

ORIGINAL ARTICLE

Prevalence of Burnout among Frontliners in Kota Kinabalu District Health Office During COVID-19 and Its Association With Perceived Social and Organisational Support

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ABSTRACT

Introduction: The COVID-19 pandemic has placed an unprecedented workload and strain on Malaysia's health system and healthcare workers. Prolonged chronic work stress coupled with unsupportive working environment can translate to serious psychological impacts such as burnout. This study aims determine the prevalence of burnout among frontliners under Kota Kinabalu Health District Office and its association with perceived social and organisational support during COVID-19 pandemic. **Methods:** A cross-sectional study was conducted among 397 healthcare workers from May 2021 to June 2021 using Copenhagen Burnout Inventory, Multidimensional Scale of Perceived Social Support, and Perceived Organisational Support (POS) scale. Chi-squared was used to determine its association. **Results:** The prevalence of overall burnout was 43.8%, 68.8% for personal burnout, 45.6% for work-related burnout, and 26.4% for client-related burnout. Using Chi-square, this study found that several sociodemographic characteristics of HCWs such as younger age, unmarried, working outside of the clinic, working as doctors and health inspectors, and lesser years of working experience were significantly associated with higher prevalence of burnout in our study. The study showed a drastic increase in prevalence of burnout in HCWs compared to other studies done during pre-pandemic period. Burnout was significantly associated with lower perceived organisational and social support. **Conclusion:** Efforts and interventions by policy makers and administrative heads are needed to reduce the prevalence of burnout among HCWs during the pandemic.

Keywords: Burnout; Healthcare workers; COVID-19; Perceived social support; Perceived organisational support

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INTRODUCTION

The COVID-19 pandemic has placed an unprecedented workload and strain on Malaysia's health system and healthcare workers (HCW). Prolonged chronic work stress coupled with unsupportive working environment, long working hours, restriction of work leaves and fear of contracting COVID-19 and transmission to family members can translate to serious psychological impacts such as burnout. According to Schaufeli & Greenglass (2001), burnout is defined as "a state of physical, emotional and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding"(1). Traumatic events or harsh environments during natural disasters, war or pandemics can cause a person to have burnout (2). Similarly, HCWs on the frontlines faces high workloads, adversity and stress during the

COVID-19 pandemic making them susceptible and vulnerable to burnout. Burnout among healthcare workers, if not addressed properly, can lead to reduction in the quality of health services and delivery, physical and mental illnesses, substance abuse, high job turnover, client dissatisfaction and possibly the collapse of the healthcare system (3–5).

Several studies conducted globally during the pandemic have indicated that the burnout rates among HCWs were high, ranging from 31.4% to 67% (6–9). In fact, two studies conducted in Malaysian hospital during the pandemic among HCWs in the emergency and anaesthesiology department found that the prevalence of burnout of was 51.3% and 55.3% during the pandemic respectively (10,11). However, information regarding the impact of this pandemic on burnout among HCWs from the primary health care side in the health district offices and health clinics were not available in Malaysia. This gap in information is crucial as the duties, responsibilities, and challenges faced by HCWs in the health district office are different compared to the HCWs in hospitals. Furthermore, the

level of support from family, colleague, friends, and the organisation in which they work in could be a significant factor contributing to the prevalence of burnout during the pandemic. A study among nurses in Greece revealed that their quality of working life were positively affected when there exist a web of solid social support around them as it provides them with a sense of security and increases their confidence (12). Similarly, a study by Cao et al. (2016) among community health nurses, suggested that positive perceived organisational support can lead to better work commitment and less stress consequences, such as work burnout (13). In addition, reports indicate that in Selangor alone, over 160 doctors have resigned from public healthcare services during the first half of 2021 (14). These doctors have cited various reasons for quitting, such as burnout, insufficient organisational support, and unfulfilled demands.

