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ASSESSMENT OF BURNOUT & STRESS AMONG MEDICAL & NON-MEDICAL STUDENTS AGE 18 YEARS AND ABOVE IN MALAYSIA

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ABSTRACT

Background: According to World Health Organization, burnout is a syndrome resulting from work related stress which had not been well managed and this may lead to extreme health issues among people. Therefore, it's important to learn how to prevent burnout and stress by addressing the factors associated with them. **Objective**: The objective was to assess the burnout and stress among Malaysian medical students & non-medical students age 18 years and above in Malaysia. **Methods**: A cross-sectional online survey was conducted by enrolling Malaysian adults aged 18 years and above. An online questionnaire was distributed with google form through multiple electronic platforms. **Results**: We found that most of the medical students have moderate level of burnout which was 28.3 % followed by high level of burnout which was 13.9%, no/low level burnout which was 5.8% and severe burnout which was 2.6%. Most of the non-medical students have moderate level of burnout which was 26.5 % followed by high level of burnout which was 16.8%. Furthermore, most of the both medical students and non-medical students having moderate level of stress which are 41.6% and 40.1% respectively. **Conclusion:** Overall, student's mental health has been mostly triggered to stressful environment due to their academic sector mostly which led to more complication such as depression, anxiety and post-traumatic stress disorder.

KEYWORDS: Burnout, Stress, Malaysian and Non-Malaysian, students aged 18 and above.

INTRODUCTION

As seen by the inclusion of mental health in the Sustainable Development Goals, there has been a growing recognition of the critical role mental health plays in attaining global development goals in recent years.[1,2] Mental health had sub categorised and in recent years, burnout and stress became prevalent among the public especially among student populations. According to World Health Organization, burnout was defined as a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It was characterized by three dimensions: feelings of energy depletion or exhaustion; increased mental distance from one's job, or feelings of negativism or cynicism related to one's job.[3] According to previous literature, stress was defined as feeling of being overwhelmed or unable to cope with mental or emotional pressure.[4]

Although multiple studies have proved the effect of burnout and stress but we do find it is rarely correlated with medical and non-medical students.[5] Both of this mental health issue have made significant impact on student's mental health as multiple studies have been conducted in order to prove such calamity. A studied conducted in Malaysia on 2018 which entitled Prevalence of Burnout in Medical and Non-medical Undergraduate Malaysian Students in Various International Universities - A Cross-Sectional Study indicates that burnout was found in 27.3 percent of medical students and 20.1 percent of non-medical students, respectively.[6] Only the kind of course (medical vs. non-medical) made a difference in burnout prevalence.[6]

On the other plate, a study conducted entitled Predictors of Perceived Stress among Medical and Non-medical College Students, Minia, Egypt explains that the medical

students had a somewhat greater incidence of felt stress (88.9%) than non-medical students (83.5 %).[7] Medical students were more likely than nonmedical students to experience severe stress (18.8% vs. 12.4%).[7]

Among 1997, Krinstensen et al. introduced the Copenhagen burnout inventory, which was verified during the Danish longitudinal research PUMA of burnout in employees in the human service industry.[8] The Copenhagen Burnout Inventory (CBI) is a new burnout assessment that emphasises weariness and exhaustion. There are three variables that contribute to burnout: personal burnout, work-related burnout, and client-related burnout.[9] CBI was chosen over Maslach Burnout Inventory (MBI) in this study because of its excellent internal reliability and lower non-response rate.[10]

Cohen, Kamarck, and Mermelstein developed the Perceived Stress Scale, which is a well-known self-report measure based on the psychological understanding of stress.[11] The Perceived Stress Scale (PSS) is the most often used psychological tool for assessing stress perception. It's a metric for how stressful certain situations in one's life are regarded.[12]

METHODOLOGY

Study type & Study population

A cross-sectional study was conducted on Malaysian adults aged 18 and above. Inclusion criteria were Malaysian students and foreign students who are currently studying in Malaysia, aged 18 years old and above. They provided consent prior to enrolment of the survey and have an internet connection to participate in the survey. Exclusion criteria were any Malaysian students & foreign students who are currently studying overseas, aged below 18 years and participants who didn't provide consent prior to enrolment of survey.

