

BEYOND THE PANDEMIC: HOW COVID-19 STILL SHAPES DOCTORS' JOB STRESS AND PERFORMANCE

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ABSTRACT

Objective: To investigate the relationship between job stress and job performance among doctors and analyze whether this relationship is moderated by COVID-19.

Study Design: Cross sectional analytical study

Place and duration of study: Gujranwala Teaching Hospital and Gujranwala Medical College Teaching Hospital, conducted from 1 Nov 2024 to 31 Mar 2025.

Patients and methods: A structured online questionnaire was distributed among 212 doctors working in OPDs and Emergency departments, via google forms and personal emails. Convenience sampling was used and ethical approval was obtained (IRB.43/GMC). Validated scale developed by Tessema, M., and Soeters, J was used for measuring job performance, for job stress, scale from Parker and Decotiis and perceived threat of COVID-19 was measured using a modified version of scale from Sinclair and LoCicero. Data were analyzed using SPSS version 24 for descriptives, correlation and moderation effects.

Results: The mean stress score in doctors came out to be 3.48 ± 0.82 , mean job performance score 3.78 ± 0.48 and perceived threat of COVID score, 3.13 ± 0.65 all out of 5.00, the high stress score is at lower limit of severe stress level. Job stress showed a negative correlation with job performance and the perceived threat of COVID 19 as a moderator significantly strengthened the negative association.

Conclusion: Job stress negatively affects doctor performance, further intensified by perceived threat of COVID-19. Stress management interventions are vital to maintain healthcare performance during pandemics.

Keywords: COVID-19, doctors, job performance, job stress, moderating effect

INTRODUCTION/BACKGROUND

Workplace stress has been a significant occupational health concern in high-income nations since the early 1980s. A study conducted in Germany indicated that both physicians and non-physician staff in general practices reported chronic stress levels that were twice as high compared to other professions.¹ The stress levels documented in the literature tend to increase as we move from primary care hospitals to tertiary care settings.² Work-related stress is linked to increased risks of alcohol and drug abuse, strained social relationships, depression,

anxiety, and even suicide among doctors.³

Stress negatively impacts a doctor's professional performance by reducing attention span, concentration, and decision-making abilities.⁴ It also hampers their ability to build strong physician-patient relationships, which are crucial for providing high-quality patient care.⁵ Another consequence of stress could be a decline in work quality, potentially compromising patient safety.⁶ A survey of 6,536 physicians involved in direct patient care in the US found that the quality of communication between physicians and patients was negatively affected by physician morale, job stress, time pressure, and work overload.^{7, 8} Additionally, another study highlighted a significant effect of high stress levels on various factors like: being a single resident, working in a surgical department, and the lack of breaks during working hours.⁹

The COVID-19 pandemic introduced unprecedented stress to the healthcare system and its workers.¹⁰ While

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COVID-19 led to a global shutdown in a few days, healthcare professionals bravely stepped up to confront the pandemic.¹¹ The pandemic's impact was felt worldwide, generating immense stress among physicians and other healthcare professionals.¹² Beyond the physical toll of illness and hospitalization, the pandemic also triggered financial difficulties, as well as feelings of fear and isolation, as evidenced by a Chinese study on healthcare workers. This study found that women and frontline healthcare workers were at a heightened risk for depression, anxiety, and insomnia.¹³

In light of these factors, this study aims to fill the critical gap by examining the relationship between job stress and job performance, exploring the role of the COVID-19 pandemic as a moderator of job stress and overall job performance among frontline doctors. Specifically, the study will investigate whether doctors still perceive a lingering threat from COVID-19 even after a substantial period has passed and how this perceived threat influences their functioning capacity. By addressing this overlooked dimension, the study aspires to advance theoretical understanding and provide actionable insights for healthcare administrators and policymakers to design targeted interventions that enhance doctors' resilience, optimize performance and safeguard the quality of patient care in the post-pandemic era. The first hypotheses is that stress negatively influences doctor's job performance, second one is; perceived threat of covid-19 moderates between stress and job performance in such a way that it strengthens the negative relationship.

