

A Study on the Stress Levels of Healthcare and Non-Healthcare Professionals during COVID-19 Pandemic in a Tertiary Care Hospital in Wayanad

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1. Introduction

The COVID-19 outbreak hit the world with unrivalled consequences on people's lives. Since the beginning of pandemic healthcare workers have shown extraordinary strength and professional dedication without considering the fear of being infected with the virus. As frontline workers, they are more vulnerable to infection rather than general population as they are in frequent contact with the infected individuals.

The pandemic has resulted in psychological stress on health care workers, but most often do not seek regular mental healthcare. If not taken care of, it can have a long term effect on overall wellbeing of the individual. Since they are in direct contact with the patients they will be under overwhelming psychological pressure, burden and burnout. HCWs experience emotional exhaustion, which may lead to medical errors. There are many factors that are responsible for the mental deterioration of health workers who are now regarded as "Healthcare Warriors". A number of studies around the world have addressed mental health concerns of doctors, nurses and other frontline workers in the context of pandemic. Unbelievably long hours, making life or death decisions and the trauma of working through a pandemic comes with immense challenges of its own. The lack of PPE kits, masks, the fear of contracting the virus are all extremely stress provoking and cause of lot of psychological trauma. One of the main cause of stress could possibly be contracting the virus, and infecting others like colleagues and family members. On the other hand, the number of cases, and illness-related deaths, excessive workload for an extended period of time and loss of workers safety equipment aggravated mental and physical burnout of the workers. In addition, the lack of beds, oxygen, and ventilators can lead them to make decisions as to which patient has access to what resource. High mortality rate, uncertain quarantine duration, lack of medicines, stigma and isolation also contribute to psychological distress. These situations may result in severe stress reactions and thus may end up in secondary trauma.

Stress response symptoms like anxiety, depression, somatization, and aggression have been identified in around 10 % of healthcare staff during and after recent outbreaks (Mak, 2009). Not only the frontline health professionals but also non clinical staffs who works as supporting system in the hospital suffer from mental illness due to workload and fear of exposure to virus.

Many staff may contract the virus, and those who are exposed or show any kind of symptoms are required to go under quarantine.

Researches have shown that the non-clinical staff experience guilt about leaving front lines for supporting them. They may also endure from boredom and isolation and may also find it difficult to return back to work post quarantine or infection. The staff may be required to stay away from home due to long working hours and as a result suffer from the stress of breakage of relations within the family. The most important cause of burnout in staff are the approaches of people that devalue their healthcare profession.

As the world is battling the outbreak of COVID-19, the risks to the well-being of the hospital staff are not well understood. Hence, the proposed study is to find the level of stress among the clinical and non-clinical staff and to analyze the factors influencing the stress level of the staff during COVID-19 outbreak. Moreover, several psychological interventions are provided to mitigate the serious mental consequences of the staff in the hospital.

2. Literature Review

The Crucial role of HCWs during this outbreak as front line workers is vital which also makes them more susceptible to stress and anxiety. Diseases which spread on a large scale pose a lot of challenges to almost all individuals but the stress that is experienced by the healthcare workers is very much severe. As a health care professional, working in a hospital during an outbreak may create a psychological trauma [1]. Multiple studies from all over the world have shown that HCWs suffer from increased stress and psychological problems because of working in a hospital setup [2-3]. Almutairi AF, Adlan AA, et. al, (2018) in his study said that widespread infection and fatalities among the HCWs are causing social and mental pressure on them which have been reported previously for SARS and MERS and currently for the COVID-19 disease [4]. In terms of mental health impact of epidemics, health care workers represent a particularly vulnerable group due to high risk of infection, increased work stress and fear of spreading it to their families [5]. Abdulah DM, Chersich MF, Kuo FL et. al. In their studies revealed that Nurses and doctors who have closer interaction with patient, have higher degree of stress [6-8]. Mo et al. in his work stated that during the COVID-19 pandemic, long work hours were found to

increase the stress levels among nurses [9]. Similarly, the burden of adhering to strict protective measures seemed to increase distress levels. [10]. Longer shifts, unpredictable duty rosters, no adequate supply of PPE, are some of the noteworthy problems faced by them [11]. Recent studies that explored differences in mental health by gender often find that stress and burnout rates are higher among women (Liu et al.2012; Lai et al.2020) [13]. Janet Walsh (2013) argues that the gendered norms of the medical profession (long hours, nights, and weekends) were developed in accordance with the traditional male breadwinner/homemaker wife household structure. Hence, there is a need for the development of prevention programmes for stress related problems. The hospital should also provide proactive support physically and mentally for all the staff who work day and night.

