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The Role of Personality Peculiarities on Depression and Anxiety of Medical Doctors Using the Job-Demands Resources Model: The Mediating Effect of Job Burnout

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Abstract: Prolonged stress also known as job burnout refers to psychological conditions resulting from excessive fatigue due to work-related factors. However, distinguished features in personality might affect how people cope with job burnout which has implications for their mental health especially for their depression and anxiety. Therefore, this study intends to respond to the existing practical and empirical gaps by investigating the relationships between personality differences such as neuroticism and extraversion and mental health with the role of job burnout as the mediator. A cross-sectional study was conducted at eight public hospitals within Peninsular Malaysia. A total of 471 medical doctors from six departments participated. The result has shown that job burnout mediates the relationship between neuroticism and mental health. Job burnout made no difference to associations between extraversion and mental health.

Keywords: *Personality Differences, Job Demands Resources Model, Depression, Anxiety, public hospital, job burnout, medical doctors.*

1. Introduction and Background

Worldwide, mental disorders affect more than 450 million people. Mental, neurological and substance use disorders accounted for 13% of the total global burden of disease. The World Health Organization (WHO) estimates that 1 in 4 people are affected by mental disorders at some point in their lives. Depression alone accounts for 4.3% of the global burden of disease and is among the largest single cause of disability worldwide (World Health Organization, 2022).

Studies in Malaysia have shown that the prevalence of depression and anxiety fell within the global data ranging from 8.7 percent to 44.6 percent and 5.3 percent to 50.6 percent, respectively (Chow, Francis, Ng, Naim, et al., 2021; Ismail, Lee, Tanjung, Jelani & Latiff, 2021). Chow et al. (2021) reported that 29.5 percent of the healthcare workers, especially medical doctors working in Kuala Lumpur government hospital, demonstrated depressive symptoms, while 36.5 percent of the medical doctors displayed anxiety symptoms. Also, a multi-center study by Ismail et al. (2021) has shown depression and anxiety symptoms among 431 healthcare professionals working in government hospitals. The prevalence of depression and anxiety symptoms was 26.2 percent and 39.9 percent, respectively.

The National Health and Morbidity Survey (NHMS) conducted by the Ministry of Health (MOH) in 2015 revealed that 1 in 3 Malaysians or 29.2 percent of the population have mental health issues. This means 3 in every 10 adult Malaysians (about 9.6 million) may have mental health problems and at least 2 million adults with serious mental illnesses. To date, the national prevalence of depression is 2.3 percent of the total population in Malaysia (Allied Health Sciences Division, 2020; Medical Development Division, 2020). He added that various initiatives had been taken to address this issue; however, these initiatives will reach saturation levels (Aliman, 2019; Jabatan Audit Negara, 2019; Tawie, 2020). Aliman (2019) reported that public hospitals experience insufficient funding to provide adequate healthcare services in response to the audit findings. Tawie (2020) remarked that the shortage of medical doctors at public hospitals in Malaysia occurs due to the unequal distribution of medical doctors. In Malaysia, there are limited numbers of psychiatrists among medical doctors capable of carrying out large numbers of conducting mental illness cases. As of 2018, there were only 410 psychiatrists available to cater to the approximately 32 million population. Thus, the Ministry of Health has been advised to implement requirement mapping staff to cater social needs of people with mental illnesses (Beckstein, Rathakrishnan, Hutchings, & Mohamed, 2020). Research has shown that the prevalence of mental and physical health problems is high in Malaysian healthcare services, especially during the COVID-19 pandemic (Chow, Francis, Ng, & Naim, 2021; Woon & Tiong, 2020).

There was substantial evidence demonstrating that Malaysian medical doctors were bound to encounter pressure, like gloom, nervousness, substance misuse, addiction, and an undeniable degree of trouble due to some personality differences (Roslan, Yusoff, Razak, Morgan, & Shauki, 2021). Medical doctors who are exposed to these risks jeopardize their satisfaction and the consideration they give to their patients. Consequently, their ailments and sufferings could bring about a deferral in care conveyance, affecting their patients (Alrawashdeh, Al-Tammemi, Alzawahreh, & Al-Tamimi, 2021). Mental health problems can be seen among individuals throughout all milestones in life. Among the possible factors that may contribute to this more than two-fold rise over the past 10 years are heavy workload, lack of social support from supervisors, peers and subordinates and personality indifferences. With all these, a poor state of emotional exhaustion and excessive fatigue can further worsen one's mental health. Bakker, Demerouti and Sanz-Vergel (2023) have identified two of the Big Five Personality which are neuroticism and extraversion as proactive personality traits that are significantly related to employees' well-being. They contended that each individual is contrasted in the manner they adapt and oversee climate. Accordingly, they will encounter different degrees of job burnout even if they are in similar working circumstances.

