Increase in the Prevalence of Mental Health Problems Due to the COVID-19 Pandemic and Its Impact on the Work Performance of Private Hospital Supervisors in India

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Abstract

Objectives: The prevalence of mental health problems has sharply increased worldwide, owing to the unprecedented events caused by the COVID-19 pandemic and the fear of death and infections. This study examined the impact of mental stress on the work-related performance of hospital supervisors.

Methods: This was a cross-sectional study. For this study, an online survey was conducted between November 2021 and December 2021, in Bhubaneswar, Odisha, located in the eastern region of India. A structured self-administered questionnaire was sent to 200 respondents, and responses were collected after taking their prior verbal consent, with an assurance that their responses would be kept confidential. Ethical approval for this study was obtained from the Kalinga Institute of Medical Sciences in India. Data were collected on variables such as demographics, work performance, and workplace stress levels. Data analysis and interpretation was done using various statistical tests including the Chi-square test and correlation coefficient. Item analysis, extraction of factors, internal consistency, and cross validation was done to establish the correlation among workplace stress and performance of supervisors.

Results: The findings showed an inversely proportional relationship between mental stress and workplace performance. Intensive work for long hours, an increase in the hospitalization of COVID-19 patients, inadequate sleep, risk of contamination, and risk of infection were the major causes of physical and mental exhaustion, leading to mental illness among hospital staff.

Conclusion: Supervisors' efficiency and work-related performance play vital role in quality improvement in private healthcare services in India. The results suggest that private hospital policymakers should include supervisor feedback in their training and development modules to address mental health issues. Several studies have been conducted on healthcare workers' mental health; however, very few have been conducted on that of supervisors. This study will be helpful for hospital owners and administrators to improve the quality of their hospitals.

Keywords— Mental Health, Job stress, Performance, Quality Improvement, Hospital, Policy

I. INTRODUCTION

"There is no health without mental health"
World Health Organization

According to the WHO constitution statement, "Mental health is a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community." (2018) A sudden increase in mental health problems has been observed worldwide because of the unprecedented

events caused by the COVID-19 pandemic. This has been precipitated by the fear of death, infections, and an increase in mental stress worldwide, leading to a massive spike in mental health problems among COVID-19 positive patients. According to a report by India Today, the survey results report of "the Indian Psychiatry Society–at least one out of every five Indians is now suffering from mental illness." The prevalence of mental health problems in India has risen by 20% due to the COVID-19 outbreak. Since healthcare workers are the group most vulnerable to coronavirus infections, this study was conducted to examine the impact of mental stress on the work-related performance of hospital supervisors. An online survey was conducted between November 2021 and December 2021 at Bhubaneswar, Odisha, located in the eastern region of India.

Role of supervisor's in the hospital:
The key to success for organization is the effective management practices and this can be applicable for hospitals also. To run the hospital successfully, supervisors plays a very vital role in it. Regardless of any strategy and innovative action plans of hospital's top managements, a communicative staff (supervisors) of the hospital plays a biggest role to make hospital healthcare services patient centric. These are mentioned as below.
➢ Organize the hospitals workflow for reliable and timely team performance.
➢ To ensure proper and sufficient shift coverage every time, monitors the hospitals work schedule.
➢ Assign orientation and training of new staff.
➢ Evaluates performance and entrust hospitals staff responsibilities
➢ Hospitals employees counseling related to their work performance.
➢ Give feedback and instruction to hospitals staffs about the policies and procedures of hospital admissions.
➢ Create personal development plans, enhance work performance and find out areas of growth.

➢ Capable to leverage technology buy improving hospital information and workflows.
➢ Perform interview and PA (performance appraisal) and give feedback and ensure for fulfillment with hospital's policies, objectives, infectious control, environmental and safety measures.
➢ By implementing admission procedures able to enhance patient care of hospitals.
➢ Make reviews of operational report time to time indentify problems and opportunities.