Sample size

Sample size was calculated using Raosoft, the sample size calculator. The recommended sample size was at least 385 students with a confidence level of 95%, a margin of error of 5%, and a response distribution of 50%. 20% of sample size to be added which gave us a new minimum sample size of 468. Nevertheless, our sample size which reached 546 students have increase the confidence level to 98% to give the chance to greatly represent students as burnout and perceived stress is a pressing need to be explored meticulously as they have been associated with many physical & mental morbidities among students.

Ethical Approval

All the participants were provided with informed consent before commencement of the survey. The ethical approval was acquired from Human Research Ethic Committee, Centre of Research and Development, Asia metropolitan University (Ref HEC022022FOM0001), which is in accordance with the Declaration of Helsinki.

Study Materials

Students were given a pack of four main sections in English. The first enquired about socio-demographic profiles. In the second, scoring for burnout levels measured by Copenhagen Burnout Inventory (CBI). In the third, perceived stress levels were measured by Cohen's Perceived Stress Scale.

For CBI, there are primarily four domains, which include personal burnout, studies-related burnout, colleagues-related burnout as well as teachers-related burnout. There are 25 questions rated by the Likerts scale ranging from "Never [1]", "Rarely [2]", "Sometimes [3]", "Frequently [4]", "Always [5]". The total score of each participant was categorized into two categories which are "burnout" (≥ 51 points) or "no burnout" (≤ 50 points).[13]

For PSS, Cronbach's coefficient of internal consistency was reported to be 0.85, and test-retest reliability during a short retest interval (several days) was 0.85. Perceived Stress Scale is the most widely cited psychological instrument used to measure an individual's level of perceived stress. The scale does not tie appraisal to a particular situation. It is sensitive to the non-occurrence of events as well as to ongoing life circumstances. The PSS questions ask about feelings and thoughts during the last month. There are 10 questions rated by the Likerts scale ranging from "Never [0]", "Almost never [1]", "Sometimes [2]", "Fairly often [3]", "Very often [4]". The total score of each participant was categorized into 10-13 indicating low stress, 14-26 being moderate stress, and 27-40 showing high perceived stress.[7]

Study Procedure

The data were collected through an online questionnaire developed using Google Forms. The questionnaire was distributed to medical and nonmedical students via electronic platforms such as Facebook, twitter, Instagram, emails, etc. They received an informed consent form prior to enrolment of the survey for reassuring them about anonymity, confidentiality, and those published results were solely for scientific purposes.

Data and Statistical Analysis

The statistical analysis was carried out with help of Statistical Package for Social Sciences Software Version 26 (SPSS 26) (IBM Corporation, Armonk, New York, USA). The sociodemographic characteristics of the participants were analysed descriptively and presented as mean (+SD) and number (percentage (%)) based on the type of data. The association between demographic factors with scores on knowledge was analysed using the Chi-Square test– two categorical variables (sociodemographic characteristics and mental health have a significant effect on the prevalence of burnout and stress).

RESULTS

Table 1 showed that out of 546 respondents most of them belonged to the age group (18-39) years and the mean age of them was 21.67 year of age. The proportion of female respondents (63.6%) was comparatively higher than male (36.4%). Majority of the respondents were Malaysian (94.3%) most of them belonged to the race of Indians (80.6%) followed by Malay (30.2%). Education level of the respondents was highest in tertiary schools (74.7%) followed by post-secondary education (25.1%) The proposition of singles respondents (97.3%) was comparatively much higher than married respondents (2%). Thereafter, medical student's respondents (50.7%) were slightly higher than non-medical student's respondents (49.3%).

According to table 2, types of burnouts that have been assessed. While assessing personal burnout majority of the respondents felt that sometimes they feel tired (48.2%), physically exhausted (52.9%), emotionally exhausted (37.5) and worn out (42.9%). On the same page, we also found that sometimes the respondents feel that they couldn't take it anymore (37.5%) in their personal life. Unlikely, we found that 252 respondents with the percentage of 46.2%, rarely feel weak and susceptible to illness.

When we assessed studies related burnout most of the respondents mentioned that sometimes they felt worn out at the end of the working day (41.2%), exhausted in the morning at the thought of another day at class (40.1%) and felt that every working hour is tiring for them (39.2%).

