

Occupational Stress in Health Professionals of Combined Military Hospitals

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Abstract

Introduction: Stress is a term that is widely used in everyday life. Work-related stress is recognized globally as a major challenge to workers' health and the health of an organization. Stress at work has become a serious problem affecting many people of different professions, life situation and age groups. The healthcare profession has been depicted as one of the most stressful occupations across the globe.

Objective: To assess the extent of occupational stress among health professionals of Combined Military Hospitals and to explore its association with work-related factors and family-work interference.

Materials and Methods: A total of 574 respondents were selected from five Combined Military Hospitals using simple random sampling considering doctors, nurses, paramedic medical assistants and technologists as the study population. Occupational stress was determined by Health Professions Stress Inventory (HPSI).

Results: Stress of health professionals was reassessed through HPSI and 1.0%, 77.6%, 20.7% and 0.8% were found to be mild, moderate, very and extremely stressful respectively. About one fifth (21.4%) were found to be in high stress. High stress was more prevalent among Paramedic Medical Assistants (PMAs) (24.5%), Paramedic Medical Technologists (PMTs) (23.2%) and nurses (21.9%) on contrary to doctors (11.7%). Their mean stress scores were 55.70±13.75, 55.44±13.53, 56.18±10.55 and 50.92±10.93 respectively ($p<0.05$) out of 124. Highest stress was in CMH Dhaka (56.50±14.27) followed by CMH, Rangpur (53.43±11.65) ($p<0.05$). The mean work hour per week for doctors, nurses, PMAs and PMTs were 63.25(±18.95), 55.70(±9.72), 89.58 (±17.44) and 80.58 (±16.12) hours respectively ($p<0.05$). Working for long/unsociable or unpredictable hours, financial and job insecurity were found to be related to the greater prevalence of high stress ($p<0.05$). The parameters

of pressures at work, job satisfaction and support from colleagues/superior were found to be associated with high stress ($p<0.05$). Higher prevalence of family-work interference was found to be a predictor of high stress ($p<0.05$).

Conclusion: A large proportion health professional of Combined Military Hospitals were in high stress due to the prime stressors. Measures like workload-management, job-redesign, employee motivation and training should be taken to alleviate these stressors.

Key-words: Occupational stress, Health professionals, Job satisfaction, Family-work interference, Health Professions Stress Inventory (HPSI).

Introduction

Stress is a term that is widely used in everyday life. Work-related stress is recognized globally as a major challenge to workers' health, and the health of an organization. Stress at work has become a serious problem affecting many people of different professions¹. Occupational stress is defined as the adverse emotional state experienced when the demands due to occupational factors overcome the ability of an employee to address or control the situation^{2,3}. A variety of factors contribute to workplace stress such as negative workload, extensive hours of work, work environment, lack of autonomy, difficult relationships among coworkers and management and lack of opportunities or motivation to advancement in one's skill level⁴.

Doctors, nurses and paramedics constitute the main workforce in hospitals and are known to experience occupational stress. High level of stress is believed to affect their physical and mental health⁴⁻⁷. Physicians are exposed to many stressors, such as the burden imposed by expectations of a high degree of professionalism, responsibility for patient well-being and maintenance of relationships with patients and health workers⁸.

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Nurses and paramedics are one of the most vulnerable professional groups to occupational stress as they often encounter stressful situations due to the special demands of their profession. They work under conditions of intense stress with limited autonomy in decision making and lack of support and positive feedback by the administration².

Health professionals of Combined Military Hospitals (CMHs) provide healthcare to the Armed Forces personnel and their families. This profession is very sensitive and bears a high level of accountability. Every day they face diverse stressful situations while performing their professional commitments. They often express that they are stressed and such stress are linked to their workplace. Against such context, it is important to understand to what extent health professionals of CMHs are affected by work-related stress.

Materials and Methods

This descriptive cross-sectional study was carried out from 1st July 2016 to 31st December 2016 with the aim to assess the extent of occupational stress in health professionals of CMHs and to explore its association with work-related factors (job description, hours of work, job satisfaction, pressures at work, financial and job security, their level of support from colleagues/superior) and family work interface. For the purpose of the study four categories of health professionals: Doctors, Nurse, Paramedic Medical Assistant (PMA) and Paramedic Medical Technologist (PMT) which includes Intensive Care Assistant (ICA), Operation Theater Assistant (OTA), Laboratory Technician, Special Treatment Assistant (STA), Dental Technician, Dispenser, Physiotherapist, Radiographer, Sanitary Assistants and Psychiatric Medical Assistants were considered as study population. A total of 574 respondents (determined by $n = z^2pq/d^2$) were selected from five CMH's (Dhaka, Chittagong, Jessore, Bogra and Rangpur). Care was taken to ensure proportional representativeness with the ratio of 1.5: 1: 3.5: 3 for the doctors (97), nurses (65), PMAs (222) and PMTs (190) respectively using simple random sampling. CMH Dhaka and Chittagong were judgmentally selected as they are larger hospitals. CMH Jessore was randomly selected between Jessore and Comilla. Among the other CMH's, Bogra and Rangpur were randomly selected. A pretested self-administered questionnaire was used.

