ORIGINAL PAPER

Exploring Burnout Among Malaysian Junior Doctors Using the Abbreviated Maslach Burnout Inventory

Zuraida AS and Zainal NZ

The Psychological Medicine Research group of University Malaya (PARADIGM), University of Malaya, 50603 Kuala Lumpur, Malaysia

Abstract

Objective: The study aimed to explore the prevalence of burnout among the junior doctors and to examine the psychometric properties of abbreviated Maslach Burnout Inventory (aMBI). Methods: A cross-sectional study was conducted using aMBI self-reported questionnaire and Hospital Anxiety Depression Scale which was carried out on a sample of 117 junior doctors working in a teaching hospital in Malaysia. Results: Exploratory factor analysis of aMBI revealed a three-factor structure labelled as emotional exhaustion, depersonalization and personal accomplishment with Crohnbach's alpha of 0.85, 0.59 and 0.64 respectively. The total variance was 67%. Prevalence of burnout was found at 26.5%. Emotional exhaustion and depersonalization were positively correlated with depression and anxiety. Shorter duration of residence (less than six months) and being posted to Trauma & Emergency unit were associated with higher mean score of burnout. Conclusion: This study provides the knowledge of level of burnout among the junior doctors and the abbreviated Maslach Burnout Inventory has a satisfied psychometirc properties for screening burnout among junior doctors in Malaysia.

Keyword: Abbreviated Maslach Burnout Inventory, Burnout, Doctors, Psychometric Properties, Validity

Introduction

A non-conducive work environment and having continuously to deliver the high standards of care among patients can bring about feelings of persistent nervousness and anxiety among the doctors[1]. As a result, these doctors would distance themselves from treating the patients to avoid further emotional and physical fatigue and eventually would experience job dissatisfaction and burnout[1]. The risk of major depressive disorder is greater when the level of burnout is severe[2].

In Malaysia, all junior doctors or commonly identified as house officers are required to undergo two years of major clinical posting rotations in the government or teaching hospitals. This requirement is made compulsory in accordance to Medical Act 1971 prior to registration with the Malaysian

Medical Council. Throughout this period, they are expected to apply their undergraduate medical knowledge, and to acquire as many skills under the supervision of attending senior physicians. However, it was reported these junior doctors were suffering from an emotional burnout[3]. In addition, the house officers perceived that fears of making mistakes with serious consequences, work overload, and working with uncooperative colleagues were the three most stressful events[4]. The junior doctors tend to dissatisfy with their medical career, become depressed, anxious and burned out[5] and subsequently cause disruptive effect towards the entire healthcare team, patient care, and eventually their personal lives[6].

Freudenberger was the first to introduce the concept of burnout in 1974 when he observed some emotional depletion, lack of motivation and reduced commitment among volunteers at a drug rehab clinic[7]. Maslach and her colleague independently described burnout as a three-dimensional syndrome consists of emotional exhaustion, depersonalization and reduced personal accomplishment in Maslach Burnout Inventory (MBI) that consisted of 22-item three-dimensional domains of exhaustion, cynicism, and inefficacy[8]. Although the three-dimensional definition that is implied in the MBI has been widely used in research of burnout, dichotomizing burnout into 'cases' and 'non-cases' has been applied in some studies. Depending on the conceptualization of burnout, individuals can be considered as burnt out based on high scores (75th percentile or higher) on emotional exhaustion, in combination with either high depersonalisation score or a low personal accomplishment score[9].

Subsequently McManus and colleagues (2002) developed the 9-item abbreviated version of Maslach Burnout Inventory (aMBI) to measure causal relations between burnout and stress among UK doctors[10]. It consists of subscales of emotional exhaustion (with three items that describe feelings of being emotionally exhausted because of the work), depersonalisation (with three items that describe detached and impersonal treatment of patients), and personal accomplishment (with three items that describe beliefs of competence and achievement at work). This study was able to show that emotional exhaustion caused the doctors to be more stressed, and stress caused doctors to be more emotionally exhausted. Depersonalisation is seen as 'an ego-defence mechanism' to reduce stress whereas personal accomplishment causes both stress and emotional exhaustion to build up. Burnout was also, found to be correlated with depression especially those of emotional exhaustion, which was similar to sadness and fatigue of depression, and depersonalization to social withdrawal[11].