Hence, this study aims to determine the prevalence of burnout among HCWs working in Kota Kinabalu health clinics and facilities during COVID-19 in Sabah, the state with one of the most cases and epicentre of the third wave of COVID-19 in Malaysia. Furthermore, this study attempts to investigate the association between sociodemographic factor, and perceived social and organisational support on burnout among HCWs during the pandemic. The results from this study would provide necessary information and evidence for policy makers and administrative heads to prioritise on the needs of the frontline HCWs and to ensure HCWs are able to continue working in their best possible mental condition under the pressure of the pandemic.

MATERIALS AND METHODS

Study Design

A cross-sectional study was conducted in all health clinics and facilities under Kota Kinabalu District Health Office from May 2021 to June 2021 during the Movement Control Order (MCO) 3.0 and “Total Lockdown” phase to determine the prevalence of burnout among HCWs and to its association with perceived social and organisational support and burnout. The list of facilities and clinics and their coordinates are listed in Table I.

Participants

Healthcare workers including doctors, nurses, medical assistants, laboratory technicians, radiography technicians and other allied healthcare workers working in the clinics were invited to join the study. The study respondents were recruited through purposive sampling until fulfilment of study sample size is achieved based on the actual proportion of HCWs for each category. Those with previous or current history of mental illness and less than one month of working experience under Kota Kinabalu Health District were

not included in the study. Sample size was calculated using single proportion, dichotomous outcome formula (15).

$$n = \frac{z^2_{(1-\alpha/2)}p(1-p)}{d^2}$$

Where,

n = sample size

z = standard normal distribution reflecting the confidence level that will be used

p = proportion

d = precision

Based on our literature review, the prevalence of burnout among healthcare workers during COVID-19 ranged from 31.4% to 67% (6,8,9). Hence for this study, we used 67% as the prevalence reported by a multinational cross-sectional study which included 3,537 healthcare workers from 3 countries, and a 95% confidence interval with a margin of error of 5% (9).

Sample size,

$$\begin{aligned} n &= \frac{1.96^2 \times 0.67(1-0.67)}{0.05^2} \\ &= 340 \end{aligned}$$

The final sample size for this study was 408 after 20% inflation to account for incomplete submission and non-response.

$$\begin{aligned} 20\% \text{ inflation} &= 340 \times 120\% \\ &= 408 \end{aligned}$$

Study Instrument and Data Collection

Data was collected through questionnaire from Google Survey Form. The questionnaire was divided into 4 sections: (A) Sociodemographic, (B) Perceived social support, assessed by Multidimensional Scale of Perceived Social Support (MSPSS), (C) Perceived organisational support, evaluated using Perceived Organisational Support (POS) scale, and (D) Burnout status measured using Copenhagen Burnout Inventory (CBI). Questionnaires were distributed to eligible HCWs through the head of each unit, and responses were collected until the fulfilment of sample size for each occupation.

Social support is defined as the “existence or availability of people on whom one can rely, having people who let one know that they are cared, valued, and loved” while perceived social support is a person’s potential access to social support (16). It was measured using MSPSS, which consists of 12 items and three groups (family, friends and significant other) depending on the source of support. Each group consist of 4 items. Likert-scale was used to score each statement from 1 (very strongly disagree) to 7 (very strongly agree) to

Table I : List and coordinates of facilities and health clinics included in the study

No.	Facility Name	Coordinates
1	Kota Kinabalu District Health Office	5.945917, 116.090807
2	Luyang Health Clinic	5.946423, 116.091127
3	Likas Health Clinic	6.000167, 116.115720
4	Inanam Health Clinic	5.987535, 116.142460
5	Menggatal Health Clinic	6.030006, 116.158418
6	Telipok Health Clinic	6.089469, 116.197075
7	UTC Health Clinic	5.962734, 116.069702
8	Harrington Mother and Child Health Clinic	5.958979, 116.073879
9	Pekan Mother and Child Health Clinic	5.979879, 116.075642
10	Karambunai Village Clinic	6.105775, 116.133682
11	Kokol Village Clinic	6.019418, 116.197224
12	Tombongon Village Clinic	5.993926, 116.237793
13	Kionsom Village Clinic	5.983375, 116.179594
14	Sulaman Central Community Clinic	6.058923, 116.151092
15	Taman Canggih Community Clinic	6.017121, 116.139059
16	PCC Community Clinic	6.093597, 116.157573

measure the HCWs' agreement with the statement. The mean score was classified as low support (1 to 2.9), moderate support (3.0 to 5.0), or high support (5.1 to 7). The Malay version of MSPSS (MSPSS-M) has been translated and validated by a study by Ng et al. (2012) (17).

