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Compassion Fatigue, Burnout, and Psychological Flexibility among Healthcare Workers: Emotional strain in Sarawak tertiary hospitals

Ling Choo Chiew[1], Yoke Yong Chen[1*], Mohamad Adam Bujang[2], Keng Sheng Chew[3], Md Mizanur Rahman[4], Rekaya Vincent Balang[5], Siok Ping Voon[6], Raveca Ak Ridi[7]
**Corresponding Author*

[1] Department of Psychological Medicine, Faculty of Medicine and Health Sciences, University Malaysia Sarawak, Malaysia, [2] Sarawak General Hospital, Institute for Clinical Research (ICR), Ministry of Health, Malaysia, [3] Department of Surgery (Emergency Medicine), Faculty of Medicine and Health Sciences University Malaysia Sarawak, Malaysia, [4] Department of Community Medicine and Public Health (Epidemiology & Statistics), Faculty of Medicine and Health Sciences University Malaysia Sarawak, Malaysia, [5] Department of Nursing, Faculty of Medicine and Health Sciences University Malaysia Sarawak, Malaysia, [6] Department of Psychology, Faculty of Cognitive Sciences and Human Development, University Malaysia Sarawak, Malaysia, [7] Unit Psychology Counselling, Sarawak General Hospital, Malaysia

rachelchiew@moh.gov.my, yychen@unimas.my, adam@crc.gov.my, kschew@unimas.my, rmmizanur@unimas.my, vbrekaya@unimas.my, spvoon@unimas.my, raveca@moh.gov.my
Tel: +6012-8818566

Abstract
This cross-sectional study investigated the relationships between Compassion Fatigue (CF), Burnout (BO), and Psychological-Flexibility (PF) among Healthcare Workers (HCWs) in Sarawak government hospitals. Results showed that 45.7% of HCWs experienced CF, while 52.4% reported personal burnout (PB), 17.8% work-related burnout (WB), and 10.9% client-related burnout (CB). The mean PF score was 81.7 (SD = 16.3). Multivariate analysis revealed significant associations between gender and CF ($p < .001$), marital status and PB ($p = .046$), then work-position and CB ($p = .025$), suggesting that sociodemographic factors significantly influence occupational stress. These findings highlight the need for targeted interventions support HCWs well-being.

Keywords: Compassion fatigue, burnout, psychological flexibility, healthcare worker

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1.0 Introduction

Healthcare Workers (HCWs) often work under high-pressure environments where emotional resilience and critical judgment are required. In tertiary hospital settings, HCWs are often exposed to patient suffering, critical circumstances, high workloads, extended

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working hours, and systemic organizational challenges that may contribute to emotional exhaustion and Compassion Fatigue (CF). CF is defined as the diminished capacity to empathize with patients due to repeated exposure to trauma or suffering, which is prevalent and is often under-recognized among caregivers (Figley, 2002). Similar to Burnout (BO), a psychological syndrome described as emotional exhaustion, depersonalization, and reduced personal accomplishment, it impairs the psychological toll on healthcare professionals (Maslach & Leiter, 2016). BO is also recognized as a critical threat to both caregiver well-being and the provision of high-quality care (Dyrbye, Shanafelt, & Sinsky, 2017).

In Malaysia, the recent mental health concerns among the workforce have become increasingly prominent. The National Health and Morbidity Survey (NHMS, 2023) reported a doubling in depressive symptoms from 2.3% in 2020 to 4.6% in 2023, with the highest prevalence among individuals aged 35 to 49, many of whom cited occupational stress as a contributing factor (Institute for Public Health, 2023). Within the public healthcare system, HCWs have reported persistent emotional strain, decreasing from insufficient institutional support and increasing performance expectations. Many emotions caught in a cycle of stress, obligation, and overwhelming workloads, often resulting in emotional fatigue and demotivation (Abdul Rashid et al., 2023; Zhao et al., 2022).

This study aimed to examines the prevalence of CF and BO then describes levels of psychological flexibility (PF) among HCWs in Sarawak's tertiary hospitals.

2.0 Literature Review

2.1 Work-Related Stressors and Emotional Impact on HCWs

In the public healthcare sector, HCWs are increasingly burdened by high workloads, manpower shortages, surging patient volumes, and escalating service demands (World Health Organization, 2016). These systemic pressures are further exacerbated by unclear operational protocols, lack of professional recognition, and frequent interactions with complex or distressed patients. Such cumulative stressors have been associated with emotional exhaustion and job dissatisfaction.