Colleague's related burnout have been assessed as well. Rarely, the respondents described that they find it hard (37.2%) frustrating (39.4%) and tired (36.4%) to work with colleagues and felt that their energy drained working with colleagues (40.1). Sometimes most of the respondents felt that they don't get back what they have invested in terms of team work with their colleagues (36.4%) and sometimes the responders wonder how long they will be able to continue working with colleagues (36.6%)

Teacher's related burnout showed that rarely, the respondents described that they find it hard (36.1%) frustrating (37.9%) and tired (34.1%) to work with teachers and felt that their energy drained working with teachers (36.6%). Rarely most of the respondents felt that they don't get back what they have invested in terms of team work with their teachers (34.8%) and sometimes the responders wonder how long they will be able to continue working with teachers (33.5%).

According to table 3, as we assessed the stress level of students using the Perceived Stress Scale, we found that over the last month, most of the respondents were upset sometimes because of something the happened unexpectedly (54.9%) and felt that sometimes they were unable to control important things in their life (46.7%). Sometimes, the responders felt nervous and stressed (46.2%) and found that they could not cope with all the things that they had to do (58.2%) over the last month. Positively, sometimes the respondents felt confident about their ability to handle their personal problems (46.9%) and they felt that things were going their way (56%). Sometimes the respondents felt they were on top of things (59%) and sometimes they able to control irritations in their life (54.2%). Over the last month, the respondents mentioned that sometimes they have been angered when things happened out of control (51.4) and felt that difficulties are piling up which they couldn't be resolved (54%).

Table 4 shows that prevalence of Burnout and Stress among Medical and Non-medical students. We found that most of the medical students have moderate level of burnout which was 28.3 % followed by high level of burnout which was 13.9%, no/low level burnout which was 5.8% and severe burnout which was 2.6%. Most of the non-medical students have moderate level of burnout which was 26.5 % followed by high level of burnout which was 16.8%, no/low level burnout which was 4.9% and severe burnout which was 1.3%. Most of the medical students have moderate level of stress which is 41.6 % followed by high level of stress which is 7.8%, and low-level stress which is 1.1%. Most of the non-medical students have moderate level of stress which is 40.1 % followed by high level of stress which is 7.1%, and low-level stress which is 2.2%.

According to Table 5, we found that the model coefficient gave Chi-square of 72.506 on 21 degree of freedom (df) significant beyond 0.001. In this study, 98.8% were correctly classified for the take offer group and 18.9% for the decline offer group. Overall, 91.0% were correctly classified. The odd ratio 0.319 and the 95 c1 is 0.13 to 0.784. In our study, we found that Indian participants have 0.319 times (95% CI 0.13 - 0.784) lesser chance to develop burnout compare to Malay participants and it was significant with p less than 0.05 (p=0.013). Medical students have 0.5 times (95% CI 0.241 to 1.058) less likely to have burnout compare to non-medical students and it was significant p=0.05 We found that participants with low level of stress have 0.005 times (95% CI 0.001 to 0.050) less likely to suffer burnout compare to participants with high level of stress and it was significant with $p<0.05$. We found that participants with moderate level of stress have 0.125 times (95% CI 0.016 to 0.953) less likely to suffer burnout compare to participants with high level of stress and it was significant with $p<0.05$.

According to Hosmer and Lemeshow test, since the p-value was more than 0.05 (0.995) not significant with Chi-square value of 0.698 on 6 degree of freedom (df), the data set fit well to the logistic model as shown in table 6. According to Omnibus tests of model coefficients, the model coefficient gave a Chi-square of

60.842 on 3 degree of freedom (df) significant beyond 0.001. Sensitivity of 99.2 shown us that this rule allowed to correctly classify 489/493 (99.2%) of the respondents were predicted of having burnout. Specificity of 18.9 shown us that this rule allowed to correctly classify 10/53 (18.0%) of the respondents were predicted of not having burnout. Cox & Snell R Square of 0.105 indicated that 10.5% of the burnout among medical and non-medical students was explained by low and moderate level of stress and Indian participants. Nagelkerke R Square of 0.224 indicated that a relationship of 22.4% between burnout among medical and non-medical students with low and moderate level of stress and Indian participants. The VIF (Variance-inflation factor) for all independent variables are less than 10, therefore there were no multicollinearity problem. We found that participant with low stress level have 0.01 times (95% CI 0.001 to 0.199) less likely to have burnout compare to participants with high level of stress and it was significant with p=0.002. We found that Indian participants with low stress level have 0.307 times (95% CI 0.133 to 0.705) less likely to have burnout compare to participants with high level of stress and it was significant with p=0.005. We found that Indian participant with moderate stress level have 0.305 times (95% CI 0.124 to 0.750) less likely to have burnout compare to participants with high level of stress and it was significant with p=0.010. According to ROC curve as shown in Figure 1, the model discriminated 78.0% of the predicted of having burnout among medical and non-medical students in Malaysia.

