

ORIGINAL PAPER

Work-Related Stress Among Healthcare Providers of Various Sectors in Peninsular Malaysia

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Abstract

Objectives: Occupational stress among healthcare workers is an important concern due to its crucial contribution in attaining maximum job output and optimal quality of working life. Our study aims to compare job stress levels of healthcare employees based on 1) sector, 2) category and 3) specialisation. **Methods:** Stress *severity* and *frequency* were evaluated using the 9-point scale Job Stress Survey (Job Stress, Job Pressure, Lack of Support). A cross-sectional sample of 223 healthcare providers were enrolled from seven health institutions in Peninsular Malaysia (East Coast = 55%; mean age = 30 years; female = 78.9%; < 2 years experience = 35.9%; government-based = 48%; supportive = 62.8%). **Results:** No significant difference was found between government and private sector workers. Supportive staff reported significantly higher stress *frequency* in contrast to professionals who demonstrated significantly higher stress *severity* in all dimensions ($p < .05$). Within the supportive group, radiographers were the most stressed, followed by nurses and medical laboratory technologists ($p > .05$). Research-based professionals experienced significantly worse stress *frequency* in all components compared to professional practitioners ($p < .05$). **Conclusion:** Because stress levels are affected by job category and specialisation, flexible strategies to ensure employees' job productivity, contentment and personal well-being should be implemented.

Keywords: Work-Related Stress, Healthcare Provider, Peninsular Malaysia

Introduction

Internationally and locally, occupational stress has become an issue of great concern over the last decade. It represents an important concern among healthcare workers due to its crucial contribution in attaining maximum job output and optimal

quality of working life. Because the exact meaning and a universal definition of occupational stress has not been finalised, the term occupational stress has been commonly used interchangeably with job stress and work (or work-related) stress by previous researchers.

Job stress was defined as the harmful physical and emotional responses which occurred when the requirements of the job do not match the capabilities, resources, or needs of the worker¹. Additionally, it has also been referred to as the non specific negative response of the body to demand in the work place². Job stress is not necessarily considered as a detrimental thing as in the early stages, job stress can actually stimulate the body and enhance work performance. However, only when it is continuously stimulated and left unchecked that it would begin to affect a person's productivity^{3,4}, leading to possible unwanted consequences on a person's health. Even worse, job stress could result in burnout, a form of emotional and mental exhaustion, depersonalization and reduced sense of personal accomplishment⁵.

The past three decades witnessed a steadily escalating public concern on work-related stress due to its unfavourable effects on health and the consequent productivity, creativity and economic loss. Job stress is even more crucial in the healthcare industry due to the common problems of inadequate staffing, high public expectations, long work hours, exposure to infectious diseases and hazardous substances, threat of malpractice litigation and the constant encounters with death and dying. Studies indicated that healthcare workers have long been known to be a highly stressful group and were worryingly associated with higher rates of psychological distress than many other workers of different sectors⁶. The impact of these unwarranted outcomes did not only affect providers themselves, but it could also compromise patients' health and welfare.

Around the world, investigations have been widely conducted in the western societies but only limited studies have been documented among the Asian countries such

as Japan, Korea, Taiwan and China⁷. The latest studies have all pointed out that job stress plays a major role in health problems, occupational dissatisfaction and could ultimately lead to burnout syndrome. For instance, both diminished general health and mental health scores have been related to perceived occupational stress⁸. Work stress has also been singled out as the risk factor with the highest relevance for poor health, whereby its interaction with night shiftwork actually resulted in risk for poor sleep⁹. Other evidence of adverse effects on health include cardiovascular diseases¹⁰, psychiatric disorders¹¹, psychosomatic symptoms¹², menstrual patterns¹³ and in extreme cases, suicide¹⁴. In addition to a plethora of health consequences, job stress negatively affects work satisfaction and organisational commitment¹⁵ which could further reduce worker retention rates. These factors have been cited by healthcare employees as "somewhat or very" likely reasons for them to leave their position in the next 12 months¹⁶.

Accordingly, our study aimed to compare job stress levels of healthcare employees based on occupational sector (government versus private), category (professional versus supportive) and specialisation (specific job descriptions). The findings are deemed to provide an insight of work-related stress profiles among healthcare providers in Peninsular Malaysia, at least an overview of the most current situation. In the light of recent efforts from the country's higher authorities to increase healthcare service efficiency and performance in the midst of existing on-and-off public complaints, we believe that this investigation would supply some guide for future job stress management strategies in tandem with workers' own needs and views.

