

DISSERTATION TOPIC

**ANXIETY, DEPRESSION
AND BEHAVIOURAL
CHANGES IN
HEALTHCARE WORKERS
ASSOCIATED WITH
CORONAVIRUS PANDEMIC**

SRIRAM SURESH

MBA-HM 24 (1006)



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INTRODUCTION

COVID-19 disease along with physical health also impacted the mental health of population.

In India, with a doctor-population ratio of 1:1800 and 1.3 billion total population to cater to, there is already inadequate public health care, and the system has crumbled during the COVID-19 pandemic².

Poor health in India is a result of lack of doctors, lack of beds, equipment, and poor infrastructure; factors that these physicians have no control over. These issues are highlighted as the fault of physicians.

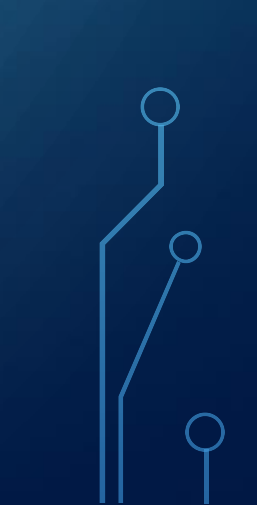
Mental health impact on these individuals is a result of increased patient loads, increased risk of contracting the pathogen, and disruptions to normal life.

Amplifying the effects of COVID-19 could be due to spread of fake news over social media and television broadcasting. Social distancing and lockdown resulted in limiting family and social support for the individual¹.



Indian HCWs experienced burnout as they were associated with shifts of working for more than 12 hours. Burnout is defined as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with people in some capacity,” and results in occupational stress from exposure over a long period of time. It is more prevalent in new and inexperienced frontline HCWs and it overall affects the health-care delivery to the nation⁴.

Increasing reports of violence, diffusing complex situations, and coordinating the supply chain management of limited medical resources, healthcare workers are burdened by additional responsibilities.



Their role is crucial in answering queries, reducing anxiety, and providing support to the patients, their attendants, and the public by providing the correct information³. There are cases where their daily activities of HCWs were affected as in the commute was impossible, arrangement for accommodation added to the mental stress and burnout.

- “A recent study from Japan has reported burnout in more than 40% of nurses and more than 30% of technical staff. The plausible reasons of high burnout in these categories are lower decision-making authority, lack of social support and expectation of appreciation”.
- “An analysis done during the peak of the COVID-19 pandemic in Italy has revealed that approximately 60% of HCWs experienced emotional exhaustion, more than 50% experienced depersonalization and about 45% had at least one physical symptom in the previous 4 weeks”.
- “A study conducted in early days of COVID-19 pandemic in India has reported moderate level of stress in 80% of HCWs and depressive symptoms requiring treatment and anxiety symptoms requiring further evaluation in 11.4% and 17.7% of HCWs, respectively”.

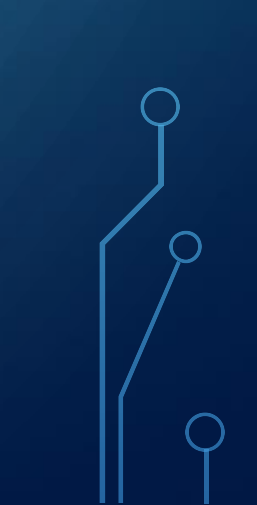
Hyper irritability, dietary habits, insomnia, and tensed muscles were some pathological signs experienced by respondents. With second highest case burden and third highest fatality rates may result in significantly higher prevalence of stress, burnout, and other mental health outcomes in HCWs⁵.



Outside the hospital, Stigma, and discrimination of HCWs was faced by the community; Refusal to enter their houses and assault led to more stress and worry⁶.

Mental instability and in an extreme minority of cases suicidal tendencies are often a result of repeated exposure to highly stressful situations. The fear of contracting COVID-19 among HCWs may also have unintended consequences for their patients.

Therefore, HCWs' mental health may be affected by the aforementioned problems and challenges in healthcare systems⁷.



REVIEW OF LITERATURE

Year	Title	Author	Objective	Study design	Conclusion
28 th July 2020	Anxiety, Depression and Behavioral Changes in Junior Doctors and Medical Students Associated with the Coronavirus Pandemic: A Cross-Sectional Survey ¹	Uma Pandey et. al	To assess the psychological effects of this pandemic on the mental health of medical students and trainees	Cross sectional study	Female students/junior doctors showed higher anxiety and depression scores than males. Direct patient care and care of patients with Covid-19 did not result in a measurable deterioration in anxiety and depression in this study. In this stressful pandemic situation, it is imperative to look after the mental health of healthcare workers as well as patients.
24 th August 2020	Burnout among Healthcare Workers during COVID-19 Pandemic in India: Results of a Questionnaire-based Survey ⁵	Ruchira W Khasne et. al	To find the prevalence of burnout, due to COVID-19 pandemic in India in healthcare workers	Cross sectional study	There is a significant prevalence of burnout during the COVID-19 pandemic among HCWs, in particular, doctors and support staff. Female respondents had higher prevalence.

28 th August 2020	Effect of gender and clinical-financial vulnerability on mental distress due to COVID-19 ⁸	Aditya Simha et. al	To examine whether gender influences the mental distress in people from at-risk populations (clinically high risk and financially vulnerable).	Cross sectional study	Individuals who are clinically high risk or financially vulnerable or a combination of both experience significantly higher levels of mental distress. Additionally, females experienced higher levels of mental distress than males across various categories.
27 th October 2020	COVID-19 suicide and its causative factors among the healthcare professionals: Case study evidence from press reports ⁷	Israt Jahan et. al	To investigate the COVID-19-related suicides among healthcare professionals (HCPs).	Retrospective study	HCPs appear to be committing suicide due to issues related to being infected with COVID-19, fear of COVID-19 and safety, work-load stress, and pre-existing mental health conditions, which are different to COVID-19-related reasons for suicide among the general population.