Table 1: Sociodemographic characteristics of the participants (N= 546)

Variables		Frequency (n)	Percentage (%)
Age	Young adults (18-39)	538	98.5
	Middle adults (40-59)	10	1.5
	Older adults (≥60)	0	0
Gender	Male	199	36.4
	Female	347	63.6
Nationality	Malaysian	515	94.3
	Non-Malaysian	31	5.7
Race	Malay	165	30.2
	Chinese	61	11.2
	Indian	292	53.5
	Others	28	5.1
Education status	No formal education	0	0
	Primary	0	0
	Secondary	0	0
	Post-secondary education (Pre-University, Matriculation, A-level, Diploma, Foundation etc.)	137	25.1
	Tertiary (Bachelor, Degree, Master, PhD)	408	74.7
Occupation	Employed (Full-Time)	37	6.8
	Employed (Part-Time)	12	2.2
	Unemployed/Home maker	3	0.5
	Retired	0	0
	Student	494	90.5
	Others	0	0
If you are a student please indicate,	medical student	277	50.7
	non-medical student	269	49.3
Marital Status	Single	531	97.3
	Married	11	2
	Divorced	1	0.2
	Widowed	0	0
	Others	3	0.5
Residency	Urban	452	82.8
	Rural	94	17.2
Family Monthly income	<RM4849 (B40)	278	50.9
	RM4849-RM10959 (M40)	210	38.5
	>RM10959 (T20)	58	10.6

Table 2: Assessment about burnout among medical students & non-medical students (N= 546).

Variables		Frequency (n)	Percentage (%)
Personal burnout			
How often do you feel tired?	Never	4	0.7
	Rarely	32	5.9
	Sometimes	263	48.2
	Frequently	175	32.1
	Always	72	13.2
How often you are physically exhausted?	Never	5	0.9
	Rarely	78	14.3
	Sometimes	289	52.9
	Frequently	129	23.6
	Always	45	8.2
How often you are emotionally exhausted?	Never	4	0.7
	Rarely	96	17.6
	Sometimes	205	37.5
	Frequently	142	26
	Always	99	18.1
How often do you think: “I can’t take it anymore?	Never	31	5.7
	Rarely	172	31.5
	Sometimes	205	37.5
	Frequently	99	18.1
	Always	39	7.1
How often do you feel worn out?	Never	26	4.8
	Rarely	143	26.2
	Sometimes	234	42.9
	Frequently	106	19.4
	Always	37	6.8
How often do you feel weak and susceptible to illness?	Never	33	6
	Rarely	252	46.2
	Sometimes	196	35.9
	Frequently	46	8.4
	Always	19	3.5
Studies related Burnout			
Do you feel worn out at the end of the working day?	Never	23	4.2
	Rarely	122	22.3
	Sometimes	225	41.2
	Frequently	115	21.1
	Always	61	11.2
Are you exhausted in the morning at the thought of another day at class?	Never	42	7.7
	Rarely	134	24.5
	Sometimes	219	40.1
	Frequently	90	16.5
	Always	61	11.2
Do you feel that every working hour is tiring for you?	Never	61	11.2
	Rarely	172	31.5
	Sometimes	214	39.2
	Frequently	57	10.4
	Always	42	7.7
Do you have enough energy for family and friends during leisure time?	Never	10	1.8
	Rarely	80	14.7
	Sometimes	195	35.7
	Frequently	147	26.9
	Always	114	20.9
Is your studies emotionally exhausting?	Never	39	7.1
	Rarely	104	19
	Sometimes	228	41.8
	Frequently	93	17