Stress was measured by Health Professions Stress Inventory (HPSI) adapted from Alan P Wolfgang, 1998 which comprises 31 items ranging 0 (never) to 4 (very often) that reflects stressful situations frequently encountered by professionals working in the healthcare industry. Higher scores indicate

higher levels of job stress⁹ with a total score ranging from 0 to 124. The total score of HPSI was divided by 31 (the number of items) to get a mean score of stress (ranges 0-4) for each individual. The extent of stress was categorized by using a five-point Likert scale 'Not at all stressful (0-0.09)', 'Mildly stressful (0.10-1.00)', 'Moderately stressful (1.10-2.00)', 'Very stressful (2.10-3.00)' and 'Extremely stressful (3.10-4.00)'¹⁰⁻¹⁴. The different degrees of stress- not at all to moderately stressful were further grouped as 'Low' stress and very to extremely stressful were grouped as 'High' stress¹⁰. HPSI scale had good internal consistency, with a Cronbach alpha coefficient of 0.806.

Data obtained were entered into the SPSS-16 version. The univariate and bivariate analyses were carried out using both descriptive and inferential statistics. ANOVA with posthoc test, Chi-square test of independence and Fisher's exact tests were done to explore association and statistically significant difference. Confidentiality of the participants was strictly maintained.

Results

The overall response rate of 90.24% of 518 respondents was satisfactory. Exploring the level of stress 86.2% doctors were found as 'moderately stressful' and 11.7% as 'very stressful' in their job. Among the nurses and paramedics, more than 75% were found to be 'moderately stressful'. In 'very stressful' category nurses, PMAs and PMTs constitutes 21.9%, 23.4% and 22.0% respectively. Extremely stressful (1.0%) was only observed among the paramedics (Table-I).

Table-II shows that the mean stress scores for PMAs, PMTs, nurses and doctors were 55.70 ± 13.75 , 55.44 ± 13.53 , 56.18 ± 10.55 and 50.92 ± 10.93 respectively ($p < 0.05$).

Table-III shows that highest stress was observed in CMH Dhaka (56.50 ± 14.27) followed by Rangpur (53.43 ± 11.65), Chittagong (53.42 ± 11.23), Jessore (52.29 ± 9.22) and Bogra (50.21 ± 9.49) ($p < 0.05$).

The mean work hour per week for doctors, nurses, PMAs and PMTs were $63.25 (\pm 18.95)$, $55.70 (\pm 9.72)$, $89.58 (\pm 17.44)$ and $80.58 (\pm 16.12)$ hours respectively ($p < 0.05$) (Table-IV). There was a negative correlation between age and monthly income and positive correlation with hours of work and occupational stress ($p > 0.05$) (Table-V).

Five highest rated job-specific stressors were revealed from HPSI in health professionals. The HPSI provided a measure of the amount and source of stress experienced by the health professionals (Table-VII).

Table-I: Distribution of respondents by occupation and their association with stress measured by HPSI (n=518)

Occupation	Occupational Stress (measured by HPSI)					Significance
	Not at all stressful	Mildly stressful	Moderately stressful	Very stressful	Extremely stressful	
Doctor(94)	00(0.00%)	02(2.10%)	81(86.20%)	11(11.70%)	00(0.00%)	Fisher's exact test value=9.814 p=0.261
Nurse(64)	00(0.00%)	01(1.60%)	49 (76.60%)	14(21.90%)	00(0.00%)	
PMA(192)	00(0.00%)	01(0.50%)	144 (75.00%)	45(23.40%)	02 (1.00%)	
PMT(168)	00(0.00%)	01(0.60%)	128 (76.20%)	37(22.00%)	02(1.20%)	
Total	00(0.00%)	01(0.60%)	128 (76.20%)	37(22.00%)	02(1.20%)	

Table-II: Comparison of occupational stress score among the respondents by their occupation (n=518)