3. Research Methodology

Objective of the study

- To understand the stress level among Healthcare and Non-healthcare professionals in the Hospital during COVID-19 outbreak.
 - To analyze the reasons or factors influencing the stress level
 - To recommend certain strategies to cope with stress and fear experienced during COVID-19 pandemic.
- Hypothesis
- Clinical staff experienced high level of stress than non-clinical staff in the hospital.
 - Female staff experience more stress than male staff in the hospital.
 - Older staff undergo through high level of stress than younger staff in the hospital.

Scope of the study

As the outbreak of corona has created a catastrophic effect on mankind, healthcare workers in a hospital are more prone to infection. This will cause stress in them and of course affect their work and personal life to a large extent. This would also affect their patient care responsibilities. Thus a better understanding of stress level among the health workers may provide new insight to develop better mental and emotional support during this pandemic. Hence the needs for assessing the stress level among health care workers are of great extent.

Study variables

In the study, gender is the qualitative variable whereas age is the quantitative variable. The level of stress is an ordinal variable as it is measured by scale. Doctors, Nurses/ANM, Paramedics, Administration staff, facilities and support and all other staff participated in the study are the variables. Stress is the effect of the study and hence it is the dependent variable and COVID-19 pandemic is the cause and hence the independent variable. Age and sex are also referred to as background variables as they influence the problem directly.

Research Design

The study is an exploratory study design. It also determines cause and effect relationship between various demographic factors and the level of stress in staff.

Population

The population included all available hospital staff that was willing to participate in the study. It was mandatory that the participant taking part in the study must be working in a hospital setup during the outbreak of COVID-19 pandemic.

Sample size

A convenient sample of 60 participants including Doctors, Nurses/ ANM, Paramedics, Administration, Facilities and Support, and others were included to conduct the study.

Type of data

Primary data was collected from the participants through Google form. Secondary data included data from website, newspapers and certain journals.

Study Setting & Duration

The study was conducted in Aster DM WIMS Hospital, Wayanad.

The study duration was of 2 months started from mid-March until May.

Statistical Technique used

A statistical standardized scale was used in which the participant answer a 5 point Likert scale ranging from never (0) to very often (4). PSS score range from (0-13) low stress; (14-26) moderate stress; (27-40) is high perceived stress.

Data collection procedure: Owing to the current situation of COVID-19 pandemic, it was difficult to collect the data directly from the participants. Hence a web based cross-sectional survey was conducted using an online questionnaire to the population using Google forms. To maintain privacy of all the questions that were collected, the questionnaire was kept anonymous. The questionnaire was divided into two sections:

- 1) Demographic data consisting of age, gender, field of work and category which each of them belongs to.
- 2) Perceived Stress Scale (PSS-10)

The questionnaire consisted of a brief introduction to the title of the study, objectives, voluntary nature of participation and also declaration of anonymity. The participant was asked to agree to the conditions and after confirmation it was followed by set of questions and were submitted.

Limitations

Nature of pandemic situation, mental and physical condition of the participants, and restricted time among healthcare workers are the main limitations to involve more participants.

Web based survey method may be less reliable than observation and direct interview method to analyze the stress level; also selection bias is a possibility.

The participants were from a single regional tertiary hospital; therefore, it is not possible to generalize the conclusions from medical and non-medical staff across the whole hospitals.