II. THEORETICAL FRAMEWORK:
Problem identification:
The sudden rise in mental health problems in India is up to 20% due to Covid-19 outbreak. (2020) The India today report, the survey result of "the Indian Psychiatry Society - at least one out of every five Indians is now suffering from mental illness." Healthcare workers are the most vulnerable group of corona virus infections among them.

Objective:
• To examine the mental stress impact on the hospital's supervisors work related performances.
• To give some suggestion for quality improvements of the hospital's healthcare services.

Research question:
How can the rises of mental health problems due to covid-19 pandemic has impacted the work related performances of private hospitals supervisor's in India?

Theory:
Carol Diane Ryff 's six-factor model of psychological well-being(SPWB): (1989) Ryff, C. D
This SPWB theory says psychological wellbeing demined by six factors which are mentioned as below.
➢ Positive relationships with others
➢ Personal mastery
➢ Autonomy
➢ A feeling of purpose and meaning in life

> ➢ Personal growth and development

Ryff's SPWB theory is potentially provides a comprehensive theoretical framework for this study objective. But several researchers reported that reliability and validity of results were inconsistent in several cases, so authors were not used Ryff 's model in this study theoretical framework.

As the concept of mental illness, mental health, mental stress and work performances are plays the major role in this study, so they are defined in theoretical framework and review of literature methodology was used to define them.

III. REVIEW OF LITERATURE:

In (2020) Dong et.al said that emergency psychological disaster intervention is essential to reduce the effect of psychological negativity among population mental health. In (2020) Kang et.al said to address the mental health problem of hospital staff, government as well as private healthcare providers have taken several steps and measures. In (2020) Ho.et.al said that during epidemics, psychological resilience needs attention. In (2020) Zhang et.al found that in their study out of 224 respondents (29.9%) respondents had high scores of anxiety during hospital duty. In (2008) Bills et.al ,(2004) Chan et.al,(2017) Ji et.al, (2009) Mak et.al,(2006) Ofner- Agostini et.al, (2004) Sim et.al, (2009) Wu et.al, have said that a higher rate of severe acute respiratory syndrome (SARS) was found in hospitals healthcare worker in the year 2003.they also raised the concern for a severe risk of psychological morbidities. In (2020) Qi cai et.al said that hospital owners should provide timely mental interventions to the hospital's staff. In (2020) Liu et.al said that (SAR-COV) is less dangerous than (SAR-COV-2).

In this study authors reviewed research article before and after covid -19 pandemic to develop a strong theoretical framework. Earlier researchers used the following approaches to study the mental stress i.e.

- ▪ Stimulus approach
- ▪ Event approach
- ▪ Process approach

But for this study authors used the stimulus approach to construct the research model (figure-1), (Annexure-2) and hypothesis, since Covid-19 was treated as an unprecedented event.

From the research model (Fig-1), (Annexure-2), following hypotheses were made for testing and result interpretation.

H0- Null Hypothesis: There is no impact of mental stress of supervisor's on their work performance.

H1: Alternate Hypothesis: There is an impact of mental stress of supervisor's on their work performance.

IV. METHODS:

This was a cross-sectional study. For this study, an online survey was conducted between November 2021 and December 2021, in Bhubaneswar, Odisha, located in the eastern region of India. A structured self-administered questionnaire was sent to 200 respondents, and responses were collected after taking their prior verbal consent, with an assurance that their responses would be kept confidential. Ethical approval for this study was obtained from the Kalinga Institute of Medical Sciences in India. Data were collected on variables such as demographics, work performance, and workplace stress levels. Data analysis and interpretation was done using various statistical tests including the Chi-square test and correlation coefficient. Item analysis, extraction of factors, internal consistency, and cross validation was done to establish the correlation among workplace stress and performance of supervisors. Objective of this study was conveyed online to each participant and questionnaires were served for responses. Out of 200 numbers of respondents 102 numbers of respondents are able to successfully complete the survey within the survey period. Out of 102 respondents 44 respondents (43.14%) were male and 58 respondents (56.86%) were female. The questionnaire was based on different variables including demographic variables, job performances, and work level stress. To identify the job related workload stress five point Likert scale was used for 14 numbers of questions.