25 th January 2021	Multinational Study to Assess Stress Levels Among the Health Care Workers of Radiation Oncology Community at the Outset of the COVID-19 Pandemic ⁹	Tabassum Wadasadawala et. al	To evaluate stress levels among the health care workers (HCWs) of the radiation oncology community in Asian countries.	cross-sectional stratified	This survey conducted during the COVID-19 pandemic revealed that a significant proportion of HCWs in the radiation oncology community experiences moderate to severe levels of anxiety, depression, and stress. This trend is alarming, and it is important to identify and intervene at the right time to improve the mental health of HCWs to avoid any long-term impacts
25 th February 2021	Stress, Sleep and Psychological Impact in Healthcare Workers During the Early Phase of COVID-19 in India: A Factor Analysis ¹⁰	Seshadri Sekhar Chatterjee et. al	To conduct a factor analysis on the items obtained from the PES-10 and the ISI-7 to investigate the inter-correlation between the measures and extract different factors of these two mental health parameters.	cross-sectional study	Different categories of healthcare workers are experiencing varied mental health problems owing to their heterogeneous socio-demographic backgrounds. Tailored and personalized care, as well as policies, might help in alleviating their problems. Further research is warranted to explore the psychological distress and remedies among these frontline workers during and after the ongoing pandemic crisis.

16 th March 2021	Psychosocial Framework of Resilience: Navigating Needs and Adversities During the Pandemic, A Qualitative Exploration in the Indian Frontline Physicians ¹¹	Debanjan Banerjee et.al	To explore resilience framework and coping in HCWs and pre-existing psychopathology to color their subjective perceptions during the pandemic. which form the main data of this qualitative study.	Cross sectional study	The study findings support the global call for better psychosocial health and quality of life of the frontline HCWs. Their “unheard voices” explored in the study can anchor subsequent resilience-enhancing interventions and policies. Guidelines focusing on the psychological wellbeing of frontline HCWs need to be grounded in their unmet needs and lived experiences.
22 nd April 2021	Assessing the Mental Impact and Burnout among Physicians during the COVID-19 Pandemic: A Developing Country Single-Center Experience ¹²	Muhammad Sohaib Asghar et. al	To document the effect of “coronaphobia” on mental well-being and to report burnout among physicians	Cross sectional study	The results of the survey further highlight that depersonalization, emotional exhaustion, and low personal accomplishment were associated significantly with a history of COVID-19 infection and COVID-19 postings. Hence, immediate measures are required to reduce the burnout among physicians while battling the second wave of the pandemic

OBJECTIVES

- To investigate the prevalence of depression among healthcare workers using GAD-7 scale.
- To investigate the prevalence of anxiety among healthcare workers using PHQ-9 scale.
- To compare psychological effects with the demographic data of the respondents and to provide recommendations to improve the mental health of healthcare workers.

METHODOLOGY

Study design: - Descriptive cross-sectional study

Study population: - Healthcare workers directly or indirectly involved in management of COVID-19.

Sample design: - non-probability - convenience method

Sample size: - 200

Study duration: The study duration was of 3 months from March 2021 to June 2021.

DATA COLLECTION TOOL AND TECHNIQUE

The researcher employed quantitative approach to data gathering. The data collection source for the study is primary data source. The primary data will be collected in the via google forms which was disseminated via WhatsApp and email. Participants who filled the survey were assumed to give their consent. Confidentiality of the data and anonymity of their identity was assured along with purpose of study. The questionnaire comprised of demographic data (age, sex, education, residence, and occupation) and consisted of tools that screen for symptoms of anxiety and depression using the Generalized Anxiety Disorder 7 Scale and the Patient Health Questionnaire 9 scale.

Participants were asked to describe their symptoms over the past 2 weeks using the scale and cut off scores of 5, 10, and 15 were interpreted as mild, moderate, and severe levels of anxiety on the GAD-7. PHQ-9, scores of 5 to 9, 10 to 14, 15 to 19, and 20 to 27 were interpreted as mild, moderate, moderately severe, and severe depression symptoms.

A total of 158 responses were obtained and statistical analysis was performed with Excel and Minitab.

INCLUSION AND EXCLUSION CRITERIA

- **Inclusion Criteria:**
 - Front line healthcare workers, pharmacists, paramedic staff and administrators directly or indirectly involved in patient care.
 - Indian residents aged over 18.
- **Exclusion Criteria:** Healthcare workers who were not actively involved in care of patients during COVID-19.