4.Data Analysis

The data was collected using a WHO validated structured questionnaire for perceived stress. Perceived stress refers to a person's feeling of how much stressed he/she is at a particular point of time. The extent to which a condition can be seen as stressful for a person is determined by this scale. If the level of perceived stress is found to be high, they may bear negative consequences and gradually may result in psychological problems like depression, and anxiety. Socio demographic characteristics such as age and gender, whether the participant belongs to clinical or non-clinical field along with the category to which they belong (Doctor, Nurse/ ANM, Paramedic, Administration, Facilities and Support, Others) were also included in the questionnaire.

Data on perceived stress were gathered by using a Perceived Stress Scale (PSS-10) which is a 10 item scale. It was developed by Cohen, Kamarck and Mermelston. It is one of the most widely used psychological tools for estimating the perception of stress. It consists of 10 direct queries on the current levels of experienced stress by the participant. All the questions were of general nature and are easy to understand. It was all about the feelings and thoughts that the participants underwent during the last

month of COVID-19 pandemic. The tool has got a 5-point Likert response.

Each item was scored with 0= Never, 1 = Almost Never, 2= Sometimes, 3= Fairly Often, and 4 = Very Often, which was applied to assess each item. Of these, 4 items (4, 5, 7 8) belong to positive dimension are scored in reverse while the rest 6 are negative and are scored from 0-4. Total scored is obtained by adding all items together which ranges from 0-40, in which high scores indicating high level of perceived stress.

PERCEIVED STRESS SCALE

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

Name _____ Date _____

Age _____ Gender (Circle): M F Other _____

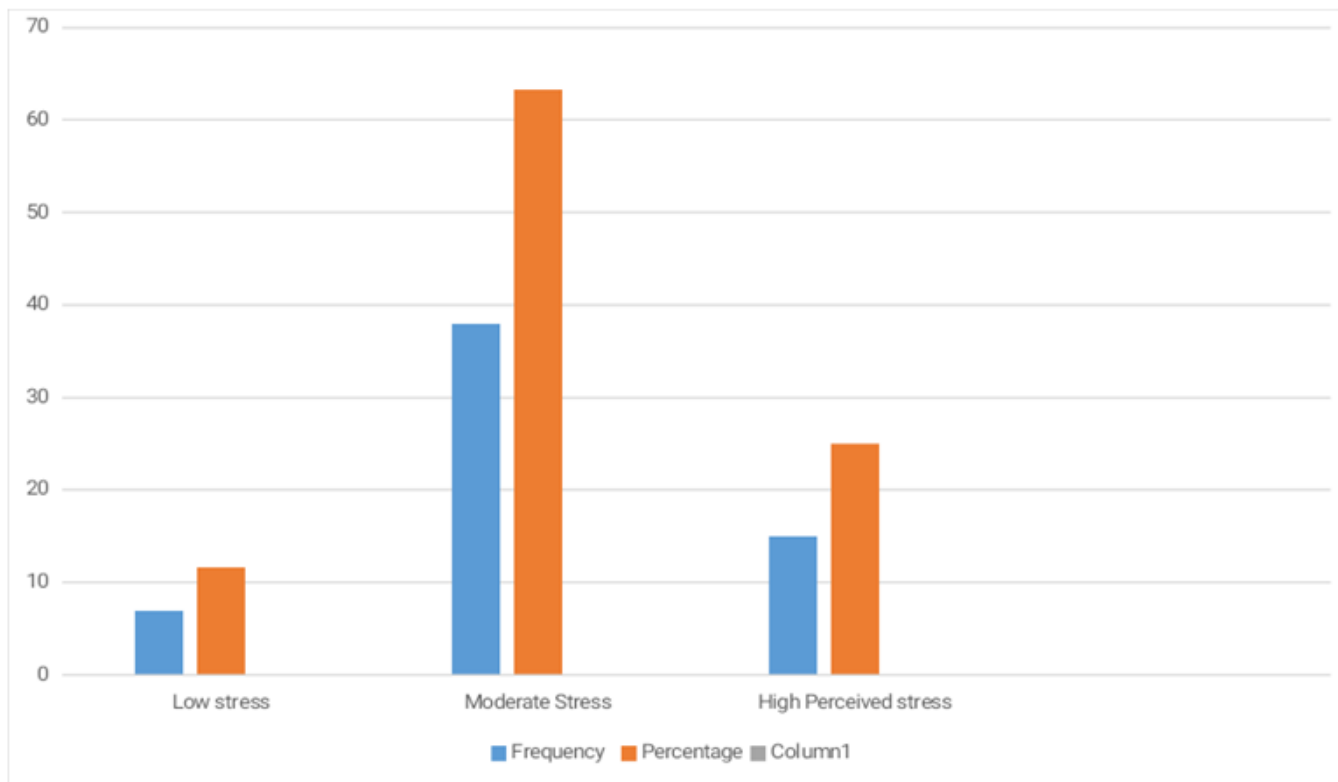
0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly? 0 1 2 3 4
2. In the last month, how often have you felt that you were unable to control the important things in your life? 0 1 2 3 4
3. In the last month, how often have you felt nervous and "stressed"? 0 1 2 3 4
4. In the last month, how often have you felt confident about your ability to handle your personal problems? 0 1 2 3 4
5. In the last month, how often have you felt that things were going your way? 0 1 2 3 4
6. In the last month, how often have you found that you could not cope with all the things that you had to do? 0 1 2 3 4
7. In the last month, how often have you been able to control irritations in your life? 0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things? 0 1 2 3 4
9. In the last month, how often have you been angered because of things that were outside of your control? 0 1 2 3 4
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? 0 1 2 3 4

