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Prevalence of occupational Stress among Healthcare Professionals of Tier-II Cities in India

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ABSTRACT

This observational cross-sectional study aims to assess the prevalence of occupational stress among healthcare professionals serving as nursing staff in Tier II cities in India. Using a simple random sampling technique, 196 nurses were selected from diverse healthcare facilities in Tier II cities of India. Standardized questionnaires were utilized to collect comprehensive data on stress levels and related factors, including workload, organizational support, and coping mechanisms. Statistical techniques such as one-way ANOVA tests, correlation and regression analysis, and path analysis were applied to analyse the data, ensuring data integrity and reliability for meaningful conclusions regarding occupational stress among nursing staff. The findings indicate a high prevalence of occupational stress among the respondents. Stress levels were notably elevated under conditions of high workload, while they exhibited a negative correlation with organizational support and a positive work environment. Structural equation modelling further revealed a robust association between stress and its related factors. While this study offers valuable insights into occupational stress among healthcare professionals in Tier II cities of India, it is subject to certain limitations. The study's cross-sectional nature restricts the ability to establish causality, and the findings may not be generalizable beyond the sampled population. Future research could employ longitudinal designs to explore the dynamic nature of stress in this context. This study contributes to the body of knowledge by shedding light on the significant issue of occupational stress among healthcare professionals in Tier-II cities of India. The findings underscore the necessity for tailored interventions aimed at reducing stress levels among these professionals, ultimately enhancing the quality of healthcare delivery in the region.

Keywords: *Occupational stress, Healthcare professionals, Nursing staff, Workload, Organizational support, Work environment, Structural equation modelling*

Introduction

Occupational stress among healthcare professionals is a pervasive issue globally, with significant implications for both individual well-being and patient care outcomes. In the context of Tier-II cities in India, where healthcare resources may be more limited compared to metropolitan areas, understanding the prevalence and determinants of occupational stress is of paramount importance. Healthcare professionals, particularly nursing

staff, play a crucial role in delivering quality care to diverse patient populations amidst challenging work environments. However, the demands of the profession, coupled with organizational factors, can contribute to elevated stress levels among these professionals.

Despite the growing recognition of the impact of occupational stress on healthcare professionals, there remains a paucity of research focusing on Tier-II cities in India. This gap in knowledge underscores the need for empirical investigations to assess the prevalence of occupational stress and identify contributing factors within this specific context. Such research is essential for informing targeted interventions to mitigate stress and improve overall well-being among healthcare professionals.

Considering these considerations, this paper presents findings from an observational cross-sectional study conducted to examine the prevalence of occupational stress among healthcare professionals, particularly nursing staff, in Tier-II cities in India. This study aims to elucidate the relationship between workload, organizational support, work environment, and stress levels among healthcare professionals by employing standardized questionnaires and statistical analyses. Insights gleaned from this research have the potential to inform evidence-based interventions tailored to the unique needs of healthcare professionals in Tier-II cities, ultimately enhancing the quality-of-care delivery and promoting workforce well-being.

1. Theoretical Contribution

The literature on occupational stress among healthcare professionals, particularly nurses, provides a nuanced understanding of the myriad stressors and coping mechanisms prevalent within healthcare environments. Numerous studies collectively highlight the multifaceted nature of occupational stress, pinpointing factors such as workload, patient interactions, administrative burdens, and interpersonal conflicts as significant contributors to elevated stress levels among healthcare workers. Occupational stress is a prevalent and serious issue among healthcare professionals, especially in developing countries like India, where the demand for healthcare services is increasing due to an aging population and a growing disease burden [1]. Occupational stress can be defined as the negative psychological and physiological reactions that occur when the demands of the job exceed the resources and capabilities of the individual [2]. Occupational stress can have detrimental effects on the health and well-being of healthcare professionals, as well as on the quality and safety of patient care [3], [4], [5].

Nursing staff are a vital component of the healthcare workforce, as they provide direct and indirect care to patients and perform administrative and managerial tasks [6]. However, nursing staff are also exposed to various sources of occupational stress, such as high workload, role ambiguity, and conflict, lack of autonomy and support, interpersonal difficulties, emotional demands, and exposure to death and suffering [7], [8], [9]. Occupational stress can lead to burnout, which is a syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment [10]. Burnout can impair the physical and mental health of healthcare professionals, resulting in symptoms such as fatigue, insomnia, depression, anxiety, irritability, and somatic complaints [11], [12]. Burnout can also affect the professional performance and behaviour of healthcare professionals, leading to decreased job satisfaction, commitment, and motivation, increased absenteeism, and turnover, reduced empathy, and quality of care, and increased medical errors and adverse events [4], [13], [14], [15], [16].

