Anxiety, depression and quality of life of medical students in Malaysia

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ABSTRACT

Background: Medical education is known to be highly stressful and challenging. Many medical students suffer from psychological stress which may lead to burnout and poor academic performances. Quality of life (QOL) of medical students is also affected. In this study, we aim to determine the prevalence of anxiety and depression of the senior medical students and to assess their QOL.

Methods: This is a cross-sectional study which involved medical students in their final two years of study at a public university in Malaysia. Self-administered Hospital Anxiety and Depression scale (HADS) and World Health Organisation QOL questionnaire (WHOQOL-BREF) were used to assess their psychological symptoms and QOL.

Results: A total 149 students participated. The prevalence rates of anxiety and depression were 33% and 11% respectively. Malay students had significantly more anxiety compared to the other ethnic groups, P<0.05. Female students had significantly lower psychological score compared to male; 70.73 vs 66.32(P<0.05). Anxiety and depression were associated with significantly poorer QOL. Students with depression symptoms were associated with lower physical, psychological and environmental domain score whereas those with anxiety had lower psychological, social and environmental scores, P<0.05. Overall QOL score was significantly lower in Chinese students (P<0.05) and those with depression (P<0.001).

Conclusion: QOL of medical students are significantly affected by the presence of anxiety and depression. It is recommended that medical schools implement measures which can identify students at risk and to offer comprehensive intervention and preventive programmes to improve the students' wellbeing.

KEY WORDS:
Anxiety, depression, medical students

INTRODUCTION

It is a well-known fact that medical education is generally more intensive and takes longer duration to complete compared to many other courses. It is therefore not surprising that medical students experience higher risk of anxiety and depression compared to the general population.[1-5] The prevalence of anxiety and depression differs in different universities and countries, where the reported prevalence rate of anxiety varies between 7.7% to 65.5% and the prevalence rate of depression can range from 6% to 66%.[4,5] In Malaysia, 44% and 34.9% of medical students attending a private university had been reported to have some level of anxiety and depression respectively.[6] Another study by a public university in Malaysia demonstrated that 48.6% of first and third year medical students have some level of psychological stress.[7] Psychological status of final year medical students, who usually have major barrier examinations before entering their internship programmes in Malaysia had also been studied and the prevalence rate of anxiety and depression were reported to be as high as 56% and 21.7% respectively.[8,9]

Quality of life (QOL) is another aspect in one's evaluation of health status, which is increasingly becoming more relevant and important. Many studies which had consistently showed that QOL is negatively affected by the presence of anxiety and depression.[10-12] Previous studies from many countries had demonstrated that medical students had lower QOL compared to their peers.[13,14] However, not many had specifically looked into the association of anxiety and depression with QOL, especially within the Asian countries. It is usually thought that Asian students faced more pressure from parents and teachers to perform well and this may inadvertently cause more stress to the students.[15] Therefore, it is critical to determine the prevalence of anxiety and depression among medical students and to assess their QOL in relation to these psychological symptoms. This is especially pertinent as evidences had shown that mental disorders and stress can lead to multitude of problems such as burnout, suicide and serious professional misconducts.[16,17]

This study aims to determine the prevalence of anxiety and depression of medical students in their final two years of study in a public university in Malaysia. We also aim to assess the QOL of these medical students. The findings of this study will hopefully provide useful information to the university.

MATERIALS AND METHODS

This is a cross-sectional study which included medical students in their final two years of training at one of the public medical schools in Malaysia. The study was conducted from May 2015 to August 2015. The study was approved by the deputy dean of undergraduate study at that time and also the institution ethic committee.

This article was accepted: 20 August 2018
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Scoring for anxiety and depressive symptoms were made based on validated Hospital Anxiety and Depression Scale (HADS).[18] HADS had a total of 14 items which were divided into two subscales, anxiety subscale (seven items) and depression subscale (seven items). A score of 0 to 7 indicates absence of symptoms of anxiety or depression; HADS score of 8-10 indicates presence of symptoms i.e. borderline or mild and score of 11 or greater indicates significant symptoms.

WHO QOL-BREF is a validated questionnaire which is commonly used to evaluate QOL.[19,20] The WHOQOL-BREF contains a total of 26 questions. One question on overall perception of QOL, one question on overall perception of health and the remaining questions evaluate the four domains of QOL; seven questions on physical health, six questions on psychological domain, three questions on social domain and eight questions on environmental domain. For question on overall perception of QOL and health, raw score was used. Whereas, scores of the four domains are calculated and then transformed to a 0-100 scale; according to the manual provided. The domain scores were scaled in a positive direction whereby higher score denotes higher quality of life.

The questionnaires were delivered to the students after lectures and collected on the same day. Basic demographic information is also collected at the same time. All the information was anonymised.