Perceived organisational support is defined as the "sense in which employees believe that their organisation values their contribution and cares about their welfare" (18). It was measured using POS scale which consists of 17 questions, with each question rated by a Likert-scale of 1 to 5, giving a total of 17 to 85 scores. Higher scores denote higher perceived support. The Malay version of the POS scale was translated and validated by Rozdi et al. (2017), using back to back translation method (19).

Burnout is defined as a "state of physical, emotional, and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding". It was measured by using CBI which consists of 19 questions with three scales measuring personal burnout (6 items), work-related burnout (7 items), and client-related burnout (6 items) (20). It was rated by a Likert-scale ranging from 0 to 4, with a mean score of 2 or more indicating significant burnout. The Malay version of CBI was translated and validated by Andrew Chin et al. (2018) in a study among a group of medical students (21).

Data Analysis Method

Descriptive analysis such as frequency and percentage were used to describe qualitative variables, whereas mean and standard deviations was used to describe quantitative variables. For inferential analysis, Chi-Square test was used to analyse the association of sociodemographic factors and perceived social support with burnout, while Independent T-test was used for perceived organisational support and burnout. Participants' responds were downloaded from Google Form and cleaned using Microsoft Excel. Coding, editing, and analysing of data was done using SPSS.

Ethical Clearance

This study has received the ethical clearance from the Ethical Committee of the Faculty of Medical and Health Science, UMS, with approval code JKEtika 1/21 (4) and Medical Research Ethical Committee of Ministry of Health Malaysia with approval number NMRR-20-3103-57233 (IIR). Respondents' informed consents were obtained before they proceeded with filling up the sociodemographic data and answering the questionnaires online.

RESULTS

A total of 403 out of 771 eligible HCWs in Kota Kinabalu Health District responded to the questionnaire. Out of these, 397 (98.5%) agreed to participated in

Table II : Sociodemographic Characteristics of Healthcare Workers (N =397)

Characteristics	Mean (SD)	Number, n (%)
Gender		
Male		103 (25.9)
Female		294 (74.1)
Age (Years)	37.03 ± 7.94	
20-29		62 (15.6)
30-39		197(49.6)
40-49		111 (28.0)
>= 50		27(6.8)
Ethnicity		
Malay		43 (10.8)
Chinese		20 (5.0)
Bumiputera Sabah		313 (78.8)
Others		21 (5.3)
Marital Status		
Married		319 (80.4)
Not Married		78 (19.6)
Place of Work		
Clinic		309 (77.8)
Outside Clinic		88 (22.2)
Occupation		
Doctor		55 (13.9)
Nurse		195 (49.1)
Medical Assistant		43 (10.8)
Health Inspector		45 (11.3)
Pharmacist / Assistant Pharmacist		23 (5.8)
Lab/Xray Technician		26 (6.5)
Driver		10 (2.5)
Working Experience (Years)		
5 years or less		62 (15.6)
More than 5 years		335 (84.4)
Involvement in Covid-19 management		
Yes		285 (71.8)
No		112 (28.2)

the questionnaire (Table II). Most respondents were female (74.1%), with males accounting for 25.9%. The mean age was 37.03 ± 7.94, and nearly half were in the 30-39 age group (49.6%). Bumiputera Sabah (indigenous) constituted the largest ethnic group (78.8%), followed by Malay (10.8%). A significant proportion were married (80.4%). Most worked in clinics (77.8%), had more than 5 years of experience

(84.4%), and 71.8% were directly involved in COVID-19 management.