2.2 CF among HCWs

CF is a form of secondary traumatic stress experienced by HCWs that had been exposed to prolonged patient suffering. It is characterized by emotional fatigue, reduced empathy, and physical exhaustion (Figley, 1995). While often co-occurring with BO, CF is more trauma-related and arises from the emotional extent of caregiving rather than workload alone. In high-intensity environments such as emergency rooms, intensive care units, and oncology wards, repeated exposure to trauma and critical illness can lead to persistent empathic distress, making HCWs vulnerable to CF (Cocker & Joss, 2016). Despite its prevalence, CF remains under-recognized in healthcare systems. Without adequate attention, CF can compromise the well-being of staff and patient care quality.

2.3 Burnout and Systemic Challenges in Healthcare

The prevalence of BO among Malaysian HCWs has become increasingly evident. A national study reported that 25.2% of medical officers experienced BO, which is largely attributed to staffing deficits and excessive workloads (Ali et al., 2020). Similarly, international findings reported that BO is an unrecognized threat to safe and effective care delivery (Dyrbye et al., 2017). These issues result in poor morale and higher turnover rates and adversely affect the quality of patient care. Notably, ongoing occupational stress could lead to frequent absences at work, difficulty completing tasks effectively, and occasional emotional outbursts toward patients or colleagues (Gómez-Urquiza et al., 2017). Such consequences compromise individual performance, team cohesion, and healthcare service delivery.

2.4 Emerging Protective Factors: The Role of PF

Despite this growing concern about CF and BO among HCWs, limited research is reported in the context of Malaysian, particularly Sarawak. The unique sociocultural and geographical location could lead to the healthcare context of how stress-related conditions develop and their effects on healthcare professionals. Thus, it is important to discover PF and defined as the capacity to adapt to challenging circumstances while remaining committed to meaningful actions, even in the presence of distressing thoughts and emotions (Kashdan & Rottenberg, 2010). This quality enables individuals to stay engaged in their roles without being overwhelmed by emotional stress. As a psychological resource, flexibility has emerged as a protective factor against occupational stressors such as emotional exhaustion, moral distress, and overwork.

3.0 Methodology

3.1 Study Design and Participants

This study employed a cross-sectional quantitative design and targeted HCWs from government hospitals in the western region of Sarawak State, Malaysia. A non-probability sampling approach was used to identify initial participants who met the inclusion criteria. These participants were then invited to refer eligible colleagues within their professional networks via formal or informal method, allowing for expansion of the sample size. The primary outcome (dependent variable) measured was CF with additional analysis including BO and PF.

A total of 494 HCWs from government hospitals in Sarawak voluntarily participated in this study, of whom 79.1% were female (n = 391), with the majority age group between 31 and 40 years old (51.6%). Meanwhile, the ethnic background was 50.4% of Indigenous

Sarawak, 35.6% of Malays, 9.1% of Chinese, 2.2% of Indigenous Sabah, and 2.6% of other ethnicities. Of the participants, 74.3% (*n* = 367) are married. At the same time, almost half of the participants (46.8%) are nurses, followed by allied health workers (33.8%), 9.9% are clinicians, and 9.5% are administrative personnel with a majority year of working experience of more than 13 years (44.5%) details provided in Table 1.

The sample size was determined using the Raosoft online sample size calculator, a 95% confidence level, a 5% margin of error, and a 50% response distribution. The calculated minimum sample size with an anticipated 20% non-response rate was 405 participants.

Table 1. Sociodemographic Characteristics among Healthcare Workers

Demographic Variable	Category	Frequency (*n*)	Percent (%)
Gender	Male	103	20.9
	Female	391	79.1
Age group	21 - 30 year old	72	14.6
	31 - 40 year old	255	51.6
	41 - 50 year old	140	28.3
	51 above	27	5.5
Marital	Married	367	74.3
	Single	93	18.8
	Divorced/Widowed	34	6.9
Ethnic	Malay	176	35.6
	Chinese	45	9.1
	Bumiputera Sarawak	249	50.4
	Bumiputera Sabah	11	2.2
	Others	13	2.6
Religion	Muslim	212	42.9
	Christian	262	53.0
	Others	20	4.0
Level of education	Graduate	100	20.2
	Pre-University/ Diploma	84	17.0
	Secondary School	158	32.0
	Others: Post Basic/ Form 6/ O-Level	152	30.8
Position	Medical	49	9.9
	Nursing	231	46.8
	Allied Health	167	33.8
	Administrative Personnel	47	9.5
Year of working experience	0 - 6 years	98	19.8
	7 - 12 years	176	35.6
	Above 13 years	220	44.5

3.2 Data Collection Procedure

Data collection was conducted through both electronic and face-to-face formats. Self-administered questionnaires were distributed via secure channels such as official group chats, email, webinars, and in-person sessions. Participants' identities remained anonymous, and confidentiality was maintained throughout the process.

