

Psychosocial and Physical Stressors among Healthcare Providers in Intensive Care Unit and Emergency and Trauma Department

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ABSTRACT

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Healthcare providers often reported having physical and mental stress. It may be due to stress-related health problems that contribute to a severe public health issue. This study aims to determine the psychosocial and physical stressors among healthcare providers in the Intensive Care Unit and the Emergency and Trauma Department of Hospital Sultanah Bahiyah, Alor Setar, Kedah. A descriptive cross-sectional study with a purposive sampling technique was conducted between July and August 2020. The Job Content Questionnaire was used as the measurement tool, and the data were analysed with descriptive and inferential statistics. A total of 140 nurses and medical assistants participated in the study. The findings show that although the respondents have good working condition, they experienced high physical stressors. The results indicated that the job control differed statistically and significantly for gender, job category, working area and working hours. It also revealed a significant difference between psychological job demand and working hours. Physical demand is associated with gender, marital status, job category, age and working hours. Lastly, the results indicated a statistically significant association between social support with gender and working area. It can be concluded that the male gender, specifically those working in ETD, have better working conditions. However, most of them, especially the younger medical assistants, male and single ones, reported experiencing physical demand. Healthcare providers who have long working hours (per week) also have high physical and psychological job demands. Therefore, special attention should be given to this group of healthcare providers to prevent them from suffering any physical and psychological harm and injury.

1. INTRODUCTION

Job stress is defined as a harmful physical and emotional response when job requirements do not match the workers' capabilities, resources, or needs (Lua & Imilia, 2015). Job stress is a negative emotional and physical response that may arise when employees' skills, capabilities, or needs do not meet the job requirements. In other words, it is an interaction between the work environment and the employee's characteristics and additional job requirements and pressures that renders the individual incapable of performing their tasks (Najimi, Goudarzi, & Sharifirad, 2012). It can also lead to burnout, mental exhaustion and has adverse effects on one's health. High job demands, discrimination, bullying, and perceived job insecurity are a few of the stressors identified at the workplace (Milner et al., 2018). Elements of work organisation and culture include attitude, values, and practices, affect employees' mental and physical health. This will impact the quality of care, client satisfaction, and healthcare providers' safety and patients (Burgess et al., 2010).

Job stress is harmful to healthcare providers. They may develop tiredness, harsh behaviour, anxiety, increased blood pressure, lack of self-confidence, lack of job satisfaction, and decreased work efficiency. It can cause depression, isolation from patients, absence, and a decrease in their performance. Work-related fatigue is one of the most common phenomena experienced by shift workers, especially among healthcare providers. According to a study, 91.9% of nurses complained of work fatigue (Ismail et al., 2019). Symptoms related to musculoskeletal disease, sleep disorder and mental health disorder come from psychosocial hazards, and it has been related to physical workload and psychosocial stress (Oakman et al., 2018; De Cieri et al., 2019). Psychosocial risk and burnout are also positively associated with quality of life and physical and psychosocial health (Asante et al., 2019). Arguably, healthcare providers working in a critical care setting, such as in the Emergency and Trauma Department (ETD) and Intensive Care Unit (ICU), are at greater risk of being affected by psychosocial work stressors. This is because work conditions are often hectic and unpredictable, with broad variations and constantly changing pathology received each day (Abdul Rahman, Abdul-Mumin, & Naing, 2017a). Psychosocial hazards have the potential to cause harm to an individual's health and safety, as well as other adverse organisational outcomes. If one were to look at the types of employers' issues regarding psychosocial risks, they would find references to workload, communication, and relationships at the workplace (Leka et al., 2015).

A study in the United States reported that nurses often do physically demanding jobs involving long working hours, contributing to a low level of leisure-time physical activity. They are also reported to have a high prevalence of musculoskeletal injuries (Nam et al., 2018). Next, a previous survey conducted in Ireland found that older nurses relatively have higher perceived stress from the physical workload and job strain (McCarthy et al., 2018). However, the study's sample was collected from teaching hospitals in Western countries, limiting the generalisation of the findings to eastern setting. Different from the previous studies, this study proposes psychosocial work environment factors as the most crucial component to consider when determining the workplace's health and safety. In Brunei, a study found an association between psychosocial, musculoskeletal disorders and fatigue due to excessive work among the healthcare provider (Abdul Rahman et al., 2017b), while a study conducted in Kuala Lumpur showed that almost 25% of nurses who participated in the study perceived occupational stress and nurses working in the medical department have higher stress than those who worked in other units (Sharifah Zainiyah et al., 2015). Nevertheless, the study was not conducted among healthcare providers in critical care units such as ICU and ETD. ICU and ETD are critical areas,

and these departments mainly provide care for life-threatening patients with severe conditions that need continuous and close monitoring.