There is a dearth of research on the mental health associated with medical doctors working in Malaysian public sector organizations (Abbas, Roger, & Asadullah, 2012; Chow, Francis, Ng, Naim, & Beh, 2021; Fauzi et al., 2020; Ismail, Lee, & Sutrisno, 2021). Generally, literature is abundant on employee well-being such as job satisfaction (Chew, Ramli, Omar, & Ismail, 2013; Dousin, Collins, & Kler, 2019; Ramlan, Rugayah, & Zarul Zafuan, 2014; Roslan, Noor Hazilah, Nor Filzatun, & Azahadi, 2014), intention to resign (Roslan et al., 2014; Soelton & Lestari, 2020), health behaviors (Alexandra-Karamanova et al., 2016) and absenteeism (Danna & Griffin, 1999) in the context of health care professional. Henceforth, there is a need to do a more in-depth study on medical doctors' mental health as the amount of research done focusing on this matter is scarce, and the generalizability of this study is limited.

2. Literature Review

Neuroticism: Neurotic individuals are more prone to experience job burnout because they tend to focus on negative perspectives in a situation. Over the years, personality indifferences have shown an increase in predicting the health status of an individual since they differ in the way they appraise and cope with the environment. Neuroticism has been linked to job burnout dimensions in various studies. A study by Farfan, Pena, Fernandez-Salinero and Topa (2020) and Farfan, Pena and Topa (2019) reported that neuroticism is the most prominent personality trait affecting adverse health outcomes. For instance, individuals with high neuroticism become anxious, hostile, and nervous when dealing with stress and pressure (Bai, Bai, Dan, Lei, & Wang, 2020). Therefore, the study anticipated that these individuals might experience high levels of emotional exhaustion. As a result of their predisposition to negative emotions, the study anticipated that these individuals would exhibit elevated levels of emotional exhaustion. Individuals with a high level of neuroticism were often more prone to concentrate on the negative aspects of a case, as well as quickly encoding and recalling negative details for potential use (Suprapto, Linggi, & Arda, 2022; Swider & Zimmerman, 2010). Yu (2020) remarked that employees with high neuroticism are more vulnerable to stress and poor coping skills. Professionals who work with the daily public face a greater risk of developing health concerns, such as mental health problems and physical health complaints (Choi, Kang, & Yeo, 2021; Naseer & Raja, 2021; Yao, Zhao, Gao, An, & Wang, 2018). For instance, healthcare professionals work with dying and chronic patients daily and are emotionally drained. The challenges arise when workers cannot communicate their authentic emotions, prompting them to conceal their feelings. This condition ultimately results in adverse effects for workers, most notably their health status, which includes mental health issues.
H1: Job burnout mediates the relationship between neuroticism and mental health.

Extraversion: Scholars have shown continuous interest in the role of extraversion influencing the ability of the individual to control their job burnout. Individuals with a higher level of extraversion have performed better in terms of their health status and mental health (Chandra & Yagnik, 2022; Iorga, Dondas, Sztankovszky, & Antofie, 2018; Suprapto et al., 2022). Failure to manage job burnout within an individual is likely to have a detrimental effect on the person's health problems (Liu, Lithopoulos, & Zhang, 2020; Maslach, Schaufeli, & Leiter, 2001). The dimension of job burnout is correlated negatively with extraversion, which indicates that the higher the score for extraversion, the healthier the individual will be. Individuals with

higher extroversion are likely to experience positive emotions, such as cheerfulness, enthusiasm, and optimism. These positive emotions make them perform more at work, leading to lower emotional exhaustion, reduced depersonalization, and increased personal accomplishment. Thus, employees with higher extroversion are associated with lesser burnout risk and exposure to mental disorders (Ang et al., 2016; Ruisoto et al., 2021).

H2: Job burnout mediates the relationship between extraversion and mental health.