The prevalence of burnout in this study was between 26.4% to 68.8% (Table III). The overall burnout was 43.8% while personal, work related and client related was 68.8%, 45.6% and 26.4% respectively. Overall burnout was higher in male, younger aged HCWs,

Table III : Prevalence of burnout among enrolled healthcare workers (N=397)

Burnout Status	Number, <i>n</i> (%)
Personal Burnout	
Burnout	273 (68.8)
No burnout	124 (31.2)
Work Related Burnout	
Burnout	181 (45.6)
No burnout	216 (54.4)
Client Related Burnout	
Burnout	105 (26.4)
No burnout	292 (73.6)
Overall Burnout	
Burnout	174 (43.8)
No burnout	223 (56.2)

unmarried, working out of the clinic, directly involved in COVID-19 management, and with five or less years of working experience (Table IV). Prevalence of overall burnout was also highest among doctors, followed by Health Inspectors, and Medical Assistants.

Furthermore, males had higher work-related and client-related burnout, while females had higher personal burnout. Work-related burnout was higher among Malays, and Chinese had the highest client-related burnout. Working outside clinics was linked to higher work-related and client-related burnout, while personal burnout was more common among clinic workers. Pharmacists had the highest personal burnout, Doctors had the highest work-related burnout, and ab/X-ray technicians had the highest client-related burnout. HCWs with 5 or fewer years of experience had higher personal and work-related burnout, and those not directly involved in COVID-19 management had higher personal and client-related burnout. Younger HCWs (20-29 years old) and the unmarried had higher burnout across all three categories.

Table V shows the reported scores of perceived social and organisational support among all the respondents as well as prevalence of burnout within each reported level. Majority of the HCWs reported moderate and high levels of perceived social support in general. This was unanimous in all three subscales where more than half of the respondents reported high level of perceived support from families and significant others, and moderate level of perceived support from friends. The prevalence of burnout and its domains were also highest among those with reported lower and moderate levels of social support including its subscales. The mean POS score was 55.04 (SD=11.14), corresponding

to moderate levels of perceived organisational support. Lower mean POS scores were also observed in all domains of burnout.

Significant associations between sociodemographic characteristics with personal-, work-related-, client related- and overall burnout are shown in Table VI. Using Chi-square, we found that work related burnout was significantly associated with marital status and occupation type, while client related burnout was associated with age, marital status and working experience. No significant association was found between personal burnout with sociodemographic characteristics. Marital status and place of work was also significantly associated with overall burnout.

Overall burnout and personal burnout were significantly associated with all subscales of perceived social support, while work related burnout was associated with families, friends and total perceived social support, and client-related burnout with family subscale and total perceived social support. Perceived organisational support was significantly associated with all domains of burnout. The association between perceived social and organisational support with burnout is shown in Table VII.

DISCUSSION

This study was conducted with the aim of determining the burnout prevalence among HCWs in Kota Kinabalu Health District Office and its association with perceived social and organisational support. The 43.8% prevalence of total burnout in our study was similar to a study India but differs to the prevalence in Japan (31.4%) and United Kingdom (79%) (6,7,22). This variability in prevalence could be due to differences in the countries' healthcare system, manpower and resources, varying severity of the pandemic at the time of the studies, and the assessment tool used. The prevalence of personal, work-related and client-related burnout in HCWs in this study were also higher than the prevalence in a nationwide study a year prior in Malaysia during the pandemic (23). This could be due to the disparity in the distribution of healthcare resources and manpower between Sabah and the rest of Malaysia, leading to extra workload and reduced coping abilities (24). Another reason could be the drastic increase in the number of cases compared to a year prior, resulting in longer working hours and increase in the amount of work (25). Furthermore, the prevalence in our study was lower in comparison with studies that were conducted in the hospital setting in Malaysia during the pandemic (10,11). The reason for the higher prevalence in the hospital setting could be due to the high admission of patients who require prolonged stay, coupled with the limited availability of life-saving resources such as beds, ventilators, and

