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Exploring Gender Differences in Work Stress and Workplace Cognitive Failures among Medical Doctors

Asma Masood [1] , ***Semra Salik*** [2]

[1]Visitng Lecturer, Bahria University, Islamabad, Pakistan.

[2]Assistant Professor, Fazaia Medical College, Air University, Islamabad, Pakistan

ABSTRACT

Background of the study: This exploratory study investigates gender differences in work stress and cognitive failures among medical doctors, focusing on general practitioners. Given the high-stress nature of the profession, understanding gender-specific impacts on stress and cognitive performance is crucial for improving workplace well-being and patient care. While previous research suggests gender may influence stress perception, limited data exists for doctors. This study aims to address this gap by analyzing stress and cognitive failures across genders within this profession.

Methodology: A quantitative exploratory design was employed, using the Workplace Stress Scale and the Workplace Cognitive Failure Scale to survey 150 doctors. Stratified random sampling ensured representation across specialties and hospital settings. Descriptive statistics and independent t-tests were conducted to identify gender differences and correlations between stress and cognitive failures.

Results: The results reveal significant gender differences, with female doctors experiencing higher levels of work stress and more frequent cognitive failures than male doctors.

Conclusion: This study highlights the need for tailored interventions to address gender disparities in stress and cognitive failures. Implementing stress management programs and support strategies is essential to improving doctors' well-being and patient care. Despite limitations, overcoming these challenges will lead to more effective interventions for this critical profession.

Keywords: *Workplace Stress, Gender Differences, Cognitive Failures, Medical Doctors, Occupational Health, Stress Management, Job Satisfaction, Health Personnel*

INTRODUCTION

The term "stress" originally comes from mechanics, where it refers to the external pressure applied to an atom, resulting in the atom's tension[1].Despite this, there is significant debate over the definition of stress, and no universally accepted theory explains it. In psychology, stress is described as "an unpleasant emotional state characterized by feelings of tension, fear, or even terror in response to a danger that is largely unknown or unrecognizable[2]. Workplace stress specifically refers to stress experienced in the workplace, where employees perceive their work environment as threatening[3].

***Corresponding Author:** Asma Masood

Email: asmajune28@gmail.com

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It is undeniable that all jobs generate varying levels of stress for employees, which can disrupt the body's natural functions and impact a person's health. Jobs involving human interaction, in particular, are more likely to contribute to heart conditions compared to jobs focused on managing goods[4].Workplace stress is a significant concern that affects not only employees but also organizations and the broader community. According to the Health and Safety Executive[5], approximately 828,000 workers in Great Britain reported experiencing work-related stress in the previous year, with 17 million working days lost due to stress, depression, or anxiety. Additionally, work-related stress is estimated to cost the UK economy around GBP 13.5 billion annually in lost productivity and healthcare costs[5].A broader European study, involving over 50,000 employees across 35 countries, found that 34% of workers reported that their work activities had a negative impact on their health. These recent findings highlight the continued and growing prevalence of workplace stress, underscoring the urgent need to address this issue due to its substantial effects on both employees' well-being and organizational productivity. In addition, Health professionals frequently face mental health challenges, with the most common issues being stress[7] and burnout. Some of these mental health challenges stem from irregular and inflexible work schedules, shift work, and mandatory overtime[7]. Additionally, the inherently stressful nature of their work contributes to these issues[9].However, one of the factor that is associated with stressful nature of the work stress refers to workplace Occupational cognitive failure. Occupational cognitive failure (OCF) encompasses errors occurring in the workplace[10]. The concept of cognitive failures was introduced by Broadbent et al. (1982)[11], referring to minor lapses that disrupt the intended course of action, whether physical or mental. Occupational cognitive failures represent a broader responsibility for recurring lapses in cognitive control within the workplace. Many individuals are prone to experiencing cognitive failures more frequently than others. Occupational cognitive failures can pose significant challenges and hinder the effective completion of routine tasks. The specific factors that contribute to susceptibility to occupational cognitive failures are not clearly defined. Healthy aging individuals are associated with declines in certain cognitive abilities such as recall[12]. Cognitive failures encompass failures in perception, memory, and motor function, where actions do not align with intentions[11]. Therefore, occupational cognitive failure encompasses various types of performance lapses or lapses in attention that occur in the workplace environment. Workplace cognitive failure is a phenomenon experienced by everyone in their day-to-day activities. This may involve perceptual errors or failures in actions and memory, such as forgetting people's names upon meeting them[8]. The common thread among these failures is a departure from the usual smooth flow of daily functions, where events do not align with intentions[10].Cognitive failures in the workplace, or occupational cognitive failures, are reportedly associated with various other factors such as inattention, fatigue, work pressure, unsuitable working environments, and conflicts between work and family responsibilities[8].Women and men experience distinct working environments and encounter different demands and pressures, even within the same sector and profession. Men are often found in higher-ranking positions, while women are more likely to work part-time (representing 42% of the active population in the EU) compared to men (with 32% of women reporting part-time work, versus 7% of men). Many women are employed in low-paying, precarious positions, which influences their working conditions and the associated risks they face. Additionally, women tend to stay in the same job for longer durations than men, prolonging their exposure to existing risks. While consulting with workers and their active participation are critical factors in occupational health and safety, women are often