A total of 60 participants were included in the study with a response rate of 100%. Perceived Stress Scale

Table 4.1

Level of Stress	Frequency	Percentage
Low Stress	7	11.666
Moderate Stress	38	63.333
High Perceived Stress	15	25



Graph 1: graph showing total stress level of the whole population

Interpretation

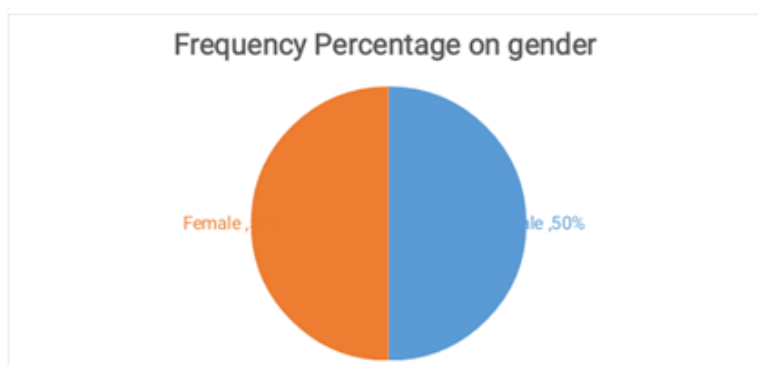
Table 4.1 reveals that more than half of the study population (63.33%) experienced Moderate stress (scored

13 above out of possible 40), one third of the population (25%) have High Perceived Stress and the rest (11.666%) experience low stress level.