Although literature on psychosocial and physical stressors among healthcare providers is abundant, limited study has focused on Malaysian northern region. Hence, the findings of this study will contribute new knowledge on psychological, social, and physical stress among healthcare providers especially in the northern part of Malaysia. A good understanding of the problem would enable proper intervention of existing practices and policies, specifically in a health-related area. This study aims to determine the psychosocial and physical stressors among healthcare providers in the ICU and the ETD of Hospital Sultanah Bahiyah, Alor Setar, Kedah. The research questions of the study were:

1. What is the score level of psychosocial and physical stressors of the healthcare providers?
2. Is there any significant association between psychosocial and physical stressors with the healthcare providers' characteristics?

2. METHOD

2.1 Design, Ethical Approval, and Sample

The design of this study is a descriptive cross-sectional survey. The study was conducted in the Intensive Care Unit (ICU) and the Emergency and Trauma Department (ETD) of Hospital Sultanah Bahiyah (HSB), Alor Setar, Kedah, from 1 July to 31 August 2020. Ethical approval was obtained from the UiTM Research Ethics Committee (600-TNCPI (5/1/6) and the Medical Research and Ethics Committee, Ministry of Health Malaysia (KKM/NIHSEC/P20-528(5)). Respondents in this study participated voluntarily, and respondents who decided to participate were asked to sign the consent form before their involvement. Respondents were informed about the study matter, and their confidentiality was maintained.

Purposive sampling was employed, and the sample size calculation was determined by Raosoft Software (2004). The total count of this population is approximately 185 healthcare providers. With a margin of error of 5% and a confidence level of 95%, a total of 126 respondents is considered adequate. However, 10% of respondents were added (adjusted for the non-response rate) from the actual sample size to a final sample size of 140.

The inclusion criteria of this study were registered nurses and medical assistants who engaged in clinical duty that included face-to-face contact with patients to give treatment and care. The exclusion criteria were medical officers who did not have direct clinical contacts with patient care, such as nurse managers, medical assistant supervisors and administrative staff. During the data collection period, nurses and medical assistants on maternity leave, sick leave or annual leave were also excluded from participating in this study.

2.2 Survey Instrument and Statistical Analysis

Data were collected using a set of questionnaires which were divided into two parts. Part A was to collect data on respondent's characteristics. It consists of seven items: age, gender, marital status, job category, working area, years of working experience and working hours per week. For Part B, this study adopted the Malay version of the Job Content Questionnaire from the

work of Amin et al. (2015) to measure the respondents' psychosocial and physical stressors. The scale comprises 33 items and is divided into four constructs: job control/ decision latitude (8 items), social support (8 items), psychosocial job demand (5 items) and physical demand (12 items). All these items were measured using a 4-point Likert scale, ranging from "strongly disagree", "disagree", "agree", and "strongly agree". Higher scores indicate better working conditions for the job control and social support domains. However, higher scores in the other two parts (psychosocial job demand and physical demand) indicate higher physical and psychosocial stressors (Amin et al., 2015).

A pilot study was done before conducting the actual study. The results revealed that the Cronbach Alpha for the instruments were acceptable for PPS ($\alpha=0.796$). For each sub-scale, the alpha value showed: job control was 0.761, psychosocial job demand was 0.854, physical demand was 0.970, and social support was 0.957. The data collected were analysed with IBM SPSS Statistics version 23. The descriptive and inferential statistics (i.e., Mann- Whitney test and Spearman Correlation Coefficient) were used for the analysis. A p-value of less than 0.05 was considered significant to reject the null hypothesis.

3. DATA ANALYSIS AND RESULT

3.1 Characteristics of the Respondents

A total of 140 healthcare providers participated in the study. On average, the mean age for the healthcare providers is 34.14 years (SD=6.12), the mean for years of working experience is 10.18 years (SD=5.48), while the average working duration per week is 44.91 hours (SD=4.73). Most of the respondents are female (n=115, 82.1%), married (n=107, 76.4%), registered nurses (n=111, 79.3%) and working in ICU (n=80, 57.1%). Table 1 shows the characteristics of the respondents.