STUDY FINDINGS

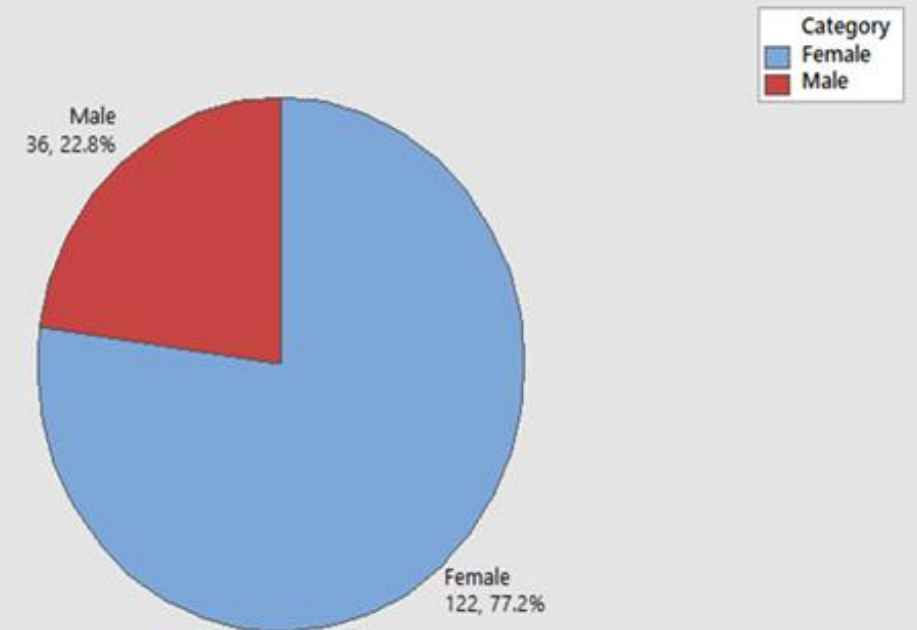
POPULATION PROFILE

Graph showing frequency of sample based on gender.

GENDER	NUMBER
MALE	36
FEMALE	122
TOTAL	158

Maximum patients were female (77%) out of 158 selected sample.

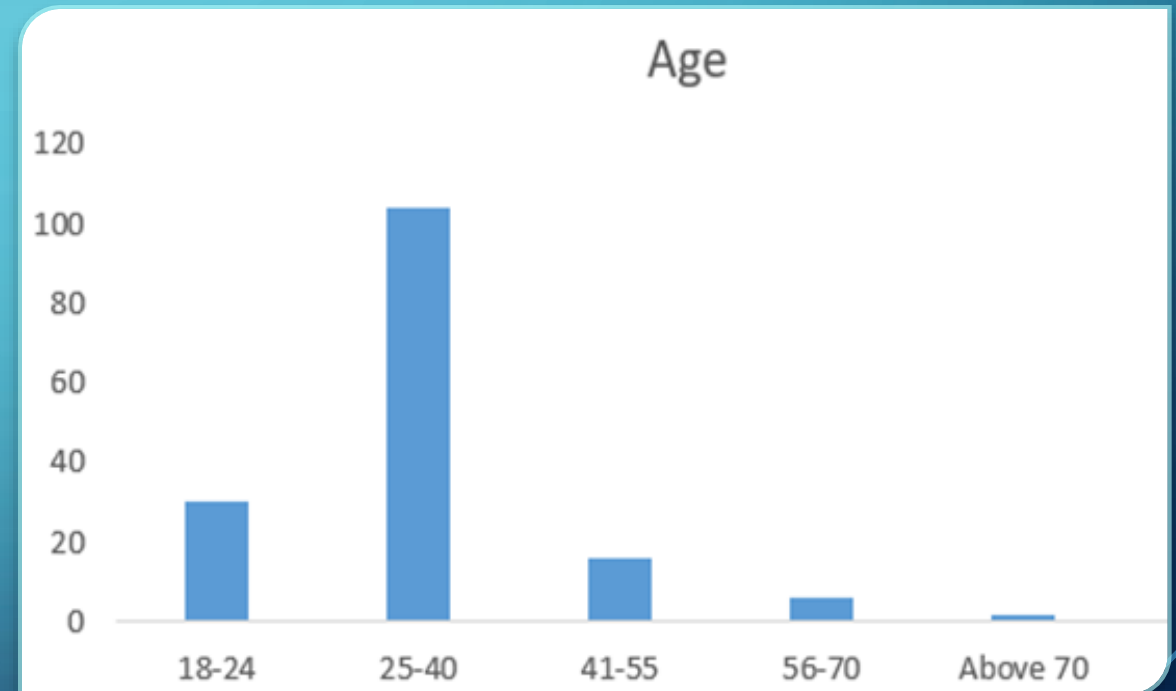
Pie Chart of Gender



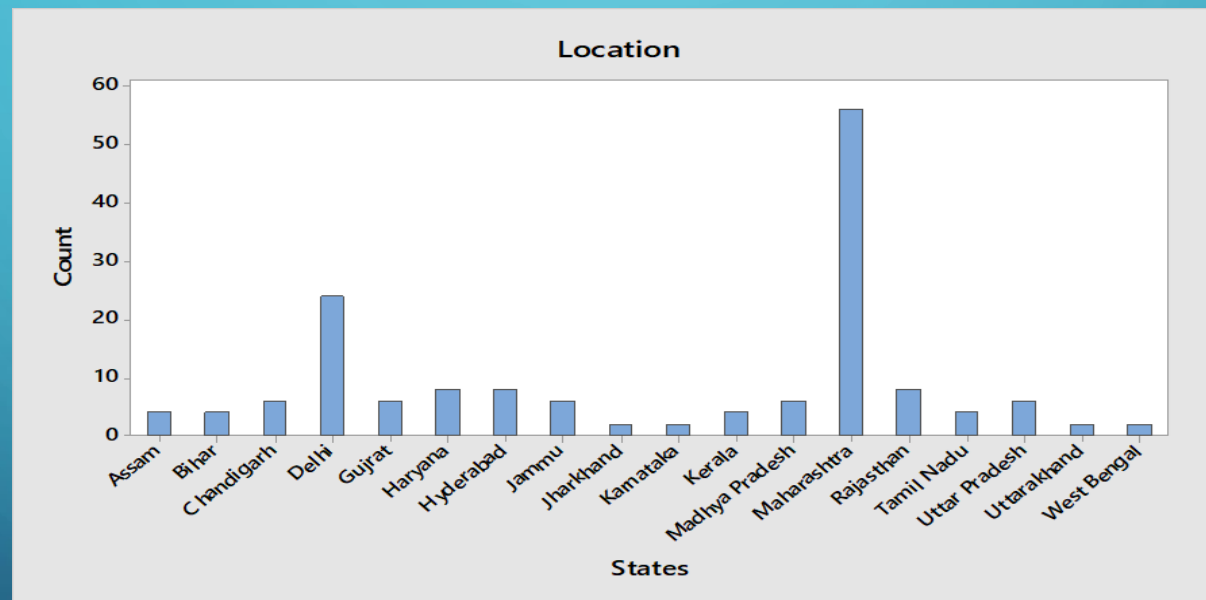
Graph showing distribution of participants based on age group.