In view of the lack of published data on the prevalence of burnout among junior doctors using abbreviated MBI, this study was designed to: (a) investigate the psychometric properties of aMBI, and (b) to examine the prevalence of burnout and associations between socio-demographic profiles, depression, anxiety and burnout among the junior doctors working in a teaching hospital in Malaysia.

Methods

This cross-sectional study was carried out on a sample of 117 junior doctors from the department of Medicine, Obstetrics & Gynecology, Surgery, Anaesthesiology, Trauma and Emergency Medicine, Pediatrics, and Orthopedics in a tertiary teaching hospital in Malaysia. These junior doctors were approached during their two-

weekly hospital Continuous Medical Education (CME) sessions using universal sampling technique.

Measures

Sociodemographics profile
This part included questions on gender, age, ethnicity, marital status, university and year graduated, current rotation and duration of residency training.

Burnout and Satisfaction with Medicine
Burnout was measured using the emotional exhaustion, depersonalization, and personal accomplishment subscales that form the nine-item abbreviated MBI[10,12]. The emotional exhaustion subscale describes feelings of being emotionally exhausted because of the work and contains three items. The depersonalization subscale describes detached and impersonal treatment of patients and consists of three items. The personal accomplishment subscale contains three items that describe beliefs of competence and successful achievement at work whereby reduced personal accomplishment described a feeling of reduced competence and a lack of success/achievement in one's work with people. There are seven possible answers for each item with a score ranged from 0 (never) to 6 (every day). This study used recommended guidelines, i.e. a high level burnout was determined by combining the high scores for emotional exhaustion and depersonalization ($\geq$ 75 percentiles)[13,14].

Hospital Anxiety and Depression Scale (HADS)
To determine the concurrent validity, scales for assessing anxiety and depression were administered. A self-report Hospital Anxiety and Depression Scale (HADS) was given to the participants to rate their mood profiles. The HADS is a brief 14- item, self-administered questionnaire specifically designed for screening of anxiety and depressive symptoms which contains two subscales: anxiety (HADS-A) and depression (HADS-D). The anxiety and depression subscales are scored from 0 to 3 (four-point likert scales), any domain score $\geq$ 8 is considered as "caseness"[15].

Procedure

This research protocol was approved by the Medical Ethics Committee of the University Malaya Medical Center, Ministry of Higher Education Malaysia, Kuala Lumpur (UMRP012/2012A).

Statistical analysis
The Statistical Package for Social Sciences (SPSS) version 20.0 was used to analyze data in this study. Descriptive analysis for sociodemographics, burnout, satisfaction with medicine, depression and anxiety were performed. The internal consistency of the aMBI was assessed using the Cronbach's alpha coefficient. These statistics provide an indication of the average correlation among items that make up the scale. Usually α of 0.50 and above is acceptable[16]. Principal component analysis with promax rotation method was used to explore the factorial construct of the scale. The number of factors or constructs to obtain was decided based on: the Bartlett's test of sphericity must be < 0.05, and the Kaiser-Meyer-Olkin (KMO) measure of Sampling Adequacy must be more than 0.6. A new factor or component is obtained if the eigenvalue of the factor is more than one. Items were assigned to the factor that produced the highest factor loading. The internal consistency of each factor was confirmed by calculating Cronbach's alpha. The internal consistency of the aMBI was analyzed by examining item-total correlations and calculating Cronbach's α for the whole scale and serially

with one item removed. Concurrent validity was examined between aMBI and HADS using Spearman's correlation. The accepted level of significance was set below 0.05 (p<0.05).

Results

A total of 125 junior doctors was enrolled in this study, but only 117 gave full participation (93.6% response rate). The majority of the respondents were females (52.14%) and the mean age for the participants was 26.92 (± 1.519 *sd*). Malays and Chinese were almost equally distributed. Slightly less than half of them (43.59%) graduated from international universities abroad prior to them obtaining their Medical Degree. 45.61% had a minimum housemanship period of 12 months during the study period. Most of the respondents were currently doing rotation in Paediatric (24.79 %) and Orthopaedic (23.08%).