The purpose of this study is to examine the impact of job stress on frontline doctors' job performance and to investigate whether the perceived threat of COVID-19 strengthens the negative relationship between stress and performance in the post-pandemic context.

PATIENTS AND METHODS

A cross-sectional analytical study was carried out, with participants selected from Gujranwala Medical College Teaching Hospital (GMCTH) and Gujranwala Teaching Hospital (GTH). The sample size was determined using the formula: Sample size $n = [DEFFNp(1-p)] / [(d^2/Z^2(1-\alpha/2(N-1)+p*(1-p))]$. Based on a population of 500 doctors and a previous stress prevalence of 28.3% participants¹⁴, the sample size was calculated to be 193. To account for potential non-respondents, an additional 10% was added, bringing the total sample size to 212. Non-probability sampling was employed, specifically convenience sampling, due to time

constraints and the sensitive nature of the topic. Ethical approval was granted by the institutional ethical committee of Gujranwala Medical College. The study included doctors working at both major government hospitals in Gujranwala. A structured questionnaire consisting of four sections was used. The first section collected demographic information, followed by a scale measuring job performance, a scale for perceived stress, and a scale for perceived threat from COVID-19. Job performance was assessed using an 8-item employee performance scale developed by Tessema, M., and Soeters, J. (2006).¹⁵ Job stress was evaluated using a 13-item scale from Parker and Decotiis (1983).¹⁶ The perceived threat of COVID-19 was measured using a 13-item scale adapted from Sinclair and LoCicero's (2007)¹⁷ perceived threat of terrorism scale, modified to assess the perceived threat of COVID-19.¹⁸ All the responses were measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Ethical approval of the study was taken from the IRB of Gujranwala Medical college (IRB.43/GMC). Participants were given the questionnaires by hand in OPD and In Patient wards. Others were contacted online and the questionnaires were sent by emails and WhatsApp. Voluntary participation of the participants was done, and the data was kept anonymous. Data were analyzed using SPSS version 24, frequencies and percentages were calculated for categorical data and mean, standard deviations were calculated for continuous variables. Correlation analysis was done using Pearson Correlation and hierarchical moderation analysis was done to check the effect of the moderator.

RESULTS

Out of 212 participants, 196 respondents filled the forms completely, resulting in a response rate of 92.4%

Table I: Demographic details of the participants (n=196)

Variable		Percentage	Frequency
Gender	Male	55%	108
	Female	45%	88
Age	23-36	71%	140
	37-50	27%	52
	Above 50 years	2%	4
Marital status	Married	71%	140
	Unmarried	25%	48
	divorced/widow	4%	8
Work experience	11-15 years	12%	24
	6-10 years	41%	80
	above 20 years	2%	4
	less than 5 years	45%	88

n=196

Majority of the participants were males and most of them were young doctors between ages 23 years to 36 years.

Table-II. Correlation analysis and scale reliability in parentheses

Variable	1	2	3
Job performance	(.77)		
Job stress	-.068	(.94)	
Perceived threat of COVID	.455**	-.178	(.84)

Control Variables: age, gender, marital status and clinical experience, n=196, *p<.05, **p<.01

The mean stress score in doctors came out to be 3.48 ± 0.82 , out of 5.00 which shows quite a considerable amount of stress in doctors. This level is on the lower margin of the severe stress level (3.50–5.00). Mean score for the perceived threat of COVID among doctors came out to be 3.13 ± 0.65 , out of 5.00, showing a considerable level of fear among the participants even though a significant amount of time has passed after the pandemic. Mean job performance score came out to be 3.78 ± 0.48 out of 5.00, which was showing good performance despite considerable stress. When job performance, job stress and perceived threat of COVID scores were compared among the males and females, the difference was statistically insignificant. This showed that almost everyone was affected but still trying to perform in a better way. One-way ANOVA was applied to check any significant difference in these scores among different age groups, marital status or job experience which was also insignificant.

Table-III. Hierarchical regression for moderation

Models	M ₁ (β)	M ₂ (β)
Step-1		
Job stress	.010	
Perceived threat of COVID	-.135	
R ²	.032	
Step-2		
Stress*COVID threat		.250*
R ²		.134
Change in R ²		.102

Control Variables: age, gender, marital status and clinical experience, n=49, *p<.05

Correlation analysis among the variables showed that there was a low negative correlation among job stress and job performance but a considerable positive correlation among threat of COVID and stress. COVID

threat also showed low negative correlation with job performance individually.

