

ORIGINAL ARTICLE 

# Hospital related anxiety, depression among medical students: A cross-sectional study from two Universities of Perak State, Malaysia

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**ABSTRACT**

**Introduction:**

Depression and anxiety are common mental health conditions among medical students due to the highly challenging and stressful environment. It is also associated with poor academic performance and quality of life. Therefore, we aim to determine the prevalence and associated factors of hospital-related anxiety and depression among medical students in Perak, Malaysia.

**Methods:**

A cross-sectional study was conducted among 274 medical students in the clinical posting. Hospital related anxiety and depression scale (HADS) was used to assess anxiety and depression symptoms.

**Results:**

The prevalence rates of anxiety and depression were 31.7% and 15.7%, respectively. Malay students suffered most from anxiety (14.2%), followed by Indian (12.4%) and Chinese students (4.7%). A significant association was observed between ethnicity and depression, where 7.3% of Indian students had the highest level of depression followed by Malay (6.9%) and Chinese students (1.5%).

**Conclusion:**

This study demonstrated that medical students experienced anxiety and depression during the clinical years. A recommendation for medical schools to implement screening for anxiety and depression to identify the higher risk students will offer a better way of preventing and treating anxiety and depression to improve students' well-being.

**Keywords**

Anxiety, depression, financial problem, medical student, psychological

## Introduction

Medical colleges worldwide focus on training and building competent doctors to treat the sick, improve medical knowledge, and promote public health to develop a healthy nation. [1] However, there is no doubt that medical education is a tough academic and emotional challenge for students. [2] There is a constant strain on a student to cope with medical subjects in a stipulated time, which causes a negative impact on student psychology, causes stress, anxiety, and depression. [3]

Anxiety and depression are the two major psychological disorders highlighted by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Many domains have been linked to anxiety and depression, one of them being age. Young medical students often faced more depression, anxiety. [4] Relating to gender and anxiety and depression, females experience more anxiety than males. Excessive amounts of workload and sleep deprivation were pointed out. [5, 6] Karolinska Institute Medical University reported an almost double percentage of female students who experienced depressive symptoms than males. [7] Recent research in Malaysia unveils that anxiety symptoms were higher among Malay students than Indians and Chinese because of each culture group's different coping methods. Most students from the Confucian heritage culture and traditional face more pressure and stress. [8]

There were also comparisons between medical students from different years. Studies showed that first-year medical students experienced more stress than their seniors because they could not adapt to the medical course and living environment. [9] Students who stay away from home suffer from more symptoms of depression than those who stayed at home. [10] Medical students whose parents were physicians had a lower amount of depression and anxiety than those who were not. [11]

Depression has also been linked to the financial crisis. [12] Studies have been done to discuss anxiety and depression among medical students in different universities worldwide. They are exposed to situations that they may be unfamiliar with, which can cause discomfort. Over a prolonged period coupled with lack of sleep, high workload, and high expectations can increase anxiety. [4, 6] Depression is also increasing among young adults, and there are many theories behind why this may be so. Difficulty in handling emotional situations with family members, belittling from seniors and hospital staff, and feelings of low self-esteem and inadequacy in the medical field are a few to be named. [8, 12] It is undeniable that medical students spend much time studying due to the large syllabus content. This could mean that instead of taking care of their health by exercising or making healthy food choices, they would neglect their self-care as they feel they do not have adequate time to spend on themselves. This type of poor self-care can lead to a deterioration of their mental health, which can cause them to find harmful coping methods such as smoking, alcohol consumption, abusing

prescription medication, and playing truant to avoid dealing with the work-related stresses. [7, 12] Eventually, this would lead to a loss of interest in studies, decreased academic performance, inability to care for patients, and poor personal and professional relationships.

Although studies have been done from different parts of the globe, relatively less research has been carried out from Malaysia. Studies are deficient from Perak state. This research aimed to determine the association of anxiety and depression with the socio-demographic factors, health status, and personal predicaments of medical students in their clinical phase in Ipoh, Perak.

## Methods

### Study period, study design and participants

This study was conducted from 01/01/2020 to 01/02/2020. This questionnaire-based study was carried out in Quest International University (QIU), and Royal College of Medicine Perak (RCMP), Ipoh hospital, Taiping hospital, Teluk Intan hospital, and Sri Manjung hospital, where the Quest International University and the Royal College of Medicine Perak medical students were in their clinical phase of posting. A total number of 274 clinical phase medical students participated in the study. Four investigators of the study informed all students about the purpose and procedure of the research. The printed version of the HADS questionnaire was administered for this research. Investigators were present throughout the process and clarified any doubts of the participants.

### Inclusion and exclusion criteria

All medical students in the clinical phase (year 3 to 5) were included in the study. Meanwhile, preclinical students and those who were not available during the collection of data and had not opted to be a part of this study were excluded.