Table 1. Characteristics of Respondents (N=140)

<i>Variables</i>		<i>Frequency (n)</i>	<i>Percentage (%)</i>
Age	Mean \pm SD	34.14 \pm 6.12	
	Working Experience	Mean \pm SD	10.18 \pm 5.48
	Working duration/week (hours)	Mean \pm SD	44.91 \pm 4.73
Gender	Male	25	17.9
	Female	115	82.1
Marital Status	Single	33	23.6
	Married	107	76.4
Working Area	ETD	60	42.9
	ICU	80	57.1
Healthcare Profession	Nurses	111	79.3
	Medical Assistant	29	20.7

3.2 Psychosocial and Physical Stressors of the Respondents

Table 2 shows the mean and standard deviation of four different categories of job content scale.

Table 2. Mean and Standard Deviation of Job Content Scale (N=140)

<i>Item</i>	<i>Job Content Scale</i>	<i>Mean</i>	<i>SD</i>	<i>Median</i>	<i>Interquartile range (IQR)</i>
Job control (min=18.00; max=32.00)		23.84	2.82	23.00	3.00
Q1	Learn new things	3.29	0.457	3.00	1.00
Q2	Repetitive job	3.18	0.498	3.00	0.00
Q3	Requires creativity	3.14	0.442	3.00	0.00
Q4	Allows own decision	2.58	0.700	3.00	1.00
Q5	High skill level	3.28	0.510	3.00	1.00
Q6	Various work	2.79	0.556	3.00	1.00
Q7	Lots of say	2.51	0.673	2.00	1.00
Q8	Develop own abilities	3.06	0.637	3.00	0.00
Psychological Job demand (min=10.00; max=19.00)		13.49	1.744	13.00	2.00
Q9	Work fast	3.24	0.493	3.00	1.00
Q10	Work hard	3.34	0.476	3.00	1.00
Q12	Conflicting demand	2.20	0.590	2.00	0.00
Q13	Hectic work	2.10	0.527	2.00	0.00
Q16	Free from pressure made by another	2.62	0.643	3.00	1.00
Social Support (min=15.00; max 32.00)		24.99	3.090	24.00	3.00
Q19	Supervisor is a good organiser	3.03	0.611	3.00	4.00
Q20	Supervisor pays attention	2.97	0.562	3.00	0.00
Q21	Helpful supervisor	3.03	0.562	3.00	0.00
Q22	Supervisor is a good organiser	3.04	0.574	3.00	0.00
Q23	Co-workers competent	3.25	0.482	3.00	1.00
Q24	Co-workers interest in me	3.16	0.499	3.00	0.00
Q25	Friendly co-workers	3.26	0.517	3.00	1.00
Q26	Co-workers helpful	3.25	0.467	3.00	1.00
Physical Demand (min=27.00; max 48.00)		35.32	4.304	34.00	6.00
Q11	Lots of physical effort	3.38	0.556	3.00	1.00
Q14	Moving/lifting heavy loads	3.24	0.622	3.00	1.00
Q15	Rapid physical activity	3.25	0.511	3.00	1.00
Q17	Awkward body posture	2.55	0.823	2.00	1.00
Q18	Awkward arms positions	2.32	0.671	2.00	1.00
Q27	Lifting and lowering to or from the floor	3.14	0.419	3.00	0.00
Q28	Lifting and lowering objects with shoulders	3.04	0.535	3.00	0.00
Q29	Bending or twisting waist while working	2.67	0.673	3.00	1.00
Q30	Pushing or pulling patients or objects	3.09	0.556	3.00	0.00
Q31	Standing in the same position	2.69	0.722	3.00	1.00
Q32	Repetitive movements with hands/wrists	2.87	0.644	3.00	1.00
Q33	Applying pressure with hands/fingers	3.09	0.617	3.00	0.00

The total mean for job control (mean=23.84, SD=2.82) and social support (mean=24.99, SD=3.09) are moderately high. These imply that most of the healthcare providers in this study have better working conditions. The psychological job demand (mean=13.49, SD= 1.74) has the lowest mean value, while the response to physical demand (mean=35.32, SD=4.30) has the highest mean score. It implies that most healthcare providers in this study consider themselves to have low psychosocial stressors but high physical stressors. It is reflected in Table 2 that the highest score in the physical demand domain is "Lots of physical effort" (mean=3.38, SD=0.56), followed by "Moving or lifting heavy loads" (mean=3.24, SD=0.62) and "Rapid physical activity" (mean=3.25, SD 0.51).

