ORIGINAL ARTICLE

STRESS LEVEL AND THE COMMON COPING STRATEGIES AMONG INTERNATIONAL POSTGRADUATE STUDENTS AT UNIVERSITY KEBANGSAAN MALAYSIA MEDICAL CENTRE (UKMMC), CHERAS, KUALA LUMPUR, MALAYSIA

Aniza Ismail, Sana Taher Ashur, Ahmad Taufik Jamil,
Chiew Wye Lee, Jamsiah Mustafa

Department of Community, UKM Medical Centre, Kuala Lumpur, Malaysia.

Abstract

Objectives: This study was to determine the stress level, and the common coping strategies used by the international postgraduate students in UKMMC, Cheras campus Kuala Lumpur to alleviate their stress. ***Methods***: A cross-sectional study to determine the stress-level was conducted among the international postgraduate students in UKMMC, Cheras, Kuala Lumpur. A self-administrated questionnaire was instituted, including fundamental data on socio demographic data of the respondents, the stress level using Kessler Psychological Distress scale (K10) and the Brief Cope scale. ***Results:*** A total of 126 respondents with responding rate of 82.9% participated in this study. Mean age of respondents was 35.20 ± 5.52 years with slightly more than half of them aged between 30-39 years. Majority were Arabic students (52.4%) followed by Iranian (27.8%) and Asian students (19.8%). The stress prevalence among the students was 54.8%.Out of the fourteen coping strategies, three werefound to be effective in managing their stress, which include self-distraction (OR= 1.48, 95% CI = 1.03–2.22), denial (OR= 1.57, 95% CI = 1.11–2.22), and self-blame (OR= 1.66, 95% CI= 1.21–2.28). ***Conclusion:*** Half of the post graduates students at UKMMC had some form of stress. Self-distraction, denial, and self-blame are the strategists used to alleviatethe stress among the post graduates students. Further study is recommended to measure the effectiveness of these strategists in order to overcome their stress level. *ASEAN Journal of Psychiatry, Vol. 17 (1): January – June 2016: XX XX.*

Keywords: Stress, International Postgraduate Students, Strategies

Introduction

Stress is not always a negative phenomenon. Human needs a degree of stress to be motivated to perform, but the capacity to perform would decline when the stress levels raised or become sustained. When stress reaches its high level or when it occurs repeatedly or persistently, it could lead to a wide range of negative effects, which is not only to be experienced by the individual himself, but it extends out to her or his family and community as well. Stress levels could range from mild to severe. Interpersonal variation in stress perception and the ability to cope may be attributed to a variety of reasons. One is the differences in the type of personality. Different individuals perceive and react to stressors differently. Being a type A personality, co-dependent or hopeless personality may affect stress perception and consequently, the stress level. Other factors like socio-demographic, environmental and

economic factors could influence this variation as well [1].

The drawbacks of stress are well and widely documented in literature, especially on students who study abroad. Stress could adversely affect both mental and physical well-being of students, besides the deterioration of their academic performance. A study among International students of the University of the Ryukyus in Japan, showed high levels of stress had not only interfered with the students' performance, but also exposed many of them to physical and mental health risks [2]. Coping mechanism plays an important role to overcome or lessen the stress experienced by individuals. Students with an active coping style (those who can tackle problems in a positive and straight-forward manner), would have lower levels of psychological distress [3].

Coping can be defined as all the activities that the individual undertakes to master, tolerate, reduce, or minimize environmental or intra-psychic demands that are perceived to represent potential threats, existing harm, or losses" [4]. Coping also can be defined as "a response aimed at diminishing the physical, emotional and psychological burden that is linked to stressful life events and daily hassles" [5]. Many studies focused on coping strategies used by students with several studies tried to find out what the most common are coping mechanisms used by the students [3, 6], while others went further in analyzing the identified coping strategies such as comparing coping, mechanisms used within certain demographic variables and evaluated them [7].

As for this study, it is aimed to measure the prevalence of stress and to determine the solutions in managing the stress among international postgraduate students. The researchers hope that the results of this study could help increase the understanding of this issue and to provide data that could be utilized in intervention programs to address and manage stress among the growing numbers of international students in Malaysian Higher Educational Institutions.

