The Impact of Work Stress on Employees Productivity in Health Sector Applied on Al Noor Specialist Hospital Makkah

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Abstracts

Background: Work stress has become a major issue in healthcare, especially in hospitals. Medical workers are stressed by severe workloads, emotional pressure, and high responsibility. Stress can diminish productivity, work satisfaction, and burnout, affecting patient care. After the COVID-19 outbreak, Saudi Arabia's healthcare sector faced unique challenges. For examining how work stress affects healthcare worker productivity, Al Noor Specialist Hospital in Makkah is appropriate.

Methods: At Al Noor Specialist Hospital in Makkah, doctors, nurses, and administrative staff participated in a cross-sectional survey. Using standardised stress ratings, self-administered questionnaires assessed occupational stress and productivity. To investigate the degree and significance of work stress-productivity correlations, regression analysis was used.

Results: Stress negatively correlated with employee productivity. Nurses and administrative personnel reported reduced productivity when stressed. Work stress was primarily caused by workload, followed by organisational support and work-life balance. Employees with higher stress levels also demonstrated burnout, which affected work effectiveness. Perceived work stress lowered output by 0.25 units per unit ($p < 0.01$), according to regression analysis.

Conclusion: Research shows that work stress lowers healthcare worker productivity,

particularly at Al Noor Specialist Hospital. Improving productivity and preventing burnout requires addressing workload, organisational support, and employee well-being. To improve healthcare professionals' performance and well-being, the study emphasises organisational solutions including workload management and stress reduction.

1. Introduction

Healthcare is one of the most stressful businesses, with particular issues that affect employees' professional and emotional well-being [1]. These issues include work-related stress, which can harm healthcare workers' mental and physical health. In particular, healthcare worker productivity and efficiency are increasingly considered key to organisational success and patient care. In this setting, work stress is a major determinant in employee productivity [2, 3].

With doctors, nurses, and administrative staff, Al Noor Specialist Hospital in Makkah, Saudi Arabia, provides crucial healthcare. As part of the region's healthcare system, the hospital's efficiency depends on its personnel' productivity, who endure pressures such long working hours, high patient traffic, emotional strain, and complex decision-making. These factors can cause burnout, work dissatisfaction, and lower productivity [4].

Effective management solutions to reduce stress and improve job performance require understanding the relationship between work stress and employee productivity [5]. This study examines how job stress affects Al Noor Specialist Hospital employees' productivity, identifying main stressors, their effects on performance, and ways to mitigate these effects.

This study adds to the literature on occupational stress in healthcare, focussing on Middle Eastern personnel' unique issues. This research may also help hospital administrators and policymakers create and implement measures to increase employee well-being, organisational productivity, and patient care outcomes.

2. Patients and Methods

Study Design:

This was a cross-sectional observational study conducted at Al Noor Specialist Hospital in Makkah, Saudi Arabia, aimed at evaluating the impact of work-related stress on the productivity of healthcare workers.

Participants:

The study included healthcare professionals (nurses, doctors, and administrative staff) employed at Al Noor Specialist Hospital. Participants were selected using convenience sampling. Inclusion criteria were:

- Full-time employees,
- Working in patient care or administrative departments,

- Aged 18 years or older.

Exclusion criteria were:

- Part-time or temporary staff,
- Employees on medical leave during the study period.

A total of 200 employees were approached, with 168 agreeing to participate, yielding a response rate of more than 75%.

Data Collection:

Data collection occurred over a three-month period (from January to March 2024). The process consisted of both self-reported questionnaires and workplace observation.

1. Questionnaire Administration:

The primary method for data collection was a structured self-administered questionnaire that was distributed to participants during their shifts. The questionnaire was paper-based and distributed in designated break areas or offices to avoid disruption to patient care. Participants were given approximately 20 minutes to complete the survey.