Methods

Study Design And Sample Selection

A prospective cross-sectional survey was carried out in seven identified public and private health institutions in Terengganu, Kelantan, Pahang, Selangor, Kuala Lumpur, Penang and Negeri Sembilan. Prior to respondent enrolment, a convenient sample of healthcare providers were randomly identified and verbally invited to participate by the researchers. Once voluntarily agreed, they were forwarded a package consisting of the Respondent Biodata Form and the Job Stress Survey¹⁷. Upon completion, representative from each institution gathered the instruments and sent them back to the Principal Investigator through pre-paid Post Express envelopes.

Respondent Biodata Form

Participants initially completed a socio-demographic survey entailing their gender (item 1), age (item 2), marital status (item 3), ethnic origin (item 4), employment (item 5), working place (item 6), duration of working experience (item 7), daily working duration (item 8), if they were having any part-time job (item 9), monthly income (item 10), smoking-related habits (items 11 and 12), alcohol-related consumption (items 13 and 14), stress experience (15), health problems (16) and medical leave taken due to stress (17).

Job Stress Survey (JSS)

The JSS represents one of the most widely-used instruments in the literature of occupational stress besides other established tools. Our study employed the original 30-item English version¹⁷, but with omission of item 1 which was provided as an example

question. Altogether, it contained two major job stress dimensions or scales i.e. *severity* and *frequency*. Each dimension contained 29 items which further constituted 10 items relating to Job Pressure (JP) and another 10 items asking about Lack of Organisational Support (LS). A further set of 9 items in each scale did not represent any specific component. The Job Stress Severity (JSS) was derived from the mean of all 29 *severity* items, while the mean of 29 *frequency* items gave the Job Stress Frequency (JSF). Multiplication of JSS and JSF finally produced the Job Stress Index (JSX). Similarly for JP, the mean of 10 severity and 10 frequency items generated the Job Pressure Severity (JPS) and Job Pressure Frequency (JPF) respectively, of which their product gave the Job Pressure Index (JPX). The same formula and calculation applied to the subscale for Lack of Organisational Support i.e. mean of 10 severity items = LSS; mean of 10 frequency items = LSF and $LSS \times LSF = LSX$. To aid clarification, a diagrammatic description is provided in Figure 1.

Statistical Analysis

Prior to analysis, data was entered and screened for inconsistencies or mistakes using licensed SPSS 14. Respondents' socio-demographic data was demonstrated descriptively and presented as frequencies and percentages. For categorical data, chi-square test for goodness of fit was conducted. Tests of data normality were carried out on the JSX to determine the nature of data distribution, of which our data failed to fulfill all the usual normality requirements. Outcomes were therefore consistent with a non-parametric distribution which prompted subsequent group score comparisons being tested via non-parametric Mann-Whitney and Kruskal-Wallis tests.