Methods

A cross-sectional study was conducted on the international postgraduate students registered at Universiti Kebangsaan Malaysia Medical Centre, Cheras Campus, and Kuala Lumpur.

This research was conducted on a voluntary basis with an Ethical approval to conduct the study was obtained from the Ethical Research Committee of the UKMMC. (Ethic Code :FF-110-2010). The study was funded by medical faculty Universiti Kebangsaan Malaysian medical Centre (UKMMC). The aims of the study were to measure the overall stress prevalence among coping strategies of the students used to alleviate their stress. Purposive sampling was done among the international postgraduate students who have been with University Kebangsaan Malaysia Medical Centre for the past six months.

Sample size

The Kish formula, S = n/ (1+ (n/population), was used in this study. Calculated sample size was 108, which is also the same sample size obtained through using Krejcieand Morgan formula[8], which is S = X² NP (1-P)/ d² (N-1) + X² P(1-P), where S = required sample size, N = the given population size, P = prevalence, d = the degree of accuracy expressed as a proportion (0.05). With addition of 10% to the calculated sample size (108) as to compensate for sample rejected due to exclusion criteria, sample size would be 119 students. However, since the sample population is small, all postgraduate international students who fit the inclusion criteria, were taken in as respondents in the study.

Data collection

A self-administered English version questionnaire was used for data collection. Part A: Questions on socio-demographic, economic characters as well as on some environmental factors. Part B: The English version of The Kessler Psychological Distress Scale (K10). Part C: The Brief COPE scale.

Kessler Psychological Distress Scale-10

The Kessler's psychological distress-10, usually abbreviated as K10, is a 10-item questionnaire [9]. The English version (Kessler undated) was chosen, to compensate for the multilingual of international students, as it would not be feasible or practical to administer the questionnaire in all mother-tongue languages of the students. Secondly, the admission to UKM postgraduate studies requires specific standard levels of English proficiency.

In this study, level of psychological distress was determined by the score of 20 as a cut-off, below which the student was not considered to have stress. Stress score ranged between 20-24 was considered as mild stress, 25-29 moderate stress and 30-50 as severe stress. The choice of 20 as a cut-off points in scoring, could be supported by the findings of Andrews and Slade [10], as they had reported that the sensitivity and specificity for the K10 were highest at two cut-off scores, these were 19 and 20, with sensitivity and specificity at the cut-off score 20 were 66% and 92 % respectively. This cut-off score was adopted to estimate the prevalence of stress by many studies, including the 2001 Victorian Population Health Survey in Australia [11].

The Brief COPE

Coping styles were explored using a 28-item scale Brief COPE [12]. It is a shorter version of the COPE inventory. Respondents were asked to point to how they cope with stress by rating each item on four-point Likert structure answers. Two items computed to onesubscale to end up with a total of fourteen subscales of coping. These were; Self-distraction, Active coping, Denial, Substance use, Use of emotional support, Use of instrumental support, Behavioural disengagement, Venting, Positive reframing, Planning, Humour, Acceptance, Religion and Self-blame. The brief COPE inventory was chosen in this study based on some considerations. It is shorter than the COPE inventory, and it allows exploring an important scope of coping strategies [12].

Pre-testing of the questionnaire

A pilot study was conducted on 30 postgraduate international students in Kuala Lumpur Campus of the UKM medical centre, who would later be excluded in the main study. This small study aimed at testing the ease of completion and validity of the questionnaire.

On the pre-testing sample, internal consistency of the two scales; Kessler's distress scale-10 and the Brief COPE, which were intended to be used in the main studies, were tested through the calculation of the Cronbach's Alpha for Kessler's distress scale-10 and for each of the 14 sub scales of the Brief COPE (Table 1). Cronbach's for K10 was 0.909, and for the Brief COPE sub scales, it ranged between 0.624 and 0.921, with all the sub scales had Cronbach's Alpha above 0.750 except for one sub scale (Positive reframing), where alpha was 0.624. The questionnaire was adopted with few modifications.

Statistical Package for Social Sciences (SPSS), Version 16.0 was used to analyse the data. Statistical analysis included descriptive statistics of the sample socio-demographic, environmental and economic characters as well as stress prevalence. Besides the descriptive statistics of the coping strategies, the bivariate analysis was used appropriately to examine for differences in coping across stress status, gender, nationality and the study program type. Assessment of the influence of the coping strategies on stress using logistic regression was also performed.