CATEGORY	AGE
18-24	30
25-40	104
41-55	16
56-70	6
70+	2

Out of 158 participants, 19% participants were from 18-24, 66% were from 25-40 age and 15% belonged to above 40 age group.

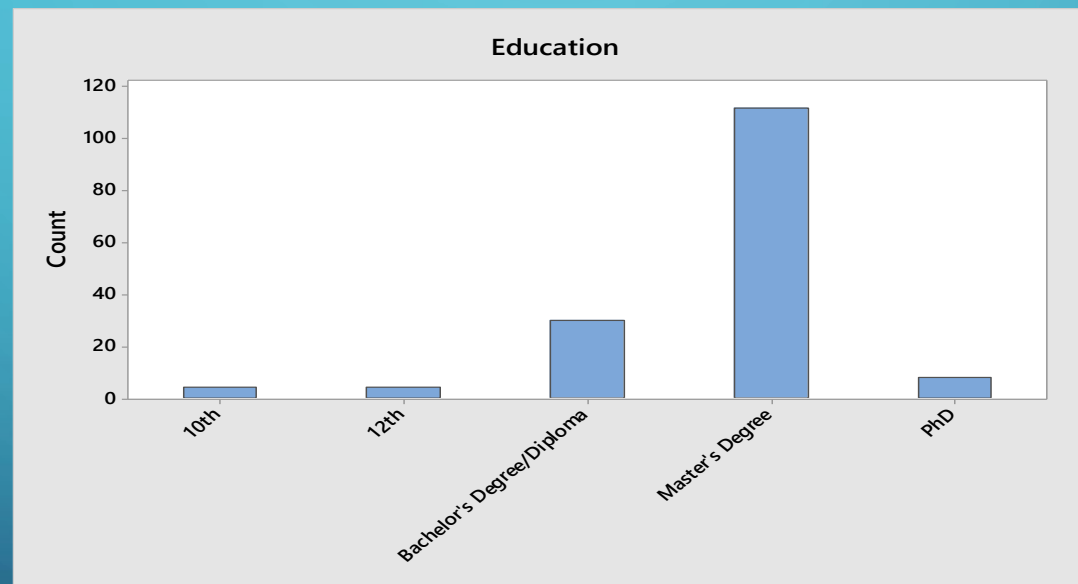


Graph showing distribution of participants based on location.



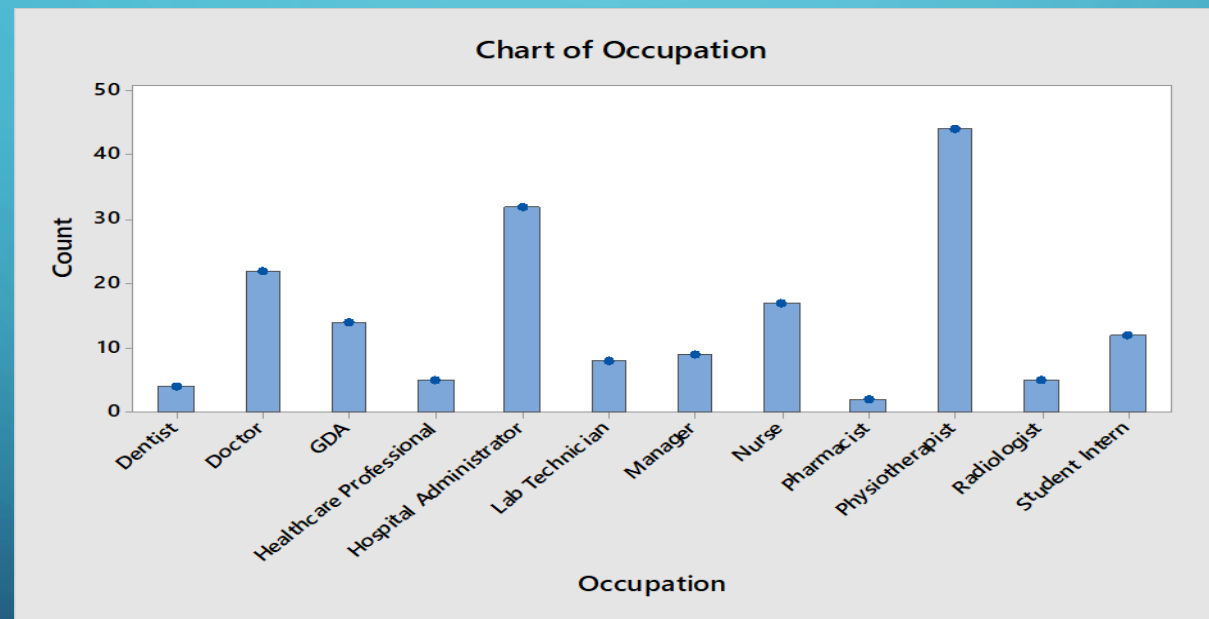
The number of participants is distributed across 18 states and union territories and the maximum number of participants from Maharashtra and Delhi.

Graph showing education levels of participants.