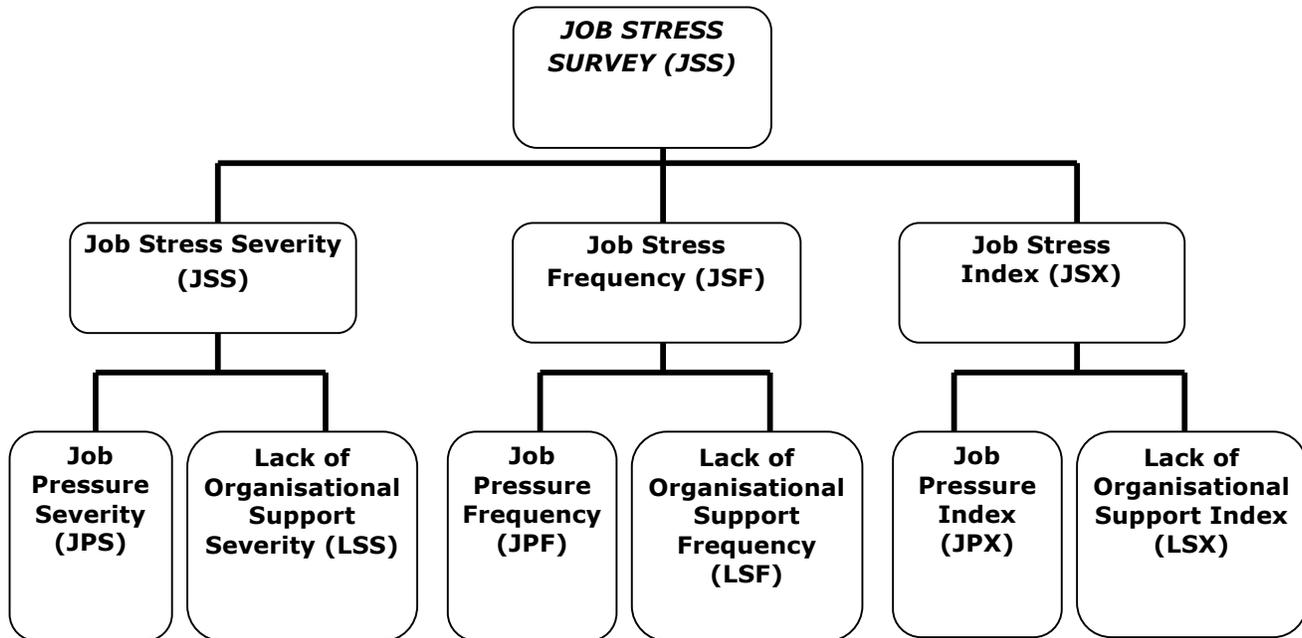


Figure 1. Diagrammatic representation of the JSS and its subscales.

Results

Demographic Characteristics of Respondents

A sample of 223 healthcare providers were enrolled from seven health institutions in Peninsular Malaysia (East Coast = 55%; West Coast = 45%) consisting of Hospital Sultanah Nur Zahirah (HSNZ), Kuala Terengganu (17.0%); Hospital Universiti Sains Malaysia (HUSM), Kubang Kerian (8.5%); KPJ Group Healthcare, Kuantan (29.6%); Pusat Perubatan Universiti Kebangsaan Malaysia (PPUKM), Cheras (13.5%); Institut Penyelidikan Perubatan (IMR), Kuala Lumpur (13.0%); Hospital Lam Wah Ee, Penang (9.0%) and Colombia Asia, Seremban (9.4%). Of these, four institutions were government-based (three teaching hospitals and one research institute) while three were private-based organisations.

From the 223 respondents, majority was female (78.9%), single (51.1%), Malay (72.6%) with a mean age of 30 years (SD=7.7), ranging from 21 to 56 years old. More than two-thirds (78.0%) were in the range of 21 to 35 years old. Thirty-six percent possessed less than two years of work experience. The average working hour was eight hours per day for most of them (range = 1-10 hours) and over 95% did not have a part-time occupation. Approximately 42% had monthly earnings of between RM2001-RM3000. Sector-wise, 48% of the respondents were working in government-based sector while another 46.6% stayed in private-based sector. More than half were considered as supportive staff category (62.8%), which consisted of nurses, radiographers and medical laboratory technologists (MLTs). Doctors, pharmacists and research officers were all categorized as healthcare professionals, the former two groups considered as “professional practitioners” while the latter being

“research-based professionals”. In terms of job specialisations, nurses made up the most percentage with 31.8%, followed by pharmacists (16.6%), radiographers

(15.7%), MLTs (15.2%), research officers (8.1%) and doctors (3.1%). Table 1 provides the detailed descriptions.

Table 1. Demographic characteristics of healthcare providers (n=223).

Characteristics	Frequency	Percentage	p value*
Gender			<.001
Male	47	21.1	
Female	176	78.9	
Marital status			<.001
Married	106	47.5	
Single	114	51.1	
Divorced / Widowed	3	1.3	
Race[†]			<.001
Malay	162	72.6	
Chinese	43	19.3	
Indian	13	5.8	
Others	4	1.8	
Job Sector			<.001
Government-Based	107	48.0	
Private-Based	104	46.6	
Others (Unidentified)	12	5.4	
Job Category			<.001
Professionals (grade U41 and above)	62	27.8	
Supportive (below grade U41)	140	62.8	
Others (Unidentified)	20	9.0	
Job Specialisation[†]			<.001
Doctor	7	3.1	
Pharmacist	37	16.6	
Research Officer	18	8.1	
Nurse	71	31.8	
Radiographer	35	15.7	
Medical laboratory technologist	34	15.2	
Others	20	9.0	
Working Experience			0.665
< 2 years	80	35.9	
2-5 years	69	30.9	
> 5 years	74	33.2	
Monthly Income[†]			<.05
< RM 2000	63	28.3	
RM 2001-RM 3000	93	41.7	
> RM 3000	65	29.1	

* Chi-square test for goodness of fit. [†] Total percentage not 100% due to missing data.