	Always	82	15
Does your studies frustrate you?	Never	75	13.7
	Rarely	113	20.7
	Sometimes	212	38.8
	Frequently	83	15.2
	Always	63	11.5
Do you feel burn out because of your studies?	Never	65	11.9
	Rarely	122	22.3
	Sometimes	206	37.7
	Frequently	98	17.9
	Always	55	10.1
Colleagues related Burnout			
Do you find it hard to work with colleagues?	Never	80	14.7
	Rarely	203	37.2
	Sometimes	199	36.4
	Frequently	37	6.8
	Always	27	4.9
Does it drain your energy to work with colleagues?	Never	70	12.8
	Rarely	219	40.1
	Sometimes	197	36.1
	Frequently	35	6.4
	Always	25	4.6
Do you find it frustrating to work with colleagues?	Never	84	15.4
	Rarely	215	39.4
	Sometimes	186	34.1
	Frequently	38	7
	Always	23	4.2
Do you feel that you give more than you get back when you work with colleagues?	Never	76	13.9
	Rarely	155	28.4
	Sometimes	199	36.4
	Frequently	78	14.3
	Always	38	7
Are you tired of working with colleagues?	Never	107	19.6
	Rarely	199	36.4
	Sometimes	181	33.2
	Frequently	37	6.8
	Always	22	4
Do you sometimes wonder how long you will be able to continue working with colleagues?	Never	106	19.4
	Rarely	170	31.1
	Sometimes	200	36.6
	Frequently	45	8.2
	Always	25	4.6
Teachers related Burnout			
Do you find it hard to work with teachers?	Never	118	21.6
	Rarely	197	36.1
	Sometimes	176	32.2
	Frequently	35	6.4
	Always	20	3.7
Does it drain your energy to work with teachers?	Never	119	21.8
	Rarely	200	36.6
	Sometimes	168	30.8
	Frequently	39	7.1
	Always	20	3.7
Do you find it frustrating to work with teachers?	Never	135	24.7
	Rarely	207	37.9
	Sometimes	156	28.6
	Frequently	29	5.3
	Always	19	3.5

Do you feel that you give more than you get back when you work with teachers?	Never	154	28.2
	Rarely	190	34.8
	Sometimes	151	27.7
	Frequently	35	6.4
	Always	16	2.9
Are you tired of working with teachers?	Never	166	30.4
	Rarely	186	34.1
	Sometimes	153	28
	Frequently	26	4.8
	Always	15	2.7
Do you sometimes wonder how long you will be able to continue working with teachers?	Never	153	28
	Rarely	183	33.5
	Sometimes	159	29.1
	Frequently	28	5.1
	Always	23	4.2

Table 3. Assessment of Stress among medical students & non-medical students (N= 546)

Variables		**Frequency (n)**	**Percentage (%)**
In the last month, how often have you been upset because of something the happened unexpectedly?	never	9	1.6
	almost never	47	8.6
	Sometimes	300	54.9
	fairly often	134	24.5
	very often	56	10.3
In the last month, how often have you felt that you were unable to control the important things in your life?	never	16	2.9
	almost never	86	15.8
	Sometimes	255	46.7
	fairly often	119	21.8
	very often	70	12.8
In the last month, how often have you felt nervous and stressed?	never	6	1.1
	almost never	45	8.2
	Sometimes	252	46.2
	fairly often	174	31.9
	very often	69	12.6
In the last month, how often have you felt confident about your ability to handle your personal problems?	never	10	1.8
	almost never	46	8.5
	Sometimes	254	46.9
	fairly often	156	28.8
	very often	76	14
In the last month, how often have you felt that things were going your way?	never	10	1.8
	almost never	71	13
	Sometimes	306	56
	fairly often	136	24.9
	very often	23	4.2
In the last month, how often have you found that you could not cope with all the things that you had to do?	never	20	3.7
	almost never	85	15.6
	Sometimes	318	58.2
	fairly often	93	17
	very often	30	5.5
In the last month, how often have you been able to control irritations in your life?	never	15	2.7
	almost never	64	11.7
	Sometimes	296	54.2
	fairly often	145	26.6
	very often	26	4.8
In the last month, how often have you felt that you were on top of things?	never	19	3.5
	almost never	89	16.3
	Sometimes	322	59
	fairly often	100	18.3

	very often	16	2.9
In the last month, how often have you been angered because of things that happened that were outside of your control?	never	16	2.9
	almost never	70	12.9
	Sometimes	279	51.4
	fairly often	128	23.6
	very often	50	9.2
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	never	24	4.4
	almost never	72	13.2
	Sometimes	295	54
	fairly often	109	20
	very often	46	8.4

Table 4: Prevalence of Burnout and Stress among Medical and Non-medical students (N= 546).

