



Brief Communication

## Comparison of stress levels between physicians working in public and private hospitals in Johor, Malaysia



Amirul Hafiz, Foundation<sup>a</sup>, Soelaiman Ima-Nirwana, PhD<sup>b</sup> and Kok-Yong Chin, PhD<sup>b,\*</sup>

<sup>a</sup> *ASASiPintar Foundation Programme, PERMATApintar National Gifted Centre, Universiti Kebangsaan, Malaysia*

<sup>b</sup> *Pharmacology Department, Universiti Kebangsaan Malaysia Medical Centre, Kuala Lumpur, Malaysia*

Received 14 November 2017; revised 8 January 2018; accepted 14 January 2018; Available online 20 March 2018

### Abstract

**Objectives:** Physicians are known to experience a high level of stress due to the profession itself, as well as due to factors related to the workplace, patient care, and work-life balance. Owing to the nature of public and private hospitals in Malaysia, physicians working in different settings are expected to have different levels of stress. However, there is no study to validate this assumption. The present study aimed to compare stress levels between physicians working in public and private hospitals in the state of Johor, Malaysia.

**Methods:** Participants were selected via stratified sampling. Participants completed an online questionnaire comprising demographic details and the Health Professional Stress Inventory. Scores on each domain and the aggregate scores were compared between physicians in public and private hospitals using a univariate analysis adjusted for potential confounders.

**Results:** The overall stress level between physicians in public and private hospitals was similar. However, physicians in private hospitals experienced a higher stress level related to patient care responsibilities and professional uncertainty as compared to those in public hospitals.

**Conclusion:** Physicians from private hospitals experience stress in different aspects of their profession as compared to physicians in public hospitals, especially with reference to patient care and career uncertainty. Measures should be taken to relieve the stress of physicians and thus improve their wellbeing.

**Keywords:** Burnout; Emotional stress; Health professions; Mental suffering; Physicians

© 2018 The Authors.

Production and hosting by Elsevier Ltd on behalf of Taibah University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### Introduction

Stress is a physiological and/or emotional reaction to an environment, event, or stressor that causes distress.<sup>1</sup> Though we are in an era of comfort and consolation, there is a surplus of rising demands that strain human beings physiologically and psychologically.<sup>2</sup> Occupational stress, defined as a physical or psychological disorder associated with an occupational environment, can affect the working environment and endanger the well-being of the workforce.<sup>3</sup>

Healthcare workers, especially medical practitioners, are prone to stress as well as other occupational health risks. A study conducted in KSA showed that public health sector employees are among those who have the highest level of stress as compared to employees from other sectors.<sup>4</sup> Physicians have a higher risk of stress as compared to other occupations.<sup>5</sup> Being in a profession which has a direct impact on human life is the main contributor of stress among physicians.<sup>6</sup> Other stressors are related to the

\* Corresponding address: Department of Pharmacology, Level 17, Preclinical Building, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.

E-mail: [chinkokyong@ppukm.ukm.edu.my](mailto:chinkokyong@ppukm.ukm.edu.my) (K.-Y. Chin)

Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

profession, the organization/workplace, the ability of physicians to handle stress, their relationships with other people, and work-life balance.<sup>5</sup>

Physicians in public and private hospitals could experience different stress levels. In public hospitals, usually a joint effort and synergy is observed among physicians of the same rank, but there could be a feeling of dominance against higher ranked physicians. The presence of a distinct hierarchy and the existence of positions such as trainee officers/housemen could amplify the problem. Junior physicians are usually affected if conflicts with their superiors are not addressed appropriately.<sup>2</sup> In private hospitals, cooperation between physicians might be less as compared to public hospitals since most of their work is individualized. The lack of cooperation could be a source of stress. On the other hand, the issue of senior–junior relationships is less obvious.

At present, there are several studies on stress among physicians, but most have been conducted in Western countries.<sup>7</sup> Fewer studies have been conducted to understand the stress level among physicians in public and private hospitals in Malaysia. Therefore, the present study aimed to compare the stress levels of physicians working in public and private hospitals in Malaysia. Specifically, the current study wished to understand some of the major contributors of stress among physicians from these two types of hospitals. Therefore, it was postulated that physicians working in a public hospital have a higher stress level as compared to those working in a private hospital, owing to higher workload, as indicated by previous researchers.<sup>2</sup>

## Materials and Methods

### Participants

A stratified sampling technique was used in this study. A list of all private and public hospitals in Johor, Malaysia was obtained and an invitation to participate was sent to all the hospitals. All the physicians working in the hospitals that decided to participate were contacted through email, either by the researchers personally or through the hospital management. An information sheet, a consent form, and an online questionnaire were emailed to the selected participants. They were given one month to complete the questionnaire. If participants did not respond to our email, it was assumed that they did not agree to participate. Participants working full-time in either a public or private hospital in Johor were included. Those who were not involved in working with patients (e.g., those involved in full-time administrative work), those working in both public and private hospitals concurrently, and those unable to complete the questionnaire were excluded.