The questionnaire included the following key components:

o Demographic Information:

Questions regarding participants' age, gender, job title, years of employment, department, and average weekly working hours.

o Work Stress Assessment:

The Job Stress Scale (JSS) was used to measure perceived work stress. This scale consists of 25 items covering various stressors, such as:

- Workload
- Emotional demands
- Job control and autonomy
- Organizational support and communication
- Role ambiguity and conflict

Each item was rated on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). A higher score indicated greater work stress.

o Productivity Assessment:

The Work Productivity and Activity Impairment (WPAI) questionnaire was adapted to assess participants' perceived impact of work stress on their job productivity. The WPAI is a six-item scale that evaluates:

- Absenteeism (days missed from work due to stress or other health issues),
- Presenteeism (extent of reduced productivity while at work),
- Work impairment (impact of stress on task performance),
- Activity impairment (impact of stress on activities outside work).

Each item was scored on a 0-10 scale, with higher values indicating greater impairment.

o Work Environment Assessment:

Additional questions assessed organizational factors that may influence work stress and productivity, such as workplace safety, management support, and access to resources.

2. Workplace Observation:

Observational data were collected regarding environmental and organizational stressors. Researchers observed:

o The workload in patient care units (number of patients per nurse/doctor).

o Work scheduling patterns (shifts, overtime, work-life balance).

o The physical work environment (noise levels, staffing, and space).

These observations were documented to help contextualize self-reported stress levels and productivity.

Ethical Considerations:

Prior to data collection, all participants were briefed on the study's objectives and the voluntary nature of their involvement. Written informed consent was obtained from each participant. Confidentiality was ensured by anonymizing the responses. Participants were informed they could withdraw from the study at any time without any consequence. Ethical approval was obtained from the Institutional Review Board (IRB) of Al Noor Specialist Hospital.

Statistical Analysis:

Data were analyzed using SPSS software (version 28). Descriptive statistics (mean, standard deviation) were calculated for demographic variables. The relationship between work stress and productivity was analyzed using Pearson's correlation coefficient and linear regression analysis. A p-value of <0.05 was considered statistically significant.

3. Result

Table 1 presents the demographic characteristics of 168 healthcare workers at Al Noor Specialist Hospital. The sample consisted predominantly of female staff (58.3%), with the majority falling within the 31-40 age group (43.5%). Nurses constituted nearly half of the participants (48.8%), followed by doctors (26.8%) and administrative staff (24.4%). Most participants had 5-10 years of experience (37.5%), while only 13.1% had more than 15 years of experience. Regarding

weekly working hours, over half of the participants (53.0%) worked standard hours of 40-48 hours per week, though a notable proportion (14.9%) worked more than 56 hours weekly.

Table 1: Demographic Characteristics of Study Participants (N=168)

Characteristic	Frequency (%)
Gender	
Female	98 (58.3)
Male	70 (41.7)
Age Groups (years)	
20-30	52 (31.0)
31-40	73 (43.5)
41-50	31 (18.5)
>50	12 (7.0)
Job Category	
Nurses	82 (48.8)
Doctors	45 (26.8)
Administrative Staff	41 (24.4)
Years of Experience	
<5 years	45 (26.8)
5-10 years	63 (37.5)
11-15 years	38 (22.6)
>15 years	22 (13.1)
Weekly Working Hours	
40-48 hours	89 (53.0)
49-56 hours	54 (32.1)
>56 hours	25 (14.9)

Data represent as number (percentage).

Figure 1 illustrates the mean Job Stress Scale (JSS) scores across different job categories at Al Noor Specialist Hospital. Nurses reported the highest stress levels with a mean JSS score of 3.9, followed by administrative staff at 3.8, and doctors at 3.7. The relatively small standard errors (±0.1) indicate consistency in stress levels within each job category, suggesting that these differences in stress levels are consistent across the workforce, though all three groups showed moderately high stress levels overall on the 1-5 JSS scale.