Where 5 for strongly agree, 4 for agree, 3 for neutral, 2 for disagree, 1 strongly disagree were used for data collection. Scoring range used as no stress equals 14 points, mild stress 15 to 32 points, moderate stress 33-50, severe stress 51 to 70. Again for job performance five point Likert scale was used and high score implied better performance, whereas low scores implied bad performance. Data analysis and interpretation was done using various statistical tests to establish the correlation among work level stress and performance of supervisors.

The demographic variables are mentioned in table- 1, Annexure-1, It shows that 64.71 percent of respondents belonged to the age group (20-30) ,and 22.55 percent of respondents belonged to the (30-40) age group. Whereas minimum numbers of respondents only 12.74 percent belonged to the above 40 age group. These were depicted in the (table-1), (Annexure-1). Statistics about gender, almost equal numbers of male and female respondents participated in the survey. The male respondents were 44 in numbers (43.14%) while female participants were 58 in numbers (56.86%). Mean age of the respondents was calculated to 29.79(plus /minus 8.81) years.

Distributions of the respondent as per their work place in the hospitals are mentioned in the (table-1), (Annexure-1). The percentage calculated from the distribution are 15.7% of respondents are working in pediatrics department, 14.8% are in general medicine department, 11.7% are in gynecology department, 10.8% are in orthopedic department, 11.7% are in emergency department, 13.8% are in general surgery department, 4.9% are in ophthalmology department,1.9% are in skin department, 4.9% are in pulmonary medicine department, and 2.9% are in psychiatry department. Now to calculate the percentage of respondents and their work related stress category, no stress for score 14 points, mild stress for 15 to 32 points, moderate score for 33 to 50 points, and severe stress for 51 to 70 points. Now the distribution found as mentioned in (table -2) (Annexure-1).Hence the mean score of work stress as per

the place of work for 102 respondents are calculated as mentioned in (table-1) ,(Annexure-1). It was observed that respondents are getting more stress from emergency department, ophthalmology department, and also from general medicine department compared to other departments. Now according to age groups mean score are calculated and tabulated in (table -1), (Annexure-1). From this it was observed that between the age group 20 to 30 were coming under more stress compared to their seniors. This age group can be referred for stress management training and development by the hospitals to improve their healthcare service .Mean score of work stress for above 40 age group is calculated as 43.21 ,while mean score value calculated as 46.43 points for 30 to 40 age group. Similarly calculation has been made of mean square value for work performance with respect age which is tabulated in (table -1) ,(Annexure-1). For this study two sets of questions were structured to measure the correlation between work stress and work performance. The variables chosen for both the questionnaire were measured for relationship using factor analysis. To carry out factor analysis for analyzing the hidden relationship among the variables, it is important to know the sample adequacy of the study data. Here the Kaiser- Meyer- Olkin (KMO) test was done to measure suitability of factor analysis and to ensure the measured variables are intended for the theoretical concept of this study. Computed statistics measures are between, '0' and '1'. Using the formula for KMO test,

That is Kaiser- Meyer- Olkin

$$KMO_j = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} u_{ij}^2}$$ ------------ (Eq.-1)

Where R = [r_{ij}] , the correlation matrix

And U = [u_{ij}] , the partial covariance matrix

Kaiser put the result value for factor analysis as interpreted below.

➢ KMO value between 0.90-1.0 treated as marvelous

➢ KMO value between 0.80- 0.90 treated as meritorious

- ➤ KMO value between 0.70-0.80 treated as middling
- ➤ KMO value between 0.60-0.70 treated as mediocre
- ➤ KMO value between 0.50-0.60 treated as miserable
- ➤ KMO value between 0.00-0.49 treated as unacceptable for FA

Using (Eq. -1) KMO= 0.750, for work level stress,

And KMO=0.79, for work related performance in the hospitals.