Table 1. Exploratory factor analysis of the aMBI items that assessed burnout

Items	Factors†			
	1	2	3	Communalities
I feel fatigued when I get up in the morning and have to face another day on the job.	.938			.787
I feel emotionally drained from my work.	.835			.723
Working with people all day is really a strain for me.	.728			.653
I've become more callous towards people since I took this job.	.714			.678
I deal very effectively with the problems of my patients.		.767		.602
I feel exhilarated after working closely with my patients.		.764		.568
I feel I'm positively influencing other people's lives through my work.		.670		.551
I feel I treat some patients as if they were impersonal objects.			.923	.808
I don't really care what happens to some patients.			.655	.664
Eigenvalues	3.452	1.571	1.011	
Cronbach's α (all items, α = .659)	.847	.593	.636	

aMBI: abbreviated Maslach Burnout Inventory
†Only loadings > 0.30 are displayed. For items that cross-loaded on more than one factor, only the highest loading was retained

As for the studied instrument (aMBI), the correlation matrix for each of 9 items was between 0.30 and 0.60. Thus, all the items correlated adequately in the construct. The aMBI exhibited moderate internal consistency, with overall Cronbach's alpha coefficient of 0.66 and Cronbach's alpha if item deleted, ranged from 0.56 to 0.71.

As shown in Table 1; three factors were extracted, and all nine items yielded satisfactory loadings of between 0.670 and 0.938. Each factors explained 38.36%, 17.45% and 11.24% respectively of the variance in the nine items giving a 67.05% of the total variance. The KMO value was 0.801 and was considered good. Bartlett's test of spherecity showed a value of $p<0.05$ and, therefore, the variables were totally independent of each other. This new factor, labelled as emotional exhaustion had four items: *'I feel emotionally drained from my work,' 'I feel fatigued when I get up in the morning and have to face another day on the job,' 'Working with people all day is really a strain for me'* and *'I've become more callous towards people since I took this job*.' The other factor, labelled as depersonalization (DP) had two items: *'I feel I treat some patients as if they were impersonal objects'* and *'I don't really care what happen to some patients'*. The third factor, labelled as personal accomplishment (PA) had three items: *'I deal very effectively with the problems of my patients,' 'I feel I'm positively influencing other peoples' lives through my work'* and *'I feel exhilarated after working closely with my patients'*.

Table 2. Univariate analysis of aMBI scores in relation to demographics profile of the junior doctors

Characteristics		**n (%)**	**aMBI burnout score (mean ± *sd*)**	**aMBI subscales score (mean ± *sd*)**		
				Emotional exhaustion (EE)	**Depersonalization (DP)**	**Personal accomplishment (PA)**
Gender	Male	56(47.86)	16.18 ± *7.78*	12.65 ± *5.94*	3.53 ± *3.17*	12.68 ± *3.61*
	Female	61(52.14)	15.63 ± *8.41*	12.38 ± *6.20*	3.25 ± *3.17*	12.18 ± *3.51*
Ethnicity	Malay	49 (41.88)	16.35 ± *8.31*	12.78 ± *5.93*	3.57 ± *3.40*	12.04 ± *3.35*
	Chinese	51 (43.59)	15.22 ± *8.07*	11.73 ± *6.01*	3.49 ± *2.91*	12.61 ± *3.89*
	Indians	17 (14.53)	17.57 ± *7.57*	14.12 ± *6.51*	2.53 ± *3.22*	13.00 ± *3.08*
University Graduated	Local	66 (56.41)	15.88 ± *7.92*	12.30 ± *6.12*	3.58 ± *2.95*	12.65 ± *3.35*
	Overseas	51 (43.59)	15.92 ± *8.36*	12.78 ± *6.01*	3.14 ± *3.42*	12.14 ± *3.81*
Duration of residency	< 6 months	29 (24.79)	**17.38 ± *8.22****	12.79 ± *5.62*	**4.59 ± *3.31****	12.17 ± *3.45*
	6 - 12 months	34 (29.60)	15.68 ± *8.29*	13.32 ± *6.66*	2.35 ± *3.05*	12.97 ± *3.48*
	> 12 months	54 (45.61)	15.24 ± *7.92*	11.85 ± *5.92*	3.39 ± *2.96*	12.22 ± *3.67*
Current rotation	Paeds	29 (24.79)	15.00 ± *7.67*	12.03 ± *5.79*	2.97 ± *3.39*	11.55 ± *3.83*
	O&G	13 (11.11)	14.85 ± *6.73*	11.23 ± *5.48*	3.62 ± *2.43*	12.85 ± 3.*00*
	Surgery	19 (16.24)	17.58 ± *10.39*	13.95 ± *7.71*	3.63 ± *3.85*	13.00 ± *4.10*
	Medicine	19 (16.24)	17.00 ± *7.33*	13.42 ± *5.51*	3.58 ± *2.97*	12.53 ± *3.01*
	Ortho	27 (23.08)	14.15 ± *7.50*	11.37 ± *5.81*	2.78 ± *2.71*	12.37 ± *3.94*
	Anaest	4 (3.42)	10.75 ± *5.91*	9.00 ± *4.55*	1.75 ± *1.50*	13.25 ± *2.63*
	Trauma	6 (5.12)	**25.00 ± *4.60****	17.67 ± *3.67*	**7.33 ± *2.07****	13.33 ± *1.75*

