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Associations between coping styles and psychological stress among medical students at Universiti Putra Malaysia

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Abstract
Effective coping styles can help buffer psychological stress in medical students. As the prevalence rate of stress is considerably high in such population, identifying the associations between coping styles and psychological stress is paramount. This cross-sectional study aims to determine the associations between coping styles and psychological stress involving medical students at Universiti Putra Malaysia. Participants completed the Depression Anxiety Stress Scale (DASS 21), the Brief COPE. Using Chi-square tests, findings revealed that venting and self-blame were significantly associated with psychological stress. Stress management techniques emphasizing in coaching students to improve their coping styles are important to reduce stress and to sustain well-being throughout medical program.

Keywords Psychological stress · Medical students · Coping styles · Venting · Self-blame

Introduction

Psychological problems among medical students have increasingly been acknowledged and received research attention over the years. Medical students undergo more depression and anxiety than same-age peers (Dyrbye et al. 2006) and than students from other professional courses (De La Rosa-Rojas et al. 2015), highlighting the need for early identification of stressors (Yusoff 2011). Moreover, the prevalence rates of depression in public university medical students and in private university students were reported. For the former, it was estimated to be 21.7% in Malaysia (Sherina et al. 2004, Yusoff et al. 2011a, b), 29.1% in India (Sidana et al. 2012), and 43.8% in Pakistan (Jadoon et al. 2010). As for the latter, higher prevalence rates were reported with 32.5 to 46.2% in Malaysia (Zaid et al. 2007; Fuad et al. 2016), 49.1% in India (Singh and Shekhar 2010), and 60% in Pakistan (Inam et al. 2003). The prevalence of stress in Malaysian medical students was 56% (Salam et al. 2013) which is comparable to that of Bangladesh (Eva et al. 2015) but much higher than that of India (Mannapur et al. 2010).

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There are many factors contributing to stress in medical students. High academic demand and laborious training pertaining to medical program could exert negative effects on physical and mental health in students (Coumaravelou and Wilks 2014, Muhammad et al. 2010). External factors (e.g., family conflicts) and internal factors (e.g., coping styles) were predictive of stress among medical students (Eva et al. 2015; Muhammad et al. 2010; Sherina et al. 2003). Students' personality and temperament factors have been described to form an internal structure of the coping reservoir (Dunn et al. 2008).

Adaptive coping/problem-solving skills were negatively associated with psychological stress (Thomas et al. 1994), whereas escape/avoidance copying skills were positively associated with psychological stress (Bassols et al. 2015), in medical students. There are various forms of coping styles. In particular, coping styles such as venting, emotional support, and self-blame were associated with stress among medical students (Nikmat et al. 2010; Ribeiro et al. 2017). Therefore, empirical findings on the associations between specific coping styles and the development of psychological distress are of great importance as they can provide vital insight into subsequent intervention implementations targeting medical students. The objective of the present study was to examine the associations between various coping styles (operationalized as venting, emotional support, and self-blame) and psychological stress using a sample of among medical students at Universiti Putra Malaysia (UPM).

Methods

Participants and Procedure

This cross-sectional study was carried out at Faculty of Medicine and Health Sciences, Universiti Putra Malaysia from April to August 2013. Medical students were recruited via convenience sampling technique. The mean of age of participants was 21.38 years old with a standard deviation (*SD*) of 1.13. We only recruited medical students from Year 1 to Year 4. Year 5 medical students were excluded because they were involved in final professional exam at the time of study recruitment. Prior to data collection, we obtained approval from the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia. Following ethics procedure, consent forms were given to participants during data collection. Participation in this study was voluntary. We approached 400 potential participants, 384 agreed to participate. The response rate for the present study was 96%.

Measures

Socio-Demographic Characteristics We obtained information on age, gender, ethnicity, and year of study.

Depression Anxiety Stress Scale (DASS 21; Henry and Crawford 2005) Only the DASS 21 stress domain was administered in this study. Participants rated each stress item on a four-point Likert scale ranging from 0 (*did not apply to me at all over the last week*) to 3 (*applied to me very much or most of the time over the past week*). Total scores on the stress domain were categorized into normal, mild, moderate, severe, and extremely severe. These categories were then divided into two groups for statistical analyses. Categories including normal and mild were considered as having no psychological stress (No), whereas categories including moderate, severe, and extremely severe were considered as having psychological stress (Yes). Cronbach's alpha for the stress domain in the present study was .86.