Variables	Medical Students		Non-Medical Students	
	Frequency (n=277)	Percentage (%)	Frequency (n=271)	Percentage (%)
Levels of Burn out				
No/Low	32	5.8	27	4.9
Moderate	155	28.3	145	26.5
High	76	13.9	92	16.8
Severe	14	2.6	7	1.3
Levels of Stress				
Low	6	1.1	12	2.2
Moderate	228	41.6	220	40.1
High	43	7.8	39	7.1

Table 5: Association between sociodemographic characteristics and stress with burnout among medical & non-medical students using Simple Logistic Regression SLogR (N=546).

Variable	B	Wald	df	Crude Odd Ratio (COR)	95% CI (Lower)	95% CI (Upper)	p-value
Age							
Young adults (18-39)							
Middle adults (40-59)[ref]	-17.468	.000	1	.000	.000	.	.999
Older adults (≥60)							
Gender							
Female							
Male [ref]	.228	.433	1	1.256	.638	2.472	.510
Marital status							
Single							
Married	-18.173	.000	1	.000	.000	-	.999
Divorced	1.262	.000	1	3.533	.000	-	1.000
Others[ref]	1.165	.000	1	3.207	.000	-	1.000
Educational Status							
No formal education	-1.479	.000	1	.228	.000	. -	1.000
Secondary							
Post-secondary education (Pre-University, Matriculation, A-level, Diploma, Foundation etc.)	-.314	.084	1	.731	.087	6.111	.772
Tertiary (Bachelor, Degree, Master, PhD)[ref]	-.339	.887	1	.713	.352	1.442	.346
Nationality							
Malaysian							
Non-Malaysian [ref]	-.247	.123	1	.781	.196	3.110	.726
Residency							
Urban							
Rural [ref]	.572	1.832	1	1.772	.774	4.059	.176
Race of participants							
Malay[ref]							
Chinese	.340	.151	1	1.405	.253	7.820	.698
Indian	-1.141	6.205	1	.319	.130	.784	**.013**
others	-.054	.002	1	.948	.103	8.754	.962

If you are a student, Indicate: Medical student Non-medical student[ref]	-.684	3.281	1	.505	.241	1.058	**.050**
Occupation of participants Employed (Full-Time) [ref] Employed (Part-Time) Unemployed/Home maker Student	1.194 -1.574 .764	.740 1.153 1.430	1 1 1	3.300 .207 2.147	.217 .012 .614	50.145 3.665 7.515	.390 .283 .232
Monthly income of participants <RM4849 (B40) RM4849-RM10959 (M40) >RM10959 (T20)[ref]	-.184 .005	.074 .000	1 1	.832 1.005	.220 .254	3.147 3.980	.786 .994
Levels of Stress Low Moderate High[ref]	-5.293 -2.077	20.222 4.025	1 1	.005 .125	.001 .016	.050 .953	**.001*** **.045**

Table 6: Association between sociodemographic characteristics and stress with burnout among medical and non-medical students using Multiple Logistic Regression MLogR (N=546)

Variable	B	Wald	df	Adjusted Odd Ratio (AOR)	95% CI (Lower)	95% CI (Upper)	p-value
Levels of Stress Low Moderate High[ref]	 -4.394 -1.350	 9.596 1.535	 1 1	 .001 .031	 .001 .017	 .199 2.193	 **.002** .215
Race of participants Malay[ref] Chinese Indian others	 .414 -1.182 .100	 .245 7.734 .008	 1 1 1	 1.513 .307 1.106	 .294 .133 .130	 7.786 .705 9.418	 .621 **.005** .927
Medical student Non-medical student[ref]	-.394	1.393	1	.674	.351	1.297	.238
Low stress level by Chinese participants	-21.203	.000	1	.000	.000	-	1.000
Low stress level by Indian participants	-.811	.483	1	.444	.045	4.374	.487
Moderate stress level by Chinese participants	.907	.689	1	2.476	.291	21.078	.407
Moderate stress level by Indian participants	-1.187	6.689	1	.305	.124	.750	**.010**
Moderate stress level by other participants	.091	.007	1	1.095	.126	9.527	.934