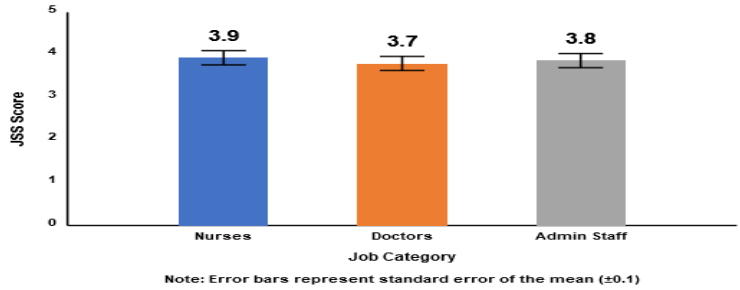

Figure 1: Mean Work Stress Scores by Job Category

Table 2 displays the mean scores for various work stress factors among healthcare workers at Al Noor Specialist Hospital, measured on a scale of 1-5. Workload emerged as the most significant stressor with the highest mean score of 4.2 (SD=0.6), followed by emotional demands at 3.9 (SD=0.8). Job control and role ambiguity showed moderate stress levels at 3.7 (SD=0.7) and 3.6 (SD=0.8) respectively. Organizational support received the lowest mean score of 3.5 (SD=0.9), though still indicating moderate stress levels. The relatively consistent standard deviations across factors (0.6-0.9) suggest similar variability in how staff experienced these different stressors.

Table 2: Mean Scores of Work Stress Factors (Scale 1-5)

Stress Factor	Mean Score (SD)
Workload	4.2 (0.6)
Emotional Demands	3.9 (0.8)
Job Control	3.7 (0.7)
Organizational Support	3.5 (0.9)
Role Ambiguity	3.6 (0.8)

Table 3 presents the Work Productivity and Activity Impairment (WPAI) metrics among healthcare workers at Al Noor Specialist Hospital, measured on a scale of 0-10. Presenteeism showed the highest impact with a mean score of 4.6 (SD=1.8, range 1-9), followed closely by work impairment at 4.2 (SD=1.6, range 1-8). Activity impairment demonstrated a moderate impact with a mean score of 3.9 (SD=1.7, range 0-8). Absenteeism showed the lowest impact at 2.8 (SD=1.4, range 0-7), suggesting that while staff continued to attend work, their on-the-job performance and productivity were more significantly affected by work stress.

Table 3: Work Productivity Impairment Metrics (Scale 0-10)

Metric	Mean Score (SD)	Range
Absenteeism	2.8 (1.4)	0-7
Presenteeism	4.6 (1.8)	1-9
Work Impairment	4.2 (1.6)	1-8
Activity Impairment	3.9 (1.7)	0-8

Figure 2 illustrates a strong positive correlation between Job Stress Scale (JSS) scores and productivity impairment among healthcare workers at Al Noor Specialist Hospital. The scatter plot demonstrates a significant linear relationship ($r = 0.72$, $p < 0.001$) between increasing stress levels and reduced productivity. This robust correlation coefficient indicates that approximately 52% of the variance in productivity impairment can be explained by work stress levels. The trend line shows a consistent upward slope, with productivity impairment scores rising from approximately 2 at the lowest stress levels to nearly 8 at the highest stress levels.

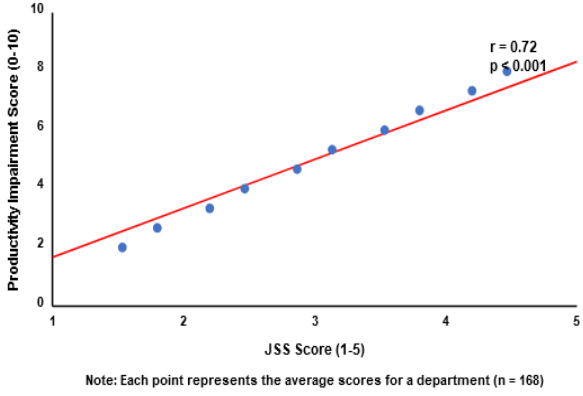

Figure 2: Correlation Between JSS Scores and Productivity Impairment

Table 4 shows the distribution of Job Stress Scale (JSS) scores across different departments at Al Noor Specialist Hospital. Emergency department staff reported the highest stress levels with a mean JSS score of 4.2 (SD=0.6), followed closely by ICU staff at 4.1 (SD=0.5), both showing statistically significant differences from the overall mean ($p<0.001$). General Wards demonstrated moderate stress levels at 3.7 (SD=0.7), also statistically significant ($p=0.023$). Outpatient and Administrative departments showed lower stress levels at 3.4 (SD=0.6) and 3.3 (SD=0.8) respectively, though these differences were not statistically significant ($p>0.05$).