aMBI: abbreviated Maslach Burnout Inventory; Anaes: Anaesthesialogy; O&G: Obstetrics & Gynaecology; Paeds: Paediatric; Trauma: Trauma & Emergency
*$p < 0.05$

Table 2 presents the subscale scores of the aMBI by demographic profile. Employing the Benferroni post hoc test, junior doctors with duration of housemanship of less than

six months had the highest score of burnout and DP score compared to those in the 6 to 12 months duration ($F(117) = 4.121$, $p<0.05$ and $F(117) = 4.132$, $p<0.05$ respectively). For those doing Trauma and Emergency posting had significantly higher mean difference of burnout and DP score than those in the Paediatric and Orthopaedic postings ($F(117) = 2.166$, $p<0.05$ for burnout and $F(117) = 2.157$, $p<0.05$ for DP). Based on the previous recommendation, the aMBI cut-off points for severe burnout was set at ≥ 75th percentile of the EE total score combined with the total score of DP[9]. This study found that the cut-off point for severe burnout was at ≥ 22 (Table 3). Hence the prevalence of burnout among the junior doctors was found at 26.5%.

Table 3. Scores of the aMBI and its sub-scales

Scale/ Subscale	No. of items	Mean (*sd*)	Min - Max	Percentiles 25th	50th	75th
EE + DP	6	15.90 (*8.080*)	0 - 32	9.00	16.00	22.00
EE	4	12.51 (*6.051*)	0 - 24	8.00	12.00	18.00
DP	2	3.38 (*3.159*)	0 - 11	0.00	3.00	6.00
PA	3	12.43 (*3.551*)	1 - 18	10.00	12.00	15.00

aMBI: abbreviated Maslach Burnout Inventory; DP: Depersonalisation; EE: Emotional exhaustion; EE + D: Burnout; PA: Personal accomplishment

EE and DP were positively and significantly correlated with depression and anxiety subscores of HADS as shown in Table 4. Burnout scores and anxiety ($r = 0.436$, $p<0.01$) and depression ($r = 0.399$, $p<0.01$) were positively and significantly correlated. Of the 117 respondents, 19 (16.2%) were found to have depression and 39 (33.3%) were having anxiety based on HADS.

Table 4. Correlation (Spearman's rho) between aMBI (Emotional exhaustion score, Deper-sonalization score, Personal accomplishment score and Burnout score), HADS-A and HADS-D

	aMBI			EE +DP	HADS	
	EE	**DP**	**PA**	**(Burnout)**	**HADS-A**	**HADS-D**
EE	1.000					
DP	**.478****	1.000				
PA	**-.196****	-.137	1.000			
EE + DP	**.938****	**.738****	**-.190***	1.000		
HADS-A	**.525****	**.497****	**-.467***	**.436****	1.000	
HADS-D	**.424****	**.403****	**-.376***	**.399****	**.745****	1.000

DP: Depersonalization; EE: Emotional exhaustion; HADS: Hospital Anxiety Depression Scale; HADS-A: Anxiety; HADS-D: Depression; PA: Personal accomplishment
*$p<0.05$ and **$p<0.01$ level

Discussion

For more than 35 years since the introduction of burnout into the psychological literature, the concept of burnout has inspired researchers to study the effect of job stress in areas of caring professions such as teachers, nurses and doctors[17]. This study is the first published paper to explore the structural construct of the abbreviated version of Maslach Burnout Inventory (aMBI) and to estimate the prevalence of burnout among junior doctors in a tertiary teaching hospital in Malaysia.