Then, data reduction technique used for this study analysis was tested for its suitability, using the

"Bartlett's Test for Sphericity".

Where, $X2$ = "Bartlett's Test for Sphericity" value

Hypothesis assumed as below

Null hypothesis = variables are orthogonal hence not co related.

And alternate hypothesis=variables are not orthogonal hence co related.

Test statistics is to verify that the redundancy among variables can be described with few factors using data reduction technique.

Using SPSS, we get the result value as, $X2$ = "Bartlett's Test for Sphericity" value =260.074, with P=0.0001, for work stress

And, $X2$ = "Bartlett's Test for Sphericity" value = 536.07 with P=0.0001, for work related performances in the hospitals. Hence the null hypothesis was rejected.

- ➤ The results of, $X2$ = "Bartlett's Test for Sphericity" values implies that data reduction technology is suitable for factor analysis for both work stress scale and work performance scale. The data are significantly correlated with significance level (α=0.05)

Chi- square test was conducted to prove these study null hypothesis mentioned below.

H0:- Age groups for work stresses and work performances are independent. (Null Hypothesis)

H1:- Age groups for work stresses and work performances are not independent. (Alternate Hypothesis).

Using the value of (table-1) , (Annexure-1) in the below chi-square formula ,it results as follows

"The chi-square formula is:

$$[\chi2 = \sum(Oi – Ei)\, 2/Ei] \qquad \text{------ (Eq.2)}$$

Where,

Oi = observed value (actual value)

Ei = expected value."

For this study using (Eq.-2) and the values of (table-1) (Annexure-1), result abstain as follows

The P value = 0.644, for significance level (α= < 0.05), which rejects null hypothesis. Factors were loaded for analysis as mentioned in(table-3) and (table-4) , Annexure-1.

To ensure the variables used are measuring the intended concept a factor analysis was carried out. It was found that for work level stress , factors having the factor loaded value includes (0.808,0.854,0.858,0.85,0.867,0.666) constitute 68.43% of variance ,which signifies strong association for FA(factor analysis). Similarly for work performance, factors having the factor loaded value includes (0.875, 0.768, 0.877, 0.836, 0.799, 0.805) constitute 74.52% of variance, which shows strong association for FA. In { (Annexure-2) (figure-2)} ,Scree plots are plotted, by taking the Eigen values are on Y axis and component numbers are on X axis for both work stress and work performance. It was carried out to choose the number of factors where graph drops from cliff to Scree. Component numbers for Eigen values greater than one (1) were chosen for analysis.

Monotonic relationship between variables was measured using Spearman's correlation coefficient rho (ρ) as follows.

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)} \qquad \text{---------- (Eq.-3)}$$

Where, ρ = Spearman's correlation coefficient

D= difference between ranks

n= number of observations

Applying (equation-3) value of Spearman's correlation coefficient became,

$$\rho = -0.01 \text{ -----} \qquad \text{(Eq.-4)}$$

Perfectly, negative correlation exists between the variables. That means work level stress due

to mental health and work performances are inversely proportional Eq.-4).

V. RESULTS AND SUGGESTIONS:

The study results show a moderate work level stress persists among (52.95%) of the total (102) respondents (supervisors) of the hospitals. While (45.09 %) experiencing severe stress. To ensure the variables used are measuring the intended concept factor analysis was carried out and the factors which are majorly the reason to increase the work stress level of private hospital supervisors and put impact on their work performance during the Covid-19 pandemic period (study period) are mentioned as below.

➢ Due to covid-19 pandemic emergency, every day there is a change in duty hour of supervisors.

➢ Supervisor's get stressed; when hospital's administrative officers do not value their opinion.

➢ Non cooperation from other medical staff and colleagues in hospitals.

➢ Supervisors insisted on work overtime during Covid-19 pandemic emergency.

➢ Non appreciation of work from top management of the hospital.