Job Stress: Overall Description

Our sample of healthcare providers provided an overall impression of a moderate level of work-related stress particularly in terms of stress severity. Mean ratings for JSS, JPS and LSS ranged from a very narrow interval of between 5.1 to 5.2 whereas frequency evaluations ranged from 2.7 to 3.0 for JSF,

JPF and LSF. From readings of the indices - JSX, JPX and LSX, the combination effects of job stress severity and frequency could be considered low. Among the three important aspects examined, job pressure emerged as the main factor which exerted comparatively higher stress levels. A general picture is depicted in Figure 2.

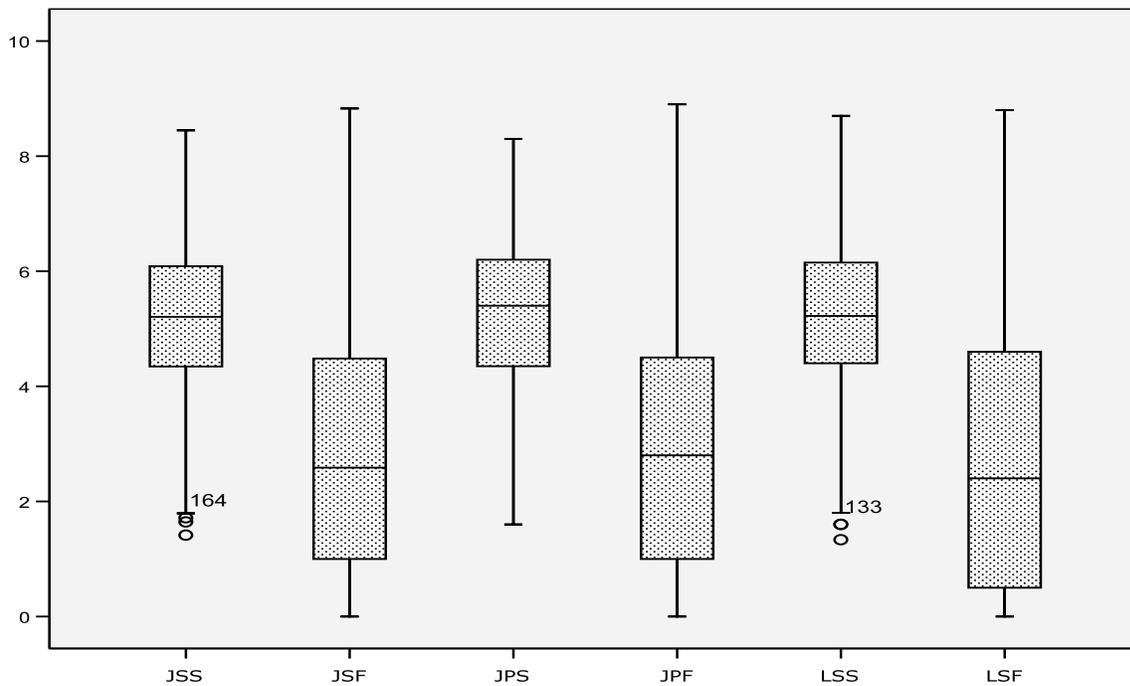


Figure 2. Box-whisker plot showing a general description of the level of job stress within a sample of healthcare providers in Peninsular Malaysia.

Indices are not shown due to being disproportionately off-scale on this plot.

Job Stress: Comparisons By Job Sector

Between both the government-based and private-based sectors, no significant difference was found in terms of stress severity, frequency and index ($p > .05$). Closer examination of the mean rank

however indicated that the government healthcare providers were generally experiencing more occupational stress than those in the private sector in the majority of job stress dimensions – Figure 3. The latter group was only relatively worse off with regard to JPF and JPX.