3. Research Methodology

The target population of this study was medical doctors who work full-time in public hospitals under the jurisdiction of the Ministry of Health, Malaysia. However, out of 12 state hospitals, eight agreed to participate, while four withdrew participation due to their busy schedules and did not respond to the invitation. G power was used to compute the minimum sample size which was 118. Out of the 997 sets of questionnaires distributed, a total of 488 sets of questionnaires were returned. The responses yielded a response rate of 48.95 percent. However, from 488 returned questionnaires, only 471 questionnaires were found usable for analysis. The data was analyzed using the Statistical Package for Social Science (SPSS) version 28. The Smart Partial Least Square version 3.3.2, which is also known as a Structural Equation Model (SEM-Smart PLS) developed by Ringle, Wende and Becker (2015) was used to test the hypotheses to validate the data and verify the data (Hair, Hult, Ringle & Sarstedt, 2017).

4. Results

In this study, the survey solicited information about the socio-demographic profile of participants including gender, marital status, race, job grade, department and which state hospitals are from. Depression and anxiety variables were measured using a five-point Likert scale adapted from the Depression Anxiety Stress Scale (DASS) by Lovibond and Lovibond (1995). Following Sy, Afiq and Chow (2011), the present study only focused on 14 items measuring depression and anxiety using a five-point Likert scale, 1 = never to 5 = most of or all the time for the past 12 months had been used. The reliability of Cronbach's alpha for depression was reported to be 0.91 and anxiety was reported to be 0.84. Job burnout was measured using nine items adapted from an abbreviated version of the Maslach Burnout Inventory (aMBI) by McManus, Winder and Gordon (2002) following the original Maslach Burnout Inventory Human Service Survey using 22 items developed by Maslach et al. (2001). A seven-point Likert scale was used, from 1 = never to 7 = every day. The reliability of Cronbach's alpha for job burnout was reported at 0.87. Neuroticism and extraversion were measured using twelve items adapted from the Revised Neuroticism-Extraversion-Openness to Experience (NEO) And Personality Inventory (NEO-PI-R) by Costa and McCrae (1992). The reliability of Cronbach's alpha for neuroticism and extraversion was reported to be at 0.90.

Profile demographic characteristics: Table 1 below presents the demographic data of the participants involved in the study. A total of 471 medical doctors participated. It could be reported that the participants were mostly females, amounting to 297 female medical doctors representing 63.1 percent of the total participants. The remaining 174 medical doctors were males, representing 36.9 percent of the total participants. Regarding their marital status, most medical doctors were single, representing 58 percent, while 41.2 percent were married, and the remaining 0.8 percent were others. The majority of the participants were Malays (58.6%). Apart from that, 27.3 percent were Chinese, 13 percent were Indians, and 1.3 percent were others. Table 1 reported that the participants were mainly from the Emergency Department, amounting to 154 medical doctors, representing 32.7 percent of the total participants. Besides that, the participants are from eight state hospitals who agreed to participate in the study. Most participants are from Hospital Pulau Pinang, representing 76 participants.

Table 1: Participants' Profile

VARIABLE	FREQUENCY	PERCENTAGE
GENDER		
Males	174	36.9%
Females	297	63.1%
Total	**471**	**100%**

MARITAL STATUS		
Single	215	58%
Married	194	41.2%
Others	4	0.8%
Total	**471**	**100%**
RACE		
Malay	276	58.6%
Chinese	128	27.2%
Indian	61	13%
Others	6	1.3%
Total	**471**	**100%**
JOB GRADE		
UD41	265	56.3%
UD43/44	67	14.2%
UD47/48	79	16.8%
UD51/52	23	4.9%
UD53/54	21	4.5%
UD55/56	16	3.4%
Total	**471**	**100%**
DEPARTMENT		
General Medicine	85	18%
Orthopedic	19	4%
O&G	31	6.6%
General Surgery	40	8.5%
Pediatric	142	30.1%
Emergency Medicine	154	32.7%
Total	**471**	**100%**
STATE HOSPITALS		
Hospital Kuala Lumpur	49	25.8%
Hospital Melaka	58	27.2%
Hospital Tengku Ampuan Afzan	38	
Hospital Tuanku Jaafar	61	5.1%
Hospital Sultanah Bahiyah	71	15.7%
Hospital Pulau Pinang	76	
Hospital Tuanku Fauziah	50	7%
Hospital Raja Perempuan Zainab II	68	2.9%
Total	**471**	**100%**

