ORIGINAL ARTICLE

Risks of Mental Problems Among Medical Students in a Public University in Malaysia

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ABSTRACT

Introduction: Mental problems have become increasingly important public health issue globally. This study aimed to determine the prevalence and factors associated with depression, anxiety, and stress among medical students in a public university in Malaysia. **Methods:** A total of 447 medical students were sampled by stratified proportionate to size sampling according to year of study. Validated self-administered questionnaire was used consisted of 5 sections namely, socio-demographic factors, social support received from family members and friends, presence of co-morbidity, previous history of resolved mental problem and Depression Anxiety Stress Scale DASS- 21. Data was analysed by using the statistical computer software 'Statistical Package for Social Science (SPSS)' version 22 involving three levels of analysis (descriptive, chi square and multiple logistic regression). **Results:** Only 31.1% of the respondents were found to be depressed with mainly within the moderately depressed category, 53.9% had anxiety and 26% were having stress. Perceived social support received from family members was a significant predicting factor for depression, anxiety and stress. **Conclusion:** High proportion of depression, anxiety and level of stress among medical students were found. The stressful medical program is putting medical students at risk of mental problems. Parents and family members should be encouraged to be more involved in any related programs to promote better mental health and well-being of medical students.

Keywords: Depression; Anxiety; Stress; Medical students; Malaysia

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INTRODUCTION

Mental health refers to psychological, social and emotional well-being and is defined by World Health Organization (1) as the ability to recognizes own potential, coping with stress, work productively and continue to contribute to the society. Depression, anxiety and stress are common mental illnesses which are frequently associated with mind disturbances which can affect thinking process, feeling, behaviour and interfere with normal functioning (2). They were among the top disability-related illnesses, accounting for 15% of the overall burden of diseases in USA, Canada and Eastern, slightly higher than the disease burden contributed by cancer (3). They were also reported to be the most common mental illnesses diagnosed in Malaysia (2).

Increasing prevalence of psychiatric morbidity among the Malaysian population has been reported in the National Health and Morbidity Surveys (NHMS) in 1996, 2006 & 2011 (4). It was reported that those aged 16 years old and above reported higher prevalence of psychiatric morbidity, compared to children and adolescents below 15 years old, 13% and 10.6% respectively. Meanwhile, among the 11.2% of adults with psychiatric morbidity in the NHMS (2006), 55% were females, 31.1% were Chinese and 12.6% the urban settlers. Individuals with no formal education or primary education were found to have the least risk towards psychiatric morbidity (NHMS, 2006). These mental problems are also put them at risk of other problem such as suicide. According to the Malaysia Mental Health Association (2), the prevalence of suicidal ideation either associated with depression or other mental illness was also reported to be the highest among teenagers (6.4%) and young adults aged 16 to 24 years old (11%).

Realising the increasing prevalence of anxiety, stress and depression among the university students, more research focus is given to this target group (5). Medical programme is often said to be highly challenging and stressful due to the heavy academic and financial commitments (6). The inability to manage time effectively may put the students at higher risk of developing mental problems, including depression, anxiety and stress (7). A previous study among medical students in public universities in Malaysia revealed 21.7% and 50.0% of the students had depression and stress (8). An increase prevalence of these problems was later reported in another study in

2014, which demonstrated 37.2%, 63% and 23.7% of the medical students in Malaysia had depression, anxiety and stress respectively (9). Many factors contribute towards the development of these mental problems. This study aimed to determine the mental health well-being and the associated factors of the students in the medical programmes in UPM.

MATERIALS AND METHODS

This study was conducted at the Faculty of Medicine and Health Sciences, University Putra Malaysia. A total of 447 medical students were involved in this cross-sectional study which were recruited using stratified proportionate to size sampling, based on the list of students in each year of study as the sampling frame. The sample size was estimated using the Lwanga et al. (10) formula, based on the information obtained from a study on the depression, anxiety and their associated factors among medical students by Alvi et. al, (11). The selection of respondents from each year of study was done by simple random sampling from the total of 545 medical students. A valid and reliable self-administered questionnaire was used for data collection, containing five sections namely the sociodemographic factors, perceived social support received from family members and friends, presence of any co-morbidity (self-reported as yes or no), history of resolved mental problem (self-reported) and the DASS-21 which is widely used as screening tool for depression, anxiety and stress, with reliability of 0.84, 0.74 and 0.79 respectively for depression, anxiety and stress subscales (12). Except for DASS-21, the other sections were developed and validated for the purpose of this study. The information in the questionnaire was measured using Likert and nominal scales with Cronbach alpha and kappa values ranging from 0.711 to 0.765 and 6.45 to 6.99 respectively. From the total of 21 items assessed, 7 questions indicate the presence of depression when answer positively (3, 5, 10, 13, 16, 17, 21), another 7 questions (question number 2, 4, 7, 9, 15, 19, 20) indicate the presence of anxiety when answer positively and also another 7 questions (1, 6, 8, 11, 12, 14, 18) indicate the presence of stress when answer positively. The association between the variables were measured using chi square test and the predictors of depression, anxiety and stress were determined using multiple logistic regression. Statistical Package for Social Science (SPSS) software version 22 was used to analyse the data involving descriptive, bivariate and multivariate analysis. The level of significance was set at $p<0.05$. Approval from the Ethics Committee for Research Involving Human Subject of UPM {FPSK-P021) 2017} was obtained prior to data collection.

