ORIGINAL ARTICLE

Mediating Role of Psychological Distress on the Relationship Between Fear of COVID-19 and Burnout Among Healthcare Providers: A Cross-sectional Study in Selangor, Malaysia

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ABSTRACT

Introduction: The aim of this study was to investigate how the COVID-19 pandemic has affected the mental health of primary healthcare providers in Malaysia, focusing specifically on the role of depression, anxiety, and stress in mediating the relationship between fear of COVID-19 and burnout. **Methods:** A web-based cross-sectional study was conducted with 1280 healthcare providers from 30 government primary care clinics. Participants completed several scales, including the COVID-19 Fear Scale, Copenhagen Burn Inventory Scale, and DASS-21 Scale, and mediation analysis was performed using Smart-PLS. **Results:** The majority of respondents were female (82.4%) and Malays (82.3%), with a mean age of 36 years and an average working experience of 11 years. Nurses (47.4%) were the largest group, followed by doctors (26%), medical assistants (11.9%), healthcare assistants (7.1%), medical laboratory technicians (6.4%), and drivers (1.3%). The findings revealed that fear of COVID-19 was positively associated with psychological distress, such as depression, anxiety, and stress, as well as burnout. Additionally, psychological distress played a mediating role in the relationship between fear of COVID-19 and three domains of burnout: personal burnout (β=0.154, $p<0.001$), work-related burnout (β=0.187, $p<0.001$), and client-related burnout (β=0.175, $p<0.001$). **Conclusion:** These results highlight the need for interventions to address the adverse effects of the COVID-19 pandemic on the mental health of healthcare providers, particularly in reducing depression, anxiety, and stress, which were found to play a positive mediating role in the development of burnout.
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Keywords: COVID-19; psychological distress, fear, burnout; mediation

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INTRODUCTION

The COVID-19 pandemic has led to significant challenges for healthcare providers worldwide,

including increased fear of contracting the virus and burnout. The stimulus organism response (S-O-R) model can provide a useful framework for understanding the relationship between fear of COVID-19 and burnout among healthcare providers, with psychological distress acting as a potential mediator(1) (2). According to the S-O-R model, external stimuli, such as fear of COVID-19, can lead to an internal response, such as psychological distress, which in turn can lead to a behavioral response, such as burnout (3). Overall, the S-O-R model provides a useful framework for understanding the relationship between fear of COVID-19 and burnout among healthcare providers, with psychological distress acting as a potential mediator.

High levels of burnout and psychological distress have been reported in healthcare providers during the COVID-19 pandemic(4). According to Ching et al.'s systematic review and meta-analysis across 23 Asia countries and 148 cross-sectional studies, psychological distress experienced by healthcare providers includes depression, anxiety, stress, fear, and burnout. The most prominent psychological distress emotion reported was fear, followed by burnout, anxiety, depression, and stress (4) . During the pandemic situation, fear of COVID-19 infection appears to be an aggravation of psychological distress and has been found to be associated with adverse outcomes (5, 6).

Two studies conducted in Portugal consistently indicate that burnout in terms of personal, work-related, and client-related burnout is associated with depression, anxiety, and stress (7, 8). Additionally, previous studies have demonstrated that healthcare providers' fear of COVID-19 is linked with increased psychological distress and burnout (9, 10). Studies have shown that anxiety and stress play a mediating role in the relationship between perfectionism and burnout in English teachers(11, 12). However, there is currently no research on the mediating role of psychological distress (depression, anxiety, and stress) in the relationship between fear of COVID-19 and burnout. Therefore, our study aims to examine this mediating role among healthcare providers. Through our research findings, we hope to identify the significance of variables contributing to the development of burnout in healthcare providers. This knowledge can be used to develop intervention or prevention programs to safeguard the mental well-being of healthcare providers. The hypothetical model of this research is presented in Figure 1.