Table IV : Prevalence of Burnout by sociodemographic characteristics

Variables	Have Personal Burnout (N=273)	Have Work Related Burnout (N=181)	Have Client Related Burnout (N=105)	Have Overall Burnout (N=174)
	n (%)	n (%)	n (%)	n (%)
Gender				
Male	64 (62.1)	50 (48.5)	32 (31.1)	48 (45.1)
Female	209 (71.1%)	131 (44.6)	73 (24.8)	126 (42.9)
Age				
20-29	44 (71.0)	30 (48.4)	24 (38.7)	31 (50.0)
30-39	136 (69.0)	95 (48.2)	57 (28.9)	91 (46.2)
40-49	76 (68.5)	43 (38.7)	17 (15.3)	42 (37.8)
>= 50	17 (63.0)	13 (48.1)	7 (25.9)	10 (37.0)
Ethnicity				
Malay	26 (60.5)	21 (48.8)	13 (30.2)	19 (44.2)
Chinese	13 (65.0)	9 (45.0)	8 (40.0)	11 (55.0)
Bumiputera Sabah	219 (70.0)	141 (45.0)	79 (25.2)	136 (43.5)
Others	15 (71.4)	10 (47.6)	5 (23.8)	8 (38.1)
Marital Status				
Married	213 (66.8)	137 (42.9)	74 (23.2)	127 (39.8)
Not Married	60 (76.9)	44 (56.4)	31 (39.7)	47 (60.3)
Place of Work				
Clinic	214 (69.3)	135 (43.7)	76 (24.6)	127 (41.1)
Outside Clinic	59 (67.0)	46 (52.3)	29 (33.0)	47 (53.4)
Occupation				
Doctor	42 (76.4)	36 (65.5)	21 (38.2)	30 (54.5)
Nurse	136 (69.7)	76 (39.0)	37 (19.0)	75 (38.5)
Medical Assistant	24 (55.8)	18 (41.9)	13 (30.2)	20 (46.5)
Health Inspector	30 (66.7)	24 (53.3)	14 (31.1)	23 (51.1)
Pharmacist	19 (82.6)	11 (47.8)	7 (30.4)	10 (43.5)
Lab/Xray Technician	16 (61.5)	12 (46.2)	10 (38.5)	12 (46.2)
Driver	6 (60.0)	4 (40.0)	3 (30.0)	4 (40.0)
Working Experience (Years)				
5 years or less	45 (72.6)	34 (54.8)	25 (40.3)	33 (53.2)
More than 5 years	228 (68.1)	147 (43.9)	80 (23.9)	141 (42.1)
Involvement in COVID-19 management				
Yes	195 (68.4)	133 (46.7)	74 (26.0)	129 (45.3)
No	78 (69.6)	48 (42.9)	31 (27.7)	45 (40.2)

N = number of respondents having specific domain of burnout

n (%) = number and proportion of respondents within each characteristic having specific domain of burnout

Table V : Perceived Social and Organisational Support Scores and Prevalence of Burnout Within Each Level

Perceived Social Support	Total (N=397)	Personal Burnout (N=273)		Work Related Burnout (N=181)		Client Related Burnout (N=105)		Overall Burnout (N=174)	
	n (%) ^a	n (%) ^b		n (%) ^b		n (%) ^b		n (%) ^b	
Family Subscale									
Low	16 (4.0)	15 (93.8)		8 (50.0)		6 (37.5)		10 (62.5)	
Moderate	174 (43.8)	133 (76.4)		98 (56.3)		55 (31.6)		95 (54.6)	
High	207 (52.1)	125 (60.4)		75 (36.2)		44 (21.3)		69 (33.3)	
Friends Subscale									
Low	31 (7.8)	29 (93.5)		23 (74.2)		13 (41.9)		22 (71.0)	
Moderate	222 (55.9)	157 (70.7)		103 (46.4)		55 (24.8)		99 (44.6)	
High	144 (36.3)	87 (60.4)		55 (38.2)		37 (25.7)		53 (36.8)	
Significant Other Subscale									
Low	18 (4.5)	17 (94.4)		9 (50.0)		9 (50.0)		12 (66.7)	
Moderate	163 (41.1)	125 (76.7)		42 (25.8)		41 (25.2)		79 (48.5)	
High	216 (54.4)	131 (60.6)		56 (25.9)		55 (25.5)		83 (38.4)	
Total Scale									
Low	15 (3.8)	14 (93.3)		8 (53.3)		6 (40.0)		9 (60.0)	
Moderate	192 (48.4)	148 (77.1)		106 (55.2)		60 (31.3)		103 (53.6)	
High	190 (47.9)	111 (58.4)		67 (35.3)		39 (20.5)		62 (32.6)	
	Mean (SD)	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
	Total	Personal Burnout		Work Related Burnout		Client Related Burnout		Overall Burnout	
		Yes	No	Yes	No	Yes	No	Yes	No
Perceived Organizational Support	55.04 ±11.44	51.77 ±10.9	62.23 ± 9.2	48.74 ±10.4	60.32 ± 9.5	48.2 ±10.3	57.50 ±10.8	48.86 ±10.5	59.86 ±9.7