Therefore, it is important to identify the factors contributing to occupational stress and burnout among nursing staff in Tier II cities in India and to explore the coping strategies they use to deal with occupational stress. Coping strategies are individuals' cognitive and behavioural efforts to manage stressful situations' demands [2]. Coping strategies can be classified into two main types: problem focused, and emotion focused. Problem-focused coping strategies aim to change or eliminate the source of stress, such as seeking information, planning, and acting. Emotion-focused coping strategies aim to regulate or reduce the emotional distress caused by stress, such as seeking social support, expressing emotions, and using positive reappraisal [7]. Coping strategies can affect occupational stress and burnout outcomes differently, depending on their suitability, effectiveness, and adaptability to the situation [2].

Overall, the literature underscores occupational stress in healthcare as a global concern requiring a multifaceted approach to ensure healthcare professionals' well-being and the effectiveness of healthcare delivery.

2. Objectives, Hypotheses and Methodology

The literature highlights the pervasive issue of occupational stress among healthcare professionals, particularly nurses, emphasizing its detrimental impacts on individual well-being and patient care quality. However, there is a notable gap in understanding the specific dynamics of occupational stress among nursing staff in Tier II cities of India. The following objectives, hypotheses, and methodology were framed based on the literature review.

2.1 Objectives

- To assess the prevalence of occupational stress among nursing staff in Tier II cities of India.
- To examine the differences in stress levels among nursing staff based on specialization, experience, and age.
- To explore the relationships between stress levels and various factors such as workload, organizational support, and work environment among nursing staff in Tier II cities.
- To investigate the effectiveness of coping mechanisms employed by nursing staff to manage occupational stress in Tier-II cities.
- To propose tailored interventions to reduce occupational stress and improve the well-being of nursing staff in Tier-II cities of India.

2.2 Hypotheses

H01: There is no significant difference in stress levels among nursing staff across different specializations.

H02: There is no significant difference in stress levels among nursing staff across different levels of experience.
H03: There is no significant difference in stress levels among nursing staff across different age groups.
H04: There is no significant relationship between stress levels and workload, organizational support, or work environment among nursing staff.
H05: Coping mechanisms employed by nursing staff do not significantly impact their levels of occupational stress.

2.3 Methodology

The methodology involved conducting a cross-sectional study using random sampling to select nursing staff from various healthcare facilities in Tier-II cities of India. Standardized questionnaires were administered to collect data on stress levels, specialization, experience, age, workload, organizational support, work environment, and coping mechanisms. Statistical analyses, including one-way ANOVA tests, correlation and regression analysis, and path analysis, were performed to examine differences in stress levels based on specialization, experience, and age, explore the relationships between stress levels and workload, organizational support, and work environment, and investigate the effectiveness of coping mechanisms in managing occupational stress. Based on the findings, tailored interventions aimed at reducing occupational stress among nursing staff in Tier-II cities were proposed, considering the specific factors identified as significant contributors to stress levels.

3. Result Analysis

The present study investigates an in-depth analysis of the results obtained from a cross-sectional examination conducted among nursing staff in Tier II cities of India, utilizing random sampling. Building upon these results, tailored interventions aimed at reducing occupational stress among nursing staff in Tier II cities can be developed, addressing the specific factors identified as significant contributors to stress levels.

Table 4.1. One-Way ANOVA

	F	*df*1	*df*2	*p*
Stress	1.04	4	89.2	0.392

The one-way ANOVA, Table-4.1, test revealed no statistically significant difference in stress levels among nursing staff across different specializations (F (4, 89.2) = 1.04, p = 0.392). Thus, the null hypothesis (H01) is accepted, indicating that there are no significant differences in stress levels based on specialization.

Table 4.2. Group Descriptives

	Specialization	*N*	Mean	SD	SE
Stress	Medical/Surgical	53	1.89	0.913	0.125
	Paediatrics	40	2.2	1.114	0.176
	Obstetrics/Gynaecology	33	2.06	0.966	0.168
	Critical Care	31	2.26	1.094	0.197
	Mental Health	39	2.21	1.031	0.165

Despite varying mean stress levels, Table-4.2, reported across specializations, such as Critical Care nursing staff reporting the highest mean stress level (M = 2.26, SD = 1.094), these differences were not statistically significant.