McManus and colleagues (2002) who developed the abbreviated Maslach Burnout Inventory (aMBI), were able to confirm through factor analysis the presence of three factors: emotional exhaustion (EE), depersonalisation (DP) and personal accomplishment (PA)[10]. Our study reproduced similar dimensions of aMBI but with one modification: the item *'I've become more callous towards people since I took this job'* loaded on the factor EE rather than DP. This item probably was seen as one's concern of his or her feeling due to exhaustion from the work dealing with patients rather than having negative attitudes towards work. Further studies may explain possibly cultural differences as the Asian may interpret this item as becoming 'emotional and cognitive distancing from the job' rather than 'lack of engagement and distancing from patients' compared to the western doctors[18].

Previous research has suggested that PA subscale was not included among the criteria for burnout and high scores on the EE and DP subscales were indicative of burnout[19]. Consistent with the recommended guidelines[9], this study used cut-off point for burnout as ≥75 percentiles of the total EE and DP and found the prevalence of burnout among the Malaysian junior doctors at 26.5%. This prevalence is higher than rates among doctors in Yemen and China where burnout was reported to be at 11.7% and 12% respectively[3,20]. However, a fair comparison can only be made if these studies used similar conceptualization of burnout i.e. multidimensional or unidimensional construct[9], and, therefore, further studies are clearly indicated for this purpose.

This study also looked at the predictive validity of burnout in relation to anxiety and depression using Hospital Anxiety and Depression Scale (HADS) and found a significant and positive correlation with anxiety (r = +0.436, p<0.01) and depression (r = +0.399, p<0.01). Based on the 'Conservation of Resources' theoretical framework[21], it was proposed that at the initial stage of job burnout; the stress experienced by the individuals causing them to cope with the limited energetic resources and the fear of losing control lead to co-occurrence of anxiety. At the later stage of burnout, when these active coping behaviors became ineffective; depressive symptoms emerged, and this could be seen as unsuccessful coping[21]. McManus and colleagues who developed aMBI and used this inventory to study the causal link between burnout and stress among UK doctors found a reciprocal causation between emotional exhaustion and high level of stress[10]. PA was seen as a mediating factor that increased both level of EE and stress whereas DP lowered the stress through possible 'ego-defence mechanism'[10]. DP was recognised as adaptive initially but as the expectation on PA increased; so was the burnout among doctors. Since our study was done cross-sectionally, the causal relationship was not possible but it is important for future studies

to look at the path linking burnout to depression and anxiety.

Greater DP and burnout score were found among junior doctors doing housemanship for less than six months and those currently posted to the Trauma and Emergency unit. These recently graduated junior doctors started their housemanship as early as 24 years old and study by Panagopoulou and colleagues (2006)[22] on burnout among physicians, found that higher level of depersonalization were reported among the younger doctors and was predicted by number of hours worked per week. As for those posted to Trauma and Emergency unit, the possibility of having to deal with emergency cases and concerned family members at longer extended hours explained the high level of depersonalization among these junior doctors.

There are several limitations in the present study. First, the internal validity of the study is limited by the cross-sectional design, making it difficult to study causal relationships. Further study using structural equation modelling and bigger sample size are recommended to confirm the structure between these three burnout dimensions and longitudinally assess the pattern of relationships identified in this study. Second, participants in this study were limited to junior doctors in a teaching hospital and therefore, future studies should include other junior doctors working across all hospitals in Malaysia.

Conclusion

Based on the results of this study, abbreviated version of Maslach Burnout Inventory (aMBI) is a valid instrument to assess burnout among doctors using a dichotomous burnout score. This study found that, more than one-fifth of the junior doctors had burnout especially among those early in the housemanship and having to cope with demanding situations such as in the Trauma and Emergency unit. The results of this study have implications for the identification, treatment and prevention of burnout among the junior doctors. This is important as there were significant correlations between burnout and symptoms of anxiety and depression. Therefore, future study using structural equation modeling is recommended in order to confirm the underlying construct of aMBI and to study the causal link between each component of burnout with other biological and psychosocial modalities.