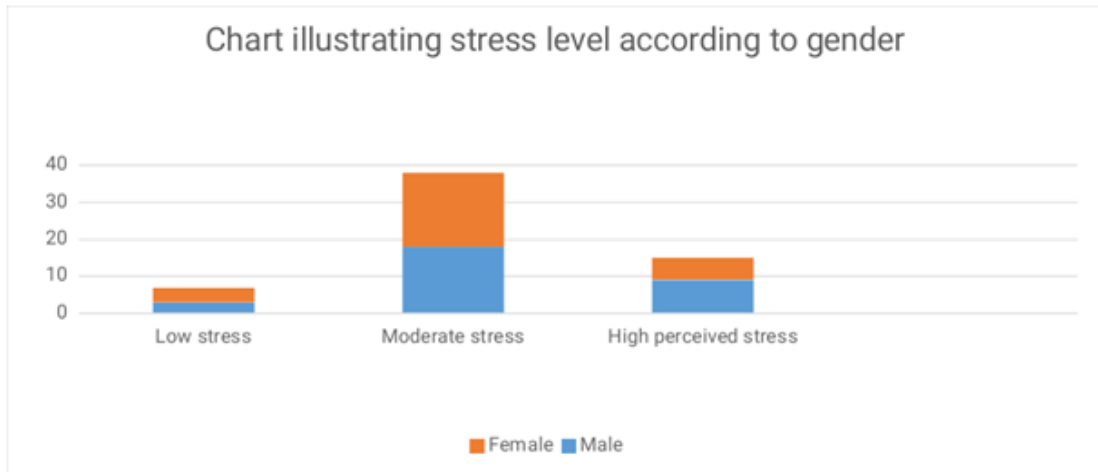
Classification based on Gender

Table 4.2

Stress scale	Male	Female	Total
Low stress	3	4	7
Moderate Stress	18	20	38
High Perceived Scale	9	6	15
Total	30	30	60



Graph 2



Graph 3

Interpretation

The graphs above shows that total 60 respondents participated in the study, 30 females and 30 males and from the graph it is clear that male staff (30%)

experienced high perceived stress when compared to female staff (20%).

Hence, it is revealed that Male staff experiences three times a higher level of perceived stress when compared to that of Females.

Classification based on Age

All the respondents belonged to age in between 20 and 49.

Table 4.3

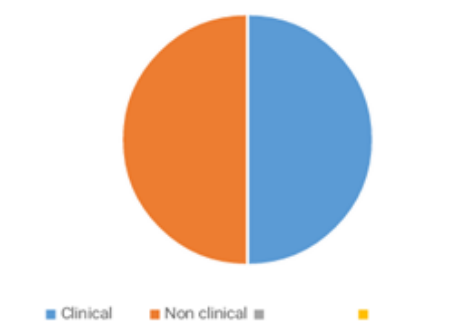
Class interval of Age	Frequency	Percentage	Level of Stress
20-29	26	43.33%	Low stress-4 Moderate stress-18, High perceived stress-4
30-39	21	35%	Low stress-1 Moderate stress-14 High perceived stress-6
40-49	13	21.67%	Low stress-2 Moderate Stress-14, High perceived stress-5

The mean age of the study population was found to be 32 years. Majority of the respondents were in the age range of 20-29 years (43.33%).30-39 age group showed more level of stress, and hence it reveals that High perceived stress is more in younger staff than older staff participated in the study.

Classification Based on Field of Work

Both Clinical and Non-clinical staff were equally divided according to the field they work by 30 each as shown in the pie chart below

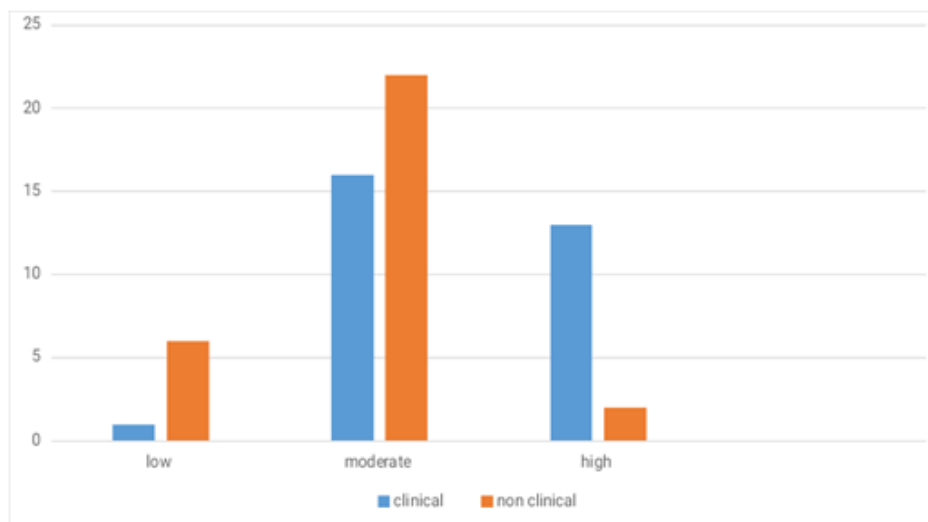
Distribution based on field of work



Graph 4

Table 4.4

Stress Scale	Clinical	Percentage	Non-clinical	Percentage	Total
Low stress	1	3.333	6	20	7
Moderate stress	16	43.333	22	73.333	38
High Perceived Stress	13	53.333	2	6.666	15
Total	30	100	30	100	60