^aNumber in brackets indicates proportion among total respondents (N= 397).

^bNumber in brackets indicates proportion of those having burnout within each score of the scale.

Table VI : Association between sociodemographic characteristics and burnout

Variables	Personal Burnout		Work Related Burnout		Client Related Burnout		Overall Burnout	
	X	(P-value)	X	(P-value)	X	(P-value)	X	(P-value)
Gender	2.85	(0.092)	0.49	(0.485)	1.526	(0.217)	0.434	(0.510)
Age ^a	0.57	(0.902)	2.92	(0.404)	12.49	(0.006)*	3.53	(0.317)
Ethnicity ^a	1.79	(0.617)	0.26	(0.968)	2.515	(0.473)	1.32	(0.726)
Marital Status	3.01	(0.083)	4.58	(0.032)*	8.821	(0.003)*	10.64	(0.001)*
Place of Work	0.16	(0.693)	2.03	(0.154)	2.46	(0.117)	4.215	(0.04)*
Occupation ^a	8.06	(0.234)	13.60	(0.033)*	12.93	(0.074)	6.09	(0.529)
Working Experience (Years)	0.50	(0.480)	2.53	(0.112)	7.27	(0.007)*	2.64	(0.105)
Involvement in COVID-19 management	0.06	(0.813)	0.47	(0.493)	0.121	(0.728)	0.844	(0.358)

*Significant association found (P < 0.05)

^aAll categories were included with expected cell count smaller than 5 less than 20%

Table VII : Association between perceived social and organisational support with burnout

Perceived social support	Personal Burnout		Work Related Burnout		Client Related Burnout		Overall Burnout	
	X ² (P-value)	X ² (P-value)	X ² (P-value)	X ² (P-value)	X ² (P-value)	X ² (P-value)	X ² (P-value)	
Family Subscale ^a	16.18 (< 0.001)*	15.51 (<0.001)*	6.26 (0.044)*	19.72 (<0.001)*				
Friends Subscale ^a	13.93 (0.001)*	13.46 (0.001)*	4.18 (0.123)	12.21 (0.002)*				
Significant Other Subscale ^a	16.92 (< 0.001)*	4.53 (0.104)	5.38 (0.068)	7.8 (0.02)*				
Total Scale ^a	19.87 (< 0.001)*	15.69 (< 0.001)*	7.12 (0.028)*	18.79 (< 0.001)*				

	Personal Burnout		Work Related Burnout		Client Related Burnout		Overall Burnout	
	Mean difference (95% CI)	t-test (P-value)	Mean difference (95% CI)	t-test (P-value)	Mean difference (95% CI)	t-test (P-value)	Mean difference (95% CI)	t-test (P-value)
	Perceived organisational Support	10.46 (8.25, 12.67)	9.32 (<0.001)*	11.58 (9.62, 13.54)	11.63 (<0.001)*	9.27 (6.88, 11.67)	7.62 (<0.001)*	10.81 (9.00, 13.00)

*Significant association found (P < 0.05)

^aAll categories were included with expected cell count smaller than 5 less than 20%

oxygen supply, to cope with the increasing demands (26). Nevertheless, there was a considerable increase in the prevalence of burnout among HCWs during the pandemic compared to pre-pandemic prevalence in Malaysia which could be attributed to the increase in workload during the pandemic as compared to pre-pandemic period(27,28).