A strong negative co relationship was found between the independent variable mental health and dependent variable work performance of hospital's supervisors. This result was proved by the Spearman's correlation coefficient rho (ρ) (Eq.-3) where

(ρ = - 0.01) from (Eq.-4), perfectly negatively correlated. That means work level stress due to mental health and work performances are inversely proportional. For quality improvement in private healthcare service, supervisor's training efficiency and work related performance plays a very important role in India. So suggestions given as, the private hospital policy makers should involve supervisor feedback in their development modules to address the mental health issue arising due to work stress level.

VI. CONCLUSION:

Intensive work for long hours, amidst an increase in the hospitalization of COVID-19

patients, inadequate sleep, risk of contamination, and risk of infection were the major causes of physical and mental exhaustion, leading to mental illness among hospital staff. Supervisors' efficiency and work related performance play a vital role in improving the quality of private healthcare services in India. Therefore, private hospital policymakers should include supervisor feedback in their training and development modules to address the mental health issues arising due to work stress levels. The staff should always be accountable for their work. If each member of the hospital staff, including doctors, adopts this concept and is accountable and responsible for their assigned work, it is likely to improve hospital management. Despite innovative initiatives in private hospitals in India, patient care should be a central priority. Communicative staff and the latest technology are futile in the face of a patient's suffering. Therefore, private hospitals should always be patient centric.

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Annexure-1:
Table-1: [Demographic statistics, for n=102]

Sl.No.	Groups	Number of respondents	Percentage (%)	Mean scores Of work stress	Mean scores of work performance
01	**According to age groups in years**				
	20-30	66	64.71	51.02	63.41
	30-40	23	22.55	46.43	61.96
	Above-40	13	12.74	43.21	66.2
02	**According to gender.**				
	Male	44	43.14		
	Female	58	56.86		
03	**Distribution of the respondent as per their work place in the hospitals.**				
	Emergency department	12	11.7	55.25	
	General surgery department	14	13.8	44.21	
	Pediatrics department	16	15.7	46.75	
	Ophthalmology department	5	4.9	51.8	

	Skin department	2	1.9	51.5	
	Pulmonary medicine department	5	4.9	47.6	
	Psychiatry department	3	2.9	45.33	
	General medicine department	15	14.8	56.4	
	Gynecology department	12	11.7	46.75	
	Orthopedic department	11	10.8	44.27	
	ENT	7	6.9	50.43	

(Author's own calculations)

Table-2:[Stress level distribution of supervisors for n= 102.]

Range of The score	Category of Stress	Number of respondents	Percentage of respondents
14	No stress	0	0
15-32	Mild stress	2	1.96
33-50	Moderate stress	54	52.95
51-70	Sever stress	46	45.09

(Author's own calculations).

Table-3:[Factor Analysis of work level stress scale]

Sl. no.	Factors	Factor loading value
1	Due to covid-19 pandemic emergency, every day there is a change in my work load.	0.858
2	I get stressed when hospital's administrative officers do not consider my opinion.	0.854
3	I get support on duty from other staff and colleagues in hospital.	0.867
4	I am influenced to work overtime.	0.808
5	I received feedback only when my supervision is not satisfactory	0.666
6	My senior staffs listen to my opinion at work.	0.85

(Author's own calculations)

Table -4: Factor Analysis of work performance scale:

| Sl.no	Factors	Factor loading value
1	For reliable team performance, organize the hospital's work flow timely manner .	0.877
2	Supervises the hospital's work schedule to make proper shift coverage every time.	0.805
3	Select and assign training to new staffs of the hospitals	0.799
4	Take part in staff meeting	0.875
5	Strengthen team based result in the hospital and promotes	0.768
6	Enhances hospital's patients care	0.836

(Author's own calculations)

Annexure-2:

Figure-1: Research Model:
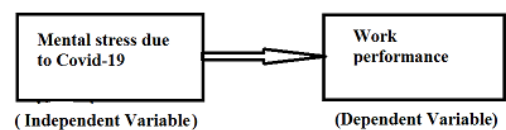
[Conceptualized Research Model by Authors]

Figure-2: Scree Plots: