

ORIGINAL ARTICLE

OCCUPATIONAL BURNOUT AMONG PUBLIC MEDICAL OFFICERS DURING THE EARLY STAGE OF COVID-19 PANDEMIC IN KOTA KINABALU, SABAH

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ABSTRACT

Burnout syndrome has affected many doctors globally, and this problem has caused various negative impacts on public health services such as reduced productivity and reduced quality care of patients. Various factors were associated with burnout among doctors, but the factors vary in different countries. This study aimed to investigate the prevalence and associated risk factors of burnout among public service medical officers in Kota Kinabalu, Sabah, who were involved in combating the Covid-19 outbreaks. A cross-sectional study involving 201 medical officers working in all government hospitals and health clinics was carried out. Using the Copenhagen Burnout Inventory (CBI), the prevalence of personal-related and work-related burnout were 61.2% and 48.8% respectively, while the prevalence of client-related burnout was 39.8%. Working in different medical departments and the length of working experience were the significant associated risk factors of burnout among the doctors. Meanwhile, other predictors were found not to be significantly associated with the prevalence of burnout. The prevalence of burnout among medical officers in Kota Kinabalu was relatively high especially among the less experienced doctors and among those who work in surgical based departments, and these issues require multilevel interventions which involve policymakers in the Ministry of Health, organizational and administrative managers at the various health departments and the medical officers themselves.

Keyword: Occupational burnout, public health, Covid-19, doctors

INTRODUCTION

Occupational burnout among doctors is one of the major public health issues since it has a serious impact on the health care system as well as the mental and physical wellbeing of the doctors themselves¹. Burnout has resulted in a decreased level of productivity² as well as an increase in medical errors which may directly or indirectly affect the quality of care for the patients^{2,3}. If this burnout problem is not resolved now, this later will lead to an increase of financial burden and failure in the health care system of a country^{4,5}. Unfortunately, due to unbearable stress, there were reports of doctors committing suicide⁵. Chronic and poorly managed stress not only affected the mental health of the doctors but also predispose them to cardiovascular diseases⁶. Physically drained doctors will experience fatigue that can result in a motor vehicle accidents, especially during driving⁷.

Burnout among health care personnel was first noticed by Herbert Freudenberger⁸. Burnout is defined as a psychological syndrome resulting from chronic job-related stress, which is characterized by three dimensions: overwhelming emotional exhaustion; feelings of cynicism and detachment from the job; and a sense of ineffectiveness and low level of personal accomplishment⁹. There is another concept of burnout which is described with a broader aspect

that not only focuses on the person but also includes environmental or other related factors which are characterized by personal-related burnout occurring simultaneously with work-related burnout and client-related burnout¹⁰.

Burnouts among doctors were not only common in high-income countries, but also affected doctors in low and middle-income countries, including Malaysia. There are not many studies yet on burnout among medical officers in Malaysia, but a recent study conducted in 2019 reported that one in four medical officers in the hospital experienced burnout. These medical officers were part of an important workforce in providing the highest quality of care for the patients, thus, it is essential to look after their physical and mental wellbeing¹¹.

There are still many gaps in understanding the associated risk factors of burnout, hence, the main objectives of this study were to identify the prevalence of burnout among government medical officers working in Kota Kinabalu and to investigate the associated risk factors among them, including the primary health care doctors. It was hoped that this study would provide a better insight into improving their working environment, as well as their mental and physical

well beings, especially when facing a major medical crisis such as the Covid-19 pandemic.

MATERIAL & METHOD

Study Design

The cross-sectional study was conducted from March 2020 to April 2020 involving medical officers working in all government hospitals, district health offices, and health clinics in Kota Kinabalu during the early stages of the Covid-19 pandemic.

Participants

With the prevalence of burnout among medical officers in one of the tertiary hospitals in Malaysia in previous literature was 25.6%¹¹, 95% of confident interval and 5% of margin of error allowed, the total of sample supposedly was 375 after considering 80% response rate. Doctors that were invited were the medical officers in government hospitals, district health office, and health clinics in Kota Kinabalu. Specialist or medical officer in private practices were not included in the study.

Study Instrument & Data Collection

The questionnaire was prepared using Google Forms, a survey administration software, which included the sociodemographic questionnaire and Copenhagen Burnout Inventory (CBI) as the assessment tool. The CBI consists of three parts with a total of 19 items. Part one assesses personal burnout and has six questions. Part two assesses work-related burnout and contains seven questions. Part three assesses client-related burnout and consists of six questions. Interpretation is based on the average score of the items tested in each part. If the average score of the items in each part is more than 50, the person is at a high risk of burnout.