There were five sociodemographic characteristics that were significantly associated with at least one domain of CBI. Age was significantly associated with burnout, with younger HCWs reported the highest prevalence of burnout during the pandemic. This was similar to studies conducted in India, Japan, United Kingdom and Malaysia (6,7,22,23). Previous research on burnout has suggested that younger workers were less experienced with handling the increased burden when work demands outpace their ability and resources to cope, which makes them more prone to developing burnout (29). Another study suggested that older people were able to manage their stress better as they are more knowledgeable than younger people regarding the pandemic (30). Furthermore, older HCWs may have more experience in handling

previous outbreaks and pandemics such as SARS and H1N1 and were better at managing stress.

Marital status was also significantly associated with burnout in two domains and overall burnout, where prevalence of burnout was higher in HCWs who were unmarried. This is consistent with another study where married HCWs were associated with reduced odds of burnout (23). Social support from spouse may lead to lower risk of depression, anxiety and stress on HCWs during the pandemic and strong social support was linked to reduced risk of burnout (31).

Another characteristic that was significantly associated was the place of work where HCWs who worked outside of clinics had higher prevalence of burnout. A reason for this could be due to the redeployment and redistribution exercise of HCWs to unfamiliar working environment and tasks such as to Vaccine Administration Centres, COVID Assessment Centres and Quarantine and Treatment Centres for low-risk patients without adequate training and knowledge. Coughlan et al. (2021) suggested that junior doctors who were redeployed to a new working environment without

proper preparation and experience faces numerous difficulties and mental consequences including burnout (32).

Occupation was also significantly associated with burnout, specifically work-related, where doctors reported the highest prevalence of burnout followed by Health Inspectors. This was similar with a study conducted among Malaysian HCWs where doctors were four to five times more likely to be emotionally exhausted, depressed, and stressed (33). The higher prevalence of burnout among doctors could be due to greater responsibility and accountability as compared to other healthcare workers. Furthermore, the high prevalence of burnout among Health Inspectors in our study was also similar to the findings by Roslan et al. (2021) due their heavy involvement in prevention and control activities of COVID-19. Interestingly, our study found that nurses reported the lowest prevalence for burnout, contradicting most studies which reported nurses as having higher prevalence among other HCWs (11,22,34). This could be due to the higher mean age of nurses in our study as compared to other professions whereby older HCWs were less likely to have burnout (29,30).

Years of working experience was also associated with burnout in our study whereby HCWs with lesser working experience have higher prevalence of burnout. This finding correlated with a study by Mohammad et al. in 2021 which found that doctors who had less than five years of working experience were two to five times more likely to develop burnout (35). As healthcare workers are still relatively newcomers at this point, they could still be adapting to their job scope and work environment and are more prone to burnout.

Although gender and direct involvement in COVID-19 management were not significantly associated in this study, several studies during the pandemic found that being female and direct involvement in covid were associated with burnout (22,23,36). A systematic review by Azam et al. (2017), noted that female physicians are more likely to have burnout due to work-home conflict and difficulties in managing the balance between family and work (37). Similarly, Roslan et al. (2021) in their study found that the odds of developing burnout were twice as high in HCWs who were directly involved in COVID-19 management (23). The reason our study showed no significant association could be that as the pandemic has been going on for well over a year, the prolonged extra workload from covering the regular duties and task of HCWs assigned to handle the pandemic has caused those who were not involved to develop burnout as well.

Perceived social support was also significantly

associated with burnout in HCWs during the pandemic, with higher prevalence of burnout in those who reported lower perceived support. This was similar with other studies conducted in Italy and Ecuador among HCWs during COVID-19 (38,39). One possible explanation for this is that HCWs with higher levels of perceived social support are more inclined to believe that they have someone that they can rely on and seek the needed help when faced with stressful and traumatic events arising from mental and physical exhaustion due to the pandemic as shown by Hou et al. (2020). Social support from family, friends and partner as a coping mechanism to reduce burnout from stressful events have also been proven to be effective (41). However, the implementation of lockdowns and movement controls as a countermeasure to the pandemic had bring about the lack of social connectiveness among family, friends and significant other, which could reduce the means by which social support act as a coping mechanism against development of burnout (42).