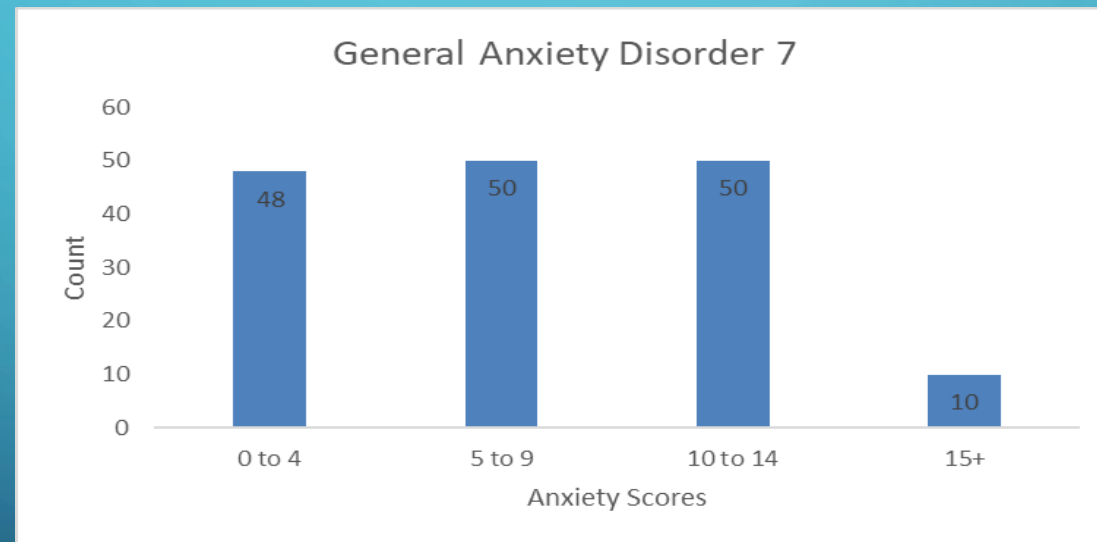
Most of the participants are highly educated with maximum having the master's degree, followed by the bachelor's degree and PhD.

Graph showing the occupation of the respondents.



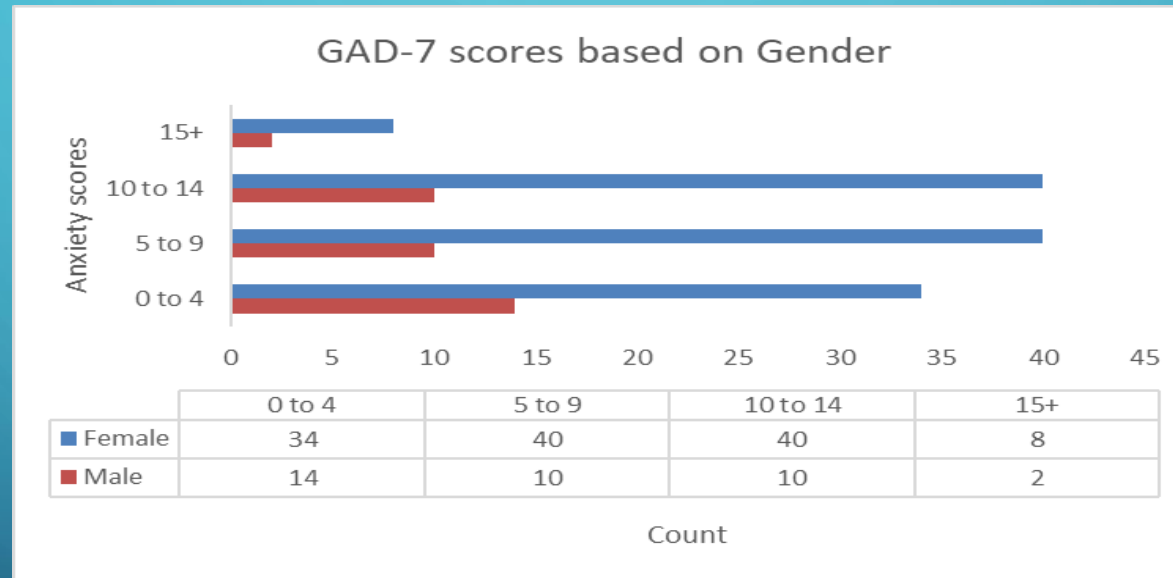
Approximately, 50% of the respondents were Physiotherapists and Hospital Administrators. It is followed by Doctors, Nurses, GDA, Student Interns and Managers.

Graph showing GAD-7 categories based on severity of anxiety.



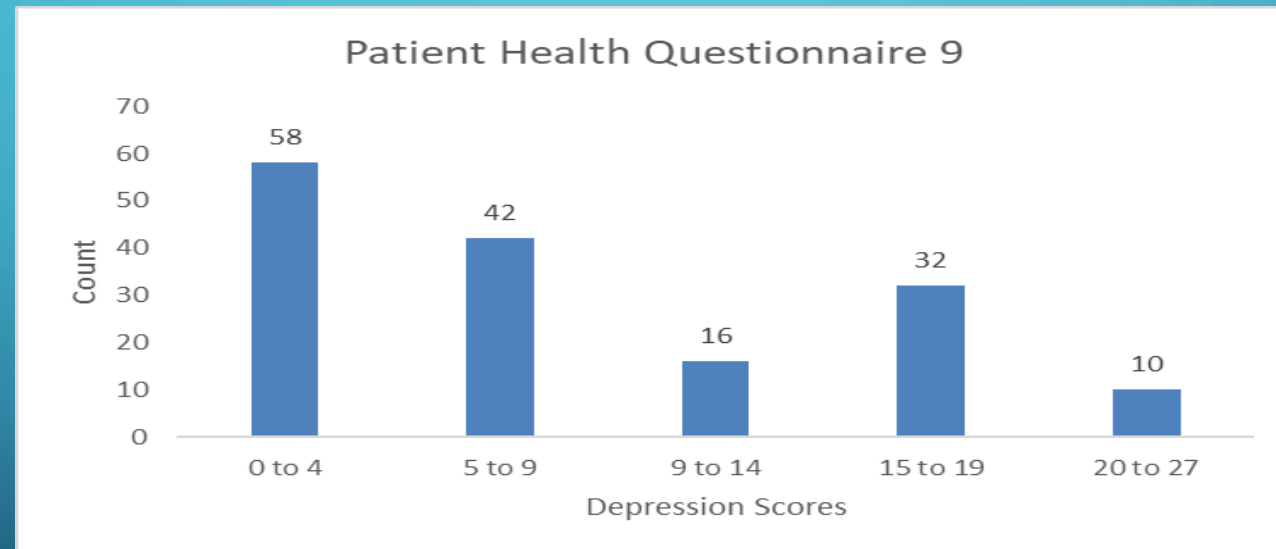
48 respondents out of 158 (30%), have no anxiety. But the rest 110 respondents (70%) have some kind of anxiety and 38% have moderate to severe levels of anxiety.