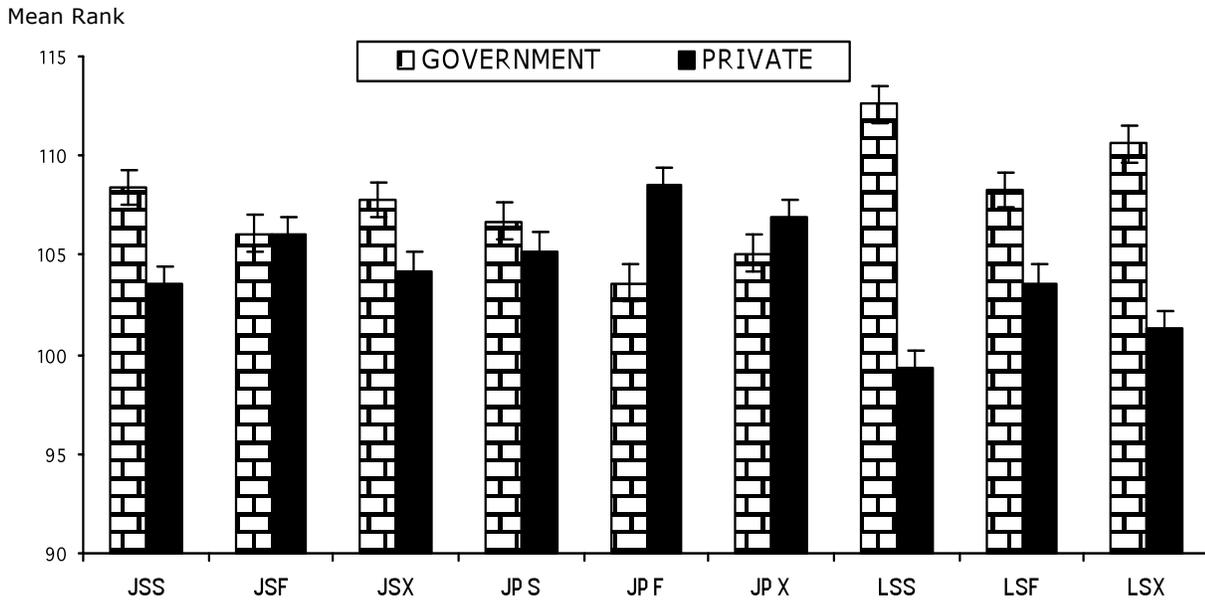


Figure 3. Work-related stress among government versus private healthcare workers.

Job Stress: Comparisons By Job Category

Overall the supportive workers were more frequently stressed as they reported

significantly higher JSF, JSX, JPF, LSF, JPX and LSX. On the other hand, the professionals demonstrated significantly higher stress severity in JSS, JPS and LSS ($p < .05$) – Figure 4.