Effect of moderator

The hierarchical moderation analysis shows that job stress and perceived threat of COVID-19 do not predict each other in first model. However, the second step includes the interaction term between job stress and perceived threat of COVID-19 (Stress*COVID threat). The results indicate that the relationship was statistically significant ($\beta = 0.250$, $p < 0.05$), showing that the effect of job stress on job performance was significantly moderated by the perceived threat of COVID-19. Furthermore, the inclusion of the interaction term increased the explained variance among job performance by 10.2% (Change in $R^2 = 0.102$), resulting in a total model R^2 of 0.134. These findings conclude that while job stress and the perceived threat of COVID-19 alone do not directly affect job performance much, their interaction significantly influences performance outcomes.

DISCUSSION

The study revealed a substantial amount of stress among doctors, consistent with other studies.¹⁹ A multicenter survey involving 1,563 Chinese medical staff revealed stress-related symptoms in 73.4% of participants.²⁰

While stress negatively correlates with job performance, our study suggests that doctors can still perform well under stress. This inverse relationship has been reported in multiple studies.^{21,22}

Additionally, this study analyzed the moderator effect of perceived threat of COVID-19 on stress- performance relationship, which came out to strengthen the negative relation of stress on job performance. This is in line with studies indicating that healthcare workers' anxiety increased due to the risk of exposure and concerns for their families.^{23,24}

While this pandemic shared similar characteristics across different countries, each nation's unique political situations and social infrastructure influence individual behaviors and environment.²⁵ Healthcare workers need more empathy, cooperation and support from both senior colleagues and peers. It's crucial that they avoid panic, demonstrate teamwork, role model positive behaviors, and help.²⁶ The findings further highlight the critical role of organizational and peer support in alleviating the impact of stress on healthcare workers' performance. Although a few studies have acknowledged the need for

empathy and cooperation within healthcare teams²⁷.

Organizational leaders should communicate clear messages that highlight the importance of clinicians and the collective goal of managing the pandemic together. Work schedules should be structured to ensure physical well-being, adequate rest, and access to rest areas for clinicians working long or multiple shifts. Leaders should offer comprehensive support, provide necessary protective equipment, and plan resource distribution to prepare for future uncertainties. Additionally, mental health support programs should be developed and implemented to better manage stress during challenging situations like pandemics. Extensive research is needed to identify effective interventions that can mitigate the negative effects of stress, especially in the context of ongoing health crises. The limitations of this study include small data size, analysis of other variables affecting job performance e.g., workload, psychological wellbeing, working environment.

CONCLUSION

This study demonstrates that job stress continues to exert a detrimental effect on doctors' performance, with the perceived threat of COVID significantly intensifying this effect. Despite the long time that has passed since the peak of COVID pandemic, its lingering psychological impact is still evident in frontline doctors. While doctors in this study maintained reasonably good performance

levels, moderation analysis revealed that stress coupled with the perceived threat of COVID-19 further compromised their effectiveness. These findings emphasize the critical need of stress management interventions, organizational support system and resilience building strategies to protect physician wellbeing and healthcare delivery. Addressing these factors is necessary not only to manage this situation but also to prepare healthcare professionals for future crises.

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Authors' contributions:

Sadia Yaseen: Conception of study / Designing / Planning, Manuscript Writing, Experimentation / Study Conduction, Critical Review, Analysis / Interpretation / Discussion

Hafiz Muhammad Kashif: Conception of study / Designing / Planning, Experimentation / Study Conduction, Analysis / Interpretation / Discussion, Manuscript Writing, Facilitated for Reagents / Material Analysis

Mohammad Maqsood Ahmad: Conception of study / Designing / Planning, Experimentation / Study Conduction, Manuscript Writing, Critical Review

Zara Zaheer: Conception of study / Designing / Planning, Analysis / Interpretation / Discussion, Manuscript Writing, Facilitated for Reagents / Material Analysis

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