Descriptive Statistics: Neuroticism and extraversion were measured using the five-point Likert scale. In contrast, mental health and job burnout were measured using a five-point Likert scale. For items in the seven-point Likert scale, mean scores equal to or less than 2.99 were considered low, mean scores between 3 to 4.99 were considered moderate, and mean scores of 5 and higher were considered high. Meanwhile, for items in the five-point Likert scale, mean scores of equal or less than 2.99 were regarded as low, mean scores ranging from 2 to 3.99 were regarded as moderate, and mean scores of 4 and higher were regarded as high. Table 2 below displays the outcome. These provide moderate to high mean scores for neuroticism and extraversion. In contrast, items in the five-point Likert scale mean scores for job burnout and mental health are considered low to moderate.

Table 2: Descriptive Statistics

	Descriptive Statistics		
Variable	**Factor Name**	**Mean**	**Std. Dev.**
NEO	Neuroticism	3.5334	1.3670
EXT	Extraversion	4.8025	1.0456
JB	Job Burnout	3.5121	1.3171
MH	Mental Health	1.9014	0.8394

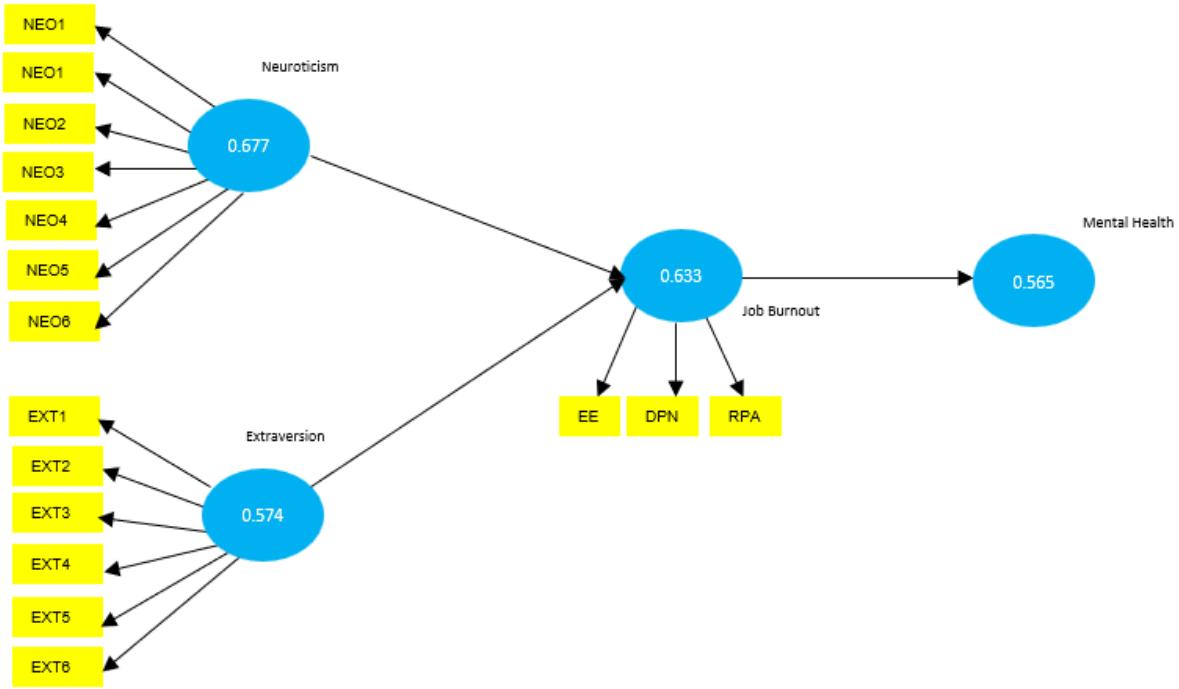
In Table 3, the study assessed the measurement model's loadings, average variance extracted (AVE), and composite reliability (CR). The values for composite reliability (CR) are considered satisfactory and very good whereby the values for neuroticism are 0.926, extraversion is 0.889, job burnout is 0.838 and mental health is 0.887. According to Henseler, Hubona and Ray (2016), to measure internal consistency, the loading of each item must be examined. Loading values in each item are considered acceptable if the loading values are equal to and greater than 0.7. Thus, loading values for neuroticism and job burnout were greater than 0.70. Besides, if the AVE scores are greater than 0.5, the loading items are still acceptable if the values are equal and greater than 0.6 (Byrne, 2016). As shown in Table 3, AVEs were greater than 0.5, and CRs were greater than 0.7. The loadings were also acceptable, with less than five loadings less than 0.708 (Hair, Risher, Sarstedt, & Ringle, 2019).