Prior to data collection, ethical approval was obtained from the National Medical Research Register (NMRR) guidelines in accordance with Good Clinical Practice (GCP). The study was registered with NMRR ID-23-00349-MA5 (IIR). In addition, informed consent was obtained from all participants prior to participation.

3.3 Measures

3.3.1 Sociodemographic Questionnaire

Participants provided information on gender, age, ethnicity, marital status, religion, highest level of education, job position, and years of working experience. These data were used to explore associations between demographic variables and study outcomes.

3.3.2 Compassion Fatigue Self-Test (CFS)

CF was assessed using the Compassion Fatigue Self-Test (CFS) developed by Figley (1995). This 23-item tool measures secondary traumatic stress and BO symptoms among care providers. Items are rated on a 5-point Likert scale, with higher scores indicating higher risk. The internal consistency of this study was excellent (Cronbach's alpha = 0.92). The details of these scales are described in Table 2.

3.3.3 Copenhagen Burnout Inventory (CBI)

BO was assessed using the Copenhagen Burnout Inventory (CBI) developed by Kristensen et al. (2005), which consists of three subscales: Personal Burnout (PB), Work-related Burnout (WB), and Client-related Burnout (CB). Each subscale provides insight into different dimensions of BO experienced by HCWs. The Malay version of the CBI was validated and demonstrated reliability in measuring the exhaustion component of occupational BO (Andrew et al., 2017). In the current study, the internal consistency for this measure was strong (Cronbach's alpha = 0.90). The details of these scales are described in Table 2.

3.3.4 Psychological Flexibility Questionnaire (PFQ)

PF was measured using the Psychological Flexibility Questionnaire (PFQ) developed by Ben-Itzhak et al. (2014). The questionnaire includes items assessing openness, awareness, and engagement in valued actions despite distress. Responses are rated on a 6-point scale. Internal consistency in this study was high (Cronbach's alpha = 0.94). The details of these scales are described in Table 2.

Table 2. Measurement for instruments, outcome variables, and Operational variables

Latent Variables	Observed Variables	Outcome Variables	Cronbach's alpha	No of items	Operational Variables/ Descriptions
Compassion Fatigue Self-test (CFS) by Figley (1995)	Total score of Compassion fatigue	Compassion Fatigue (CF)	0.93	23	• 6-Likert Scale (0 = Never, 1 = Rarely, 2 = A few Times, 3 = Somewhat Often, 4 = Often, 5 = Very Often) on each item. • The total score is summed, and a score of 26 or less is considered as extremely low risk, 27-30 as low risk, 31-35 as moderate risk, 36-40 as high risk, and 41 or more as extremely high risk.
Copenhagen Burnout Inventory – Malay version (CBI-M) by Chin et al. (2017)	Total Overall (BO) Personal Burnout (PB). Work Burnout (WB). Client Burnout (CB)	Burnout (BO)	0.90 0.89 0.81 0.82	19 6 7 6	• 5-point Likert scale: 'never/very low degree' (0), 'seldom/low degree' (25), 'sometimes/somewhat' (50), 'often/high degree' (75), and 'always/very high degree' (100). • An average score was calculated, and a score of 50% or higher indicated BO.
Psychological Flexibility Questionnaire (PFQ) by Ben-Itzhak et al. (2014)	Total Score of Psychological Flexibility	Psychological Flexibility (PF)	0.95	20	• 6-point scale ranging from 1 (not at all) to 6 (very much), with higher scores indicating greater psychological flexibility.