RESULTS

Characteristics of the respondents

The response rate of this study was 94.5%. Table I and II is showing the characteristics of the medical students involved in this study. Majority of the respondents were aged 22 years old and below (52.8%), female (72.3%), Malay ethnic (66.9%), paternal and maternal tertiary educational level (54.6%), from 4th (23.5%) and 5th (23.5%) medical year programme, perceived to have low social support from family members and friends (58.6%) and also without co-morbidity (97.5%), previous history of resolved mental problems (97.5%) and normal depression (68.9%) and stress scores (74.0%) but had abnormal anxiety score (53.9%).

Associated factors of depression, anxiety and stress

Meanwhile, table III shows the results of the inferential analysis identifying the significant factors associated with depression, anxiety and stress. The perception towards the social support received from family members were found to have significant association with depression, anxiety and stress ($p<0.005$). Meanwhile, history of resolved mental problems was significantly associated with anxiety and stress. Depression was also significant associated with perceived social support received from friends and presence of co-morbidity was also significantly associated with stress. Majority

Table I: Characteristics of the respondents (N=447)

Factor	Frequency	%
Sociodemographic factors		
Age [median = 22(IQR=3)]		
≤ 22 years	236	52.8
> 22 years	211	47.2
Sex		
Female	323	72.3
Male	124	27.7
Ethnicity		
Malay	299	66.9
Chinese	88	19.7
Indian	49	11.0
Others	11	2.5
Paternal education		
Tertiary	244	54.6
Secondary	159	35.6
Primary	44	9.8
Maternal education		
Tertiary	218	48.8
Secondary	185	41.4
Primary	44	9.8
Year of study		
1st	84	18.8
2nd	72	16.1
3rd	81	18.1
4th	105	23.5
5th	105	23.5
Perceived social support		
From family members [median=4.4]		
Low (≤ 4.4)	262	58.6
High (> 4)	185	41.4
From friends [median = 4]		
Low (≤ 4)	289	64.7
High (> 4)	158	35.3
Co-morbidity		
Yes	11	2.5
No	436	97.5
History of resolved mental problem		
Yes	11	2.5
No	436	97.5

Table II: Characteristics of the respondents (N=447)

Mental status	Frequency	Percentage
Depression score		
Normal	308	68.9
Abnormal	139	31.1
Mild Depression	51	11.4
Moderate Depression	54	12.1
Severe Depression	22	4.9
Extremely Severe Depression	12	2.7
Anxiety score		
Normal	206	46.1
Abnormal	241	53.9
Mild Anxiety	77	17.2
Moderate Anxiety	61	13.6
Severe Anxiety	44	9.8
Extremely Severe Anxiety	59	13.2
Stress score		
Normal	331	74.0
Abnormal	116	26.0
Mild Stress	48	10.7
Moderate Stress	40	8.9
Severe Stress	23	5.1
Extremely Severe Stress	5	1.1

Table III. Associated factors of depression, anxiety and stress (N= 447)

Factor	Depression		Total	X^2	p
	Yes n (%)	No n (%)			
Family support					
Low	53 (20.2)	209 (79.8)	262	10.01	0.002
High	17 (9.2)	168 (90.8)	185		
Friends support					
Low	53 (18.3)	236 (81.7)	289	4.44	0.035
High	17 (10.8)	141 (89.2)	158		
	Anxiety				
	Yes n (%)	No n (%)			
Family support					
Low	70(26.7)	192(73.3)	262	4.822	0.028*
High	33(17.8)	152(82.2)	185		
Past history of mental problem					
Yes	7(63.6)	4(36.4)	11	10.480	0.004*
No	96(22.0)	340(78.0)	436		
	Stress				
	Yes n (%)	No n (%)			
Family support					
Low Support	78(29.8)	184(70.2)	262	4.808	0.028*
High Support	38(20.5)	147(79.5)	185		
Presence of chronic disease/ comorbidity					
Yes	8(72.7)	3(27.3)	11	12.841	0.001*
No	108(24.8)	328(75.2)	436		
Past history of mental problem					
Yes	6(54.5)	5(45.5)	11	4.799	0.039*
No	110(25.2)	326(74.8)	436		

of the respondents reported to have low social support received from family members. However, among those with low social support received from family members, most of them did not have depression.