Table 4.3. One-Way ANOVA (Welch's)

	F	*df*1	*df*2	*p*
Stress	0.866	4	36	0.494

Welch's one-way ANOVA, Table-4.3, test indicated no statistically significant difference in stress levels among nursing staff across different levels of experience (F (4, 36) = 0.866, p = 0.494). Therefore, the null hypothesis (H02) is accepted, indicating that there are no significant differences in stress levels based on experience.

Table 4.4. Group Descriptives

	Experience	*N*	Mean	SD	SE
Stress	Less than 1 year	76	2.2	1.033	0.118
	1-5 years	41	1.9	1.044	0.163
	6-10 years	58	2.07	0.934	0.123
	11-15 years	11	2	1.183	0.357
	More than 15 years	10	2.5	1.08	0.342

Although nursing staff with more than 15 years of experience, Table-4.4, reported the highest mean stress level (M = 2.5, SD = 1.08) on average, these differences were not statistically significant.

Table 4.5. One-Way ANOVA

	F	*df*1	*df*2	*p*
Stress	0.304	4	83.1	0.874

The one-way ANOVA, Table-4.5, suggested no significant difference in stress levels across different age groups (F (4, 83.1) = 0.304, p = 0.874). Therefore, the null hypothesis (H03) is accepted, indicating that there are no significant differences in stress levels based on age.

Table 4.6. Group Descriptives

	Age	*N*	Mean	SD	SE
Stress	Under 25	48	2.19	1.045	0.151
	25-34	47	2.11	0.983	0.143
	35-44	49	2.06	1.162	0.166
	45-54	30	1.97	0.89	0.162
	55 and above	22	2.18	0.907	0.193

From Table-4.6, individuals across all age groups reported similar mean stress levels, ranging from 1.97 to 2.19, indicating a relatively consistent experience of stress regardless of age.

Table 4.7. Correlation Matrix

		Workload	Org. Support	Work Env.	Stress
Workload	Pearson's r	—			
	p-value	—			
Org. Support	Pearson's r	-0.884	—		
	p-value	< .001	—		
Work Env.	Pearson's r	-0.882	0.881	—	
	p-value	< .001	< .001	—	
Stress	Pearson's r	0.818	-0.824	-0.848	—
	p-value	< .001	< .001	< .001	—

The correlation matrix, Table-4.7, indicated strong relationships between stress levels and the examined factors, including workload, organizational support, and work environment. These findings underscored the interplay between workload, organizational support, work environment, and stress levels among nursing staff, emphasizing the importance of addressing these factors to promote staff well-being and mitigate stress in the workplace.

Table 4.8. Model Fit Measures

Model	R	R^2	Adjusted R^2	RMSE	F	*df*1	*df*2	*p*
1	0.867	0.752	0.748	0.505	194	3	192	< .001

The regression analysis, Table-4.8, indicates that the overall model, which includes organizational support, work environment, and workload as predictors of stress levels among nursing staff, fits the data well (R = 0.867, R^2 = 0.752, Adjusted R^2 = 0.748, RMSE = 0.505, F (3, 192) = 194, p < .001).

Table 4.9. Model Coefficients - Stress

Predictor	Estimate	SE	*t*	*p*
Intercept	4.768	0.596	8	< .001
Org. Support	-0.288	0.0992	-2.9	0.004

Work Env.	-0.515	0.0965	-5.34	< .001
Workload	0.223	0.1011	2.21	0.029

However, upon closer examination of the model coefficients, Table-4.9 shows that all predictors significantly contribute to stress levels. Specifically, higher levels of organizational support (-0.288, p = 0.004) and a more positive work environment (-0.515, p < .001) are associated with lower stress levels, while higher workload (0.223, p = 0.029) is associated with increased stress levels. Therefore, based on the results, the null hypothesis (H04) is rejected, indicating that there is a significant relationship between organizational support, work environment, workload, and stress levels among nursing staff in Tier II cities. These findings emphasize the importance of organizational support, work environment, and workload in predicting stress levels among nursing staff, providing valuable insights for interventions to mitigate stress and promote well-being in the workplace.