Brief COPE (Carver 1997) In this study, the Brief COPE was used to measure coping strategies in participants. Participants rated items in a four-point Likert scale ranging from 1 (*not doing it at all*) to 4 (*doing it a lot*). The scale has 14 domains describing different coping strategies. Of these, only 3 domains were chosen in the present study: Emotional Support (items 5 and 15), Venting (items 9 and 21), and Self-Blame (items 13 and 26). From past research, it was reported that only these three domains were significantly associated with psychological stress. Total scores on these dimensions were obtained. We then categorized the scores into high and low levels using 50th percentile. Cronbach's alphas for the Emotional Support, Venting, and Self-Blame domains were .64, .44, and .55, respectively, in the present study.

Data Analytic Plan

Data were analyzed using the SPSS version 21 and chi-square tests were performed to examine the associations between coping style variables and psychological stress. A p value of less than .05 was considered significant in the present study.

Results

Table 1 shows socio-demographic characteristics in the present sample. About 60% of the participants were in their first and second year of study while the remaining were in the third and fourth year of study. The sample was predominantly female. More than half of the present sample were Malay. No significant associations between socio-demographic characteristics with psychological stress were reported (see Table 2). The prevalence of psychological stress among the respondents was 15.6%. High levels of venting and self-blame were significantly associated with psychological stress ($p = .001$) (Table 3).

Discussion

The primary objective of the present study was to examine to associations between coping styles (emotional support, venting, and self-blame) and psychological stress in a sample of medical students. There are a few important findings in this study.

Firstly, there are significant associations between coping styles variables (venting and self-blame) and psychological stress. It appears that UPM medical students who endorsed

Table 1 Socio-demographic characteristics

Characteristics	Frequency (*n*)	Percentage (%)
Age		
19 to 21 years old	203	52.9
22 to 23 years old	181	47.1
Year of study		
Year 1	108	28.1
Year 2	115	29.9
Year 3	86	22.4
Year 4	75	19.5
Gender		
Male	135	35.2
Female	249	64.8
Ethnicity		
Malay	203	52.9
Non Malay	181	47.1

Table 2 Associations between socio-demographic characteristics and psychological stress

Variables	Psychological stress, *n* (%)		Total	X^2	*p*
	No	Yes			
Age					
19–21 years old	172(84.7)	31(15.3)	203(52.9)	0.04	0.84
22–23 years old	152(84.0)	29(16.0)	181(47.1)		
Total	324(84.4)	60(15.6)	384(100.0)		
Year of study					
Year 1	93(86.1)	15(13.9)	108(28.1)	2.39	0.50
Year 2	99(86.1)	16(13.9)	115(29.9)		
Year 3	68(79.1)	18(20.9)	86(22.4)		
Year 4	64(85.3)	11(14.7)	75(19.5)		
Total	324(84.4)	60(15.6)	384(100.0)		
Gender					
Male	112(83.0)	23(17.0)	135(35.2)	0.32	0.56
Female	212(85.1)	37(14.9)	249(64.8)		
Total	324(84.4)	60(15.6)	384(100.0)		
Ethnicity					
Malay	174(85.7)	29(14.3)	203(52.9)	0.59	0.44
Non-Malay	150(82.9)	31(17.1)	181(47.1)		
Total	324(84.4)	60(15.6)	384(100.0)		

*significant at $p < .05$

high venting and self-blaming as coping styles were found to be more stressful than those who endorsed low venting and self-blaming. Numerous studies have shown that stress may negatively affect students' health, quality of life, and academic performance (Coumaravelou and Wilks 2014; Muhammad et al. 2010). Hence, it is important to understand which type of coping style is employed by medical students. As noted by Sami et al. (2011), many coping techniques have been practiced by medical students and these vary from active coping strategies (e.g., religious coping, positive reframing, acceptance) to avoidant strategies (e.g., denial, self-blame). As a result from various coping skills they employed, medical students would exhibit different psychological outcomes (Sami et al. 2011, Yusoff et al. 2011a, b, Solanky et al. 2012, Adlina et al. 2007, Shah et al. 2009, Jahan et al. 2016, Sreeramareddy et al. 2007). The present study suggests that medical students who employed high venting and self-blame strategies were more stressful. This finding is consistent with the previous study (Cherkil et al. 2013).