Table 1. Internal consistency of the K10 and the Brief COPE after the pre test

Scale		Cronbach's Alpha
Kessler's distress scale-10		0.909
Brief COPE subscales14:		
	Self-destruction	0.805
	Active coping	0.917
	Denial	0.767
	Substance abuse	0.783
	Emotional	0.919
	Use of instrumental	0.783
	Behavioral disengagement	0.860
	Venting	0.871
	Positive reframing	0.624
	Planning	0.865
	Humor	0.865
	Acceptance	0.921
	Religion	0.908
	Self-blame	0.750

Results

A total of 152 questionnaires were distributed in early April 2010 to all international postgraduates who met the inclusion criteria. However, only 126 were completed and returned. This gave a response rate of 82.9%.

Socio-demographic distribution of the respondents

The mean age of the respondents is 35.20± 5.52 years, with more than half of them (58.7%) aged between 30 and 39 years. More than half of the respondents (61.9%) are males, and almost two thirds (73%) were married, with just above half of them (51.1%) have no children or one child. Arab students (Yemen, Sudan, Libya, Jordan, Iraq and Egypt) constituted about half of the respondents (52.4%), while more than one fourth (27.8%) was Iranians. Interestingly, other Asians (Indonesia, Bangladesh, Pakistan, Vietnam, China, Afghanistan, and Mongolia) represented only 19.8 %. The majority of the participating international postgraduates (95.2%) had history of employment, and approximately the half of them (46.8%) had worked for at least five years prior to joining their postgraduate programs, with median working history duration of 4 years (IQR = 2–

8). More than two thirds (78.6%) of the respondents were medical graduates (medical doctors and dentists), while the restswere health science graduates (medical technology, biomedical sciences and public health). Just above half (50.8%) of the respondents are currently doing clinical degrees (Clinical Masters), while the rests (49.2%) are in non-clinical programs (Masters of Science and Doctorates). About two-thirds of the international students (77.8%) perceived that they have no problem in using English language in their study or communications (Table 2).

The respondents' median duration of stay in Malaysia was 2.13 years (IQR= 1.5–4), with more than half of the international students (61.9%) have already spent at least two years in Malaysia. The majority (95.2%) of the participants perceived their relationship as good with both, other international colleagues and with their supervisors. Although relatively lower proportion, the majority of the participating students also expressed that they have a good relationship with local colleagues (84.9%), and with their neighbours (79.4%). The mean monthly income / financial support is RM 3430.73 ±1900.34, with roughly half of the respondents (48.2%) receive RM 3001 or more per month. Almost

two thirds (74.6%) of the students are self-sponsored, and about half of the respondents were (45.2%) unsatisfied with their monthly financial support.

Stress Prevalence among International Postgraduates

The overall prevalence of stress among the students was 54.8%. Among those who have stress, about 31.8 %were having mild, 34.78 % moderate and 33.3 % was having the severe level of stress.

Table 2. Socio-demographic distribution of the respondents

Variable (n=126)	Frequency (%)
Age	(35.20 ± 5.52)*
≤ 29	19 (15.1%)
30-39	74 (58.7%)
≥ 40	33 (26.2%)
Gender	
Male	78(61.9%)
Female	48 (38.1%)
Nationality	
Arab	66 (52.4%)
Iranian	35(27.8%)
Asian	25(19.8%)
Marital status	
Single	34(27.0%)
Married	92(73.0%)
History of work	
No	6 (4.8%)
Yes	120(95.2%)
Educational background	
Medicine	99 (78.6%)
Health Science	27(21.4%)
Study program	
Non-Clinical degree	62(49.2%)
Clinical degree	64 (50.8%)

*(mean ± SD)

Coping Strategies

Association between Coping Strategies and Stress Status

An independent t-tests was conducted on all the fourteen coping strategies, except for substance abuse to examine for any significant differences in coping across the stress status groups (Stress and No stress). Mann-Whitney test was used for the coping sub scale substance abuse as it was not normally distributed. Significant differences between international students who had stress, and those without stress were observed in six coping strategies. These were self-distraction (t=3.627, P=0.001,CI= 0.455–1.547), denial (t=4.272, P=0.001, CI=0.633 –1.727), behavioural disengagement (t=3.575, P=0.001, CI=0.484 –1.686), venting (t=2.866, P= 0.005, CI=0.243 –1.327), humor (t= 2.138, P=0.035, CI=0.049–1.275), and self-blame (t=5.149, P=0.001, CI=0.923–2.076). Students, who had stress, used any of these seven coping strategies more than the students who had no stress (Table 3).