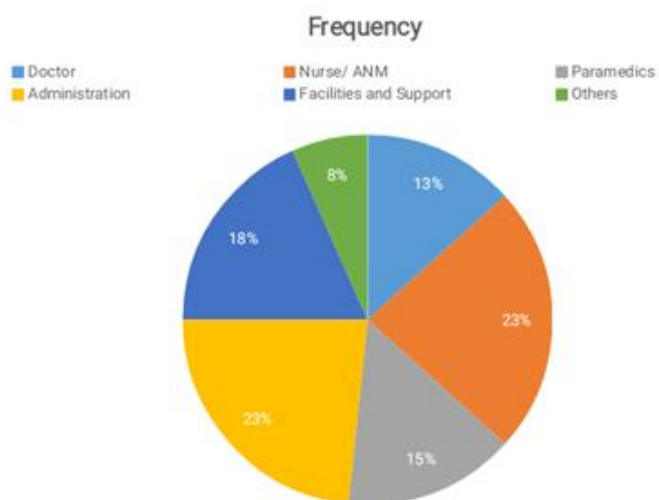


Graph 5: Interpretation

The above graph depicts that Clinical staff experience a high level of perceived stress (13 out of 30 i.e. 43.33%) when compared with that of Non-clinical staff (2 out of 30 i.e. 6.66%). It is clear that the level of stress of clinical staff is 6 times more than non-clinical staff.

Classification based on the category of work

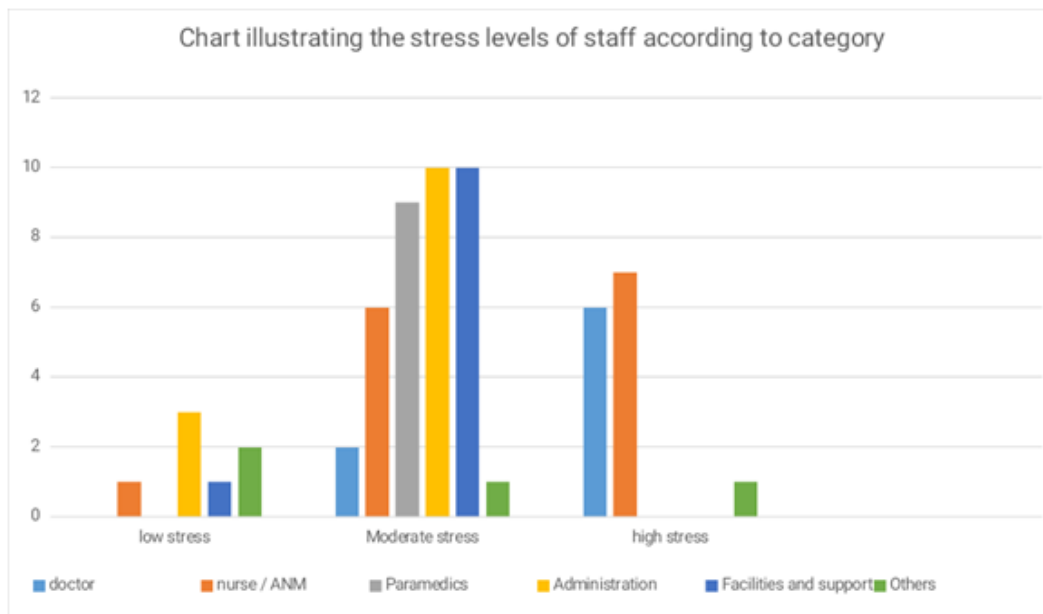
Of the total population, 8 (26.666%) were Doctors, 14 (23%) were Nurses/ANM, 9 (15%) were Paramedics, 14 (23%) belonged to Administration, 11 (18%) belonged to Facilities and Support and the rest 4 (7%) belonged to various other departments.