Graph showing GAD-7 scores based on gender.



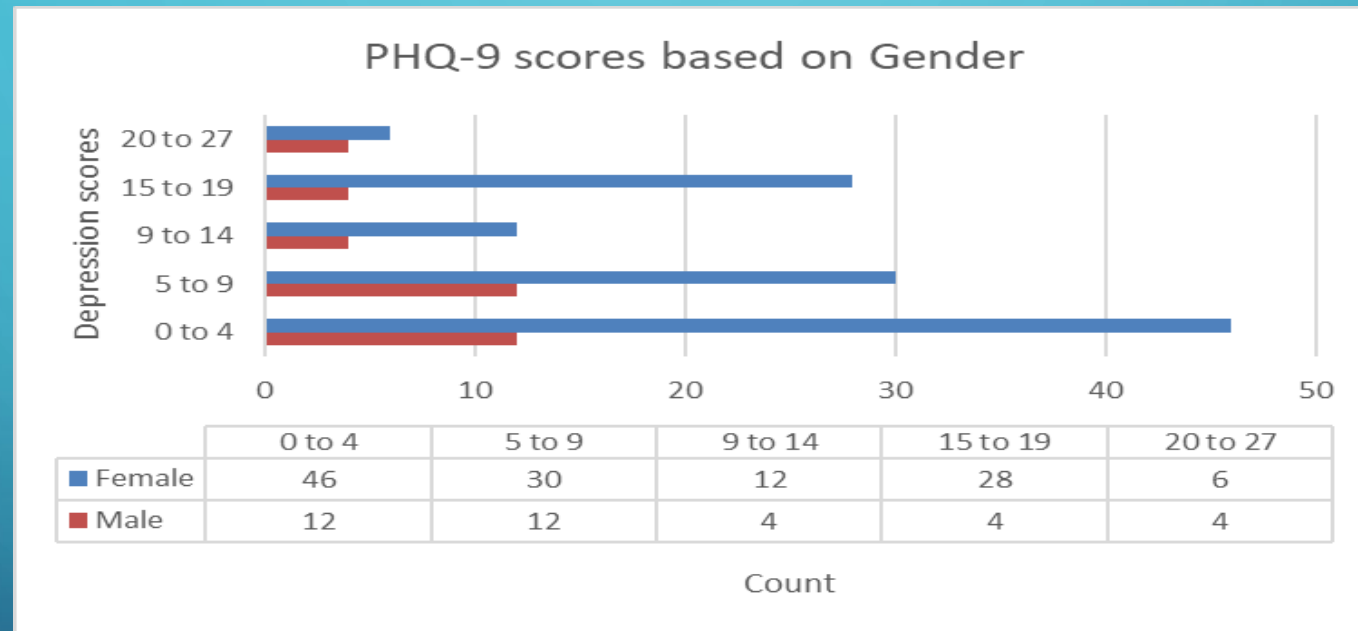
Anxiety levels in males and females have been similar when means are GAD-7 scores are compared with a value of 7.9

Graph showing PHQ-9 scores based on severity of depression.



37% of the respondents (58 out of 158) do not have depression. 42 respondents (26%) have mild depression and 58 respondents (37%) have moderate to severe depression.

Graph showing PHQ-9 scores based on gender.



Depression levels in males and females are similar with a mean score of 8.4 with males slightly higher with a mean of 8.5

Table and Graph of analysis of GAD-7 scores based on occupation

We grouped the participants under 5 categories based on the roles during COVID-19. Category A included (Doctors and Dentists), Category B (Hospital Admin, Manager and Healthcare Professionals), Category C (Nurses), Category D (Physiotherapist and student intern) and Category E (GDA, lab technicians, Pharmacists and Radiologists).

Category	N	P value	Mean	Standard Deviation	Min	Median	Max
A	27	0.027	7.07	4.75	0	7	13
B	41	0.015	9.29	4.33	0	9	16
C	15	0.035	8.00	6.12	0	6	16
D	57	<0.05	6.26	4.92	0	6	20
E	18	0.031	10.66	4.92	3	11	18

ANOVA Analysis

Null hypothesis All means are equal.

Alternative hypothesis At least one mean is different.

Significance level $\alpha = 0.05$

Equal variances were assumed for the analysis.

Analysis of Variance

DF= 4

P Value = 0.000

Therefore, the null hypothesis is rejected and mean of at least one category is different at 95% confidence interval.