employed in roles with lower levels of union representation[11]. Several studies examining either stressors or their effects explore how gender influences levels of job strain in the workplace. However, given the complexities of the workplace dynamics outlined earlier, there appears to be a need for a more comprehensive analysis. The rationale for this study stems from the recognition of the nuanced interplay between gender, work stress, and occupational cognitive failures among doctors. Existing research has highlighted the differential experiences of men and women in the workplace, with women often facing unique challenges such as part-time employment, lower-paying jobs, and longer tenures in the same position. These factors can contribute to increased levels of job strain and potentially elevate the risk of occupational cognitive failures. While previous studies have explored the influence of gender on work stress and its manifestations, the complex nature of the healthcare environment necessitates a deeper investigation. By focusing specifically on doctors, this study aims to shed light on how gender dynamics intersect with work stress and cognitive functioning within a high-pressure professional setting. Understanding the gender-specific factors contributing to work stress and cognitive failures among doctors is essential for developing targeted interventions and support systems to mitigate these challenges. By examining the unique experiences of male and female doctors, this study seeks to provide insights that can inform strategies to promote workplace well-being, optimize performance, and ultimately enhance the quality of patient care.

METHODOLOGY

This quantitative exploratory study aimed to investigate work stress and occupational cognitive failures among doctors. A total of 150 doctors participated, with an equal gender ratio, selected through stratified random sampling to ensure representation across various specialties and hospital settings. Inclusion criteria consisted of doctors actively practicing in clinical settings, while exclusion criteria included those on extended leave or involved in non-clinical roles. The participants' demographic characteristics, such as age, years of experience, and specialty, were recorded. G Power software was used calculating the sample size based on the medium effect size (f 2 = 0.15), alpha level = 0.05, and statistical power = 0.80 to perform a multiple regression analysis. The sample of 107 people was considered minimal. To boost the generalizability and cover the attrition or the inability to collect full data, the final sample size was expanded to 150.To measure perceived levels of work stress, the *Workplace Stress Scale (WSS)*[12] was used, and the *Workplace Cognitive Failure Scale (WCFS)*[13] assessed self-reported frequency of cognitive failures. The WSS has a Cronbach's alpha reliability coefficient of 0.80, indicating good internal consistency, while the WCFS has a Cronbach's alpha of 0.92, demonstrating excellent reliability. Both scales are widely recognized and commonly used in occupational health research. For data analysis, descriptive statistics were first used to summarize the demographic variables. Independent t-tests were then employed to identify gender differences in work stress and cognitive failures. In addition to these, multiple regression analysis was conducted to explore potential predictors of work stress and cognitive failures. However, the results of the multiple regression analysis are not presented in the result table, as the primary focus of this study was to examine gender differences, not the predictive relationships between variables. This study adopted a cross-sectional design, which enabled the exploration of gender-based differences in work stress and cognitive functioning at a specific point in time. Ethical considerations were carefully followed throughout the study, with participants providing informed consent prior to participation. Confidentiality was maintained by anonymizing all data, and participants were informed of their right to withdraw at any stage without consequence. By using standardized questionnaires and conducting comprehensive statistical analyses, this study aimed to provide valuable insights into

the unique experiences of male and female doctors in relation to workplace stress and cognitive performance.