Graph 6

Table 4.5

Level of stress	Doctor	Nurse/ANM	Paramedics	Administration	Facilities & Support	Others
Low stress	0	1	0	3	1	2
Moderate stress	2	6	9	10	10	1
High Perceived stress	6	7	0	1	0	1
Total	8	14	9	14	11	4



Graph 7: Interpretation

The graph shown above clearly shows that Nurses (7 out of 14) are having higher level of perceived stress than all other category of respondents, followed by Doctors (6 out of 8). Administration along with facilities and support (10 each) shows moderate stress level compared to others. All the respondents belonging to paramedics shows Moderate level of stress. Stress level is very low in staff belonging to Administration category.

According to the PSS scale, more than one third of the respondents i.e. 36.7% were fairly often upset because of unexpected things happened. 35 % of them were unable to control the important things in their life. 31.7% of them felt nervous and stressed in the last month. It was found that 28.3 % of the respondents were not confident on their ability to handle their personal problems. 28.3% of respondents sometimes felt that things are going the way they expected. Only 3.3 % of respondents were able to cope with all the things they had to do. One third of the population (30%) never been able to control irritations in life past one month. 36.7% of total respondents never felt on top of things. 38.3% of respondents felt angered fairly often because of things happening outside of their control. 30% respondents almost never felt that difficulties are piling up so high and could not overcome them.

5.Findings

The study revealed that clinical staff undergoes higher level of stress when compared to that of non-clinical staff in the hospital. Clinical staff is more prone to get infected with the virus as they are spending majority of their working hours with the patients suffering from the disease. Compared with the non-frontline workers, the medical staff who are in frontline may experience more distress as they are directly involved in the process of diagnosis, treatment and taking care of the patients. Doctors, nurses and paramedical staff showed a greater level of irritability than other HCWs. It may be due to the increased duty hours as the number of cases were hiking up day by day.

Prolonged use of PPE and stigma might aggravate stress in them. Physical difficulties of wearing PPE and environmental safety may be related with the stress level. Concern of personal safety and safety of the family also worsen their mental pressure. Patients dying in front, distrust and burnout push them more into high perceived stress levels. Various emotional, psychological and social issues in and around them may also be the factors contributing to the stress. Resource constraints like lack of protective equipment, financial and staffing requirements may be linked to the stress among Clinical staff. Clinical staff may undergo more pressure from higher authorities and communication between the people working in the hospital may also be disrupted during such an adverse situation.

It was found that Male staff experienced high level of Perceived stress than female staff participated in the study. This may be because men are considered as the major breadwinners of the family and hence they may take up extra working hours to earn more in such a pandemic situation. Men may also suffer stress worrying that they may infect his family members when going home after working in a hospital setup.

Younger staff reported a high of perceived stress than older staff participated in the study. More work experience and confidence in managing the work in a new situation like COVID-19 pandemic usually correlates with high age. Younger staff may engage in more number of night shifts which may lead to a higher level of stress compared to older ones.

Hence it was clearly understood that more than half the percentage of staff in the hospital have moderate stress levels. It is also important to note that one third of the population experienced High level of Perceived stress level during the outbreak of COVID. If the pandemic continuous, the well-being of hospital staff may be widely threatened. The results of this study showed that more than half of the hospital staff might need some targeted

interventions and strategies to help them manage their stress level. A great concern should be given and early interventions are highly recommended.

6.Recommendations

“No country, hospital or clinic can keep its patients safe unless it keeps its health workers safe”.

What health workers can do by themselves.

Always be aware of your own stress level and how you're doing. It is important to keep in mind that feeling stressed is normal under such an adverse situation under exceptional circumstances.

Remind that self-care is not negotiable and you should take care of yours mental and physical health needs.

Connect and keep in touch with your loved ones as well as your colleagues and share your experiences and difficulties. Do not blame yourself and access support when necessary.