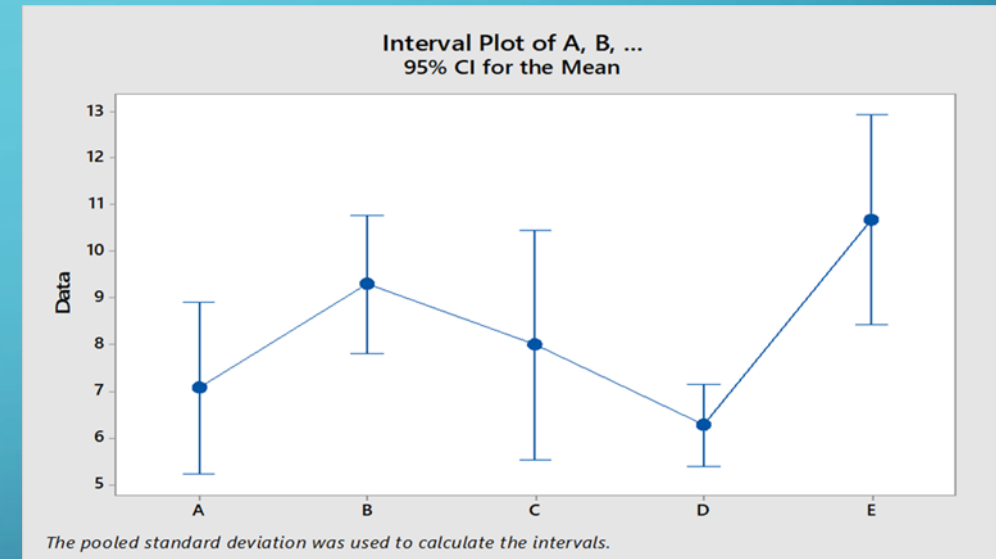


TABLE AND GRAPH OF ANALYSIS OF PHQ-9 SCORES BASED ON OCCUPATION.

Category	N	P value	Mean	Standard Deviation	Min	Median	Max
A	27	0.01	8.70	7.16	0	9	21
B	41	<0.05	10.41	7.04	0	9	21
C	15	<0.05	7.33	7.26	0	4	20
D	57	<0.05	6.26	4.92	0	6	20
E	18	0.002	12.50	5.68	4	14	20

ANOVA ANALYSIS

Null hypothesis All means are equal.

Alternative hypothesis At least one mean is different.

Significance level $\alpha = 0.05$

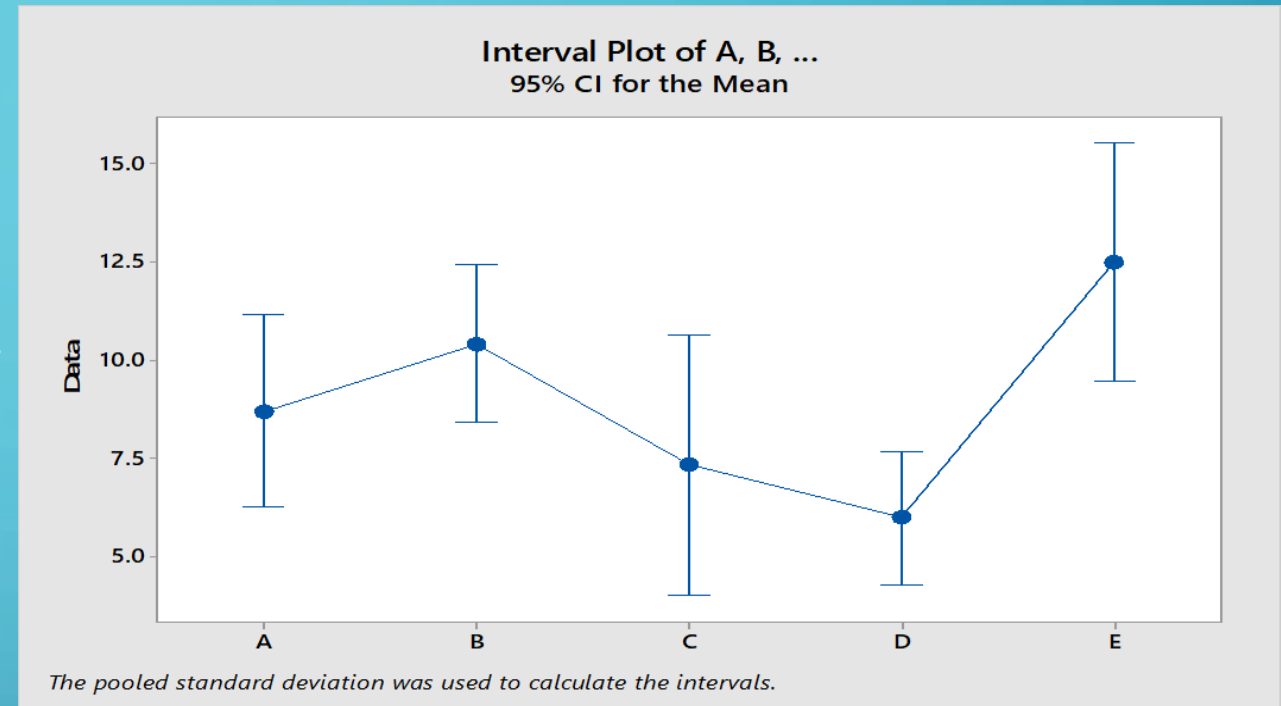
Equal variances were assumed for the analysis.

Analysis of Variance

DF=4

P Value = 0.001

Therefore, the null hypothesis is rejected and mean of at least one category is different at 95% confidence interval.