3.3 The Association between Psychosocial and Physical Stressors with the Respondents' Characteristics

The Mann-Whitney test was used to determine the association between job content and gender, education level, marital status, job category and working area (Table 3). The results indicated that the job content in the male group is statistically significant. In contrast, the opposite is found in the female group for job control, physical demand and social support ($p<0.05$). As for the association between job content and marital status, the finding reveals a significant difference in physical demand ($p<0.05$). Table 3 also shows a statistically significant difference for job category with job control and physical demand ($p<0.05$). Lastly, the results indicated a significant difference between a working area with job control and social support ($p<0.05$).

Table 3. The Differences Between Job Content Scale with Gender, Marital Status, Job Category and Working Area (N=140)

Group	Scale	n	Job Control		Psychological Job Demand		Physical Demand		Social Support	
			Mean Rank	Z	Mean Rank	Z	Mean Rank	Z	Mean Rank	Z
Gender	Male	25	92.28	-2.994*	57.06	-1.869	92.96	-3.070*	85.28	-2.106*
	Female	115	65.77		73.42		65.62		67.29	
Marital Status	Single	33	77.85	-1.203	78.27	-1.288	85.38	-2.423*	75.47	-0.843
	Married	107	68.23		68.10		65.91		68.97	
Job Cat.	Nurses	111	65.95	-2.621*	73.82	-1.935	63.36	-4.098*	68.01	-1.489
	MA	29	87.90		57.81		97.84		80.03	
Working Area	ICU	80	60.24	-3.491*	72.10	-0.551	70.58	-0.025	60.61	-3.488*
	ETD	60	84.18		68.37		70.40		83.68	

* $p<0.05$ statistically significant

The Spearman's rank-order correlation was used to determine the association between job content scale with age, working experience and working hours. Table 4 shows a weak negative correlation between age and physical demand group ($r_s=-0.246$, $p=0.003$). Meanwhile, the study shows a weak positive correlation between working hours with job control ($r_s=2.22$, $p=0.008$), psychological job demand ($r_s=0.285$, $p=0.001$) and physical demand ($r_s=0.200$, $p=0.018$).

Table 4. The Association between Job Content with Age, Working Experience and Working hours (N=140)

<i>Variable</i>	<i>Job Control</i>		<i>Psychological Job Demand</i>		<i>Physical Demand</i>		<i>Social Support</i>	
	<i>r_s</i>	<i>p-value</i>	<i>r_s</i>	<i>p-value</i>	<i>r_s</i>	<i>p-value</i>	<i>r_s</i>	<i>p-value</i>
Age	-0.091	0.282	-0.151	0.075	-0.246	0.003*	0.044	0.607
Working Experience	-0.061	0.477	-1.134	0.114	-0.123	0.149	0.014	0.874
Working Hours	0.222	0.008*	0.285	0.001*	0.200	0.018*	0.101	0.236

* $p < 0.05$ statistically significant

4. DISCUSSION

4.1 Characteristics of the Respondents

The results showed that a majority of the healthcare providers were female, nurses, married and working in ICU. The average age of the healthcare provider is 34 years, while the average number of years working is 10 years. The average duration of working hours per week in this study comes to about 45 hours, which is high in comparison to other settings. For example, in other countries like Australia and many other organisations, the average working hours are between 35 and 40 hours per week. The interchange between working time and commuting versus other aspects of human life might have caused stress to the employees (Milner et al., 2017).

4.2 Psychosocial and Physical Stressors of the Respondents

The study's primary objective was to determine the psychosocial and physical stressors among the healthcare providers. The findings showed that healthcare providers reported to have better working conditions and have low psychosocial stressors. As reported in the results, the healthcare providers claimed that working in this area enabled them to learn new things, requiring a high level of skills. Besides, they received good social support and were considered to have competent, friendly and helpful co-workers. Another factor contributing to this is that most of the respondents are married, whereby previous research had shown that married people have stronger mentalities (Bulloch et al., 2017).