Demographic characteristics including anxiety and depression and mean score of QOL were analysed using chi-square or t-test where appropriate. Multiple linear regression analysis was used to determine any independent associations when needed. P value of <0.05 was considered as clinically significant. Data was analysed using the Statistical Package for Social Sciences (SPSS) version 17.0.

RESULTS

A total of 154 students participated in this study but five were excluded due to incomplete information. Only 38 students in year four participated in the study and the remaining 111 students were in their final year. Majority of the students (97%) entered university after completion of matriculation or basic science foundation programme. All students were staying in hostels provided by university at the time of participation. Other sociodemographic information of the medical students was summarised in Table I. Thirty-three (33%) of the students had presence of anxiety symptoms with 14% of them complained of significant symptoms. On the other hand, 11% had symptoms of depression, of which 3.4% had significant symptoms of depression. Malay students had more anxiety symptoms compared to the other two ethnic groups, P<0.05. There was no difference in the prevalence of depressive symptoms and ethnicity. Gender, marital status, religion and household income did not significantly associate with anxiety and depression. There was no significant difference in anxiety and depression in the two different years of students.

The mean scores for QOL and health were 4.02 and 3.98. The mean scores of all domains of QOL are showed in Table I. Physical domain had the highest mean score (70.44) followed by psychological domain (68.09). Social domain had the lowest mean score of 65.97. There was no significant difference in the mean scores of all QOL domains amongst the three ethnic groups. (Table II)

Female students had significantly lower psychological score compared to male; 70.73 vs 66.32(P<0.05). Household income played a significant role in all QOL domains except for overall health score. Students who exhibited anxiety and/or depression symptoms were associated significantly with lower overall mean QOL score and all domains of QOL except for overall health score. However, students who had clinically significant depression and/or anxiety (HADSA≥11 and HADD≥11) did not significantly associate with lower social domain scores. (Table III)

After multivariate linear analysis, overall QOL score was now found to be significantly affected by ethnicity and those with depression symptoms. Physical health, psychological and environmental domain scores were significantly lower in students with depression. Students with anxiety symptoms were associated with lower psychological, social and environmental scores. Students from well to do financial background reported significantly better environmental score. Gender did not play any significant role in the differences of QOL scores. (Table IV)

DISCUSSION

According to a systematic review, 7.7% to 65.5% of medical students outside of United States had anxiety.[4] In this study, we found 33% of the students had anxiety symptoms and 14% had significant anxiety. On the other hand, 11% of our students had symptoms of depression and only 3.4% had significant symptoms of depression. It would appear that psychological stress in these students are lower than what was reported in a private medical university and another public university in Malaysia.[6,9] The difference in the prevalence rate was probably due to the different cohort of students recruited. The lower incidence of psychological stress among the senior medical students was also consistently demonstrated in other studies and this was explained by the experience and the maturity of the final year medical students in dealing with examinations and the skills they have developed in coping with the curriculum.[22,23] However, when we compared with other Asian countries, the prevalence rate of anxiety in our cohorts was also lower, for example Pakistan reported a prevalence rate of anxiety to be 60%.[24] However, according to the systematic review by Cuttilan et al, pooled prevalence rate of anxiety was 7.04% in Asia where China reported the lowest rate.[25] The difference in the prevalence rate of anxiety within countries and regions is interesting as many postulate that there may be different coping mechanism used by different populations.

Malay students appeared to report more anxiety symptoms when compared to the other two ethnic groups. Similar finding was reported by Shamsudin et al., where Malay students had the highest stress score compared to the other two ethnicity groups, however the students they surveyed were not limited to medical programmes.[26] The difference may be explained by the different coping mechanisms of each culture groups.

Table I: Characteristics of Medical Students

		No (%)
Age	Median (years)	23 (range 22-24)
Gender	Male	64 (43)
	Female	85 (57)
Ethnicity	Malay	70 (47)
	Chinese	72 (48.3)
	Indians	7 (4.7)
Marital status	Yes	2 (1.3)
	No	147 (98.7)
Household monthly income (RM)	<2000	41(27.5)
	2000-4999	56(37.6)
	5000-9999	29(19.5)
	≥10000	23(15.4)
HADS Anxiety	<8	100 (67)
	8-10	28 (18.7)
	≥11	21 (14)
HADS Depression	<8	132 (88.6)
	8-10	12(8)
	≥11	5(3.4)
QOL mean score	4.02(±0.636)	
Overall health mean score	3.98 (±0.688)	
Physical domain mean score	70.58(±12.98)	
Psychological domain mean score	68.21(±13.06)	
Social relation mean score	66.07(±15.19)	
Environment mean score	67.06(±12.81)	

Table II: Anxiety, depression and QOL domains of the three ethnic groups of students