### Sample Size Calculation

The cross-sectional study design was used to perform this study. One-proportion sample size calculation method was used to determine the sample size for this study. The total sample size calculated with the inclusion of 10% possible missing data was 255 respondents. Purposive sampling was applied to achieve the objective of the study.

### Study tool

We used the self-administered Hospital Anxiety and Depression Scale (HADS) for this research. HADS is a reliable and widely used self-report-instrument constructed initially to find out the level of anxiety and depression in the general medical population. This tool has a strong psychometric property can be applied even for the general population. [13] HADS is divided into HADS-D for measuring depression and HADS-A for measuring anxiety. HADS allows to narrow down the specific anxiety and depression groups that may cause anxiety and depression

among medical students. This questionnaire was in the English language and not translated to Bahasa Malaysia as all medical students in their clinical phase understand the questions in English. The scoring was based on the answer scoring from 0 to 3. The total score for anxiety questions or questions for depression were added, and we compared the range as follows: 0-7 = normal, 8-10 = borderline abnormal, 11-21 = abnormal. [14]

**Data management and statistical analysis**

The data were analyzed using IBM Statistical Package for Social Science (SPSS) version 22. Descriptive statistics were used to summarize the data collected. Meanwhile, the hypothesis statement was tested using inferential statistics. Spearman's Correlation test was used to assess the relationship between the quantitative variables. The Chi-square test was done to determine the association between qualitative variables. Mann Whitney U test and Kruskal Wallis test were used to compare the mean rank difference between qualitative independent variables. P value<0.05 was considered as significant.

**Ethical committee approval**

Confidentiality of respondents was maintained throughout the research. Unique identifiers such as name, address, and phone number were not taken from the respondent. The agreement of participants voluntarily participating in the study was collected using an informed consent form. Approval from the Research and Ethics committee was obtained before data collection.

**Results**

**Table 1: Socio-demographic factors of respondents (n=274)**

Socio-demographic factor	n	(%)
<b>Age, median(IQR)</b>	23	(2.0)
<b>Ethnicity</b>		
Malay	122	(44.5)
Chinese	38	(13.9)
Indian	107	(39.1)
Others	7	(2.6)
<b>Gender</b>		
Male	165	(60.2)
Female	109	(39.8)
<b>Relationship status</b>		
Single	273	(99.6)
Married	1	(0.4)

Table 1 depicts the socio-demographic factors and health status of medical students. As for ethnicity, most of the respondents were Malays and the second highest was Indian, followed by Chinese and other races. The numbers of male respondents were higher compared to females. Out of 274 respondents, 273 were single, and only one respondent was married. As for these respondents' health status, only 2.6% suffer from known psychiatric illness.

Table 2 showed factors associated with anxiety. 19% of males and 9.5% of females suffered borderline anxiety, whereas 18.2% of males and 13.5% of females suffered from abnormal anxiety levels. Malay students suffered most from anxiety (14.2%), followed by Indian (12.4%) and Chinese students (4.7%). Year 4 students, 28 respondents (10.2%) had borderline anxiety. Respondents who had a family problem (7.7%) suffered from anxiety.

**Table 2: Factors associated with anxiety**

Variables	Normal n (%)	Borderline n (%)	Abnormal n (%)	Chi	(df)	P value
<b>Gender</b>						
Male	63 (23.0)	52 (19.0)	50 (18.2)	1.894	2	0.388*
Female	46 (16.8)	26 (9.5)	37 (13.5)			
<b>Ethnicity</b>						
Malay	53 (19.3)	30 (10.9)	39 (14.2)	7.627	6	0.267*
Chinese	16 (5.8)	9 (3.3)	13 (4.7)			
Indian	35 (12.8)	38 (13.9)	34 (12.4)			
Others	5 (1.8)	1 (0.4)	1 (0.4)			
<b>Degree-year</b>						
3	48 (17.5)	33 (12.0)	36 (13.1)	8.146	4	0.086*
4	21 (7.7)	28 (10.2)	24 (8.8)			
5	40 (14.6)	17 (6.2)	27 (9.9)			
<b>Family problem</b>						
Yes	5 (1.8)	15 (5.5)	21 (7.7)	16.094	2	<0.001†
No	104 (38.0)	63 (23.0)	66 (24.1)			
<b>High parental expectation</b>						
Yes	44 (16.1)	36 (13.1)	50 (18.2)	5.750	2	0.056*
No	65 (23.7)	42 (15.3)	37 (13.5)			
<b>Financial problem</b>						
Yes	19 (6.9)	21 (7.7)	28 (10.2)	5.903	2	0.052*
No	90 (32.8)	57 (20.8)	59 (21.5)			
<b>Psychiatric illness</b>						
Yes	1 (0.4)	2 (0.7)	4 (1.5)	2.632	2	0.268*
No	108 (39.4)	76 (27.7)	83 (30.3)			