We postulate the following hypotheses based on the above discussion.
Hypothesis 1(H1): Fear of COVID-19 has a positive effect on personal burnout of primary care providers
H2: Fear of COVID-19 has a positive effect on work-related burnout of primary care providers
H3: Fear of COVID-19 has a positive effect on client related burnout of primary care providers

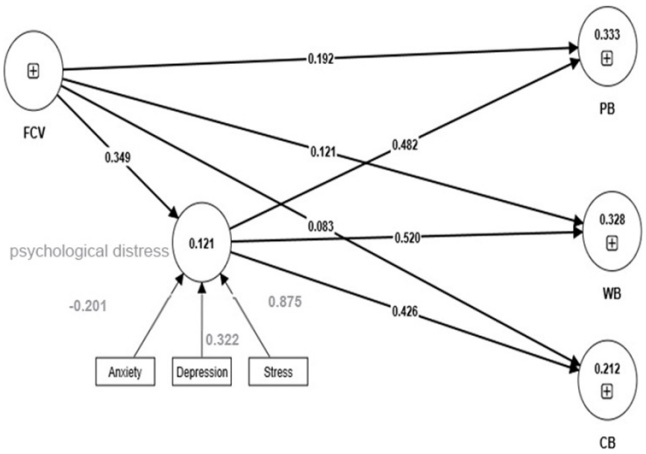

Figure 1: Research model

H4: Fear of COVID-19 has a positive effect on psychological distress among primary care providers.
H5: Psychological distress has a positive effect on personal burnout
H6: Psychological distress has a positive effect on work-related burnout
H7: Psychological distress has a positive effect on client-related burnout
H8: Psychological distress mediate the relationship between fear of COVID-19 and personal burnout
H9: Psychological distress mediate the relationship between fear of COVID-19 and work-related burnout
H10: Psychological distress mediate the relationship between fear of COVID-19 and client related burnout

MATERIALS AND METHODS

Study setting

This was a cross-sectional study targeting HCPs working in Selangor, Malaysia. A total of 30 health clinics were chosen randomly from the 52 available in Selangor. All doctors, nurses, medical assistants, healthcare assistants, medical laboratory technicians, and drivers in those 30 clinics were approached for participation in the study.

Study population

The inclusion criteria for this study consisted of those healthcare providers at least 18 years of age and hold qualifications as a doctor, nurse, medical assistant, medical laboratory technician, driver, or healthcare assistant. Additionally, they were expected to have a minimum of one month's experience working in a healthcare clinic.

Sample size calculation

The minimum sample size required for the study was calculated using G-power with 74 observed variables and 4 latent variables, an anticipated effect size of 0.02, a desired probability of a p-value of 0.05, and a statistical power of 90%. The calculated minimum sample size needed to detect the stated effect was 776, and the final sample size after accounting for a non-response rate of 30% was 1108. This paper constitutes the second aspect

of our research project titled "Prevalence and Factors Linked to Burnout Among Healthcare Providers in Malaysia," authored by Ching SM et al (4). The post-hoc power was 80.2% based on the percentage of dependent variable of burnout.

Instrument and Measurement

The questionnaire used in this study had four sections, which included sociodemographic data, the Fear of COVID-19 scales (FCV-19S), the DASS-21 scale, and the Copenhagen Burnout Inventory (CBI). Respondents were asked to provide informed consent before completing the questionnaire.

The FCV-19S was used to measure the fear of COVID-19 and included seven items, with each item rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The FCV-19S was available in both English and validated Malay versions, with the Malay version demonstrating good internal consistency (Cronbach's alpha of 0.893) (13).

The DASS-21 scale was used to assess the severity of depression, anxiety, and stress among respondents. This tool included three subscales, with each subscale consisting of seven questions rated on a four-point Likert scale. The scores for relevant items in each subscale were summed and multiplied by two to get the final score. The internal consistency for the depression, anxiety, and stress scales was high (0.72, 0.77, and 0.70, respectively) (14), and the validated Malaysian version of the DASS-21 demonstrated good reliability (Cronbach's alpha values of 0.84 for depression, 0.74 for anxiety, and 0.79 for stress) (15).

The CBI was used to assess burnout among healthcare providers. This inventory included three subscales, with personal burnout and client-related burnout consisting of six items each, and work-related burnout consisting of seven items. Respondents were asked to rate their level of fatigue and exhaustion on a five-point Likert scale (ranging from 0 to 100) for each item. The mean score of the items within each subscale was calculated, and a cut-off point of 50 was used to identify high-level burnout. All three subscales demonstrated high composite reliability values (0.84 to 0.87), and the Cronbach's alpha values for each subscale ranged from 0.83 to 0.87 (16).