3.3.5 Instrument Adaptation and Validation

Both the CFS and PFQ instruments were culturally adapted for use among Malaysian HCWs. A forward and backward translation process was conducted by bilingual experts, including university lecturers, medical officers, nurses, and an allied health professional. Content validity was reviewed by three subject-matter experts in psychiatry, counselling, and medical services. Each item was rated for relevance, and the Item-Content Validity Index (I-CVI) scores ranged from 0.83 to 1.00, while the Scale-CVI/Average (S-CVI/Ave) was 0.90 for both instruments, indicating excellent content validity. Face validity was further evaluated by a pilot group (20 participants) of HCWs from different professions who were not involved in the main study. The Face Validity Index (FVI) for all items was above 0.80, confirming that the instruments were clear and contextually appropriate for the target population.

3.3.6 Pilot Study

A pilot study assessed the final versions of the CFS and PFQ questionnaires before full-scale data collection. The pilot involved a small sample (20 participants) of HCWs similar to the target population. The primary aim was to assess the practicality, clarity, and time required for completing the instruments. Feedback from the pilot study confirmed that both instruments were clear, easy to understand, and took an appropriate amount of time to complete.

3.4 Data Analysis

All analyses were performed using IBM Statistic Package for Social Sciences (SPSS) Statistics version 29.0. Data entry and cleaning were conducted to ensure accuracy and consistency, including checks for missing values and outliers. Descriptive statistics were used to examine the demographic characteristics of the participants and the patterns of the outcome variables (CF, PB, WB, CB, PF). A one-way Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA) were conducted to identify factors associated with the outcomes. The level of significance was set at $p < 0.05$. Reporting and interpreting p-values follow standard recommendations (Bujang, 2025) (IBM Corp. Released 2023. IBM SPSS Statistics for Windows, Version 29.0.2.0. Armonk, NY: IBM Corp.).

4.0 Findings

This section presents the results of the statistical analyses. Among the 494 participants, 45.7% were classified as having an "extremely high risk" for CF, while 11.5% were at "high risk." A score of ≥ 50% was considered indicative of BO across PB, WB, and CB. The results

suggested that 52.4% of participants experienced PB, with 10.5% reporting "high levels" of BO and only 0.6% classified as having "severe BO." Additionally, 17.8% of participants experienced WB, while 10.9% reported CB. Among those reporting WB, 4% were at "high risk," and for CB, 2.6% were similarly at "high risk," with no cases of "severe BO" in either domain. Regarding PF, participants had an average score of 81.7 (*SD* = 16.3), indicating moderate flexibility. Please refer to Table 3 for more details.

Table 3. Descriptive Statistics of Compassion Fatigue (CF), Personal Burnout (PB), Work Burnout (WB)

Variable	Mean (Std. Deviation)	Risk Level	*n* (%)
CF	39.7 (17.4)	Extremely low risk	107 (21.7)
		Low risk	62 (12.6)
		Moderate	42 (8.5)
		High risk	57 (11.5)
		Extremely high risk	226 (45.7)
PB	50.1 (17.9)	Low (below 49)	235 (47.6)
		Moderate (50-74)	204 (41.3)
		High (75-99)	52 (10.5)
		Severe (100)	3 (0.6)
WB	36.7 (16.4)	Low (below 49)	406 (82.2)
		Moderate (50-74)	68 (13.8)
		High (75-99)	20 (4)
		Severe (100)	0 (0.0)
CB	30.8 (15.1)	Low (below 49)	440 (89.1)
		Moderate (50-74)	41 (8.3)
		High (75-99)	13 (2.6)
		Severe (100)	0 (0.0)
PF	81.7 (16.3)	N/A	N/A

Note: An average score of ≥50% is considered to indicate burnout for PB, WB, and CB. N/A = Not Applicable

The results revealed a significant relationship between CF and sociodemographic such as gender ($F_{(1, 492)} = 21.317$, $p < 0.001$), age group ($F_{(3, 490)} = 3.679$, $p = 0.021$), year of working experience ($F_{(2, 491)} = 5.316$, $p = 0.005$), and work position ($F_{(3, 490)} = 5.602$, $p < 0.001$). Furthermore, PB were significant associated with age group ($F_{(3, 490)} = 4.257$, $p = 0.006$), level of education ($F_{(3, 490)} = 3.796$, $p = 0.010$), year of working experience ($F_{(3, 491)} = 3.704$, $p = 0.025$), and work position ($F_{(3, 490)} = 5.05$, $p = 0.002$). Meanwhile, WB were significant between gender ($F_{(1, 492)} = 4.886$, $p = 0.028$), level of education ($F_{(3, 490)} = 6.495$, $p < 0.001$), year of working experience ($F_{(2, 491)} = 4.385$, $p = 0.013$), and work position ($F_{(3, 490)} = 9.603$, $p < 0.001$). However, only CB presented significance between work position ($F_{(3, 490)} = 0.683$, $p = 0.003$), and PF demonstrated no significant association with any of the sociodemographic variables ($p > 0.05$), indicating that PF levels were relatively consistent across different demographic groups. The details summarized in Table 4.