Occupational stress (HPSI range 0-124)	n	Mean ± SD	Minimum-Maximum	Significance
Doctor	94	50.92±10.93*	31.00-88.00	F=3.552 df=517 p=0.014
Nurse	64	56.18±10.55	30.00-91.00	
Paramedic Medical Assistants (PMA)	192	55.70±13.75*	31.00-106.00	
Paramedic Medical Technologists (PMT)	168	55.44±13.53*	27.00-95.00	
Total	518	54.81±12.94	27.00-106.00	

*Statistically significant difference by Post Hoc Tukey test

Table-III: Comparison of occupational stress score among the respondents by their workplaces (n=518)

Occupational Stress (HPSI range 0-124)	n	Mean ± SD	Minimum-Maximum	Significance
Dhaka	301	56.50±14.27*	27.00-106.00	F=3.608 df=517 p=0.007
Chittagong	66	53.42±11.23	35.00-94.00	
Jessore	65	52.29±09.22	30.00-80.00	
Bogra	42	50.21±09.49*	31.00-81.00	
Rangpur	44	53.43±11.65	35.00-78.00	
Total	518	54.81±12.94	27.00-106.00	

*Statistically significant difference by Post Hoc Tukey test

Table-IV: Comparison of work hours per week of the respondents by occupational group (n=518)

Occupation	Work hour per week					Mean ± SD	Significance
	≤48	49-60	61-72	73-84	≥85		
Doctor (94)	Doctor (94)	Doctor (94)	Doctor (94)	Doctor (94)	Doctor (94)	63.25* ± 18.95	χ ² =288.81 df=12 p≤0.001
Nurse (64)	Nurse (64)	Nurse (64)	Nurse (64)	Nurse (64)	Nurse (64)	55.70* ± 9.72	
PMA (192)	PMA (192)	PMA (192)	PMA (192)	PMA (192)	PMA (192)	89.58* ± 17.44	
PMT (168)	PMT (168)	PMT (168)	PMT (168)	PMT (168)	PMT (168)	80.58* ± 16.12	
Total (518)	Total (518)	Total (518)	Total (518)	Total (518)	Total (518)	77.70 ± 20.62	

*Statistically significant difference by Post Hoc Tukey test, **Percentage in parenthesis

Table-V: Association between respondents occupational stress and work hours per week (n=518)

Occupational stress	Work hour per week					Total	Significance
	≤48	49-60	61-72	73-85	≥85		
Low work stress	33(89.20%)	74(81.30%)	84(81.60%)	106(80.90%)	110(70.50%)	407(78.60%)	χ ² =9.874 df=4 p =0.043
High work stress	04(10.80%)	17(18.70%)	19(18.40%)	25(19.10%)	46(29.50%)	111(21.40%)	

Table-VI: Pearson product-moment correlation between occupational stress and age, number of family members, monthly income, monthly household income (including self), length of service and working hours per week.

		Occupational Stress	Age	Family size	Monthly income	Monthly Household income	Length of service	Work hours per week
Occupational Stress	r	1	-0.109*	0.067	-0.153**	-0.060	-0.060	0.210**
	Significant		0.013	0.128	≤0.001	0.176	0.174	≤0.001
	Total	518	518	518	518	518	518	518

r= Correlation co-efficient, * Correlation is significant at the 0.05 level (2-tailed), ** Correlation is significant at the 0.01 level (2-tailed)

Table-VII: The highest rated job-specific stressors (from HPSI) in health professionals

Serial	Description (Range 0-4)	Mean
1	Caring for terminally ill patients	3.88
2	Feeling ultimately responsible to patient outcome	3.78
3	Being adequately prepared to meet the needs of patients	3.72
4	Caring for the emotional needs of patients	3.65
5	Trying to meet society's expectations for high-quality medical care	3.63

It was found that 49.2% often and 25.7% always used to do night duty; 45.4% health professionals always had to do shift work. Regarding working long/unsociable hours, 37.3% reported often and 23% admitted always; 17.6% always had an unpredictable working hours; 53.9% felt fairly secured but 21.6% felt insecure and 17.6% were fairly insecure financially. A high proportion were found to be satisfied to highly satisfied in regards to work prospects (61.4%), people they worked with (86.5%), physical working conditions (79.4%), the way their work section was run (80.7%), the way their abilities were used (78.2) and their interest and skill involved in their job (77.4%). A marginal majority (56.7%) were dissatisfied to very dissatisfied in regards to their salary.