Data collection

Data collection occurred between January and February 2022. After creating the sampling frame of 30 clinics, a WhatsApp link was sent to all the healthcare providers who fulfilled the above inclusion criteria. We utilized Google Forms for the online questionnaire to gather information on respondents' socio-demographic and clinical characteristics. The site investigators were tasked to send the questionnaires to the healthcare providers in their respective clinics using WhatsApp. Additionally, weekly reminders were sent out throughout the data collection period.

Statistical Analysis

The model proposed in this study was analyzed using Smart-PLS 3.3, which utilizes Partial Least Square-Structural Equation Modeling (PLS-SEM) (17). PLS-SEM was chosen in the analysis driven by the nature of the formatively measured constructs, the non-normal distribution of data, and the exploratory research objectives related to the mediation analysis in their study. These factors made PLS-SEM a more appropriate choice compared to CB-SEM. Smart-PLS 3.3 was employed to investigate the association between the measured constructs and burnout among healthcare providers. The analysis comprised two phases: first, the measurement model was assessed, followed by the structural model. To determine the mediation effect, an indirect effect bias-corrected bootstrapping method was employed, as it has greater power, fewer type 1 errors, and provides more information about the magnitude of the mediation effect (18).

Ethical approval

Before data collection, ethical approval was obtained from the National Malaysia Research Registry (NMRR ID-21-02084-IUO (IIR)).

RESULTS

The demographic characteristics of the study participants are presented in Table I. On average, the respondents were 36 years old and had 11 years of work experience. The majority of the participants were female (82.4%) and Malay (82.3%). The healthcare providers included in the study were predominantly nurses (47.4%), followed by doctors (26%), medical assistants (11.9%), healthcare assistants (7.1%), medical laboratory technicians (6.4%), and drivers (1.3%).

Measurement model assessment

Upon examination of the factor loading, four items were removed due to reported scores falling below the cutoff point of 0.5, namely CBI 13, CBI 17, CBI 18, and CBI 19 related to work-related burnout and client-related burnout. The remaining factors showed loadings ranging from 0.581 to 0.931. Additionally, the average variance extracted (AVE) score was greater than 0.50 for all constructs in the model, resulting in the retention of the remaining 25 constructs in the measurement model (Table II). The Composite Reliability (CR) values ranged from 0.904 to 0.951, exceeding the threshold of 0.7, which is satisfactory for meeting the criteria for the convergent validity of composite reliability in this study (Table II).

The next step was to evaluate the discriminant validity using the HTMT criterion proposed by Henseler et al. (2015) (19), which was later updated by Franke and

Table I: Socio-demographic and clinical characteristic of the study respondents (n= 1280)

Variables	N	%	Mean ± SD
Age			36±7
Gender			
Female	1055	82.4	
Male	225	17.6	
Race			
Malays	1053	82.3	
Chinese	43	3.4	
Indian	118	9.2	
Others	66	5.2	
Occupation			
Doctors	332	25.9	
Nurses	607	47.4	
Medical assistant	152	11.9	
MLT	82	6.4	
Drivers	17	1.3	
Healthcare assistant	90	7.0	
Education			
Secondary school	204	15.9	
Diploma	620	48.4	
University	315	24.6	
Master and above	141	11.0	
Years in service			11±6
Attachment place			
Health clinic	736	57.5	
COVID assessment centre	10	0.8	
Quarantine centre	7	0.5	
Vaccination centre	1	0.1	
COVID sampling centre	1	0.1	
more than one attachment	521	40.7	
others (hospital)	4	0.3	
Medical illness			
Good health	1020	79.7	
Has medical illness	260	20.3	
Stay with family			
No	267	20.9	
Yes	1013	79.1	
Infected family member			
No	892	69.7	
Yes	388	30.3	
Infected with COVID-19			
No	1001	78.2	
Yes	279	21.8	
Quarantine frequency			2±2
Worry COVID-19 mortality			
No	180	14.1	
Yes	1100	85.9	
Worry yourself at workplace			
No	40	3.1	
Yes	1240	96.9	
Where to seek for help			
No	155	12.1	
Yes	1125	87.9	
Life insurance			
No	600	46.9	
Yes	680	53.1	

Sarstedt (2019) (20). Table III presents the results, which indicate that all constructs met the HTMT criterion (<0.85), except for one construct that exceeded the criterion with a score of 0.904 (Table III). To further examine the validity, we performed HTMT bootstrapping, and the upper limit of the confidence interval was found to be less than 1, which is an acceptable level. Therefore, we could establish the discriminant validity of the constructs in this study.