Table 3. Association in coping strategies with stress status

Coping strategy	Stress n=69 Mean± SD	No Stress n=57 Mean± SD	t	P	95% Confidence Interval of the Difference
Self- Distraction	5.58± 1.51	4.58 ± 1.58	3.627	0.001*	0.455 ,1.547
Active coping	6.00± 1.65	5.88± 1.73	0.407	0.685	-0.474 ,0.720
Denial	4.14± 1.86	2.96± 1.22	4.272	0.001*	0.633 ,1.727
Substance use	2(2-2)	2(2-2)	1.752 [a]	0.080	0.000
Emotional Support	5.06± 1.52	4.89 ± 1.59	0.587	0.558	-0.387 ,0.713
Instrumental support	5.12± 1.67	5.05± 1.54	0.220	0.827	-0.507,0.634
Behavioral disengagement	4.59± 1.74	3.51± 1.64	3.575	0.001*	0.484,1.686
Venting	4.86± 1.56	4.07± 1.49	2.866	0.005*	0.243,1.327
Positive reframing	5.81± 1.53	5.40± 1.76	1.393	0.166	-0.172,0.988
Planning	6.19± 1.58	6.23± 1.65	0.137	0.891	-0.611,0.532
Humor	4.86± 1.98	4.19± 1.49	2.138	0.035*	0.049,1.275
Acceptance	5.65± 1.63	5.65± 1.91	0.010	0.992	-0.623,0.629
Religion	6.38± 1.69	5.88± 1.87	1.573	0.003	-0.129,1.128
Self-blame	5.38± 1.59	3.88± 1.67	5.149	0.001*	0.923,2.076

Significant level: *P < 0.05, [a] Z

Association between Coping Strategies and Gender

An independent t tests and Mann-Whitney test was used to examine gender differences in coping strategies. Difference between female and male students was observed only in one coping strategy, that was Self-blame (P= 0.027 with 95% CI= -1.361–0.085) (Table 4).

Table 4. Association in coping strategies across gender

Coping strategy	Females n=78 Mean± SD	Males n=48 Mean± SD	t	P	95% Confidence Interval of the Difference
Self-Distraction	5.23± 1.55	5.06± 1.66	0.556	0.579	-0.753–0.423
Active coping	6.21± 1.65	5.78± 1.69	1.389	0.167	-1.034–0.181
Denial	3.88± 1.92	3.45± 1.54	1.370	0.173	-1.042–0.189
Emotional Support	5.29± 1.29	4.79± 1.67	1.763	0.080	-1.055–0.061
Instrumental support	5.17± 1.39	5.04± 1.73	0.434	0.665	-0.713–0.457
Behavioral disengagement	4.42± 1.75	3.91 ± 1.77	1.565	0.120	-1.147–0.134
Venting	4.58± 1.39	4.45± 1.68	0.465	0.643	-0.708–0.439
Positive reframing	5.73 ± 1.63	5.56± 1.66	0.546	0.586	-0.763–0.433
Planning	6.44± 1.20	6.06± 1.80	1.394	0.166	-0.904–0.157
Humor	4.50 ± 1.87	4.59 ± 1.77	0.271	0.787	-0.566–0.746
Acceptance	5.69 ± 1.49	5.63 ± 1.91	0.194	0.846	-0.664–0.545
Religion	6.46 ± 1.61	5.96± 1.87	1.525	0.130	-1.141–0.148
Self-blame	5.15± 1.73	4.42 ± 1.78	2.242	0.027*	-1.361–0.085

Significant level: *P < 0.05

Association between Coping Strategies and Nationality

Using one-way ANOVA tests, each one of the fourteen coping strategies was compared across the three nationality categories as Arab, Iranian and Asian. Welch test (ANOVA) was subsequently used in the case of both Venting and Emotional Support sub scales, where the homogeneity test of variances (Leven's Test) proved significant.