RESULTS

Table 1 provides a detailed breakdown of the demographics and work conditions of 150 medical professionals. The data shows that 23.4% (n = 35) are aged between 30 and 40, while the remaining 76.7% (n = 115) fall within the 41-50 age range. Gender distribution is evenly split, with 50.0% (n = 75) being female and 50.0% (n = 75) male. Additionally, 78.7% (n = 115) of the participants are married. In terms of professional roles, the majority are house officers, comprising 39.3% (n = 59). Consultant specialists account for 36.0% (n = 54), and emergency/ward assistants make up 24.7% (n = 37). The workplace distribution is equally divided, with 50.0% (n = 75) working in outpatient departments and 50.0% (n = 75) in emergency departments. Regarding working hours, 46.7% (n = 70) of the doctors work more than 10 hours per shift, and 54.7% (n = 80) have more than two night shifts assigned. Additionally, 45.3% (n = 68) of the medical professionals have been in their roles for over five years. It is noteworthy that all the medical professionals (100%, n = 150) treat more than 10 patients during a typical shift.

Table 1. Socio-demographic Characteristics of Participants (n=150)

Characteristic	n	%	*M*	*SD*
Age (Years)			.77	.424
30-40	35	23.4		
41-50	115	76.7		
Gender			.50	.502
Male	75	50.0		
Female	75	50.0		
Marital Status			.95	.460
Single	20	13.3		
Married	118	78.7		
Divorced	12	8.0		
Designation			2.41	1.977
Consultants/Specialists	54	36.0		
House officers	59	39.3		
Emergency	37	24.7		
Department			.75	.436
Outpatient Department	75	50.0		
Emergency Department	75	50.0		
Job Sector			1.00	.000
Private Based	150	100.0		
Years of Experience			3.31	.714
2 year	22	14.7		
3-5 Year	60	40.0		
More than 5 year	68	45.3		
Work Hours			2.11	.725
8 hours	32	21.3		
10 hours	70	46.7		
12 hours	48	32.0		
Patient during a Shift			1.00	.000

More than 10	150	100.0		
Night Shift per month				
No night Shift allocated	68	45.3	.55	.499
More than 2	82	54.7		

Note. *n* = frequency. *M* = Mean. *SD* = Standard Deviation

Table-2 Mean Comparison of Men and Women on Study Variables

Variables	Male (*N*=75)		Female (*N*=75)		*t*(148)	*p*	Cohen's *d*
	M	SD	M	SD			
Workplace Stress	20.61	2.39	29.83	1.64	-27.46	.000	4.498
Workplace Cognitive Failures	12.79	1.09	19.85	1.36	-35.02	.002	5.728

** $p < .01$. * $p < .05$

Table 2 indicates significant differences in workplace stress among doctors, with t(148) = -27.46, p < .05. The findings show that females have a higher average score (M = 29.83, SD = 1.647) compared to males (M = 20.61, SD = 2.393) regarding work stress. Additionally, there are significant mean differences in Workplace Cognitive Failures, with t(148) = -35.02, p < .05, revealing that females score higher (M = 19.85, SD = 1.363) than males (M = 12.79, SD = 1.094). This indicates that females experience more work stress and workplace cognitive failures, which negatively impact their work-related tasks.

DISCUSSION

The main objective of the study was to explore gender differences in experiencing workplace stress and associated cognitive failures among doctors. The findings indicate that female doctors experience higher levels of workplace stress and more frequent cognitive failures, which adversely impact their work-related tasks in patient care. Research on workplace mental health consistently shows poorer outcomes among women compared to men[14]. For example, an Australian study found that working women reported significantly higher levels of poor mental health than their male counterparts[15]. These gender differences in workplace mental health can be attributed to several factors, including the unequal distribution of work conditions, gender-based harassment, and bullying[16].Additionally, the gendered division of labor at home contributes to these disparities. Job strain has been found to directly increase life stress among women but not men[17].These findings align with our study, which shows that female doctors experience higher levels of workplace stress and more frequent cognitive failures, adversely affecting their work-related tasks in patient care. These findings are further supported by the past study conducted by Riaz et al (2023)[18] which indicates that cognitive failure, characterized by memory and concentration issues, encompasses minor thinking errors reported by both clinical and non-clinical individuals in their daily lives. This study aimed to explore the relationship between cognitive failure, depression, anxiety, and stress. The findings indicate a negative association between cognitive failure, depression, anxiety, and stress among non-clinical individuals. Furthermore, it was observed that females reported a higher level of cognitive failure in everyday activities compared to males. Additionally, the study suggests that psychological distress, including depression, anxiety, and