Table II: Reliability and convergent validity of the measurement model

Variables	Items	Loadings	CR	AVE
Fear	FCV1	0.581	0.904	0.577
	FCV2	0.707		
	FCV3	0.782		
	FCV4	0.663		
	FCV5	0.834		
	FCV6	0.84		
	FCV7	0.866		
Personal Burnout	CBI1	0.89	0.934	0.826
	CBI2	0.884		
	CBI3	0.874		
	CBI4	0.798		
	CBI5	0.888		
	CBI6	0.721		
Work-related Burnout	CBI7	0.862	0.951	0.765
	CBI8	0.892		
	CBI9	0.825		
	CBI10	0.89		
	CBI11	0.892		
	CBI12	0.884		
Client-related Burnout	CBI14	0.894	0.932	0.695
	CBI15	0.931		
	CBI16	0.902		

**Deleted work-related burnout Q13, client-related burnout Q17, Q18 and Q19;
AVE: average variance extracted, CR: Composite reliability, FCV: Fear Covid,
CBI: Copenhagen Burnout Inventory

Table III: Discriminant validity based on heterotrait-motrait (HTMT)

	1	2	3	4
Client-related burnout				
Fear towards COVID-19	0.234			
Personal burnout	0.688	0.384		
Work-related burnout	0.779	0.314	0.904	

The collinearity test for the structural model produced a variance inflation factor (VIF) of 1.176 and 1.000, which is below the recommended threshold of 5, indicating satisfactory results (21). To check for common-method bias, the R-squared (R2) values were compared before and after adding an unmeasured marker to the model, and the difference was less than 10%, indicating no common method bias in the dataset (22).

The direct and indirect effects of the hypothesis were assessed through bootstrapping with resampling for the hypothetical model. The explanatory power of the structural model was measured using the squared multiple correlations (R^2), which showed that fear accounted for 15.0% of the variance in psychological distress (Q2=0.136), and psychological distress

accounted for 18.9% (Q2=0.206), 29.0% (Q2=0.219), and 30.5% (Q2=0.154) of the variance in client-related, work-related, and personal burnout, respectively.

The direct effect of fear on psychological distress was found to be positive (β=0.349, p<0.001), and the hypothesis on the effect of psychological distress on burnout was also tested, showing positive correlations with client-related burnout (β=0.426, p<0.001), work-related burnout (β=0.520, p<0.001), and personal burnout (β=0.482, p<0.001). Fear was positively associated with client-related burnout (β=0.083, p<0.001), work-related burnout (β=0.121, p<0.001), and personal burnout (β=0.192, p<0.001), supporting H1-H7. The predictive validity of the model was assessed using the blindfolding process, with Q2 values greater than 0 for each endogenous construct, indicating sufficient predictive power.

To determine the mediation effect, bootstrapping was performed, which showed significant mediation, as the confidence interval did not include 0. Psychological distress played a significant role in mediating the relationship between work-related burnout (ß=0.182, p<0.001), client-related burnout (ß=0.149, p<0.001), personal burnout (ß=0.169, p<0.001), and fear, supporting H8, H9, and H10 (Table IV).

DISCUSSION

The findings of the research indicate that among primary care healthcare professionals in Malaysia, there is a positive correlation between the fear of COVID-19 and psychological distress, as well as fear and all three aspects of burnout. This implies that the adverse effects of COVID-19 fear on burnout were heightened by diminished personal well-being and heightened emotional exhaustion among healthcare professionals in Malaysia. This finding is consistent with previous studies (23-26)

Furthermore, our study findings showed that there was a statistically significant mediating effect of psychological distress on the relationship between fear of COVID-19 and burnout among primary care HCPs in Malaysia. Specifically, psychological distress was found to be an intervening variable in the relationship between fear, client-related burnout, work-related burnout and personal burnout. This is consistent with findings from another study reporting a significant mediating effect of psychological distress on the relationship between fear of COVID-19 and workplace burnout (27).