However, the results showed that the healthcare providers have high physical stressors. Most of them reported that their job required a lot of physical effort, moving and lifting heavy loads, and performing rapid physical activity. Physical demand needs healthcare providers to use their physical effort to do the task that has been assigned to them. As a result of the various regulations, there are more time limits, physical demands and decision-making difficulties (Steege et al., 2015).

4.3 The Association between Psychosocial and Physical Stressors with the Respondents' Characteristics

This study showed an association between job control with gender, job category, working area, and working hours. The results indicated that males working as medical assistants in ETD, and staff with high working hours, reported better working conditions. Moreover, for the social

support subscale, it was found to have similar results. Male staff and those who worked in ETD reported having better working conditions. Thus, it can be concluded that those who work in the emergency unit have good working conditions.

Results also showed that there is a relationship between psychological job demand and working hours. Healthcare providers who have long working hours were reported to have high psychological job demands. Their superiors expect them to have skills in working hard and fast. Previous research had shown a substantial effect on exhaustion in relation to psychosocial factors, which include loss of job control and social support (Steege et al., 2015). Furthermore, job stress may lead to burnout, a type of emotional and mental stress, depersonalisation and a reduced sense of personal performance (Lua & Imilia, 2015).

The physical demand domain showed that young, male and unmarried medical assistants with high weekly working hours have more physical stressors. Previous studies have reported that the differences between the healthcare providers' physical capacity are increasing age and musculoskeletal disorders, which have been identified in middle-aged workers (35-44 years) due to the physical demand in their work (Bulloch et al., 2017). According to Mc Carthy et al. (2018), a relationship between physical workload and job pressure has been seen, with senior healthcare providers reporting higher perceived physical workload stress. In addition, staff working the night shift are confronted by increased stress because of their heavier workload than those in the day shift, but at the same time, the stress level of healthcare providers was the same regardless of their age group (Sharifah Zainiyah et al., 2015).

5. CONCLUSION

In conclusion, most respondents reported having a better working condition, low in psychosocial stress but high in physical stress. The results also showed that young, male, single, and medical assistants have more physical demands. Healthcare providers who have long working hours (per week) also have high physical and psychological job demands. It is hoped that the authorities will be able to assist this target group. The staff's duration of working hours/week needs to be refined, and they need to be referred to a counsellor if they develop symptoms of stress and burnout.

Even though some of the findings showed a significant relationship among the variables, we could not provide a definitive conclusion due to the respondents' uneven data distribution. The limitation of this study arose when the majority of the sample were data from nurses, female, married and working in ICU. Therefore, it is suggested that further research should be carried out at a larger scale to determine the relationship between the healthcare providers from other populations in relation to the psychosocial and physical stressors. Further studies may be conducted in other departments such as medical, surgical or psychiatric, and healthcare providers in other urban hospitals.

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APPENDIX

Appendix 1: Research instrument

<i>Item</i>	<i>Job Content Scale</i>	<i>Reliability score</i>	<i>Source</i>
Job control			
Q1	Learn new things		
Q2	Repetitive job		
Q3	Requires creativity		
Q4	Allows own decision	0.71	
Q5	High skill level		
Q6	Various work		
Q7	Lots of say		
Q8	Develop own abilities		
Psychological Job demand			
Q9	Work fast		
Q10	Work hard		
Q12	Conflicting demand	0.51	
Q13	Hectic work		
Q16	Free from pressure made by another		
Social Support			
Q19	Supervisor is a good organiser		
Q20	Supervisor pays attention		
Q21	Helpful supervisor		Amin et al., 2015
Q22	Supervisor is a good organiser	0.83	
Q23	Co-workers competent		
Q24	Co-workers interest in me		
Q25	Friendly co-workers		
Q26	Co-workers helpful		
Physical Demand			
Q11	Lots of physical effort		
Q14	Moving/lifting heavy loads		
Q15	Rapid physical activity		
Q17	Awkward body posture		
Q18	Awkward arms positions		
Q27	Lifting and lowering to or from the floor	0.84	
Q28	Lifting and lowering objects with shoulders		
Q29	Bending or twisting waist while working		
Q30	Pushing or pulling patients or objects		
Q31	Standing in the same position		
Q32	Repetitive movements with hands/wrists		
Q33	Applying pressure with hands/fingers		

AUTHOR BIOGRAPHIES

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