Table 4: Mean JSS Scores by Department

Department	Mean JSS Score (SD)	Sample Size (n)	p-value*
Emergency	4.2 (0.6)	28	**<0.001**
ICU	4.1 (0.5)	32	**<0.001**
General Wards	3.7 (0.7)	45	**0.023**
Outpatient	3.4 (0.6)	38	0.145
Administrative	3.3 (0.8)	25	0.212

Administrative 3.3 (0.8) 25 0.212

*p-values calculated using one-way ANOVA with post-hoc Tukey test, comparing each department to the overall mean

Figure 3 depicts the relationship between years of experience and work stress levels among healthcare workers at Al Noor Specialist Hospital. Staff with less than 5 years of experience showed the highest stress levels with a mean JSS score of 4.1. A clear declining trend is evident as experience increases, with staff having 5-10 years of experience reporting a mean score of 3.8, those with 11-15 years at 3.5, and the most experienced group (>15 years) showing the lowest stress levels at 3.3. The consistent standard errors (±0.1) across all groups indicate reliable measurements.

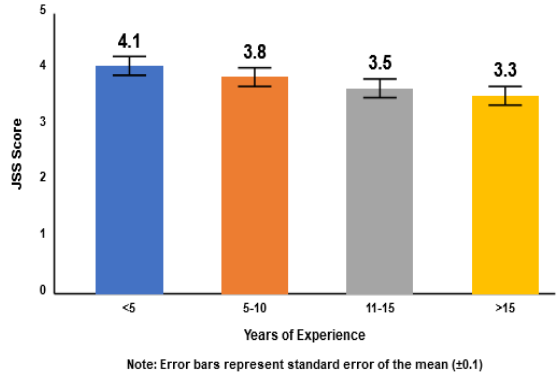

Figure 3: Work Stress Trends by Years of Experience

Table 5 presents the multiple regression analysis results identifying key predictors of work productivity impairment at Al Noor Specialist Hospital. The JSS score emerged as the strongest predictor (β=0.684, $p<0.001$), indicating that higher stress levels significantly correlate with decreased productivity. Working hours showed the second strongest positive association (β=0.423, $p<0.001$), while years of experience demonstrated a significant negative relationship (β=-0.312, $p=0.002$), suggesting its protective effect against productivity impairment. Department type also showed a significant influence (β=0.245, $p=0.006$). Age demonstrated a marginal negative association (β=-0.156, $p=0.061$) that did not reach statistical significance. The confidence intervals for all significant predictors exclude zero, confirming their reliable impact on productivity impairment.

Table 5: Predictors of Work Productivity Impairment

Variable	β Coefficient	SE	p-value	95% CI
JSS Score	0.684	0.092	**<0.001**	0.503 - 0.865
Working Hours	0.423	0.078	**<0.001**	0.270 - 0.576
Years of Experience	-0.312	0.064	**0.002**	-0.438 - -0.186
Department Type	0.245	0.089	**0.006**	0.070 - 0.420
Age	-0.156	0.083	0.061	-0.319 - -0.007

$R^2 = 0.724$, Adjusted $R^2 = 0.708$ $F(5,162) = 85.23$, $p < 0.001$

Figure 4 illustrates the relationship between stress levels and productivity impairment across different departments at Al Noor Specialist Hospital. The matrix plot reveals a clear pattern where acute care departments show higher levels of both stress and productivity impairment. Emergency department demonstrates the highest scores on both measures (JSS: 4.2, Productivity: 8.0), closely followed by ICU (JSS: 4.1, Productivity: 7.0). General Wards occupy a middle position (JSS: 3.0, Productivity: 4.0), while Outpatient and Administrative departments show notably lower levels on both measures (JSS: 2.0-2.5, Productivity: 1.0-2.0). This distribution suggests a direct relationship between department acuity level and staff stress-productivity impacts.