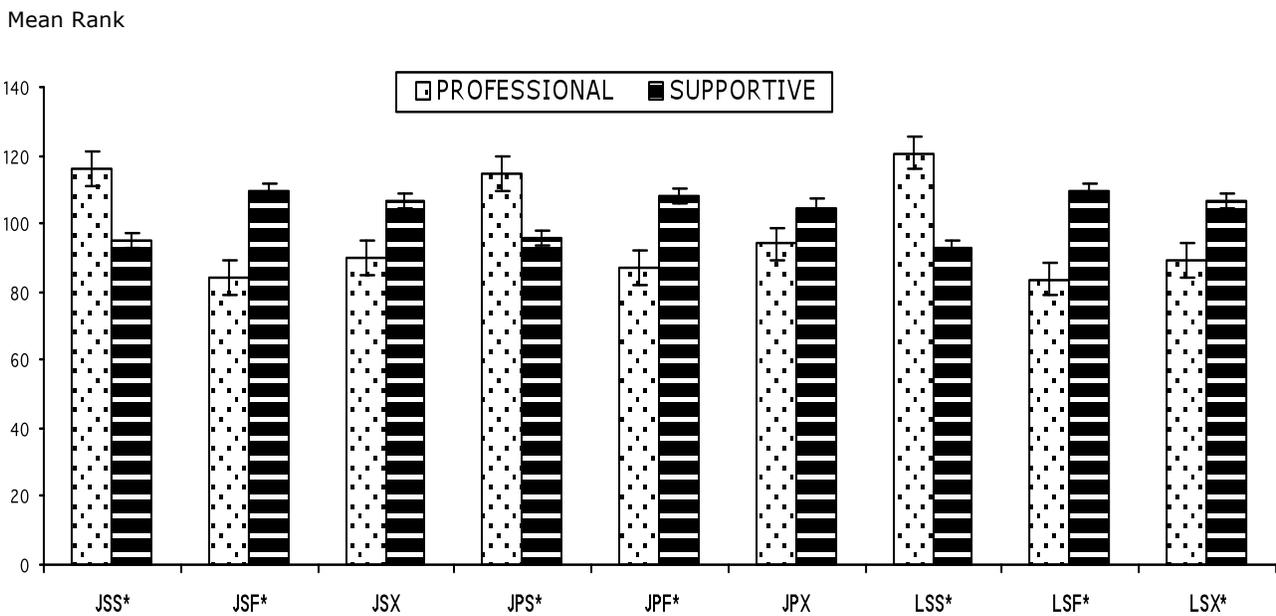


Figure 4. Work-related stress levels: Professionals versus Supportive staff.

* $p < .05$

Job Stress: Comparisons By Job Specialisation

Within the supportive group, radiographers were the most stressed, followed by nurses and medical laboratory technologists but these differences did not reach statistical significance – refer to Table 2. Comparisons within the professionals' group revealed that

research-based professionals reported significantly worse stress *frequency* in all components compared to professional practitioners ($p < .05$). This former group of workers also indicated higher level of work-related stress in JSS and LSS whereas job stress was only comparatively worse for professional practitioners in JPS ($p > .05$). Figure 5 illustrates these findings.

Table 2. Job stress comparisons within healthcare providers in the supportive category.

Job Stress Dimension	Nurse		Radiographer		MLTs		p value*
	Median	Mean Rank	Median	Mean Rank	Median	Mean Rank	
JSS	5.1	71.3	5.1	73.9	4.9	65.4	.668
JSF	3.3	70.8	4.1	78.5	2.3	61.7	.226
JSX	15.8	70.3	18.7	78.7	9.7	62.6	.258
JPS	5.3	73.2	5.2	71.3	5.0	64.0	.549
JPF	3.6	72.6	3.6	74.4	2.8	65.2	.376
JPX	16.4	71.8	17.2	74.6	12.6	63.6	.490
LSS	4.8	67.1	5.1	77.9	4.9	70.0	.433
LSF	3.1	69.9	4.1	79.8	1.9	62.1	.188
LSX	12.7	68.5	20.6	81.7	7.3	63.1	.135

* Kruskal-Wallis test.