Table 3 Associations between coping styles and psychological stress

Coping styles	Psychological stress, n (%)		Total	X^2	*p*
	No	Yes			
Emotional support					
Low	123(86.6)	19(13.4)	142(37.0)	0.86	0.353
High	201(83.1)	41(16.9)	242(63.0)		
Total	324(84.4)	60(15.6)	384(100.0)		
Venting					
Low	102(98.1)	2(1.9)	104(27.1)	20.31	0.001
High	222(79.3)	58(20.7)	280(72.9)		
Total	324(84.4)	60(15.6)	384(100.0)		
Self-blame					
Low	115(97.5)	3(2.5)	18(30.7)	22.12	0.001
High	209(78.6)	57(21.4)	266(69.3)		
Total	324(84.4)	60(15.6)	384(100.0)		

Secondly, apart from self-blame, previous studies have supported the role of emotional support in predicting perceived stress among medical students (Sami et al. 2011). We did not obtain a significant association between emotional support and psychological stress in the present study. It is possible that social support system surrounding medical students might serve as a coping mechanism (Shah et al. 2009). In addition, medical students' effective time management might help control their stress (Jahan et al. 2016). In relation to the present study, enhancing coping techniques on active coping, positive reinterpretation, acceptance, and planning could be potential elements when designing stress management programs for medical students (Yusoff et al. 2011a, b). Such forms of positive coping strategies are reportedly to accelerate the recovery from stress (Johari and Noor Hassim 2009).

Thirdly, findings in this present study also strengthen the notion that adaptive coping strategies are associated with less stress (Pereira and Barbosa 2013). Apart from employing relaxation techniques and adopting adaptive coping skills, mindfulness programs should be delivered to medical students. Mindfulness was found to benegatively correlated with

stress (Vinothkumar et al. 2016). Indeed, mindfulness programs have been proven valuable and beneficial in generating positive outcomes on several areas related to health (Hj Ramli et al. 2018; Muhamad and Esa 2012).

Fourthly, we did not obtain significant associations between socio-demographic characteristics and psychological stress in the present study. In past research, significant associations between socio-demographic factors and psychological stress have been established (Dunn et al. 2008; Bassols et al. 2015; Sami et al. 2011). It was reported that female medical students had higher stress level (Dyrbye et al. 2006, Johari and Noor Hassim 2009, Bamuhair et al. 2015, Saees et al. 2016, Mehta et al. 2015, Al Saadi et al. 2017) as compared to male medical students and that medical students from the first three years of study had higher stress level (Jahan et al. 2016; Johari and Noor Hassim 2009; Bamuhair et al. 2015; Saees et al. 2016; Mehta et al. 2015; Al Saadi et al. 2017) as compared to medical students from other years of study. This raises issues concerning generalizability. The current sample was limited to medical students at UPM only. Large-scale studies are needed to confirm the associations between socio-demographic characteristics and psychological stress.

A few limitations worth highlighting. Firstly, the cross-sectional design of the study has not been able to establish a causal relationship among constructs of interest. Secondly, the convenience sampling used may have introduced a selection bias in the form of "healthy worker"—those with more severe symptoms of stress may not even be attending lectures or classes and hence they were excluded from the study. Thirdly, information on study variables was obtained via self-administered questionnaires. This method may result response bias in that participants would feel discomfortable giving their true response. Last but not least, further interpretation of the present findings is largely limited to bivariate analyses. Theoretical frameworks proposing the multiple influences (e.g., situational aspects, behavioral domains) on psychological stress remain untested. Future investigations using multivariate statistical analyses to examine these theoretical frameworks are also warranted.

Conclusion

Medical students employ wide-ranging coping strategies while facing stress. Psychological stress among UPM medical students was found to be significantly related to their coping styles (such as venting and self-blame). As such, stress prevention and intervention efforts aimed at enhancing medical students' coping styles are important. The findings of this study indicate a need for stress management programs in UPM medical faculty such as conducting workshops on coping skills and mindfulness throughout the academic years, particularly the first three years of the medical study.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The institutional ethical approval reference is UPM/TNCPI/RMC/1.4.18.1 (JKEUPM)/F1.

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