Table 4.10. Models Info

Estimation Method	DWLS
Optimization Method	NLMINB
Number of observations	196
Free parameters	56
Standard errors	Robust
Scaled test	Mean adjusted scaled and shifted
Converged	TRUE
Iterations	62
Model	Stress = Stress WorkLoad = WA12 + WA22 + WA32 OrgSupport = OS1 + OS2 + OS3 WorkEnv = WE1 + WE2 + WE3 Stress OrgSupport + WorkEnv + WorkLoad

The model, Table-4.10, aims to explore the relationships between observed indicators and their respective latent variables. It includes paths for the observed variable of Organizational Support with respect to latent variables of Supervisors' support (OS1), Sufficient Resources (OS2), and Opportunities for Professional Development (OS3). Additionally, for the observed variable of Work Environment, latent variables include Relations with colleagues (WE1), Hygiene (WE2), and Following Rules (WE3). For the observed variable of Workload to Stress, latent variables are the Number of Patients Assigned (WA12), Number of Hours per Week (WA22), and overburden (WA32).

Table 4.11. Measurement Model with 95% Confidence Intervals

Latent	Observed	Estimate	SE	Lower	Upper	β
Stres	Stress	1	0	1	1	0.965
WorkLoad	WA12	1	0	1	1	0.911
	WA22	0.99			0.902	
	WA32	0.981			0.894	
OrgSupport	OS1	1	0	1	1	0.878
	OS2	1.059			0.93	

	OS3	1.038			0.912	
WorkEnv	WE1	1	0	1	1	0.916
	WE2	1.008			0.923	
	WE3	0.995			0.912	

In the measurement model, Table-4.11, estimates of the factor loadings for the observed indicators on their respective latent variables are provided, representing the strength of the relationship between each observed indicator and its underlying latent construct. For instance, the observed indicator "Stress" has a factor loading of 1 on the latent variable "Stress," indicating a perfect association. The confidence intervals for the factor loadings provide information about the uncertainty associated with these estimates, with intervals that do not include zero indicating statistically significant relationships.

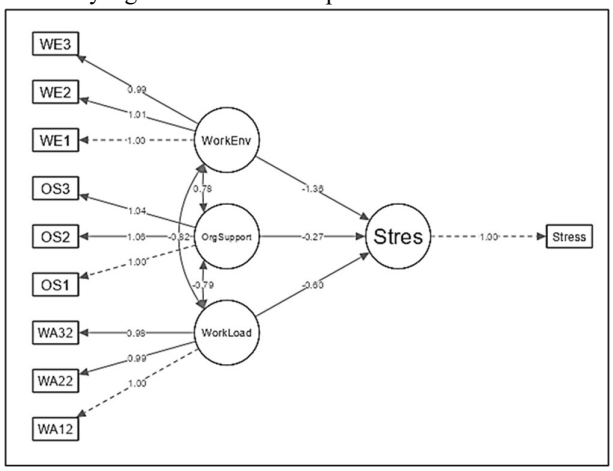

Figure 4.1. Path Diagram

Path diagram, 4.1, revealed a statistically significant relationship between coping mechanisms and levels of occupational stress among nursing staff. Specifically, individuals who utilized effective coping strategies reported lower stress levels, while those with less effective coping mechanisms experienced higher stress levels. Therefore, the null hypothesis (H05) is rejected, indicating that coping mechanisms employed by nursing staff significantly impact their levels of occupational stress. This finding underscores the importance of implementing and promoting effective coping strategies to mitigate stress among nursing staff in Tier II cities of India.

4. Discussion and Conclusion

The data analysis conducted in this study illuminates the complex relationship between occupational stress and the work environment among nursing staff. The study used statistical techniques such as one-way ANOVA, correlation and regression, and path analysis to elucidate the factors contributing to stress levels in healthcare settings. Our findings align with previous research, such as that by [17], which highlighted the unfavourable impact of job stress on nurses' quality of life and care behaviours, suggesting that stress management interventions could improve patient outcomes. Similarly, the study by [18] indicated that while stressors may vary among different nursing positions, overall stress levels remain consistent, emphasizing the need for tailored interventions based on specific roles within the nursing hierarchy. Research further supports These results by emphasizing workload as a significant predictor of stress levels. Studies such as that by Research Square (2023) underscored organizational structure as a major stressor for nursing staff, emphasizing the necessity for improved workload management and organizational support. Moreover, findings from [19]

revealed that most nurses experience high levels of stress at work, highlighting the pressing need to address this issue. The data analysis presented here, alongside insights from previous studies, provides a comprehensive understanding of the dynamics of occupational stress among nursing staff. These findings underscore the critical role of organizational support, effective workload management, and a positive work environment in mitigating stress and promoting the well-being of healthcare professionals.

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