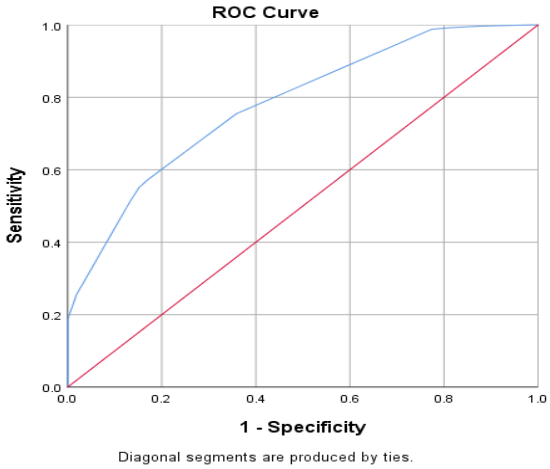

Figure: 1 Receiver Operating Characteristic (ROC) curve for discrimination between positive and negative cases (N=546).

Area Under the Curve				
Test Result Variable(s): Predicted probability				
Area	Std. Error[a]	Asymptotic Sig.[b]	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
.780	.031	.000	.719	.841
The test result variable(s): Predicted probability has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.				
a. Under the nonparametric assumption				
b. Null hypothesis: true area = 0.5				

DISCUSSION

According to several studies, student dropout is a substantial problem in higher education, with a considerable percentage of students failing to finish the required courses for a degree.[14,15] Burnout and its relativeness to stress have been subjected to this research in order to create a deeper understanding of these two matters respectively. It's a correlation study to assess the stress and burnout among medical students and non-medical students in Malaysia. The contribution of this study is that researchers will be able to assess the stress and burnout among medical students and non-medical students in Malaysia. Although we can generally explain that medical student has more pressure compare to non-medical students which proved by multiple cross-sectional studies for example the prevalence of burnout in medical and non-medical students were 27.3% and 20.1% respectively but we made this research to explore more insights from different aspects especially understanding the conceptual framework of this research.[6]

In this study, we found from our 546 respondents that most of the respondents mentioned that colleagues related burnout are lesser usually. Overall, the statistics indicates that emotional exhaustion was highest in both personal and studies related burnout which shows the percentage of 18.1 and 15 respectively. Comparatively, teacher's related burnout was lowest from all aspects and studies related burnout is the highest from all aspects.

From table 4, we can see that most of the both medical students and non-medical students having moderate level of burnout which are 28.3% and 26.5% respectively. Overall, medical students stress level is higher comparatively to non-medical students. From Table 4, we can see that most of the both medical students and non-medical students having moderate level of stress which are 41.6% and 40.1% respectively.

We found that medical student's burnout in relative to stress was higher than those non-medical students. It was supported further by many articles. Research published said that burnout was shown to be substantially more common among medical undergraduates than in non-medical undergraduates, with 27.3 percent and 20.1 percent, respectively.[6] It compromises slightly with our research data where medical students and non-medical student's burnout was 28.3% and 26.5% respectively. In our study, we found that Indian participants have 0.319 times (95% CI 0.13 - 0.784) lesser chance to develop burnout compare to Malay participants and it was significant with p less than 0.05 (p=0.013). Contrary, research published mentioned that in terms of ethnicity, total burnout was greater among Malays (68.7%) than among non-Malay (67.3%) students.[16] This is maybe due to imbalance in the composition of different ethnic groups in both researches.