ANCOVA indicated that gender was significantly associated with CF ($p < .001$), with male HCWs yielding higher mean scores than females. Work position also presented a significant association with CB ($p = 0.025$), with medical personnel reporting higher scores compared to administrative personnel. Additionally, marital status was significantly associated with PB ($p = 0.046$). Please refer to Table 5 for more details.

Table 4. Sociodemographic Characteristics Related to Compassion Fatigue (CF), Personal Burnout (PB), Work Burnout (WB), Client Burnout (CB) and Psychological Flexibility (PF) (N = 494)

Factors	Domains									
	CF (F-value, P-value)		PB (F-value, P-value)		WB (F-value, P-value)		CB (F-value, P-value)		PF (F-value, P-value)	
Gender	21.317	<0.001*	1.05	0.307	4.886	0.028*	3.423	0.065	1.538	0.215
Age group	3.679	0.021*	4.257	0.006*	1.94	0.122	0.605	0.612	0.471	0.702
Ethnic	0.456	0.768	0.373	0.828	1.026	0.393	0.778	0.540	1.009	0.402
Marital	0.012	0.988	1.382	0.252	0.285	0.752	0.353	0.703	1.236	0.291
Religion	0.041	0.960	0.061	0.941	0.472	0.624	0.074	0.929	0.674	0.510
Highest level of education	2.523	0.057	3.796	0.010*	6.495	<0.001*	0.973	0.405	1.008	0.389
Work experience	5.316	0.005*	3.704	0.025*	4.385	0.013*	1.345	0.261	1.185	0.307
Position	5.602	<0.001*	5.05	0.002*	9.603	<0.001*	0.683	0.003*	0.683	0.563

Note: *Result showed statistically significant at $p < 0.05$. The p-values were derived from an independent sample test and a one-way ANOVA test.

Table 5. The Compassion Fatigue (CF), Personal Burnout (PB), Work Burnout (WB), Client Burnout (CB) and Psychological Flexibility (PF) with Sociodemographic Characteristics

DV	IV	Adjusted Mean (95%CI)	F-value	P-value	Partial Eta Squared	Observed Power b
CF	Gender					
	Male	44.6 (40.0, 49.0)	12.453	<.001	12.45	0.9

	Female		37.4 (34.1, 40.8)				
PB	Marital						
	a)	Married	52.8 (49.7, 55.8)	3.098	0.046	6.2	0.6
	b)	Single	47.5 (43.2, 51.8)				
	c)	Separated/ Divorced	53.0 (46.4, 59.6)				
WB	NIL						
CB	Position						
	a)	Medical	38.1 (32.2, 44.1)	3.134	0.025	9.4	0.7
	b)	Nursing	32.1 (28.7, 35.5)				
	c)	Allied Health	31.6 (28.3, 35.0)				
	d)	Administrative Personnel	26.8 (21.8, 31.8)				
PF	NIL						

Notes: All the IVs included in each multivariate model depend on IVs that were significant in univariate analysis (see Table 4). A P-value multiple comparison test was desired from the Bonferroni test.

5.0 Discussion

The findings highlight considerable mental health challenges among HCWs, with 45.7% identified as at "extremely high risk" for CF. This supports earlier evidence that continuous exposure to patient suffering contributes to emotional strain (Lombardo & Eyre, 2011). PB was the most prevalent, likely reflecting prolonged work-related stress, emotional exhaustion, and reduced job satisfaction (Khamisa et al., 2015). These outcomes emphasize the chronic strain experienced in emotionally intense care environments, especially in resource-limited healthcare settings like Sarawak.