Overall, the study contributes to the literature on the mental health of healthcare providers in Malaysia by highlighting the relationship between fear of COVID-19, psychological distress, and burnout. There are several studies that support the implications of the above findings in the context of Malaysia. A study conducted by Chui et al. (2021) found that nurses in Malaysia were experiencing high levels of psychological distress and burnout during the COVID-19 pandemic (25). The study concluded that healthcare organizations should provide support to their staff to mitigate the negative impact of the pandemic on their mental health (25) . A survey conducted by Mohd Noor et al. (2021) found that anxiety level was high among healthcare workers in one of the public hospital in Malaysia (28). The study recommended that healthcare organizations should implement interventions to improve the mental health of their staffs (28). A study conducted by Anne Yee et al. (2021) found that psychological distress and depression were common among HCPs in Malaysia amidst COVID-19 pandemic (29). The study recommended that healthcare organizations should identify those at risk for early interventions to reduce psychological distress especially depression among their staff to improve

Table IV: Structural model of the study (n=1280)

		Std. Beta	Std. Dev	T value	Decision	P-values	BCI LL	BCI UL	F square	Effect size
H1	Fear -> psychological distress	0.349	0.027	12.843	supported	<0.001	0.302	0.391	0.139	Medium
H2	Fear-> personal burnout	0.192	0.025	7.676	supported	<0.001	0.151	0.233	0.049	small
H3	Fear -> work-related burnout	0.121	0.025	4.785	supported	<0.001	0.08	0.163	0.019	Medium
H4	Fear -> client-related burnout	0.083	0.029	2.909	supported	0.002	0.036	0.13	0.008	small
H5	psychological distress -> personal burnout	0.482	0.027	18.136	supported	<0.001	0.437	0.525	0.307	Medium
H6	psychological distress -> client-related burnout	0.426	0.027	15.575	supported	<0.001	0.379	0.469	0.203	Medium
H7	psychological distress -> work-related burnout	0.52	0.024	21.576	supported	<0.001	0.478	0.556	0.353	Large
Hypothesis	Relationship	Std. Beta	Std. Dev	T-value	Decision	P-Values	BCI LL	BCI UL		
H8	Fear -> psychological distress -> PB	0.169	0.016	10.421	supported	<0.001	0.143	0.195		
H9	Fear -> psychological distress -> WB	0.182	0.017	10.996	supported	<0.001	0.155	0.209		
H10	Fear -> psychological distress -> CB	0.149	0.016	9.383	supported	<0.001	0.123	0.175		

PB: personal burnout; WB: work-related burnout; CB: client-related burnout; Std Dev: standard deviation

quality of life (29).

This study provides important insights into the psychological impact of the COVID-19 pandemic on primary care healthcare providers in Malaysia. The study uses validated measures for fear, psychological distress and burnout, increasing the reliability and validity of the findings. The study includes a large sample size, which enhances the generalizability of the results to other primary care settings in Malaysia. The use of a mediation analysis provides a clearer understanding of the relationship between fear, psychological distress and burnout, and identifies psychological distress as a potential target for intervention. The study findings are consistent with previous research on the psychological impact of COVID-19 on healthcare providers.

A limitation of this study is that it employed a cross-sectional design, which hinders the ability to establish a causal relationship between fear, psychological distress, and burnout. Other limitations include the study only includes primary care healthcare providers in Malaysia, so the generalizability of the findings to other healthcare settings or countries may be limited. The use of self-reported measures may introduce bias, as participants may over or under-report their experiences.Furthemore, the study does not examine other potential factors that may contribute to psychological distress and burnout, such as work demands, social support or coping strategies.

CONCLUSION

In summary, our study found that fear and psychological distress have a significant impact on burnout among primary care healthcare providers in Malaysia during the COVID-19 pandemic. Fear was positively associated with psychological distress and all three domains of burnout, while psychological distress was positively associated with burnout. Furthermore, psychological distress was found to mediate the relationship between fear and burnout. These findings emphasize the importance of addressing fear and psychological distress to prevent and reduce burnout among healthcare providers. Prioritizing the psychological well-being of healthcare providers in primary care settings is crucial for ensuring the sustainability of healthcare services and improving patient outcomes. Further research is needed to explore the effectiveness of interventions aimed at reducing burnout and enhancing the psychological well-being of healthcare providers in primary care settings.

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