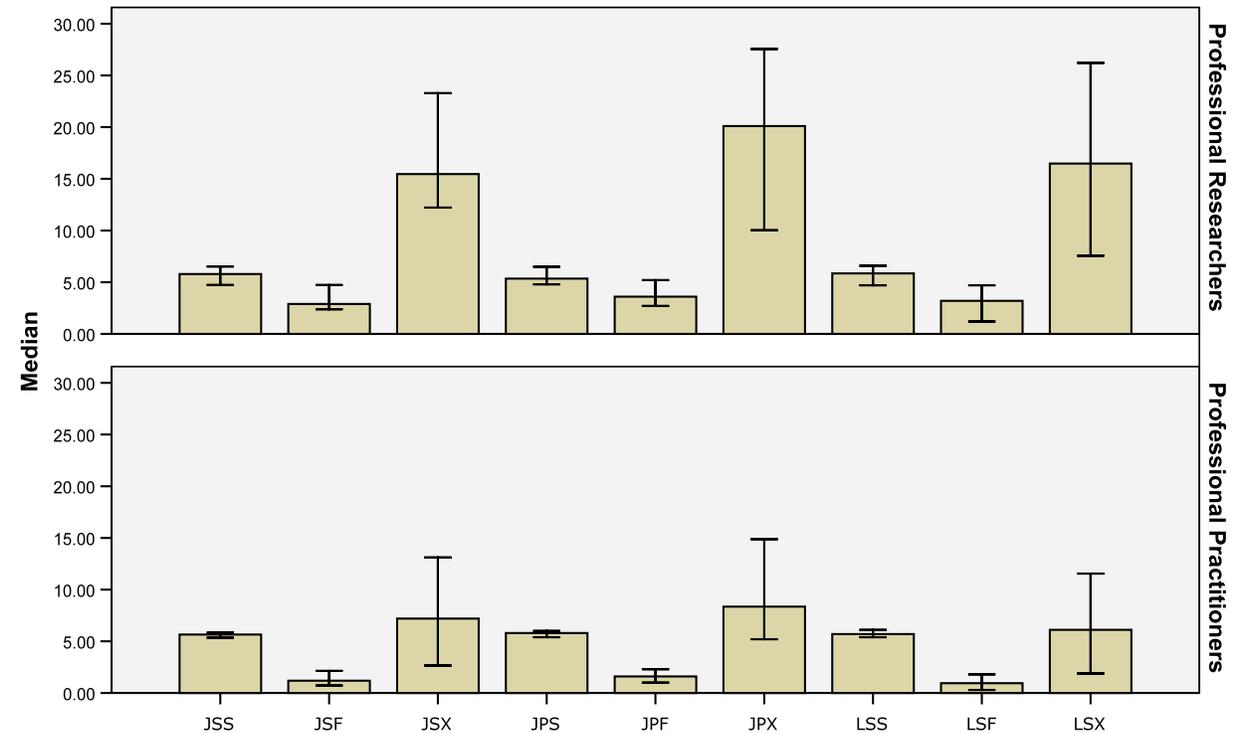


Figure 5. Job stress comparisons between professional practitioners and professional researchers. Error bars represent 95% confidence interval.

Discussion

In view of the escalating demands from both the health authorities and the society alike for high quality services in the midst of increasing outbreaks and health concerns, the existence of work pressure should also not be allowed to go unaddressed. As human beings, healthcare workers are still equally vulnerable to the negative impact of job pressure which could in turn compromise patient care and result in diminished quality of life for both parties⁹. In extreme cases, patients’ safety also became a concern¹⁸. Consequently, the health and well-being of members of the healthcare team themselves should always be scrutinized to ensure the best outcomes for patients.

This preliminary study was undertaken to primarily investigate if occupational sector,

category and job description exert influence on healthcare providers’ work-related stress levels in the Malaysian scenario, particularly in Peninsular Malaysia. The general stress at work status for all the providers sampled was rather low to moderate, indicating that the situation is still manageable. However, work stress could be made worse by the need to handle sporadic global outbreaks of highly-infectious diseases such as Nipah Encephalitis, Avian Influenza (H5N1), SARS and most recently Influenza A (H1N1) which are spread in extreme rapidness due to the advances in air travel all over the world.

Despite showing no significant differences, the work-related stress trend among government officers seemed to be on the relatively higher side compared to private sectors. This was unexpected, because the

general perception holds that working in the private sector consume longer hours and heavier workload, therefore leading to greater stress level. Nonetheless, the current situation could have changed as the public hospitals are increasingly receiving higher number of patients from all backgrounds with accompanying demand for fast, high quality services. On the other hand, only a certain strata of the society could afford the huge fees charged by private hospitals, hence the lower number of people they cater for. Privatised healthcare institutions also possess stronger resource support in term of available start-of-the-art facilities and equipments, in contrast to government-funded hospitals. Additionally, it is also a noticeable trend that many health senior professionals (especially doctors) have chosen to work in the private sectors after completing their compulsory government service, thus facilitating patient management compared to the majority of younger, inexperienced workers handling sheer number of cases in government hospitals, inevitably leading to work pressure. Essentially, occupational workload is in reality much higher in these institutions. As previously outlined, perceived occupational stress has been associated with young age and low workplace support⁸. Studies all around the world have also repeatedly shown that role/work overload consistently represents one of the main job stressors in the healthcare sector¹⁹⁻²¹. Because employee workload has been identified as one of the precursors to burnout syndrome among healthcare workers, administrators should be attentive to its early signs in order to promote morale and productivity²².

Nonetheless, it was apparent that the supportive staffs were encountering job stress more often than their professional counterparts. In parallel with our findings, in a study among Taiwanese psychiatric

nurses, 17.2% complained of being under significant stress “often or always”⁸. Further, an Australian study pointed out that nurses felt stressed on a daily basis of which patient behaviour and unrealistic expectations were the key inducing factors²³. The problem seemed more apparent for the radiographers and unsurprisingly, significant stress-related health consequences had been documented among radiographers²⁴ while biomechanical stress has been detected in all anatomical regions studied in medical radiographers²⁵. Although the actual reasons were not examined in our sample, it could likely be due to heavy work burden as a consequent of shortage of personnels. Based on our personal observations, in addition to handling numerous cases per day with a limited number of staff, the technical aspects of the X-ray procedure which require sensitive operational care could additionally contribute to work pressure. Another reason could be their moderate level of understanding the English questionnaire as our research assistants indicated that majority were interviewer-administered. Among others, inter-professional conflicts²⁶, high workload and lack of decisional involvement^{20,26} plus feeling frustrated and powerless²⁷ have been cited as reasons for experiencing role stress, particularly among nurses in a variety of healthcare settings. It is hence not unexpected that supportive healthcare staff in general, who possessed little control and authority in their job continue to indicate the existence of work-related stress.