\*p>0.05, †p<0.05, †P<0.01

**Table 3: Factors associated with depression**

Variables	Normal n (%)	Borderline n (%)	Abnormal n (%)	Chi	(df)	P value
<b>Gender</b>						
Male	108 (39.4)	32 (11.7)	25 (9.1)	0.269	2	0.874 <sup>×</sup>
Female	68 (24.8)	23 (8.4)	18 (6.6)			
<b>Ethnicity</b>				15.134	6	0.019 <sup>*</sup>
Malay	87 (31.8)	16 (5.8)	19 (6.9)			
Chinese	21 (7.7)	13 (4.7)	4 (1.5)			
Indian	61 (22.3)	26 (9.5)	20 (7.3)			
Others	7 (2.6)	0 (0)	0 (0)			
<b>Degree-year</b>				2.460	4	0.652 <sup>×</sup>
3	75 (27.4)	27 (9.9)	15 (5.5)			
4	49 (17.9)	12 (4.4)	12 (4.4)			
5	52 (19.0)	16 (5.8)	16 (5.8)			
<b>Family problem</b>				19.006	2	<0.001 <sup>†</sup>
Yes	14 (5.1)	15 (5.5)	12 (4.4)			
No	162 (59.1)	40 (14.6)	31 (11.3)			
<b>High parental expectation</b>				1.334	2	0.513 <sup>×</sup>
Yes	84 (30.7)	23 (8.4)	23 (8.4)			
No	92 (33.6)	32 (11.7)	20 (7.3)			
<b>Financial problem</b>				2.901	2	0.234 <sup>×</sup>
Yes	38 (13.9)	16 (5.8)	14 (5.1)			
No	138 (50.4)	39 (14.2)	29 (10.6)			
<b>Psychiatric illness</b>				9.817	2	0.007 <sup>†</sup>
Yes	3 (1.1)	0 (0)	4 (1.5)			
No	173 (63.1)	55 (20.1)	39 (14.2)			

<sup>×</sup>p>0.05, <sup>\*</sup>p<0.05, <sup>†</sup>P<0.01

Students with high parental expectations (18.2%) had anxiety, whereas without high parental expectations (23.7%) do not have anxiety. Financial problems (10.2%) contributed to anxiety. Psychiatric illness (1.5%) was a cause of anxiety. Students who did not have family problems experienced significantly more anxiety than those who have family problems. There is no significant association between anxiety and gender, ethnicity, university, degree, high parental expectation, financial problem, and psychiatric illness. Regardless of gender, ethnicity, degree, high parental expectation, financial problem, and psychiatric illness, all experience the same anxiety level.

Table 3 depicts factors associated with depression. Male students (9.1%) had a higher level of depression than female students (6.6%). There was a significant association between ethnicity and depression. 7.3% of Indian students had a higher level of depression compared with 1.5% of Chinese students. There was no significant association between different years in degree with depression. 5.8% of fifth-year students faced the highest level of depression than the fourth-year students who had the lowest abnormal level of depression at 4.4%. There was a significant association between family problems and depression. The majority (59.1%) of students did not have family problems and were did not experience depressive symptoms. Meanwhile, 4.4% had family problems and suffered from depression. There was no significant association between high parental expectations and financial problems with depression. Students who have financial problems (5.1%) experienced the highest level of depressive symptoms. Students who had

suffered from psychiatric illness suffered from depression, which was significantly associated.

## Discussion

### Hospital Related Anxiety

Hospital-related anxiety refers to anxious response and unusual pre-occupation about noxious consequences that affect a medical practitioner's quality of life. Multiple factors are responsible for hospital-related anxiety, depression, in medical students. One of the factors, as mentioned above, is age. According to research in Addis Ababa, a significant association was found between age and depression, stress, and quality of life, where it is stated that individuals of a younger age, between 18 to 21 years old, suffered more stress. [12] However, in our research, there was no compelling association between age and hospital-related anxiety. Past studies showed that 56% of Malaysian medical students became stressed with the transition from pre-clinical to clinical year. [15, 16]

We found male students had more anxiety compared to females, which is in line with the study by Fuad et al., who stated female medical students are protected against depression compared to males [adjusted OR 0.21, 95% C.I (0.095, 6.03) p <0.001]. [17] Our results are also similar to those who reported in other private medical schools. [18, 19] but contradictory to research from the public universities. [20, 21] The trend we observed may suggest that male medical students are more competitive in nature and tend to be more concerned about studying for longer periods to gain higher marks in university exams, and are more concerned about their performance [19]. We believe

more research in this area is needed before these factors can be substantiated or denied.