Table 3: Measurement Model for the Second-Order Constructs Outer Loadings Values, Composite Reliability (CR), and Average Variance Extracted (AVE)

Constructs	Items	Loadings	AVE	CR
Neuroticism	NEO1	0.829	0.677	0.926
	NEO2	0.841		
	NEO3	0.873		
	NEO4	0.773		
	NEO5	0.784		
	NEO6	0.831		
Extraversion	EXT1	0.786	0.574	0.889
	EXT2	0.793		
	EXT3	0.662		
	EXT4	0.820		
	EXT5	0.729		
	EXT6	0.745		
Job burnout	EE	0.853	0.633	0.838
	DPN	0.722		
	RPA	0.807		
Mental Health	AX1	0.664	0.565	0.887
	AX2	0.654		
	AX3	0.653		
	AX4	0.657		
	AX5	0.720		
	AX6	0.740		
	AX7	0.733		
	DP1	0.739		
	DP2	0.796		
	DP3	0.823		
	DP4	0.793		
	DP5	0.842		
	DP6	0.839		
	DP7	0.821		

Figure 1 shows shown job burnout was conceptualized as a higher-order construct, a hierarchical component comprising three first-order reflective constructs (emotional exhaustion, depersonalization, and reduced personal accomplishments). The second-order constructs were measured following the repeated indicators approach for the first-order constructs and moved to the second-stage approach called as embedded two-stage approach (using the latent variable score) as proposed by (Becker, Klein and Wetzels (2012), Ringle, Sarstedt and Straub, (2012) and Sarstedt, Hair, Cheah, Becky and Ringle (2019). The embedded two-stage approach was used by creating a new dataset based on the standardized scores of all constructs in the repeated indicators approach and adding a new variable, job burnout, to the model.

Figure 1: Second-Order Construct using the Embedded Two-Stage Approach



In Table 4, the structural model is examined. The assessment of the structural model involved assessing the path coefficient to assess the significance and relevance of the structural model relationship by using a 5,000-sample re-sample bootstrapping procedure (Beta, standard errors, *t*-value, *p*-value) as suggested by Ramayah, Jacky, Chuah, Ting and Memon (2018) and Wong (2013). Thus, job burnout was found to mediate the relationship between neuroticism and mental health in which the path coefficient value was 0.120 and a *t*-value of 5.062. The result also showed that all the indirect effects of 99 percent and 95 percent bootstrap BCI LL and UL for hypothesis H1 were not straddling a 0 in between, indicating that there was a significant result. Thus, the findings ascertained that H1 had a significantly positive relationship. However, job burnout was not found to mediate the relationship between extraversion and mental health, in which the path coefficient value was -0.023 with a *t*-value of 1.504. Besides that, BCI LL and UL values straddled a 0 in between. Thus, the findings revealed that H2 was not supported.

Table 4: Hypothesis Testing for Mediation Paths

Hypothesis	**Std Beta**	**Std Error**	***t-values***	***p-values***	**BCL LL**	**BCI UL**
H1 Neuroticism->Job Burnout->Mental Health	0.120	0.024	5.062	0.000***	0.068	0.196
H2 Extraversion->Job Burnout->Mental Health	-0.023	0.015	1.504	0.133	-0.064	0.016

***p <0.01.

Discussion: The mediating effect of job burnout on the relationship between neuroticism and health status was examined. Job burnout was found to mediate the relationship between neuroticism and mental health. Thus, H1 is accepted. Previous studies have confirmed that neurotic individuals are more sensitive to stressful workplaces (Bai et al., 2020; Farfan et al., 2019; Yu, 2020). They were more attentive to adverse emotional reactions and were more likely to be triggered by job burnout (De Hoogh & Den Hartog, 2009). For instance, when medical doctors had a high degree of neuroticism, they were more susceptible to stress and developed mental illnesses, such as depression and anxiety (Bai et al., 2020; Rees et al., 2016). The prevalence of job burnout in this study was similarly lower by 12.31 percent when compared to a study by van de Wal, Bucx, Hendriks, Scheffer and Prins (2016), in which the prevalence of job burnout accounted for 13 percent. It was known that not all medical doctors with job burnout symptoms sought help and stopped working.