Similarly, POS was significantly associated with burnout among HCWs during the pandemic, with higher prevalence of burnout in those who perceived lower support. This is in line with a study in Canada which found that the odds of developing burnout were decreased by 25% for each standard deviation increased in the POS scale among HCWs (43). Based on a study in South Korea after the MERS-CoV outbreak, adequate organisational support has been linked with increased work performance and commitment in HCWs which are vital in dealing with a disease outbreak (44). Moreover, HCWs who perceived greater organisational support experienced less stress and were more motivated in carrying out their obligations (45). This affirms the theory that positive perceived organisational support can lead to better work commitment and less stress consequences, such as work burnout (18).

Despite limited social support from family, friends, and partners due to lockdowns and busy work schedules, innovative methods are available to foster social connections. Virtual meet-up applications like Zoom, Google Meet, and WhatsApp video calling enable people to connect without physical proximity. Encouraging and recommending this approach can cultivate relationships while minimizing the risk of infection. Additionally, establishing social support groups for healthcare workers (HCWs) through healthcare facilities or online platforms can help address concerns, share experiences, and cope with challenges. Maintaining a work-life balance is crucial in preventing burnout, and implementing rotation or shift systems to provide HCWs with adequate time off is important.

To prevent burnout, organizations should implement

supportive measures for HCWs during the pandemic. Strengthening communication channels and feedback loops between HCWs and administrative heads reassures HCWs of their support and enables them to contribute to pandemic management based on their experiences. Lessons from previous outbreaks, such as SARS, highlight the impact of this approach (46). Additionally, adapting a Psychological Resilience Intervention similar to the Battle Buddy system used in the military can be beneficial (47). This system includes peer support, departmental support with a mental health consultant, and individual support for at-risk individuals.

Policy makers and administrative heads should focus on increasing perceived organizational support. This can be achieved through resilience training, fair distribution of resources, improved workflow management, sufficient rest opportunities, and recognition of HCWs' contributions, including equal remuneration, hazard pay, and acknowledgment (48).

Our study on burnout prevalence among various healthcare workers (HCWs) in a health district office in Sabah offers insights into burnout among different HCWs and can be generalized to similar settings like the Kota Kinabalu Health District Office. The study included representative participants based on occupation, providing a more accurate estimation of burnout prevalence among different HCW groups. The questionnaires and tools used were validated, translated into Malay and English, and widely used in Malaysia and other countries, allowing for meaningful comparisons with other studies. This study also captures a snapshot of burnout prevalence during the ongoing pandemic, providing valuable data for future comparisons. Additionally, our research explores the association between perceived social and organizational support and burnout, offering valuable information for policy makers and administrative heads in developing and evaluating programs and interventions to reduce burnout among HCWs.

There were several limitations in our study. As our study only looked at a single district, there might be limited generalisability to other districts with different settings. Furthermore, as the study was captured from self-reported instruments, there exist a possibility of reporting bias. In addition, as our study only look at the association using Chi-square and Independent T-test, causal relationship and effect size could not be established. Moreover, as the pandemic is constantly dynamic with the number of patients and workload varying over time, the prevalence of burnout captured in our study might not be the same as the outbreak progresses. However, the results from our study would provide a baseline for future studies looking into the prevalence of burnout during the pandemic.

CONCLUSION

This study found that burnout is a pertinent issue among HCWs in Kota Kinabalu during the pandemic, with almost half of the HCWs in our study suffering from burnout. The significant findings of association between age, marital status, place of work, occupation type, years of working experience, as well as perceived social and organisational support should warrant for immediate actions and interventions to identify those at risk and possible cause, address the problem and prevent unwanted disruption and reduction in the quality of healthcare services, delivery, and disease control activities. Hence, acknowledgement of the issue and prompt actions including regular screening of the mental health and burnout status of HCWs need to be taken to prevent further attrition from burnout especially during the demanding and challenging times of the pandemic.

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