According to our study we found that, the percentage of students who have moderate level of stress and high level of stress was 97.8% for medical students and for non-medical students was 95.6%. In an article conducted in Egypt, it indicated the medical students had a higher percentage of moderate and high stress levels than non-medical students, at 88.9% and 83.5 percent, respectively.[7] Although we found that in our studies the perceived stress is higher comparatively with the article mentioned above, but the point has been further clarified that medical student level of stress is higher non-medical student stress level. Some studies contradicted these findings, such as one done in Egypt that compared medical and law students and discovered that law students had higher levels of severe stress. This might be explained by the fact that there are limited career possibilities for the large number of accepted law students following graduation.[17]

A study showed about two thirds of the medical students had high stress levels, where stress levels were higher in the clinical years as compared to the preclinical years.[18] This is explained by the fact of students' fear of facing the future as they begin to think and portray an image about their future profession and medical career. This finding is supported with a review article by Fares who performed detailed scholarly research in studies concerned with stress and burnout levels in medical students between 1988-2015; and the study revealed that stress levels varied largely among preclinical medical students in different studies and ranged from 20.9% to more than 90% and as a sequelae stress continues to increase in intensity in the clinical years as a result of overwhelming academic pressures.[19] In the previous literature, it was interpreted opposite to our research. It was indicated that out of 200 medical students of Faisalabad Medical University, 20% has good control over stress, 72% has minimal level of stress, while 4% of students have medium and 4% have high level of stress. In comparison, among 200 non-medical students of Agriculture University, 34% students have good control

over stress, 64% have low level of stress, 2% has medium level of stress, and none of student has high level of stress.

School burnout was coined to explain the symptoms that arose among higher education and university students as a result of school-related stress and responsibilities connected with studying.[20-24] From our study overall, medical student's burnout level is higher (2.6%) comparatively to non-medical students. (1.3%). From Table 4, we can see that most of the both medical students and non-medical students having moderate level of burnout which are 28.3% and 26.5% respectively. Overall, medical students stress level is higher comparatively to non-medical students. We also found that most of the both medical students and non-medical students having moderate level of stress which are 41.6% and 40.1% respectively.

From this study we found that there is significant relationship between stress and burnout. This correlation explained simply by an article saying that Excessive and sustained stress can lead to burnout, which is a condition of emotional, bodily, and mental weariness.[25] Current study indicates that participants with moderate level of stress have 0.125 times less likely to suffer burnout compare to participants with high level of stress regardless of medical or non-medical student. Although there is not any specific research that support our study as we mentioned above but there was a positive correlation between perceived stress and burnout where burnout is largely mediated by stress, which partially mediates the effect of over commitment.[26,27]

CONCLUSION

Burnout is connected to decreased study engagement and motivational shifts. Academic performance and higher absenteeism have also been linked to burnout (28, 29). From entirely, we could conclude that medical student's burnout was higher compare to non-medical students regardless in which period year of study it is. It doesn't mean at any point of this research convey a message such as non-medical students' mental health is ignored at any time. Overall, student's mental health has been mostly triggered to stressful environment due to their academic sector mostly which led to more complication such as depression, anxiety and post-traumatic stress disorder. In order to tackle such predicament, the university management should come up academic content that doesn't stress students in very short period of time.

DECLARATIONS

Ethic Approval and Consent To Participate

All the participants were provided with informed consent before commencement of the survey. The ethical approval was acquired from the Human Research Ethic Committee, Centre of Research and Development, Asia metropolitan University (No. HEC022022FOM0001), which is in accordance with the Declaration of Helsinki. Participants undergone informed consent prior to enrolment of the study.

CONSENT FOR PUBLICATION

Not applicable

AVAILABILITY OF DATA AND MATERIALS

The datasets generated and/or analyzed during the current study are not publicly available due to confidentiality; however, data is accessible from the corresponding author on reasonable request.

COMPETING INTERESTS

The authors declare that they have no competing interests.

CONFLICT OF INTEREST

There is no conflict of interest.

FUNDING

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AUTHORS' CONTRIBUTIONS

TK, YMH, KM, and VA devised the project, the main conceptual ideas, and proof outline. TK, YMH, collected and analyzed the data. TK, LLW, TA and AC contributed to the interpretation of the results. NM, LLW and FM took the lead in writing the manuscript. All authors provided critical feedback and helped shape the research, analysis, and manuscript. The author(s) read and approved the final manuscript.

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ABBREVIATIONS

CBI : Copenhagen Burnout Inventory
PSS : Perceived Stress Scale
SD : Standard Deviation
SPSS : Statistical Package for Social Sciences Software
95% CI : 95% Confident Interval
df : Degree of freedom

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