### Ethical consideration

The protocol of this study was reviewed and approved by the ethics committee of Universiti Kebangsaan Malaysia (reference number: UKM PPI/111/8/JEP-2017-015) and Medical Research and Ethics Committee, Malaysia (National Medical Research Register ID: NMRR-17-38-33901).

### Sample size calculation

From a previous article by Aslam et al. (2013),<sup>2</sup> the following information was derived:  $\mu_1 = 2.997$ ,  $\mu_2 = 2.187$ ,  $\sigma = 1.39$ ,  $\alpha = 0.05$ , power = 0.80. Using the formula:  $n = (Z_{\alpha/2} + Z_{\beta})^2 * 2 * \sigma^2 / d^2$ , it was calculated that at least 47 physicians were needed for each study group. Considering a dropout rate of 20%, the sample size was determined as 57 physicians each from both public and private hospitals.

### Questionnaire

The Health Professions Stress Inventory (HPSI) was used to assess the stress level of the participants.<sup>8</sup> This questionnaire consists of 30 close-ended items, including questions concerning the life of a physician, across the four domains of patient care responsibilities, professional uncertainty, professional recognition, and job conflict.<sup>9</sup> The participants were asked to evaluate their stress level for each of the situations described in the questionnaire using a scale ranging from 0 = Never to 4 = Always. The questionnaire was previously validated, with a Cronbach's alpha coefficient of 0.88 for physicians.<sup>8</sup> It was supplemented with demographic questions and an open-ended question asking for suggestions to reduce stress among physicians.

### Statistical analysis

The normality of the data was assessed using the Kolmogorov–Smirnov test. The differences in the characteristics between physicians from the public and private hospitals were analyzed using the Pearson's Chi-square test because they were categorical data. Confounders affecting the relationship between workplace and stress were determined using an analysis of covariance (ANCOVA). The differences in HPSI scores between the physicians from public and private hospitals were assessed using a univariate analysis with adjustment for the confounders identified through the ANCOVA. Statistical significance was defined as  $p < 0.05$ . Statistical analysis was performed using Statistical Package for the Social Sciences version 23.0 (IBM, Armonk, USA).

## Results

An invitation to participate was sent to 12 public and 12 private hospitals in Johor, Malaysia, but only 136 participants from 10 public (70 participants) and 7 private hospitals (58 participants) completed the survey. Eight responses were rejected (3 participants worked for both public and private hospitals concurrently, 3 held administrative positions, and 2 returned incomplete questionnaires). The data from 128 participants were used for the final analysis.

The participants from the public and private hospitals were similar in terms of sex, ethnicity, and motivation to become physicians ( $p > 0.05$ ). However, most of the participants from private hospitals were consultants and specialists, and none were medical officers ( $p < 0.05$ ). Participants from private hospitals were also older and had a higher

monthly income compared to those from public hospitals ( $p < 0.05$ ) (Table 1).

Only position in the organization and sex were identified as the potential confounders in the analysis of stress and workplace factors of the physicians, and accordingly, they were controlled in the subsequent analyses. In general, the HPSI scores of participants working in private hospitals were higher compared to those of participants working in public hospitals, but this difference was not statistically significant ( $p > 0.05$ ). An analysis of each HPSI domain revealed that participants working in private hospitals suffered from higher stress in patient care responsibilities and professional uncertainty as compared to their counterparts working in public hospitals ( $p < 0.05$ ). The stress level between the two groups did not differ significantly with reference to professional recognition and job conflict ( $p > 0.05$ ) (Table 2).

A total of 22 and 14 open suggestions to reduce stress level were received from physicians working in public and private hospitals, respectively. Enhancement of the stress management skills of physicians through maintaining a work-life balance, engaging in physical activities, and maintaining a positive attitude towards work and life were the most frequently suggested methods by both groups. Improving workload distribution was another frequent suggestion in both groups. Physicians in public hospitals indicated the need for involving junior physicians in decision making and improving the working environment. In contrast, physicians in private hospitals hoped for a better integration between the public and private healthcare systems in Malaysia. The rest of the suggestions have been presented in Table 3.