In addition, the used of ANOVA test also showed a significant statistical difference in the mean scores of Positive reframing sub scale (F=3.942, P=0.022). To locate the difference, it was referred to Post hoc comparisons. Since the three nationality groups were not equal in size, Scheffe test was chosen, and a significant difference (P = 0.026, 95%CI =-1.97 – -0.10) in the mean scores of positive reframing was observed between Arab (mean = 5.29, SD=1.74) and Asian (mean = 6.32, SD=1.46) groups, with Asian group used Positive reframing more than Arab group (Table 5 and 6).

In the case of both Emotional Support sub scale and Venting sub scale, homogeneity test of variances was significant, hence. It was referred to the robust test Welch. Significant difference in the mean of Venting across the three nationality groups was observed, as indicated by Welch (F=5.219, P=0 .008). Then, to find out which groups were different in the use of Venting, it was referred to Tamhane test. Significant difference (P=0.006, 95%CI= 0.26–1.95) in the Venting subscale mean was observed only between Asian (mean = 3.84, SD=1.21) and Iranian groups (mean = 4.94, SD= 1.43), with Iranian students used Venting strategy significantly more than Asian students.(Table 5 and Table 6).

To explore if there was a difference in the use of Substance abuse to cope with stress across the three nationality groups, Kruskal-Wallis test was used, as Substance abuse was not normally distributed. No significant difference between the groups in the use of this coping sub scale was observed (χ^2 =1.274, P=0.529).

Table 5. Association in coping strategies across nationality groups

Coping strategy	Arab n=66 mean± SD	Iranian n=35 mean± SD	Asian n=25 mean± SD	F	P
Self-Distraction	4.85± 1.69	5.40± 1.49	5.48± 1.50	2.116	0.125
Active coping	5.95± 1.84	6.06± 1.64	5.76± 1.30	0.228	0.797
Denial	3.71± 1.79	3.34± 1.59	3.72± 1.62	0.599	0.551
Substance use	2(2-2)[c]	2(2-2)[c]	2(2-2)[c]	1.274[a]	0.529
Emotional Support	4.89± 1.73	5.09± 1.22	5.08± 1.49	0.241[b]	0.787
Instrumental support	5.18± 1.74	5.03± 1.34	4.92± 1.63	0.270	0.763
Behavioural disengagement	4.12± 1.78	4.34± 1.89	3.72± 1.59	0.904	0.408
Venting	4.52± 1.69	4.94± 1.43	3.84± 1.21	5.219[b]	0.008*
Positive reframing	5.29± 1.74	5.77± 1.42	6.32± 1.46	3.942	0.022*
Planning	6.15± 1.81	6.31± 1.37	6.20± 1.38	0.116	0.891
Humour	4.38± 1.93	4.51± 1.59	5.08± 1.68	1.397	0.251
Acceptance	5.67± 1.90	5.66± 1.66	5.60± 1.56	0.013	0.987
Religion	6.33± 1.73	5.97± 1.71	5.92± 2.04	0.728	0.485
Self-blame	5.08± 1.84	4.26± 1.76	4.32± 1.49	3.214	0.051

*P < 0.05, [a] = χ^2, [b] =Welch test, [c] =Median (IQR)

Table 6. Post Hoc (Multiple comparisons)

Dependent Variable		Nationality Groups (I) (J)		Mean Difference (I-J)	P-value
Positive reframing	Scheffe	Arab	Iranian	0.484	0.358
			Asian	1.032*	0.026
		Iran	Arab	0.484	0.358
			Asian	0.549	0.429
		Asian	Arab	1.032*	0.026
			Iranian	0.549	0.429
Venting	Tamhane	Arab	Iranian	0.428	0.458
			Asian	0.675	0.113
		Iran	Arab	0.428	0.458
			Asian	1.103*	0.006
		Asian	Arab	0.675	0.113
			Iranian	1.103*	0.006

*P < 0.05

Association between Coping Strategies and Different Study Programs

An independent t tests and Mann-Whitney test were used to examines for any significant difference in coping across the study program(Non-clinical and Clinical). Significant differences between international students in different study programs were observed in four coping strategies, i.e. denial (t= 3.027, P= 0.003, 95% CI= 0.308–1.477), behavioural disengagement (t= 3.641, P=0.000, 95% CI= 0.501– 1.696), venting (t= 2.184, P= 0.031, 95% CI= 0.057–1.150) and humour (t= 2.910, P= 0.004, 95% CI=0.290– 1.524).It was found that students in non-clinical programs used each of these strategies significantly more than those in clinical programs (Table 7).