Most of the respondents who are Malays and Indians had higher anxiety compared to Chinese ethnicity. No significant relationship between degree year and anxiety was found. Year 3 students had more anxiety compared to students of year 4 and 5. This may be due to the transition from pre-clinical to clinical. This is the time when students are stationed in different hospitals for the clinical posting. It takes time to adapt with the hospital procedures and environment.

Family problems such as divorced parents, high emotional expression, family members being unsympathetic can be a stressor for a medical student to practice in a hospital and more prone to be anxious and depressed in life. This will later reduce one's quality of life and affect their daily activity, and the study shows a significant relationship between family problems and anxiety. [8]

### **Hospital related depression**

Unlike other studies we found no marked gender differences in the depression scores [20, 22]. This may be because medical students are studying the same syllabus and encounter the same stressors. However, our findings were contradictory with other researchers, who stated depression and anxiety symptoms are more common in female students. [5, 7]

This study shows that there is a significant association between ethnicity and depression. Different ethnicity has a different perception of achieving success. We found Malay students tend to have higher stress scores, may be due to different coping methods and strategies. Chinese and Indians are believed to have relatively better stress coping strategy. Hence, they have a lower incidence of depression. The study environment also varies with universities. This may lead to depression in certain university students. However, medical students worldwide are facing a huge workload in their study and tend to be depressed compared to non-medical students. It reflects a poor stress coping mechanism of medical students compared to non-medical students. [8]

We found no significant association between year of study and depression. Students may tend to get along with stress and do not come forward for counseling. A recent study showed medical students face ongoing psychiatric illness and are refusing to seek help. [23] This may be due to embarrassment or social bias if a person seeks help from a professional psychiatrist. They tend to isolate and disengage with their family and friends. This will eventually lead to a very unhealthy relationship among future doctors and society. Besides, clinical year students have a higher risk of disengagement and depressive symptoms than pre-clinical year students. [24]

In our study, we did not see any significant association between high parental expectation and depression. This may be due to students finding different ways to relieve their

stress and achieve better results and outcomes in their studies. However, studies from India and Egypt concluded that those students who experience high parental expectation would affect the quality of life of medical students. [25, 26] Medical students are forced to study and revise all the topics they had learnt, and this will cause stress and burnout among them. Eventually, their quality of life will be affected as they have no free time to enjoy and relax other than study.

We did not find marked association between financial problems and depression. Ethiopian research showed medical students prone to depression due to stressful life events such as financial crisis. This can lead to poor performance in their study. [12] Financial crisis influences the mental health of medical students. [27] A Malaysian study by Fuad et al pointed-out absence of financial support is a risk factor for depression [OR 2.05, 95% C.I. (1, 4.22), P-value 0.05]. [17] This may be due to additional pressures on students as parents have high expectations because of considerable financial investment towards the private medical education. However, more research focusing on the financial strain may strengthen the statement, which is beyond the scope of the present investigation. [28]

We found a significant association between psychiatric illness and depression. Students who suffer from psychiatric illness, tends to feel inferior to others and eventually, they will isolate themselves from socialising with other people. They have a higher risk of suicidal ideation, and action should be taken to inspire medical students to seek help for their psychological problems. [24]

### **Conclusion**

In a nutshell, this research provides a better understanding of the factor contributing to Hospital-related anxiety and depression of medical students, which would help health professionals overcome these mental health problems among private medical university students. We found that family problems are associated with anxiety. Ethnicity, family problems, and psychiatric illness are the contributors to depression. This research draws our attention to take the necessary steps for the psychological well-being of vulnerable students. Mentor mentee program, regular counselling, financial planning will help medical student's psychological well-being and reduce anxiety and depression.

### **Limitation and future scope**

Our research was confounded in two universities, with a relatively less sample size so future studies are recommended with a large student population.

### **Abbreviations**

Hospital Anxiety and Depression Scale (HADS), IBM Statistical Package for Social Science (SPSS), Interquartile

range (IQR), Quest International University (QIU), Royal College of Medicine Perak (RCMP)

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### Authors' contribution

- a. Study planning: BR, SKC
- b. Data collection: ASAHA, NAF, YHG, PSHF
- c. Data analysis/ interpretation: ASAHA, NAF, YHG, PSHF
- d. Manuscript writing: BR, SKC
- e. Manuscript revision: ASAHA, NAF, YHG, PSHF, BR, SKC
- f. Final approval: ASAHA, NAF, YHG, PSHF, BR, SKC
- g. Agreement to be accountable for all aspects of the work: ASAHA, NAF, YHG, PSHF, BR, SKC

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### Availability of data and materials

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### Competing interests

None declared.

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