Predictive model for depression, anxiety and stress

The predictive models for depression, anxiety and stress that were obtained from the multiple logistic regression analysis is shown in table IV. Similar to the inferential analysis, perceived social support received from family members significantly predict the development of depression, anxiety and stress among the medical students participated in this study. Those that perceived of receiving lower social support from family members are having 2.5, 1.75 and 1.74 higher odds of having depression, anxiety and stress respectively. On the other hand, perceived social support received from friends is also predicting the occurrence of depression among the respondents, in which those perceived of receiving lower social support from friends are having 1.86 higher risks of developing depression. Development of stress is also predicted by presence of co-morbidity (AOR=10.63) and history of resolved mental problems (AOR=3.91).

Table IV: Predictive model for depression, anxiety and stress (N=447)

Factor	B	SE	Wald	P	AOR	95% CI
Depression						
Family support						
Low	0.927	0.316	8.623	0.003	2.53	1.36-4.69
High (ref)						
Friends support						
Low	0.619	0.314	3.893	0.048	1.86	1.00-3.43
High (ref)						
Anxiety						
Family support						
Low	0.561	0.248	5.131	0.024	1.75	1.08-2.85
High (ref)						
Stress						
Family support						
Low	0.555	0.240	5.328	0.021	1.74	1.09-2.79
High (ref)						
Co-morbidity						
Yes	2.363	0.714	10.955	0.001	10.63	2.62-43.06
No (ref)						
History of resolved mental problems						
Yes	1.364	0.674	4.101	0.043	3.91	1.05-14.66
No (ref)						

DISCUSSION

The findings of this study revealed more than 30% of the medical students from the public university involved had some degree of depression, which was just slightly below the prevalence obtained from another local study by Sherina & Kanesan (13), who reported 35.9% of the medical students of a public university in Malaysia had depression. The development of depression were found to be significantly related with female sex, Malay ethnicity, relationship of the respondents with their siblings, pressure prior to exam and problems with love (boy-girl) relationship (13). High prevalence of depression among Malaysian undergraduate students was also reported in a study involving four public universities, with 27.5% and 9.7% of them had moderate, and severe

or extremely severe depression respectively (9). Another study involving medical students in a private university showed higher prevalence of depression (60.2%) with 36.0% were also experiencing stress (14). University students' face many challenges including independent living, academic stress, as well as planning for their future careers and this predispose them to depression (15).

As for anxiety, a lower prevalence was reported (38.4%), in another study which was also conducted among medical students at public university in Malaysia (16). In contrast, a higher prevalence of social anxiety was reported in another local study (56%) which may affect the academic performance due to inability to adequately communicate during the clinical training (17). Surprisingly, a similar local study conducted among private university medical students revealed remarkably higher prevalence of anxiety, with 76.2% had anxiety (14), which probably related to the high fee and higher family expectations on the students.

Compared to depression and anxiety, the prevalence of stress was found to be the highest in this study, with more than half of the students experienced stress. Stress can upsets an individual both mentally and physically and perceived as threat to the well-being of the individual. It is well documented that higher education is very stressful and medical education is even more stressful as compared to other professional students (18). In a systematic review on stress among medical students in Malaysia reported that 56% of Malaysian medical students are stressed (19) with the transition from pre-clinical to clinical year is a crucial stage contributing towards the level or severity of stress (13). Additionally, at national level the prevalence of mental health problems have been reported at younger age in Malaysia, with nearly half of the 4.2 million Malaysian aged 16 years and above with mental health problems (20).

The findings of this study also emphasize on the important role of social support received from family members in predicting the occurrence of depression, anxiety and stress among the medical students. Family support can be in the form of emotional, financial support and also relationship with family members especially parents. A similar study by Noh Amit et al. (21) also reported family social support was the significant predictors for depression, whereas family social support was significant in predicting stress. Additionally, it was also reported that students who were living away from their parents are more likely to develop depression than were those staying with their parents (22). Meanwhile, apart from family support, stress was also found to be predicted by the presence of other comorbidities and past history of resolved mental problems, which probably related to the stressful experience in managing the other comorbidities and also then higher risk for mental problem to recur among those with previous history.

CONCLUSION

The prevalence of depression, anxiety and stress were high among the medical students involved in this study, with prevalence of stress being the highest. Medical education is highly stressful and the teaching and learning process may have exert negative impact on the students' mental health. Adjustment of the teaching and learning methods may be necessary to alleviate the problems. The study also highlights the importance of having good family relationship to ensure adequate social support from family members as a coping mechanism towards the highly depressed, stressful and anxious learning process for medical students. Additionally those with co-morbidities and previous history of mental illness should be observed closely and intervened adequately.

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