Data Analysis

Internal consistency of the CBI and the results of the reliability test are presented with Cronbach's alpha score. Analyses were done using IBM Statistical Packages for Social Sciences (SPSS) version 26.0. Descriptive data were expressed in frequency for qualitative data, while quantitative data were expressed in mean with standard deviation. For all hypotheses, chi-square test and simple logistic regression were conducted to determine the association between prevalence of burnout and the risk factors. Lastly, multivariate analysis was conducted to control the confounders in which the results were expressed in odds ratio (OR) with 95% confidence interval. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 201 doctors agreed to participate in the study, but the response rate was only 55.4%. Table 1 displays the sociodemographic characteristics of the respondents of this study. The reliability test score, done with Cronbach's alpha, was 0.955. Table 2 displays the prevalence of burnout among government medical officers in Kota Kinabalu. The average scores for personal-related burnout, work-related burnout, and client-related burnout were 53.48 (SD=19.41), 47.37 (SD=21.40), and 43.12 (SD=20.92) respectively.

Based on chi-square analysis and independent t-test as shown in Table 3, the only significant associations were between the medical department with personal-related and work-related burnout, as well as between working experience with personal-related and client-related burnout.

As displayed in Table 4, there were strong associations among working in different medical departments, length of working experience, and race of respondents with burnout. These significant factors were further analysed with multivariate analysis which was presented in Table 5. Working in different medical departments and the length of working experience were noted as significant associated risk factors of burnout among the doctors.

Table 1. Sociodemographic characteristics of government medical officers

Variables	Distribution	Total (%)	Mean (SD)
Age			31.1±3.28
Sex	Female	120 (59.7)	
	Male	81 (40.3)	
Race	Malay	59 (29.4)	
	Chinese	60 (29.9)	
	Indians	34 (16.9)	
	Sabah & Sarawak Bumi	48 (23.9)	
Marital status	Single	129 (64.2)	
	Married	72 (35.8)	
Having child	No	160 (79.6)	
	Yes	41 (20.4)	
Workplace	Hospital based	163 (80.1)	
	Community based	38 (19.9)	
Departments	Medical based	115 (57.2)	
	Surgical based	48 (23.9)	
	Primary health care	38 (19.9)	
Origin	Sabah	70 (34.8)	
	Other States	131 (65.2)	
Undergraduate	Local	110 (54.7)	
	Overseas	91 (45.3)	
Working experiences	< 5 years	116 (57.7)	
	≥ 5 years	85 (42.3)	
Commuting time	< 20 min	164 (81.6)	
	≥ 20 min	37 (18.4)	
Working hours per week	≤ 60	45(22.4)	67.68(13.89)
	> 60	156(77.6)	
Working night shift	No	51(25.4)	
	Yes	150(74.6)	

Table 2. Prevalence of burnout

Scope of Burnout	Prevalence
Personal-related Burnout	61.2
Work-related Burnout	48.8
Client-related Burnout	39.8

N=201

Table 3. Association of sociodemographic factors with burnout

Variables	Personal-related burnout t (p-value)	Work-related burnout t (p-value)	Client-related burnout t (p-value)
Age	1.426 (0.155)	0.634 (0.527)	1.097 (0.274)
	X² (p-value)	X² (p-value)	X² (p-value)
Sex	0.028 (0.867)	0.188 (0.665)	0.005 (0.944)
Race	6.324 (0.097)	6.171 (0.104)	6.597 (0.086)
Marital Status	0.853 (0.356)	0.001 (0.975)	1.208 (0.272)
Having child	0.001 (0.974)	0.125 (0.724)	0.013 (0.909)
Origin	0.432 (0.511)	0.859 (0.354)	3.448 (0.063)
Undergraduate	0.610 (0.435)	0.032 (0.858)	0.125 (0.724)
Workplace	0.694 (0.405)	0.303 (0.582)	0.171 (0.679)
Medical dept	6.160 (0.046) *	11.433 (0.003) *	1.271 (0.530)
Working exp	5.515 (0.019) *	1.610 (0.204)	5.217 (0.022) *
Commuting time	0.776 (0.378)	0.509 (0.475)	0.715 (0.398)
Working hours	1.509 (0.219)	0.991 (0.320)	0.436 (0.509)
Night shift	1.960 (0.162)	3.618 (0.057)	0.579 (0.447)