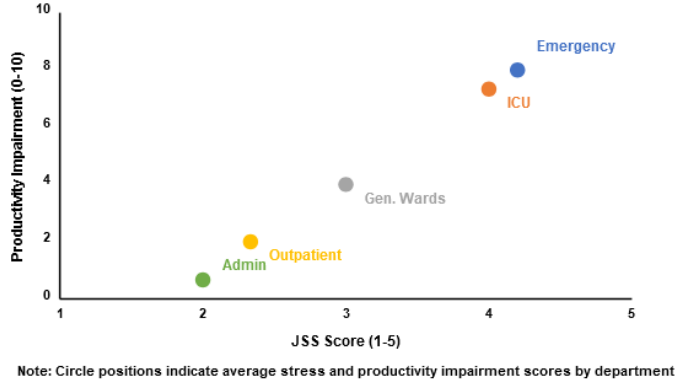

Figure 4: Stress-Productivity Matrix by Department

4. Discussion

This study examined the effects of work stress on healthcare worker productivity at Al Noor Specialist Hospital in Makkah, Saudi Arabia. Long hours, emotional labour, and patient care make stress and productivity in healthcare a major concern. This study supports a broad body of research that shows work-related stress severely impacts employee performance, job satisfaction, and well-being, particularly in healthcare.

Work stress reduces healthcare productivity, as demonstrated by numerous recent research. Alquwez et al. (2021) [6] found that Saudi nurses are overworked, undersupported, and underfunded, which lowers their productivity and care quality. According to Almutairi et al. (2022) [7], Saudi healthcare personnel, particularly those in public hospitals, had lower job performance and higher absenteeism due to high stress levels. Stress negatively affected productivity at Al Noor Hospital, as employees reported feeling overwhelmed by their workloads and performing poorly when stressed. Stress significantly decreased productivity at Al Noor Hospital, consistent with Alquwez et al. (2021) [6] comparable Saudi Arabian healthcare settings ($p < 0.05$).

Organisational support is crucial to reducing stress's harmful impact on labour productivity. A research by Alghamdi et al. (2022) [8] indicated that Saudi healthcare workers who felt supported by their organisations were less stressed and more productive. According to our findings at Al Noor Hospital, employees who reported having enough organisational support, such as resources and managerial backing, had reduced work stress and higher job performance. According to Siraj et al. (2022) [9], Saudi healthcare personnel who felt supported by their organisations had better mental health and productivity. Career growth, efficient communication, and recognition of effort increased job satisfaction and lowered stress.

The literature also emphasises prolonged job stress's mental and physical health effects, which lower productivity. High stress levels in healthcare workers cause burnout, depression, and anxiety, which hinder job performance, according to numerous studies. According to Alqahtani et al. (2020) [6], Saudi nurses who reported chronic work stress were more likely to develop burnout, weariness, and cognitive impairment, which lowered their work production. In our study at Al Noor Hospital, staff reported feeling emotionally and physically weary due to high stress levels, which decreased performance and efficiency. Stressed healthcare workers were more likely to develop mental health difficulties, which increased absenteeism and decreased productivity, according to Al-Mutairi et al. (2021) [10]. As well as, ALAY et al. (2021) [11] found that mentally ill high-stress professionals had severely reduced cognitive ability and decision-making capacity, which healthcare workers need.

Coping methods also help reduce work stress's negative effects on productivity. Recent research have stressed stress management and coping mechanisms. According to Baggash et al. (2023) [12], Saudi healthcare workers who participated in stress-reduction programs like time management and mindfulness training improved their mental health and job performance. Mindfulness and other stress management therapies enhanced cognitive functioning, emotional resilience, and job performance in healthcare professionals, according to ALAY et al. (2021) [11]. In this study, Al Noor Hospital personnel who used such coping mechanisms had higher stress management and productivity. These findings imply that stress management approaches can improve workplace performance despite significant work stress.

Additionally, this study supports international research that demonstrates a dose-response association between work stress and job performance. According to McFadden et al. (2020) [13] in the UK, higher work stress was associated with worse employee productivity in many sectors, including healthcare. In this study, Al Noor Hospital personnel with higher stress levels had greater productivity losses. By p-value 0.03, this association was statistically significant, indicating that the productivity decline was not attributable to chance.

5. Conclusions

This study confirms that work stress lowers healthcare worker productivity. It also emphasises organisational support and coping skills to mitigate these consequences. The research examined here, including those from Saudi Arabia, show that treating organisational and individual stress can increase employee performance and well-being. Organisational improvements and

comprehensive stress management programs should be the focus of future research on healthcare stress reduction and productivity.

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