Eat well, get good sleep and look after your body.

Last but not the least, take a moment to appreciate yourself, remind yourself what you have achieved.

Strategies which the hospital authority can take up:

- Build a union between safety of the health worker and patient safety strategies.

Develop links between occupational safety of HCWs, patient safety and improvement of quality in the hospital. Implementation of training programs may help protect their health and safety at work.

- Policies can be established to provide fair working hours of all the staff, rest breaks in between for minimizing the burden. Insurance coverage can be provided to all the staff in the hospital especially those working in high-risk areas.
- Ensure availability of PPE at all times, adequate resources to prevent healthcare workers from injuries.
- A platform within the hospital can be arranged in between for the purpose of communication with co-workers and employees about the job stress and how it affects work.

7.Conclusion

Our study demonstrated the presence of stress among HCWs during the COVID-19 pandemic. Factors determined to be associated with the level of stress were being male, aged 30 years or older, and working in a clinical background. These factors may influence the working environment of the staff. Thus this study suggests that the participants who had a higher level of perceived stress level must identify it themselves and also the hospital authority should pay an attention towards their

well-being. Psychological interventions can be provided early, considering this vulnerable group may help.

References

- [1] Dr. Lancee W J, Ph. D., Dr. Maunder R G, M. D., [...] Prevalence of Psychiatric Disorders among Toronto Hospital Workers One to Two Years after the SARS Outbreak. *Psychiatric Services*, February 2008
- [2] Selvaraj P, Muthukanagaraj P, Saluja B, Jeyaraman M, Anudeep TC, Gulati A, et. al. Psychological impact of COVID-19 pandemic in healthcare professionals in India-A multicentric cross sectional study. *India J Med Sci.*2020; 72: 141-7
- [3] Dwivedi M, Pandey S. Stress among doctors during COVID-19. *Int J Indian Psychol.*2020; 8: 223-9.
- [4] Chersich MF, Gray g, Fairlie L, et. al. COVID-19 in Africa: Care and protection for frontline healthcare workers. *Global Health.*2020; 16; 46.
- [5] Elbay RY, Kurtulmus A, Arpacioğlu S, Karadere E. Depression, anxiety, stress levels of physicians and associated factors in COVID-19 pandemics. *Psychiatry Res.*2020; 290: 113130.
- [6] Mohd Fauzi MF, Mohd Yusoff H, Robat RM, Mat Saruan NA, Ismail KI, Mohd Haris AF. Doctors' mental health in the midst of COVID-19 pandemic: The roles of work and demand recovery experiences. *Int J Environ Res Public Health.*2020; 17: 7340.
- [7] Kannampallil TG, Goss CW, Evanoff BA, Strickland JR, McAlister RP, Duncan J. Exposure to COVID-19 patients increases physician trainee stress and burnout. *PLoS One.*2020; 15: e0237301.
- [8] Kuo FL, Yang PH, Hsu HT, Su CY, Chen CH, Yeh IJ, et al. Survey on perceived work stress and its influencing factors among hospital staff during the COVID-19 pandemic in Taiwan. *Kaohsiung J Med Sci.*2020; 36: 944-52.
- [9] Vizheh M, Qorbani M, Arzaghi SM, Muhidin S, Javanmard Z, Esmaeili M. The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *J Diabetes Metab Disord.*2020; 19: 1-2.
- [10] Wang H, Liu Y, Hu K, Zhang M, Du M, Huang H, et al. Healthcare workers' stress when caring for COVID-19 patients: An altruistic perspective. *Nurs Ethics.*2020; 27: 1490-500.
- [11] Mathur S, Sharma D, Solanki R K, Goyal M K. Stress related disorders in health care workers in COVID-19 pandemic: A cross-sectional study from India. *Indian J Med Spec.*2020; 11: 180-184.
- [12] <https://www.who.int>
- [13] <https://www.healthcarefinancenews.com>, Healthcare workers experiencing burnout, stress due to COVID-19 pandemic, Dec 08, 2020.