*Significant p<0.05. N=20

Table 4. Simple logistic regression analysis of sociodemographic factors

Variables	Personal-related burnout		Work-related burnout		Client-related burnout	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Age	0.94 (0.86,1.03)	0.159	0.97 (0.89,1.06)	0.526	0.95 (0.87,1.04)	0.275
Sex	1.05 (0.59,1.87)	0.867	0.88 (0.50,1.55)	0.665	1.02 (0.57,1.82)	0.944
Marital Status	0.76 (0.42,1.37)	0.356	0.99 (0.56,1.76)	0.975	0.72 (0.39,1.30)	0.273
Having child	1.01 (0.50,2.04)	0.974	0.88 (0.45,1.76)	0.724	1.04 (0.52,2.10)	0.909
Origin	0.82(0.45,1.49)	0.511	1.32 (0.74,2.36)	0.354	0.57 (0.32,1.03)	0.064
Undergraduate	0.80 (0.45,1.41)	0.435	1.05 (0.60,1.83)	0.858	0.90 (0.51,1.59)	0.724
Workplace	1.35 (0.66,2.76)	0.406	1.22 (0.60,2.48)	0.582	1.17 (0.56,2.42)	0.679
Working exp	0.50 (0.28,0.90)	0.020*	0.70 (0.40,1.22)	0.205	0.51 (0.28,0.91)	0.023*
Commuting	1.40 (0.66,2.99)	0.380	1.30 (0.63,2.65)	0.476	1.36 (0.66,2.80)	0.399
Working hours	1.52 (0.78,2.97)	0.221	1.40 (0.72,2.74)	0.321	1.26 (0.63,2.51)	0.509
Night shift	1.58 (0.83,3.00)	0.163	1.87 (0.98,3.60)	0.059	1.29 (0.67,2.50)	0.447
Race						
Malay	0.85 (0.41,1.74)	0.651	0.90 (0.44,1.86)	0.773	1.48 (0.70,3.14)	0.307
Indian	2.49 (0.97,6.38)	0.058	2.56 (1.06,6.16)	0.037*	1.03 (0.42,2.54)	0.945
Sabah & Sarawak Bumi	1.53 (0.70,3.36)	0.291	1.12 (0.53,2.41)	0.763	2.55 (1.16,5.60)	0.020*
Medical Dept						
Primary Health	0.38 (0.15,0.96)	0.040*	0.34 (0.14,0.84)	0.019*	0.66 (0.28,1.59)	0.356
Medical Based	0.40 (0.19,0.87)	0.021*	0.30 (0.15,0.62)	0.001*	0.69 (0.35,1.38)	0.297

*Significant $p \leq 0.05$. N=201. Reference category: male, single, having children, Sabahan, local universities, public health, <5 years, <20 minutes, ≤ 60 hours per week, no night shift

Table 5. Multivariate analysis of burnout among medical officers

Personal-related burnout					
Variables	B	SE	OR	95% CI	p-value
Medical Dept					
Medical Based	1.293	0.559	3.643	(1.218, 10.896)	0.021*
Surgical Based	1.455	0.658	4.286	(1.179, 15.572)	0.027*
Working Exp					
≥5 years	-1.629	0.412	0.196	(0.087, 0.440)	0.000*
Interaction					
(Primary)(≥5 years)	2.679	0.792	14.571	(3.088, 68.767)	0.001*
(Surgical)(≥5 years)	1.852	0.823	6.375	(1.271, 31.968)	0.024*
Classification table 70.1%. Nagelkerke R Squared 0.164					
Work-related burnout					
Variables	B	SE	OR	95% CI	p-value
Medical Dept					
Medical Based	-1.118	0.377	0.327	(0.156,0.685)	0.003*
Primary Health	-1.007	0.469	0.365	(0.146,0.917)	0.032*
Classification table 61.7%. Nagelkerke R Squared 0.101.					
Client-related burnout					
Variables	B	SE	OR	95% CI	p-value
Race					
Sabah & Sarawak Bumi	1.102	0.416	3.010	(1.331, 6.805)	0.008*
Working Exp					
≥5 years	-0.809	0.317	0.445	(0.239, 0.829)	0.011*
Classification table 65.2%. Nagelkerke R Squared 0.087.					

*Significant $p \leq 0.05$. N=201

DISCUSSION

Among the government medical officers in Kota Kinabalu, 61.2% experienced personal-related burnout, 48.8% of the respondents experienced work-related burnout, whereas 39.8% experienced client-related burnout. The prevalence of burnout among doctors in this study was higher compared to doctors in Lithuania¹² as well as doctors in Sri Lanka¹³. The prevalence of burnout among doctors varied in different countries due to the variability of risk factors involved such as the workload, the country's healthcare system, and the assessment tool being used.

This study found that working in different medical departments and the length of working experience were significant predictors for burnout among the medical officers. Surgical-based doctors were found to have the highest prevalence of all the burnout scopes. The doctors in both medical-based and surgical-based departments were three times to four times more likely to experience personal-related burnout as compared to doctors in primary health care.

Doctors in surgical departments were three times more likely to experience work-related burnout compared to doctors working in medical departments and primary health care. The prevalence of burnout varies depending on the sociodemographic factors as well as the workload in a country, for example, in the United States; based on Medscape survey in 2020, the prevalence of burnout is highest among doctors in medical-based departments whereas general surgery only reported 35% of prevalence. Public health physicians were reported to have the lowest prevalence of burnout¹⁴.