Despite occurring less frequently, our respondents indicated that once encountered, job stress among medical professionals was worse in its intensity. Understandably, the job description, responsibility and burden faced by professionals are clearly different than supportive workers. Within the same cohort, stress also differed in terms of their

specific responsibilities i.e. examining patients or conducting research. It was possible that constant time pressure, dealing with difficult patients and maintaining high levels of concentration were the stress-related problems for professional practitioners²⁸. For some physicians, high level of distress stemmed from being assigned to both clinical and administrative responsibilities²⁹, a phenomenon very similar in our Malaysian scenario. Besides looking after the patients, they were also consistently required to assume administrative roles, attend meetings/courses, completing forms and handling public complaints. On the other hand, those involved in research duties faced even more severe and frequent stress-related problems. This could range from instrumental technicalities, training research assistants, preparing proposals/reports, presenting/writing scientific papers to securing research funding. Comparatively, practicing professionals would be less stressed when not consulting patients whereas the nature of the researchers' problems did not heavily depend on patients. This was because emotional exhaustion and occupational distress have been shown to be present in higher percentage of oncologists with direct patient contact compared to those without³⁰. Intriguingly, the addition of academic duties somehow reduced physicians' distress as these were viewed as advancing medicine²⁹, probably a pleasurable respite from dealing with patients' expectations. With further possibility of litigation and ethical threats, the overall predicament of healthcare professionals was clearly more serious than the supportive workers and requires a different set of dealing strategies.

The limitations of our study included one glaring aspect on the use of English JSS which many respondents whom we

personally observed could not adequately comprehend. This was especially prominent among the supportive workers and could have affected their responses. However, the internal consistency reliability for all JSS scales ranged from 0.894 to 0.965, well surpassing the usual threshold value of 0.700. Secondly, many did not complete the Section 2 (Frequency of Occurrence) either because of boredom in having to answer similar repetitive statements or because they did not actually experience the stress-related situations given (percentage of zero score ranged from as low as 29.1% to 48.4% for all items). We have unfortunately no reliable means to confirm these. Thirdly, due to routine busyness the enrolment rate for physicians was rather small – resulting in the majority of professional views reflecting the pharmacists' and research officers' opinions.

Nevertheless, our findings did generate some useful outcomes and indications to be brought to the attention of employers. In response to the common occupational stress phenomenon, various types of programmes have been introduced for healthcare workers. In Japan, a web-based stress management training programme has demonstrated some positive impacts on job stress³¹ while performance recognition has been proven to impose a direct buffering effect on job stress³². In addition, some investigators have also recommended matching physical and emotional job resources to job demand in order to counteract the consequent ill-being³³. A study among nurses in Jordan has indicated that emotional support was the most supportive social behaviour in dealing with stress when confronted with patients' death and dying issues³⁴.

Similarly in Malaysia, employers should continue to assess their employees' stress

status and embark on initiatives to provide appropriate resources, programmes and support to minimise as well as cope with the occurrence of harmful work-related stress. Time management, anger management, relaxation exercises, family day, reasonable shift schedules, participation in decision-making, power delegation, coping strategies and realistic work expectations would allow employees to have more fulfilled occupational responsibilities. Positive coping mechanisms have also been associated with better job satisfaction³⁵. Hence, training employees to master stress resilience capacity could be attempted because it has recently been shown to be a beneficial motivational factor³⁶.

We conclude that the overall level of work-related stress among the Malaysian healthcare employees was still within adequate management. However, certain job category and specialisation such as supportive staff, particularly radiographers require closer attention due to their comparatively higher level of stress. Medical professionals too, must be vigilant of the detrimental effect of job stress severity on their well-being. Continuous investigations into occupational needs, demands and stressors in the healthcare sector are definitely warranted.

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