Most of the respondents were found to feel not at all to somewhat under pressure in regards to time pressure due to a heavy workload (63.9%), interruptions and disturbances in their job (78.6%), poor job promotion prospects (62.5%), poor job security (64.9%) and unfair treatment at work (86.9%). A marginal majority felt that they were rather/always given a lot of job responsibility (56.3%) and were often under pressure to work additional time (50.8%). About 84.2% respondents were not at all to moderately worry about losing their job. A higher proportion admitted that they often/always got help and support from colleagues (91.3%) and their superior (87.4%). A majority admitted that their colleagues (88.2%) and superiors (77.8%) were willing to listen to their work-related problems.

A majority were found to agree that they were not at all/to some extent of family matter at work such as family matters reducing time to their job (80.5%), distracted by family worries and problems (83.2%), insufficient sleep (84.5%) and family obligations reducing the time they need to relax (83.0%). A greater proportion reported a higher level of work, family interference in regards to living apart from family (76.2%). A marginal majority mentioned interference in regards to job reduces the amount of time they can spend with their family (54.7%) and the job takes so much energy they don't feel doing things that need attention at home (50.2%). 75.3% were to some extent interfered by problems at work made and them irritable at home. It was revealed that higher the level of financial insecurity, hours of work, job dissatisfaction, pressures at work, job insecurity, lack of support from colleagues/superior and family work interface greater was the prevalence of high stress ($p < 0.05$).

Discussion

The different degrees of stress when grouped as low and high stress, about one fifth (21.4%) were found to belong to a high-stress category. High stress was more common among PMAs (24.5%), PMTs (23.2%) and nurses (21.9%) in contrarily to doctors (11.7%) ($p < 0.05$). 78.6% hospital staff in Dehradun, India felt some sort of stress¹⁵. Evaluation of job stress among staffs of a hospital in Manipur, India observed that 33.9% of subjects were moderately and 13.4% were extremely stressed¹⁶.

Working long-unsociable hours and unpredictable work-hours were found high in the proportion who reported high work stress ($p < 0.05$). It was identified in Rohtak and Central Kerala of India, and United States that high stress among healthcare providers was due to long working hours, monotonous work and night shifts^{17,18,19}. It was observed that higher the level of financial insecurity and dissatisfaction in regards to the parameters of job satisfaction higher was the prevalence of high stress ($p < 0.05$). In North Carolina, 33% pharmacy technicians are found to be often/frequently stressed because of lack of job advancement opportunities and 60% because of inadequate pay²⁰. The working condition (67.9%) was revealed as a source of job stress among Malaysian nurses²¹.

It was identified that greater the level of encumbrance in regards to the parameters of pressures at works higher was the prevalence of high stress ($p < 0.05$). Only 12% nurses from Kerala found their workload could be handled easily¹⁹. The stress due to work and pressure was found in 56% and less than 7% felt that their job was secured. In North Carolina, 50% of the dispensing pharmacists often/frequently felt stressed that work could not be done adequately because there was so much work to do²⁰. Repetitive work (73%) and work overload (64.2%) was source of job stress among Malaysian nurses²¹.

It was observed that higher the proportion of feeling very or extremely worried about losing job and lack of help and support or lack of willingness to listen to work problems by colleagues/superior, greater was the prevalence of high stress ($p < 0.05$). The relationships between supervisors and nurses in Indonesia were the sources of stress at work. 59% of participants strongly agreed that there were power distance and limited access to their supervisors, which discouraged their job performance because they could not discuss their problems at work²². Inconsiderate/inequitable supervisor/matron (71.7%) was a source of job stress in Malaysia²¹.

The degree of family work interference was also enquired. A greater proportion of interference in regards to family-work interference, greater was the prevalence of high stress ($p < 0.05$). Nurses of West Greece reported higher levels of stress due to family-work conflict²³, 47% dispensing pharmacists in North Carolina likely to report that job conflicts with family responsibility as a frequent source of stress²⁰. The homelife of nurses of Maharashtra was disturbed due to night shifts, overtime and difficulty in getting leave²⁴.

This study attempted to assess the extent of occupational stress and the influence of work-related factors and family work interference on stress in health professionals of selected CMHs and expected to be very important source of information for intervention in managing occupational stress.

Conclusion

Occupational stress as assessed by using HPSI among the health professionals is found to be universal and about one fifth belonged to high work stress category which is certainly substantial for an organization. It is influenced by workplace environment, hours of work, financial security, job satisfaction, pressures at work, job security, support from colleagues/superiors and family-work interference. High stress is found to be more prevalent among the paramedics. Measures like workload-management, job-redesign, employee motivation and training should be taken to alleviate these stressors.

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