In the meta-analysis conducted to review the prevalence of burnout among medical and surgical residences across many countries in Asia, Europe, North America, and Africa, the overall differences in prevalence between surgical residents and medical residents were not statistically significant, but the prevalence was slightly higher among surgical residents, and family medicine doctors have the lowest prevalence of burnout compared to other groups which were similar with the findings in this study¹⁵. The finding in this study was also in line with a systematic review and meta-analysis of burnout syndrome among 4664 doctors in various countries¹⁶.

Doctors with less than five years of working experience were five times more likely to experience personal-related burnout compared to the more experienced doctors. Furthermore, the less experienced doctors in this study also were two times more likely to experience client-related burnout. A recent study stated that a younger and less experienced doctor had a 30% higher chance of burnout¹⁷. A similar finding was reported among

the primary health care doctors in Iran where the less experienced doctors were nine times more likely to experience burnout¹⁸.

Although age was not significantly associated in this study, younger doctors were commonly at higher risk of burnout as shown in a systematic review in the Middle East which included doctors in Saudi Arabia, Turkey, and Israel¹⁹. Another systematic review also described that junior doctors are at higher risk of burnout due to lack of experience²⁰. There was no significant difference between male and female doctors in this study, however, most of the other studies showed that female doctors were at higher risk of burnout. In a study among family physicians, the prevalence of burnout was higher in females²¹. According to a systematic review, female physicians were at higher risk of burnout most likely due to difficulties in balancing between work demands and family responsibilities²². This situation also was seen among healthcare provider in Italy and Japan^{23,24}.

The race was not significantly associated with personal-related and work-related burnout, but interestingly, after further analysis of client-related burnout among the races, it was reported that Sabah and Sarawak Bumiputera doctors were noted to be three times more likely to experience client-related burnout compared to the Chinese doctors. The Sabah and Sarawak Bumiputera doctors were minority groups in this medical field, hence, they had difficulties in coping with the working environment and the high expectations from patients²⁵.

Marital status was not significantly associated with the prevalence of burnout, but the prevalence was slightly higher among single doctors. The finding contradicted the studies done among health care professionals in Ghana and Portugal which reported that the prevalence of burnout was higher among married doctors^{26,27}. There was also no significant association between having children and the prevalence of burnout. However, a study in Saudi Arabia indicated that having children was one of the significant predictors of burnout²⁸ which was similar to a study in Hungary which pointed out that the number of children had a significant positive correlation with burnout, especially among female doctors²⁹.

Although there was a study among doctors with less than five years' experience working in a tertiary hospital which reported that overseas graduates were two times more likely to experience work-related stress³⁰, there were no differences between the doctors' place of origin and place of graduation with regards to the prevalence of burnout in this study. According to a systematic review, overseas graduates might have difficulty adapting to a different health care system. They were found to be struggling if they

had previously studied in less developed countries. Nonetheless, this struggle usually only happened at the early stages of their careers, and the doctors would already be able to adapt to the current working environment as time went by³¹.

There were no significant differences in the prevalence of burnout for all scopes among the different workplace groups, but the prevalence was slightly higher among medical officers working in hospitals which was similar with research conducted in Iran¹⁸. Even though commuting time was not significantly associated with burnout, the prevalence of each scope of burnout was slightly higher among medical officers who travel for more than 20 minutes to the workplace. This finding was in accordance with the findings in a study done in Quebec, Canada, which reported a strong correlation between commuting stress and the likelihood of burnout³².

Doctors with more than 60 working hours per week and doing night shift would be expected to have a significantly much higher prevalence of burnout however in this study, however, there was no significant differences in the prevalence of burnout among them. The finding was contradicted with other studies done in various countries where long working hours and night shift were significantly associated with burnout³³⁻³⁵. The contradiction might be due to that those medical officers had already been able to cope with the long working hours and night shift as they have been experienced during their housemanship training years³⁶.

The response rate was less than satisfactory as the data collection was conducted online, and most of the doctors were busy in the management of Covid-19 patients. We also were advised to keep the frequency of the reminder at the minimum so we would not disturb them as the pandemic worsen hence, we had to shorten the period of data collection. Lastly, the results in this study might not be able to be generalized among other healthcare workers as their job scopes were different however it can provide a snapshot of the estimation of the prevalence of burnout among the medical officers with the identical workplace setting in Malaysia.

CONCLUSION

The findings in this study demonstrated that the prevalence of burnout among doctors in Sabah was high especially at the early stages of the Covid-19 pandemic. The significant predictors for burnout were working in different medical departments and the length of working experience. It is essential to promote a healthy working environment to reduce the risk of burnout which can be done by reviewing the current policies and reassessing workforce availability. All these require involvement from every level of

management, particularly the policymakers, the board of hospital directors, the head of departments, and the doctors themselves.

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