However, job burnout did not impact the relationship between extraversion and mental health. The results contradict previous literature stating that personality differences influenced how individuals dealt with job burnout (Iorga et al., 2018). Failure to manage job burnout causes the person to experience health problems (Maslach et al., 2001; Shanafelt et al., 2002). A study by Farfan et al. (2020) discovered that job burnout had no impact on the relationship between extraversion and mental health. The results are consistent with a study by Farfan et al. (2020) stating that a stressful working environment did not necessarily affect all employees, and they suffered from chronic occupational stress syndrome. The medical doctors in Malaysia were able to manage and encounter stress depending on their personality traits and their own life experiences. Thus, medical doctors who had other working experience as medical doctors were prone to experience less stress and maintain good health due to their coping abilities. Besides that, the other argument was that medical doctors with extraversion personalities might hardly experience stress at the workplace since they know how to counteract the problems at the workplace. In other words, some medical doctors perceive problems positively and find solutions instead of dragging their negative emotions for too long (van de Wal et al., 2016). Thus, personality differences impacted the development of job burnout and mental and physical health. Extrovert individuals tend to demonstrate positive attitudes rather than neurotic individuals. They perceived that a stressful workplace provided them with more opportunities than threats (Rogers & Barber, 2019). Thus, the findings in the study showed that medical doctors in Malaysia received a more significant perceived work-related stress; however, due to personality differences, they quickly adapted to their work environment.

5. Practical Implications and Recommendations

The study provides several managerial implications to the Ministry of Health Malaysia (MOH), Malaysian Medical Council (MMC), and other public administrations on the personality peculiarities influencing job burnout and health status. According to the Twelfth Malaysia Plan, several programs and campaigns have been introduced to combat mental health by introducing interventions and treatments and increasing awareness through concerted efforts with related agencies, volunteers, and community-based organizations (CBOs). The MENTARI community will be expanding to reach more mental illness patients, especially among healthcare professionals (Medical Development Division, 2020). Besides that, the national suicide registry will be established to assist in formulating effective measures to address the rising suicide rate due to mental illnesses (Economic Planning Unit, 2021). According to The Medical Program, incentive packages shall be further improved to encourage medical doctors to serve the public sector. They also need to provide more training to medical doctors to improve competencies in clinical governance and public health practices (Medical Development Division, 2020). In this way, Townsley, Li-Wang and Katta (2023) proposed positive psychology intervention (PPI) that assists with further improving healthcare workers' well-being, especially medical doctors. Meditation and therapy to regulate healthier emotional management can be implemented as part of the intervention programs to mitigate the effects of work-related stress factors (Fornes-Vives, Gracia-Banda, Frias-Navarro, & Pascual-Soler, 2019; Rees et al., 2016).

Conclusion: The main finding of this study was to investigate the relationship between personality differences such as neuroticism and extraversion and mental health with the role of job burnout as the mediator. These variables are consistent with the Job Demands Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and Conservation of Resources Theory (COR) theory (Hobfoll, 1989; Hobfoll & Freedy, 1993) which guide the major part of this research. The study expands prior research on mental health which will add to the current body of knowledge on health status in the medical context and the healthcare industry. Limitations of the study occurred in the study. This study is self-reported in which only one single source is used to answer all the questionnaires. Apart from that, the study uses the cross-sectional design, which reduces the ability to assert causal relationships, revealing the relationship between different variables at one point. Henceforth, it is recommended for future research to implement longitudinal studies to determine not only a specific temporal event but also to observe the medical doctors' health status that changes over time (Diener, Pressman, Hunter, & Delgadillo-Chase, 2017; Kinman & Teoh, 2018). The result from this study suggests more job resource variables, specifically in personality traits, because personality traits need to be explored to enlighten the relationship between job burnout and health status. Ntantana et al. (2017) elucidated that personality differences determine how medical doctors handle stress and survive in the workplace. Stress that leads to job burnout and health

impairment also can be decreased once the individual or the medical doctors seek proper support and help. Differences in the social environment, such as personality indifferences, neuroticism or extraversion, demand or support, and the intense or relaxed situation may add to or lessen the strains contributing to job burnout. Therefore, it is very pertinent for future research to explore personality peculiarities to buffer the impact of chronic stress and other health illnesses.

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