Predictor of the stress management

Each of the fourteen coping sub scales was used in logistic regression analysis with the stress status (no stress or stress) to test, which coping styles would significantly manage the stress. Three out of the fourteen coping strategies were found to significantly managed the stress. These were, self-distraction (OR= 1.48, CI = 1.03–2.22), denial (OR= 1.57, CI = 1.11–2.22), and self-blame (OR= 1.66, CI= 1.21–2.28).(Table 8). Nagelkerke R Square showed 0.439, while the model explained about 43.9% of coping strategies studied are the solutions of the stress.

Table 7. Association coping strategies across difference program

Coping strategy	Non-Clinical n=62 Mean± SD	Clinical n=64 Mean± SD	t	P	95% Confidence Interval of the Difference
Self-Distraction	5.40± 1.58	4.86± 1.61	1.910	0.058	-0.020–1.107
Active coping	6.05± 1.63	5.84± 1.73	0.682	0.496	-0.389–0.798
Denial	4.06± 1.85	3.17± 1.42	3.027	0.003*	0.308–1.477
Substance use	2(2-2)	2(2-2)	0.784 [a]	0.433	0.000
Emotional Support	5.08± 1.60	4.89± 1.50	0.687	0.493	-.358–0.738
Instrumental support	5.11± 1.64	5.06± 1.58	0.176	0.861	-0.518–0.619
Behavioural disengagement	4.66± 1.801	3.56± 1.58	3.641	0.000*	0.501–1.696
Venting	4.81± 1.65	4.20± 1.45	2.184	0.031*	0.057–1.150
Positive reframing	5.90± 1.57	5.36±1.68	1.876	0.063	-0.030–1.118
Planning	6.42± 1.57	6.00± 1.62	1.472	0.144	-.145–0.983
Humor	5.02± 1.79	4.11± 1.71	2.910	0.004*	0.290–1.524
Acceptance	5.74± 1.63	5.56± 1.885	0.571	0.569	-0.443–0.801
Religion	6.06± 1.80	6.23± 1.78	-0.533	0.595	-0.801–0.461
Self-blame	4.98± 1.81	4.42± 1.74	1.782	0.077	-0.062–1.186

*P < 0.05, [a] Z

Table 8. Solutions for stress among the 14 coping subscales

	B	S.E.	Wald	df	Sig.	OR	95% CI
Self-Distraction	**0.390**	**0.185**	**4.465**	**1**	**0.035**	**1.48**	**1.03-2.22**
Active Coping	-0.024	0.168	.020	1	0.887	0.976	0.703-1.357
Denial	**0.450**	**0.176**	**6.525**	**1**	**0.011**	**1.57**	**1.11-2.22**
Substance Use	0.080	0.283	0.080	1	0.777	1.09	0.62-1.89
Emotional Support	-.335	0.204	2.690	1	0.101	0.716	0.48-1.07
Instrumental Support	0.064	0.200	0.104	1	0.748	1.07	0.72-1.58
Behavioral disengagement	0.021	0.152	0020	1	0.888	1.02	0.76-1.77
Venting	0.209	0.168	1.551	1	0.213	1.23	0.89-1.71
Positive Reframing	0.178	0.163	1.199	1	0.273	1.20	0.87-1.64
Planning	-0.193	0.213	0.824	1	0.364	0.82	0.54-1.25
Humor	-0.038	0.149	0.064	1	0.801	0.96	0.72-1.29
Acceptance	-0.192	0.173	1.236	1	0.266	0.83	0.59-1.16
Religion	0.274	0.156	3.084	1	0.079	1.32	0.97-1.79
Self-Blame	**0.507**	**0.162**	**9.759**	**1**	**0.002**	**1.66**	**1.21-2.28**
Constant	-5.680	1.834	9.592	1	0.002	0.003	

B= Beta; S.E. = Standard error; df = degree of freedom; sig. = significant level; OR = Odds Ratio; 95%CI = 95% Confidence interval

Discussion

The overall prevalence of stress reported in this study was 54.8%, with 18.3% of the total respondents were having severe stress. Such finding supported the assumption of the presence of a considerable amount of stress among international postgraduates [13].