DISCUSSION

1. Out of 158 respondents, 36 (22%) were male and 122 (77%) were female. The current finding states GAD-7 scores among male and female were statistically insignificant. This is similar to the study conducted in Indian medical college, where there was no statistical difference between the two genders. Although, there are several studies which state that anxiety in women is higher due to domestic responsibility and workplace insecurity along with financial dependency, occupational exhaustion¹³.
2. According to the study, 85% sample of this population belongs to under 40 with about 66% being in the age group of 25-40. There are studies which state that there is nearly two-fold increase in risk of contracting virus amongst younger and single HCPs and therefore maybe experiencing combined depression and anxiety as compared to married counterparts. Those separated from family are also inclined to face such problems. Therefore, it is important to have the family support and friends to maintain good mental health¹⁴.
3. Since maximum number of respondents are from Maharashtra and Delhi, approximately 70% of the respondents are anxious and 63% have some form of depression. This could be due to large number of cases reported in the respective cities leading to more exposure to over working, pathogens, burnout, fatigue, more exposure to deaths and even prone to mob violence. There are studies which revealed that half the violent incidents occurred in ICU and majority of them are caused by relatives. Factors leading to violence may include acute shortage of ICU beds in hospitals with a long uncertainty of course of COVID-19, delay in attending the COVID-19 patients, and ambiguity of treatment, poor infrastructure, increased emergency, and reduced workforce leading to increased stress, anxiety among healthcare workers.



4. Front line workers directly working with active COVID-19 patients are at higher risk of being affected physically and mentally due to the “mode of transmission, rapidity of spread and lack of definitive treatment protocols or vaccine of COVID-19”¹⁵. Increased load of patients, under extreme conditions HCWs are exhausted wearing PPEs. Their personal life is also affected worrying about transmitting the infection to closed ones and neighbouring environment, stigma, and physical isolation. They also have to be updated of treatment guidelines and government policies¹⁶.

5. Health care worker’s education levels are not significant stressors during this pandemic and are affected variably. This may be due to an adaptive response to working in a stretched and overwhelming healthcare system. Although, it depends on factors such as patient load and location. Higher education levels amongst the participants might help them cope up against anxiety and depression.

6. By avoiding news or discussions, rumours, and false information; HCWs should avoid social isolation by keeping connect with families and friends. Yoga, sleep hygiene, relaxation, and music therapy and other hobbies help in reducing anxiety and depression¹⁶. Regular workplace screening is a must for HCWs involved in the care of COVID-19 patients and evaluate mental health of providers for various signs and symptoms.





7. Work-related stressors including mental health intervention by qualified psychiatrists, by reducing workload, providing support, and creating a culture of teamwork is needed to be addressed by the management team. Due to the dire lack of HCWs, they must be protected from infection during the COVID-19 pandemic to provide required patient care.

8. Factors leading to burnout include job dissatisfaction, increased workload, and reduced satisfaction and under appreciation by management team. Additionally, due to financial burden and poor interpersonal relationship in workplace and reduced family time amplifies the problem. To create a protective and supportive working environment, efforts should be made to provide support, training, equipment, remuneration and technical updates on COVID-19 through frequent communication. Over burden of HCWs should be avoided and benefits such as compensation, treatment, rehabilitation, and counselling services should be provided¹⁷.

9. Specialized training and equipment in treating COVID-19 patients, reduced workload, adequately distancing isolation wards, and breaks between care of patients were most important issues that need immediate attention.

10. The fear of being infected with COVID-19, safety and spread, work-load stress, and pre-existing mental health conditions makes healthcare workers prone to committing suicide.



CONCLUSION

We conclude that healthcare workers are psychologically impacted by COVID-19. HCWs should take up techniques like relaxation, yoga, deep breathing and engaging in family to combat stress.

There is an urgent need for institutions to modify according to their systems by reducing working hours and specialized trainings with availability of PPEs to protect against the virus . Efforts should be made not only help to deal with generalized anxiety and depression among healthcare workers but overall improve their well-being as it could also affect the care delivery, decision making ability, judgement, and attention.

Specialized focus on counselling services by psychiatrists, remuneration and development of support systems among colleagues. At a community level, stigma should be reduced and HCWs should be commended for their efforts during this pandemic.

The role of media should be focused on showing the correct information and to combat fake news. Govt should support the healthcare workers by providing specialized insurance coverage those working closely with COVID affected patients.

SUGGESTIONS

1. Healthcare workers should be aware of the mental health burden in their community during this pandemic. This could be arranged via webinars on dedicated mental health issues, current scenarios, counselling management by state authorities, regional centers, tertiary care centers.
2. Preparation of mental health hotline by government agencies.
3. Hospital and Govt authorities must prioritize family members of healthcare providers to be tested to reduce anxiety among HCWs for spread in their family.
4. Hospital administrators must ensure adequate PPEs and protective mechanisms for those working close contact with COVID-19 affected patients.
5. Administrators must also advocate for proper staffing and fixed working hours and improve the overall satisfaction of the providers and provide trainings to deal with COVID-19 to minimize the spread.
6. As the highs of the second wave has come to a low, yoga sessions and laughter club sessions can be held at COVID centres to help HCWs cope up with anxiety and depression.

LIMITATIONS OF THE STUDY

1. The population studied consisted of a sample of only 158 patients hence, some of the pattern identified may have been under or overestimated.
2. Different regions of the country was impacted differently during the pandemic.
3. This study being an e-survey, was available to only those with access to internet connection, WhatsApp, and an email account with some understanding of the English language.
4. The distribution of the survey link was not properly spread. Majority of the responders were from metropolitan cities.

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The image features a blue gradient background with white circuit-like lines in the corners. These lines consist of straight segments and small circles, resembling a stylized electronic circuit or data flow diagram. They are positioned in the top-left, top-right, bottom-left, and bottom-right corners, framing the central text.

THANK YOU!