	Malay (n=70)	Chinese (n=72)	Indian (n=7)	P value
HADA≥8 N (%)	30(61)	19(39)	0(0)	0.02*
HADA≥11 N(%)	13(62)	8(38)	0(0)	0.15
HADD≥8 N(%)	10(59)	7(41)	0(0)	0.43
HADD≥11 N(%)	2(40)	3(60)	0(0)	0.67
Overall QOL score	4.14	3.92	4.00	0.06
Overall health score	4	4	3.71	0.56
Physical score	70.13	70.91	71.57	0.68
Psychological score	68.73	67.75	67.85	0.68
Social score	68.2	63.58	70.42	0.27
Environment score	66.6	67.83	63.57	0.94

*significant P value

Table III: Association of anxiety and depression with QOL

	HADA		P value	HADA	P value	HADD		P value	HADD	P value
	<8 (n=100)	≥8 (n=49)		≥11 (n=21)		<8 (n=132)	≥8 (n=17)		≥11 (n=5)	
Overall QOL	4.13	3.81	0.004	3.67	0.005	4.1	3.41	<0.001	2.6	<0.001
Overall health	4.01	3.94	0.5	3.98	0.92	4.01	3.76	0.55	4.0	0.9
Physical	73.11	65.41	<0.001	59.80	0.00	72.01	59.41	<0.001	56.4	0.01
Psychological	71.54	61.43	<0.001	55.76	0.00	70.22	52.64	<0.001	40.0	<0.001
Social	69.86	58.35	<0.001	61.38	0.127	67.67	53.71	<0.001	57.6	0.2
Environment	69.92	61.22	<0.001	58.14	0.00	68.54	55.53	<0.001	47.4	<0.001

Table IV: Multiple linear regression analysis with beta coefficient values of all QOL domains and students' characteristics and anxiety and/or depression symptoms

Variables	Overall QOL	Overall health	Physical	Psychological	Social	Environmental
Ethnicity	-0.229*	--	--	-3.28	--	--
Gender	--	--	--	--	--	--
Household income	0.025	--	1.266	-0.389	0.869	1.527*
HADA >8	-0.155	--	-3.95	-6.08*	-8.66*	-4.99*
HADD>8	0.317*	--	-9.51*	-12.27*	-7.33	-9.11*

• * P value <0.05

Our results demonstrated that females had significantly lower psychological domain, similar to reports elsewhere.[28,29] Females may be more sensitive to pressure and were more emotional, maybe some of the possible reasons.[2,28,30] Students from better financial background reported better environmental scores which again were consistent with other study.[31]

In this study, students who had anxiety symptoms were more likely to have lower scores in psychological, social and environmental domains. Whereas, students who had depression symptoms had lower scores in all domains except for overall health score. This finding highlights the impact of anxiety and depression on QOL which also concurs with many other studies.[32]

Interestingly, we also found that ethnicity significantly affected the scores of overall QOL where Chinese students reported an overall lower score in QOL domain irrespective of their psychological symptoms. It is difficult to postulate the reasons behind this difference although it may be due to the varying expectations in life. Several studies had found that most students from the Confucian heritage culture faced more pressure and stress as they saw academic achievement as a filial duty and obligation to their families and this may have affected their QOL.[33,34] However, further study should be conducted to confirm this finding.

Students who chose medicine for anticipated income or prestige, and those with anxiety traits are shown to have higher risk of depression.[35] Therefore, it is relevant for university to take the initiative to identify students who are at risk of developing psychological stress and instituting measures to help support these students early.

One of the limitations of this study was the relatively small sample of students participating in this study and the uneven distribution of year four and five students. It was a cross-sectional study which did not comprehensively evaluate the students' psychological symptoms and QOL throughout their course. We also did not take into account students' interest and attitude in study which had been shown to affect students QOL.[28] A future study to include these aspects will be beneficial to comprehensively study the students' QOL.

However, to our knowledge, this study is the first to report the association of anxiety and depression symptoms with quality of life of our senior medical students in Malaysia. Although the prevalence of anxiety and depression symptoms is not as high as what was reported in most of the Asian countries, it is still vital that the relevant stakeholders such as medical schools and hospitals are cognizant of these psychological stresses that the students may be experiencing. In addition, this study had demonstrated that the psychological symptoms affect the students' QOL, which may also subsequently affect their academic as well as work performances.

Many universities had started to take an active role in addressing these problems by instituting programmes which include integrated curriculum changes such as team-based learning, comprehensive wellness programmes and strategies to improve students' resilience and mental health with encouraging results.[38-40] Mentorship programmes which may be useful in helping students in coping with life stressors and academic training is currently implemented in our university. Programme such as this has demonstrated positive effects on medical students' mental wellbeing in other countries.[41] In addition, there are several studies which have demonstrated that mindfulness training may be effective in increasing students' resilience and reduce psychological stress.[42-43] This may be one of the strategies university may consider implementing.

In conclusion, this study confirmed that QOL of medical students are affected by anxiety and depression and further highlights the importance of medical school to develop strategies to identify students at risk of mental stress and to perhaps improve the current support systems for students.

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