stress stemming from cognitive distortion, was significantly higher among females than males[18]. Additionally, previous research supports the findings of this study, emphasizing that workplace stress is a significant issue, and gender may play a crucial role in how stress is experienced[19].While some studies suggest no gender differences in workplace stress, others highlight variations in stressors and stress severity between genders. Women tend to experience higher levels of workplace stress due to unique stressors such as discrimination, stereotyping, challenges in managing marriage and work responsibilities, and social pressures[19]. In today's work environment, high job stress is a significant factor driving employees to change jobs. This turnover not only impacts individual well-being but also diminishes cognitive abilities. The stress is often linked to a mismatch between job demands and employees' skills, which exacerbates workplace tension and affects their overall lives. Employees are expected to adapt to changing demands, but when there is a low level of fit between their roles and their capabilities, it can lead to cognitive failures, increased stress, and poor workplace performance[20]. This is particularly relevant for nurses, who face higher stress levels than many other professions, placing them at greater risk for cognitive failures that can ultimately jeopardize patient safety[21]. In line with these, the study of Arthur and Barrett (2003) found a positive correlation between workplace stress and cognitive failures (CF). Distractions, inattention, and errors in cognitive processing at work can lead to accidents[22]. Thus also, The International Council of Nurses reports that work-related stress costs the United States an estimated $200–300 million each year, with nearly 90% of employees' medical issues linked to job stress. For nurses, this stress not only impacts their quality of life but also affects the quality of care they provide, further highlighting the critical connection between high stress levels, cognitive failures, and patient safety[23]. The quality of life for female nurses, who care for human lives, is especially crucial, as a better quality of life enables them to deliver more effective services[24].These nurses frequently interact with patients, and factors such as work environment, the variety of cases they encounter, insufficient staffing, mandatory overtime, and the attitude of ward managers can create significant stress[25]. While stress is a recognized aspect of modern nursing that can be beneficial in small doses, chronic stress can lead to health issues like hypertension and cardiovascular disease, ultimately impacting their overall quality of life[25]. These all factors contribute to the higher prevalence of stress among women compared to men. In conclusion, the collective evidence underscores the importance of considering gender dynamics in understanding and addressing workplace stress and associated failures, highlighting the need for targeted interventions to support the well-being of both male and female doctors.

Limitations of the Study

1. **Small Sample Size**: The study's limited sample size may not fully represent the broader population of doctors, which could affect the generalizability of the findings.
2. **Potential Biases in Self-Reported Data**: As the study relies on self-reported data, there is a possibility of social desirability bias or inaccuracies in participants' self-assessments of stress levels and cognitive failures.
3. **Cross-Sectional Design**: The study's cross-sectional design only captures data at a single point in time, limiting the ability to draw conclusions about causal relationships or track changes over time.
4. **Limited Diversity in the Sample**: The sample may not adequately reflect the diversity in terms of experience, specialty, or geographic location, which could impact the applicability of the findings across different groups of doctors.

Lack of Longitudinal Data: Without longitudinal data, it is difficult to assess the long-term effects of workplace stress and cognitive failures on doctors' health and job performance.

CONCLUSION

This study investigated gender disparities in workplace stress and cognitive failures among doctors, revealing that female doctors experience higher stress levels and more frequent cognitive lapses compared to their male counterparts. To address these issues, it is essential to introduce targeted stress management techniques, promote work-life balance, and offer tailored support programs for doctors. These initiatives could include mindfulness training, flexible working hours, and mentorship programs, particularly for female doctors, to reduce gender-related stressors and enhance well-being. However, it is important to acknowledge limitations such as small sample sizes, potential biases in self-reported data, and the cross-sectional design of the study, which should be carefully considered when interpreting the results. Future research should aim to overcome these limitations and build on these findings to develop more effective interventions that can improve the well-being of doctors and, in turn, enhance patient care.

AUTHORS' CONTRIBUTION:
The following authors have made substantial contributions to the manuscript as under:
Conception or Design: Asma Masood
Acquisition, Analysis or Interpretation of Data: Asma Masood, Semra Salik
Manuscript Writing & Approval: Asma Masood, Semra Salik

All authors acknowledge their accountability for all facets of the research, ensuring that any concerns regarding the accuracy or integrity of the work are duly investigated and resolved.

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