Participants reported moderate PF and suggested a basic capacity to cope with ongoing demands. However, this may not be sufficient to offset the effects of prolonged emotional exposure (Bond, 2011; Hayes, 2012). PF is a central concept in Acceptance and Commitment Therapy (ACT), which promotes PF to help individuals stay engaged with meaningful actions under stress. Accordingly, the moderate PF levels may reflect limited formal training or lack of institutional support, leading some HCWs to rely on avoidant coping strategies such as emotional detachment or withdrawal in workplace. This underlines the need for ACT-informed psychological training in staff development and promotes emotional resilience, also enhances HCWs' ability to remain engaged with their roles despite internal stressors. Such training can equip staff with practical strategies to handle emotional strain without resorting to avoidance.

Gender differences showed that male HCWs experienced significantly higher CF than females, even after weight adjustments measurement. This aligns with findings suggesting that male HCWs face distinct challenges, including conflicting gender norms and the emotional demands of caregiving roles, which may not traditionally align with societal expectations of masculinity (Sorenson et al., 2016; Austin et al., 2017; Courtenay, 2000). These internal conflicts can increase psychological strain. Furthermore, men may also be less motivated or socially encouraged to seek emotional support or engage in self-care practices, further increasing their vulnerability to CF (Courtenay, 2000). Thus, gender-sensitive strategies, such as peer support networks, mentorship programs, or psychoeducational workshops that normalize emotional expression, could alleviate this burden and support staff retention (West, 2018).

Education level was significantly related to PB and WB and was consistent with previous research indicated that lower educational achievement is associated with greater risk of BO, due to limited autonomy and coping skills (Van Mol et al., 2015; Stam, 2000). However, CF and CB were not significantly related to level of education, suggesting that these stress responses may stem more from role-based expectations and emotional exposure rather than individual qualifications or knowledge levels (Shanafelt et al., 2015). This distinction emphasizes the importance of tailoring interventions based not only on educational background but also on the specific demands of each healthcare role.

Years of working experience were also associated with PB and WB. Early-career HCWs demonstrated higher levels of BO and is likely attributable to their limited clinical exposure, lack of professional confidence, high workloads, and insufficient institutional support systems (Moss et al., 2016; Shanafelt et al., 2015). These individuals may struggle with adapting to the emotional and cognitive demands of the profession, especially in high-pressure environments. In contrast, HCWs with more years of service may have cultivated emotional resilience and coping strategies over time, offering some protection against prolonged work-related stress. This highlights the critical need for structured mentorship and early support programs for junior staff, who are particularly vulnerable to professional BO (Hunsaker et al., 2015).

Moreover, work position was significantly linked with CF, PB, WB, and CB. HCWs in direct patient care roles, such as nurses, medical officers, and allied health staff, presented higher vulnerability, likely due to greater trauma exposure and emotional labour (Sorenson et al., 2016; Dyrbye et al., 2017; Moss et al., 2016). These findings reinforce the understanding that beyond workload and the emotional demands of frontline roles increase stress, contributing to CF and BO (Dyrbye et al., 2017).

These findings highlighting how sociodemographic and organizational stressors impact HCW well-being. For instance, significant associations were found between CF and variables such as gender, age, work experience, and work position ($p < 0.05$). Similarly, PB were linked to educational level, years of experience, and professional role. This is especially relevant in the Malaysian context, where the combination of cultural, geographical, and institutional limitations added pressures to healthcare personnel. Therefore, identified in the current findings, workforce mental health policy should be strengthened to address the structural and role-based stressors identified in the results.

6.0 Conclusion & Recommendations

This study discovered that CF and BO among HCWs in Sarawak's tertiary hospitals were significantly influenced by sociodemographic factors such as gender, education level, years of working experience, and work position, which contributed to job-related frustration. Although PF did not show significant associations, it remains a relevant psychological construct for future exploration.

Based on the findings, study's limitations include the reliance on self-reported measures and focus only tertiary hospitals in the western region of Sarawak, without inclusion of rural healthcare settings may limit the generalizability of the findings. To address these gaps and extend the study's contributions, future research should incorporate more diverse healthcare settings and particularly in rural facilities also explore mixed method approaches to validate self-report data. Research should also focus on developing and evaluating resilience-based interventions tailored to the local healthcare context, alongside implementing gender-sensitive and role-specific support strategies to mitigate CF and BO.

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Paper Contribution to Related Field of Study

This study demonstrates that CF, BO, and PF interact within a multicultural and resource-limited healthcare environment. It provides evidence to support the development of tailored mental health interventions for HCWs in similar settings, also emphasizing the role of psychological flexibility as a protective factor.

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