Acknowledgements

The authors would like to thank all the junior doctors involved in this study. This study is supported by institutional research grant from the University of Malaya Research Grant (UMRP012/2012A). The content of the work is solely the responsibility of the authors.

References

1. Maslach C. Job burnout: new directions in research and intervention. Curr Dir Psychol Sci. 2003;12:189-192.

2. Ahola, K, Honkonen T, Isometsa E, Kalimo R, Nykyri E, Aromaa A. The relationaship between job-related burnout and depressive disorders - results from Finnish Health 2000 Study. J Affect Disord. 2005;88(1):55-62.

3. Al-Dubai SAR., Ganasegeran K, Perianayagam W, Rampal K., Emotional Burnout, Perceived Sources of Job Stress,Professional

Fulfillment, and Engagement among Medical Residents in Malaysia. The ScientificWorld Journal. 2013.

4. Yusoff MSB, Jie JY, Esa AB. Stress, Stressors And Coping Strategies Among House Officers In A Malaysian Hospital. ASEAN Journal of Psychiatry. 2011;12(1).

5. Stawicki SP. Short timers syndrome among medical trainees: Beyond burnout. OPUS 12 Scientist. 2008;2(1):30-32.

6. Espeland KE. Overcoming burnout: how to revitalize your career. The Journal Contin Educ Nurs. 2006;37:178-184.

7. Freudenberger HJ. Staff burn-out. J Soc Issues. 1974;30:15.

8. Maslach C, Jackson SE. Maslach Burnout Inventory. Vol. 2. 1981, Palo Alto: Consulting Psychologists Pr.

9. Brenninkmeijer V, VanYperen N. How to conduct research on burnout: advantages and disadvantages of a unidimensional approach in burnout research. Occup Environ Med. 2003;60((Suppl I)):16-20.

10. McManus IC, Winder BC, Gordon D. The causal links between stress and burnout in a longitudinal study of UK doctors. Lancet. 2002;359:2089-2090.

11. Leiter MP, Durup J. The discriminant validity of burnout and depression: A confirmatory factor analytic study. Anxiety, Stress and Coping. 1994;7:357 - 373.

12. Schaufeli WB, Bakker A, Schaap C, Kladler A, Hoogduin CAL. On the clinical validity of the Maslach Burnout Inventory and the Burnout Measure. Psychology & Health. 2001;16:565-582.

13. Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annual Review of Psychology. 2001;52:397-422.

14. Schaufeli WB, Enzmann D. The burnout companion to study and research: a critical analysis. 1998, London: Taylor and Francis.

15. Lua PL, Wong SY. The Reliability of the Malay Versions of Hospital Anxiety Depression Scale (HADS) and Mcgill Quality of Life Questionnaire (MQOL) among a Group of Patients with Cancer in Malaysia. Malaysian Journal Of Psychiatry. 2012;21(1):25-37.

16. Blacker D, Endicott J. Handbook of psychiatric measures. Psychometric properties: Concepts of reliability and validity. 2000, Washington, DC: American Psychiatric Association.

17. Schaufeli WB, Leiter MP, Maslach C. Burnout: 35 years of research and practice. Career Development International. 2009;14(3):204-220.

18. McManus IC, Keeling A, Paice E. Stress, burnout and doctors' attitudes to work are determined bypersonality and learning style: A twelve year longitudinal study of UK medical graduates. BMC Medicine. 2004;2(29).

19. Maslach C, Jackson SE, Leiter MP (eds). Maslach burnout inventory manual., ed. 3rd. 1996., Consulting Psychologists Pr: Palo Alto, CA.

20. Wu H, et al., Factors associated with burnout among Chinese hospital doctors: a cross-sectional study. BMC Public Health. 2013(13):786.

21. Hobfoll SE, Shirom A. Conservation of resources. Application to stress and management in the workplace, in Handbook of organization behavior R.T. Golembiewski Editor. 2000, Dekker: New York.

22. Panagopoulou E, Montgomery A, and Benos A. Burnout in internal medicine physicians: Differences between residents and specialists. European Journal of Internal Medicine. 2006;17:195-200.

Corresponding Author
Dr Zuraida Ahmad Sabki
Department of Psychological Medicine
Faculty of Medicine
University of Malaya,
50603 Kuala Lumpur, Malaysia

Email: zuraidaas@ummc.edu.my