Coping strategies

The Common Coping Strategies and the Influence of Coping Strategies on Stress

The five most common coping sub scales used by the respondents in this study were Planning, Religion, Active coping, Acceptance and Positive reframing. Planning and Active coping were categorized as "Problem-focused coping" focused coping" and were the most common among the five coping strategies used by the students. Then followed by "Emotion-focused coping" focused coping" (Religion and Positive reframing) and "Probably adaptive coping" (Acceptance).None of the of the five most popular coping strategy is a maladaptive coping strategy. The adaptive coping scale tended to be linked with the desirable outcome [3] and would have lower levels of psychological distress. However, postgraduate international students in this study seemed to use similar strategies less frequently, as both the Instrumental support and the Emotional support came only at the seventh and eighth orders of popularity, respectively. The drug and alcohol abuse was least to be reported by the graduate students in their study. Self- distraction, Self-blame and Denial showed a significant stress prediction, while the used of any of these three strategies distinguished an association to increase odds of having stress. Although it was encouraging to find that international students in this campus tended to use these three maladaptive strategies less frequently, one should not overlook the fact that the students might have underreported their use of such strategies despite being assured confidentiality of their information. Nevertheless, taken that into account, religion is among the five most common coping scales, and that majority of the students are coming from the Islamic countries. These criteria had somehow contributed to a low rate of substance abuse, particularly alcohol, and nevertheless, proved reasonable finding.

Coping and Gender

Gender had no impact on the coping strategies, although frequencies on usage of different copings varied between male and female students, with no significant differences in the use of broad coping, category across gender was found [7]. Female postgraduate students reported greater use of venting emotion to cope with stress, while male students tended to use less self-blame, venting of emotions and behavioural disengagement and used more active coping, positive reframing, planning, and acceptance [14].

Coping across Nationality Groups

Students with different nationalities were found to be different only in the use of Venting and Positive reframing. Asian students tended to use Positive reframing more than Arab students, and Iranians used Venting significantly more than Asians. Such results could help in tailoring some intervention in order to suit students of different nationalities, for instance. Arab students might need the promotion of positive reframing strategies.

Differences in Coping among Students in Various Study Programs

Significant differences between international postgraduate students in different study programs were observed in four coping strategies, these were Denial, Behavioural disengagements, Venting and Humor. Students in non-clinical programs tended to use each of these coping strategies significantly more frequent than the students in clinical programs did.

It is worth paying attention to three out of these four coping strategies that are categorized under the "probably maladaptive coping," these are Denial, Behavioural disengagements, Venting. Since maladaptive, coping is associated with negative outcomes, this information might be relevant for planning and tailoring stress management programs, in order to promote other, adaptive and active coping strategies among all international students with more focus on those in the non-clinical programs. These findings perhaps might explain why, though contrary to expectations, stress prevalence among students in the non-clinical programs was approaching and exceeding that of clinical trainee students, based on the fact that denial was one of the significant strategies of stress found in this study. On the other hand, these findings had

distinguished that the same four strategies, including the three maladaptive ones, were used significantly less among students in clinical programs, which sounded positive.

Study limitations

The cross-sectional design adapted in this study allows only for estimating associations rather than cause and effect relationships. Other limitations are related to the tool used for data collection, as questionnaires might be associated with bias element such as the recall bias. The small sample size, together with the fact that the study was conducted only in UKMMC, Cheras Campus, have both, limited the external validity. Consequently, the results of this study cannot be generalized on all international students in Malaysian higher educational institutions or in other countries.

Conclusion

The study was in line with many other researchers that showed the influence of maladaptive strategy's on stress. Self-distraction, Self-blame and Denial had proven a significant association to stress. In contrast to many other studies, coping strategies did not vary across gender; however, variation in coping was evident across the study programs and the nationality groups.

Competing interest

The researchers have no competing interest.

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Corresponding author: *Aniza Ismail, Associate Professor, Department of Community Health, Faculty of Medicine, Universiti Kebangsaan Malaysia, JalanYaacobLatif, Cheras, 56000 Kuala Lumpur, Malaysia.*

Email: draniza@gmail.com