## Discussion

The work of physicians is very demanding because they make life and death decisions daily. They also have to handle administrative tasks as well as pressures from peers and

superiors, and they need to maintain work-life balance. The present results defied our initial speculation that physicians working in public hospitals would have a higher stress due to higher workload and higher number of patients. Instead, the overall stress level between physicians working in public and private hospitals was similar. The present sample did not include any medical officer from private hospitals. However, this group comprised a higher number of consultants and specialists. This is because most private hospitals in Malaysia are specialist centers and do not offer the position of a medical officer. The characteristics and responsibilities of physicians working in public and private hospitals participating in this study could have been different. Therefore, a more detailed analysis was performed based on each domain of the HPSI.

It was found that physicians in private hospitals faced significantly higher stress related to patient care responsibilities. Since patients in private hospitals are full-paying patients, their expectations regarding the medical services provided by the physicians could be higher. They might be more demanding than patients in public hospitals are, thus contributing to the higher stress experienced by the physicians in private hospitals. Further, physicians in private hospitals also face higher professional uncertainty, probably due to high job turnover and the lack of job security. In comparison, physicians in the public sector are government servants entitled to pensions as well as fixed salary increments and career advancement. This could result in a higher commitment to the organization among the public physicians as compared to that among the private physicians. This is evident from the open-ended feedback provided by the physicians from private hospitals in this study, whereby enhancing benefits and more involvement of physicians in decision making were listed as ways to reduce their stress. However, the results of this study are different from those of a Finnish study conducted by Heponiemi et al. (2010). They found that private physicians had higher job satisfaction, higher organizational commitment, and lesser stress as

**Table 1: Characteristics of the participants.**

Variables	Categories	Public hospital (n = 70)	Private hospital (n = 58)	Total	p-value
Sex	Male	36	36	72	0.283
	Female	34	22	56	
Marital status	Single	29	2	31	<0.001
	Married	41	56	97	
Age (years)	21–30	33	0	33	<0.001
	31–40	19	7	26	
	41–50	17	39	56	
	51–60	1	12	13	
Ethnic group	Malay	32	25	57	0.847
	Chinese	22	21	43	
	Indian	16	12	28	
Position	Medical officer	48	0	48	<0.001
	Specialist	17	19	36	
	Consultant	5	39	44	
Income (RM)	5000	23	0	23	<0.001
	5001–10000	28	0	28	
	10001–15000	15	0	15	
	15000–20000	4	10	14	
	>20000	0	48	48	
Motivation to become physician	Personal Interest	59	52	111	0.44
	Other factors including family pressure	11	6	17	

**Table 2: Differences in stress levels among physicians working in public and private hospitals.**

Workplace Domains	Minimum and maximum possible score	Public hospital (n = 70)		Private hospital (n = 58)		p-value
		Adjusted mean	95% CI	Adjusted mean	95% CI	
Professional recognition	0–32	9.8	8.3–11.2	10.5	8.9–12.1	0.571
Patient Care responsibilities	0–28	13.5	12.2–14.9	16.4	14.9–18.0	<b>0.018</b>
Job conflicts	0–32	15.2	13.9–16.5	14.8	13.3–16.3	0.723
Professional uncertainty	0–28	8.6	7.3–9.8	11.8	10.4–13.2	<b>0.006</b>
Global score	0–120	47.1	42.4–51.7	53.5	48.2–58.8	0.129

The embolded p-values are statistically significant.

**Table 3: Suggestions to reduce stress levels among physicians.**

Public hospitals	Frequency	Private hospitals	Frequency
Improve stress management skills of physicians	5	Improve stress management skills of physicians	4
Improve distribution of workload	5	Improve distribution of workload	4
Improve working environment	3	Improve integration between public and private hospitals	3
Involve junior physicians in the decision making of the hospital	3	Involve physicians in the decision making of the hospital	1
Improve the benefits or wages provided to physicians	2	Remove gender bias	1
Improve the resource management of the hospital	2	Improve the benefits provided to physicians	1
Improve post-residency training	1		
Improve integration between public and private hospitals	1		
Total suggestions	22		14

compared to physicians in public hospitals.<sup>10</sup> They explained that this difference could be attributed to the higher level of organizational justice and better management experienced by private physicians.<sup>10</sup> However, it is unclear whether Malaysian physicians faced the reverse situation.

