stress and suicidal ideation.<sup>[30]</sup>

The research study has brought to light the first hand information regarding the working conditions of the frontline workers. The results of this small scale study can be used as indicators of the mental health issues being faced by frontline workers at large. There is a need for future research in the field to evaluate the long term effects of COVID crisis.

## CONCLUSION

Mental illness is a still a social stigma in our part of the world resulting in under reporting of cases. Lack of general awareness and reluctance to participate led to limited response. Since it is a non-funded research study and could be promoted only through limited social media access.

### Acknowledgement

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