The present study also revealed other factors influencing stress level among medical physicians apart from those related to the hospital setting. Our ANCOVA results indicated that position/rank and sex were the most important confounding factors. Junior physicians and medical officers might experience higher stress due to pressure from their superiors. Another survey found that emotional burnout was prevalent among medical residents in Malaysia.<sup>11</sup> Factors contributing to burnout were time pressure, fear of committing mistakes, relationship with supervisors, and biased assessment from supervisors.<sup>11</sup> This is also evident from the open feedback provided by the participants in the present study, whereby physicians in public hospitals indicated that the opinions of junior physicians should be heard. Sex was also an important confounding factor. This might be related to more home and parenthood responsibilities among female physicians and sex differences in personality. These factors were controlled in the analysis because they were not the main focus of the current study.

Several limitations of this study need to be considered. Since the scope of this study was confined to hospitals in Johor, it might not be representative of the whole country. A more well-planned nationwide study should be conducted to obtain such data. Other studies have shown that physicians working in certain departments could experience higher stress levels.<sup>11</sup> However, this was not considered in the present study. Nevertheless, this is the first study in Malaysia that compared the stress levels between

physicians working in public and private hospitals. It is hoped that this work would promote steps to reduce stress levels among the physicians to ensure their wellbeing.

### Conclusion

Physicians in private hospitals in Johor, Malaysia had a higher level of stress related to patient care responsibilities and professional uncertainty as compared to those in public hospitals. However, the overall stress level between them was similar. Steps should be taken to reduce stress among physicians to ensure their wellbeing. Some of the suggestions to do so include enhancing the stress management skills of physicians and achieving a fairer distribution of workload among physicians.

### Conflict of interest

The authors report no conflicts of interest.

### Ethical approval

Research Ethics Committee of Universiti Kebangsaan Malaysia (reference number: UKM PPI/111/8/JEP-2017-015).

Medical Research and Ethics Committee, Malaysia (National Medical Research Register ID: NMRR-17-38-33901).

### Authors' contributions

AH and KYC designed the study, recruited the participants, performed the study, analyzed the data, and drafted the manuscript. INS and KYC supervised the project and

provided a critical review of the manuscript. KYC provided the final approval for the manuscript. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

#### Acknowledgement

We thank Universiti Kebangsaan Malaysia for supporting this study via FF-2017-013. We are also grateful to all the collaborating hospitals in Johor, Malaysia.

#### References

1. Geslani GP, Gaebelein CJ. Perceived stress, stressors, and mental distress among doctor of pharmacy students. *Soc Behav Pers* 2013; 41(9): 1457–1468.
2. Aslam HD, Mansoor N, Suleman Q. Analysis of level of stress among doctors in public and private hospitals of Pakistan. *Int J Learn Dev* 2013; 3(2).
3. Torres PR, Padilla RAA, Simo MJM. Job stress across gender: the importance of emotional and intellectual demands and social support in women. *Int J Environ Res Public Health* 2013;(10): 375–389.
4. Al-Omar BA. Sources of work-stress among hospital-staff at the Saudi MOH. *JKAU: Econ & Adm* 2003; 17(1): 3–16.
5. Wong JG. Doctors and stress. *Hong Kong Med Diary* 2008; 13(6): 4–7.
6. Antoniou A-S. Occupational stress: acute and chronic stress factors [special issue on occupational stress]. *Eleftherotypia* 2001; 100(114): 540–544.
7. Aziz A. Sources of perceived stress among american medical doctors: a cross-cultural perspective. *Cross Cult Manag* 2004; 11(4).
8. Wolfgang AP. The health professions stress inventory. *Psychol Rep* 1988;(62): 220–222.
9. Gupchup GV, Wolfgang AP. The health professions stress inventory: factor structures for pharmacists. *Percept Mot Skills* 1994; 79(1 Pt 2): 515–519.
10. Heponiemi T, Kuusio H, Sinervo T, Elovainio M. Job attitudes and well-being among public vs. private physicians: organizational justice and job control as mediators. *Eur J Public Health* 2011; 21(4): 520–525.
11. Al-Dubai SA, Ganasegeran K, Perianayagam W, Rampal KG. Emotional burnout, perceived sources of job stress, professional fulfillment, and engagement among medical residents in Malaysia. *Sci World J* 2013; 2013: 137620.

**How to cite this article:** Hafiz A, Ima-Nirwana S, Chin K-Y. Comparison of stress levels between physicians working in public and private hospitals in Johor, Malaysia. *J Taibah Univ Med Sc* 2018;13(5):491–495.