

Depression, Anxiety and Stress Among Pharmacy Students in Malaysia

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Abstract

Psychological well-being is an essential factor in the sustainability of prosperous academic performance during undergraduate studies. Pharmacy students are exposed to a wide range of stressors during their study. Severe and continued stressors may affect the mental health in variable degrees and may precipitate depression, anxiety and stress which may affect students' academic performance, physical health and quality of life. Therefore, this study aimed to assess the prevalence and severity of depression, anxiety and stress symptoms and also to assess the relationship between these symptoms with stressors faced by the students.

A sample of 223 students from Kulliyah (faculty) of Pharmacy, International Islamic University Malaysia participated in this study. Depression Anxiety, Stress Scale (DASS-21) was used to assess the emotional disturbances by determining the prevalence and severity of depression, anxiety and stress (DAS) symptoms. The sources of stressors were identified by giving the students a list of the most possible source of stressors which were chosen depending on previous studies, and then the severity of stressors and their relationship with these symptoms were assessed.

The overall prevalence of depression, anxiety and stress symptoms was 50.7 %, 72.2%, % and 42.2% respectively but it was found that 11.7%, 33.6 % and 11.7% of pharmacy students have clinically significant depression, anxiety and stress respectively. No significant differences between the genders in relation to DAS symptoms. Stressors such as fear of failing, academic overload, fear of unemployment after graduation, exams, and problems in time management were considered the most potent stressors and were significantly associated with DAS symptoms.

Symptoms of depression, anxiety and stress are significantly existent among pharmacy students which need to be early detected. Academic related factors can be viewed as sources of stressors that may induce emotional disturbances among the pharmacy students.

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Introduction

The definition of health in the Constitution of the World Health Organization: "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" ¹, therefore maintaining psychological health and well-being are essential in achieving physical health and contribute to satisfaction in life. Undergraduate students are undergoing different levels of stressors during various stages of their studies^{2,3}.

Higher education is considered as a stressful period in students' life which they have to cope with since they are facing a variety of demands such as living away from their families, a heavily loaded curriculum, and inefficiency in both mentor-mentee and health education programs.

The Bachelor of pharmacy is an undergraduate degree programme of four (4) years duration offered by Kulliyah (faculty) of Pharmacy. It incorporates a substantial amount of guided clinical practice in hospitals and health care settings as well as a range of campus-based theoretical and clinical-based teaching/learning activities. The aim is to acquire the scientific knowledge and psychomotor skill necessary for future clinical training. Presence of stressors during education can affect the students in broad aspects such as their learning process and functionality, mental and physical

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health. This will make them more vulnerable to emotional disturbances such as stress, anxiety and depression.⁴ Depression is defined by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders–5 (DSM-5) as a disorder that is characterized by persistent mood and /or markedly loss of interest in all activities in addition to at least four other symptoms within a duration of at least two weeks, these symptoms include, significant weight loss/weight gain, disturbed sleep, diminished concentration, fatigability, psychomotor agitation or retardation, feeling of worthlessness or inappropriate guilt, thoughts of death or recurrent suicidal ideation.⁵

Anxiety is a condition that is characterized by intense feeling of dread, worries and apprehension accompanied by somatic symptoms that indicate a hyperactive autonomic nervous system, also it impairs cognition and may produce distortions of perception.⁶ Stress can be defined as the physiological and psychological response to events that are appraised as threatening or challenging that require adjustment.^{7,8,9}

This study aimed to determine the prevalence and severity of depression, anxiety and stress symptoms among pharmacy students and to identify the possible sources of stressors and their relationship with these symptoms. The results of this study may aid in designing appropriate intervention strategies and proper revision in the curriculum to enhance the students' learning skills and assure sustainability of their psychological wellbeing.

Materials and methods

This is a cross sectional study conducted among undergraduate students from Kulliyah (faculty) of pharmacy, International Islamic University Malaysia (IIUM). A research grant sponsored by IIUM was obtained for conducting this research and ethical approval was obtained from International Islamic University Malaysia Research Ethical Committee prior to conducting the study. The participation was entirely on a voluntary basis and students were insured about confidentiality.

Consent was obtained from the students. The study was conducted in middle of the course before the examination period so as to minimize the extra stress symptoms. The inclusion criteria

were students who agreed to participate in the study and the students should be registered as undergraduate students of Kulliyah of pharmacy, IIUM. Students who fail to give consent, and those who were not conversant in English were excluded from the study. The socio-demographic characteristics of the participants were obtained; the gathered information was about the nationality, age, marital status, gender, year of study, accommodation during study and household income.

The psychological well-being was assessed by using the Depression Anxiety, Stress Scale (DASS-21) which is a short version, self-rated questionnaire that is designed to assess the severity of the symptoms of depression, anxiety and stress; it consists of statements referring to the past week. Each item is scored on a 4-point scale (0 = Did not apply to me at all, 1= Applied to me to some degree, or some of the time, 2 =Applied to me to a considerable degree, or a good part of time, and 3 = Applied to me very much or most of the time)¹⁰.

Subjects were asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items. Each subscale was categorized into normal, mild, moderate, severe and extremely severe. In this study, we further classified those who have severe and extremely severe symptoms as '**clinically significant**' and those with mild and moderate as 'subclinical'.

The students were given a list of the most possible source of stressors which were chosen depending on previous studies.^{3, 11-14} The list was composed of a variety of stressors that are related to living and accommodation, personal, academic, environmental and social factors which they experienced during the current academic year. The respondents were asked to rate each item throughout the list based on a scale from 0 to 4; (0: I don't consider it a stressful factor / Not applicable for me) and (4: I consider it an extreme stressor)

Statistical Analysis

We used the statistical package for social science program, version 22.0 (SPSS 22.0) for analyzing the data. The analysis of qualitative variables such as age group, gender, nationality, monthly household income, marital status, year

of study and type of accommodation were presented in number and percentage. Mann-Whitney U test and Kruskal-Wallis test were used to determine the effects of the socio-demographic characteristics on the emotional disturbances among the students. The association between the five stressor factors and the emotional disturbances were evaluated using independent t-test. P values less than 0.05 was considered statistically significant

Results

A total of 223 pharmacy students participated in this study. Regarding the distribution of students; 72, 76 and 75 students participated from year1, year2 and year3 respectively. The majority of the students were females, aged 22 years and below, Malaysian, single, living in the hostel with monthly household income more than 5000 Ringgit Malaysia. The overall prevalence of depression, anxiety and stress was 50.7 %, 72.2%, % and 42.2% respectively. Regarding the severity of depression, stress and anxiety symptoms among nursing students, our study found that 11.7% (n=26) were having clinically significant depression. For anxiety, it was found that 33.6 % (n=75) of the student had clinically significant anxiety. Regarding stress, it was found that 11.7% (n=26) were had clinically significant stress (Table 1).

	Depression (N %)	Anxiety (N %)	Stress (N %)
Normal (not Affected)	110 (49.3)	62 (27.8)	129 (57.8)
Subclinical	87 (39.0)	86 (38.6)	68 (30.5)
Clinically significant	26 (11.7)	75 (33.6)	26 (11.7)
Overall No. of affected students	113 (50.7)	161 (72.2)	75 (42.2)
Total	223 (100)	223 (100)	223 (100)

Table 1. Total rate and severity of emotional disturbances among pharmacy students.

There was no significant difference in mean score for depression, anxiety and stress was between male than female participants. The age of students, accommodation, household incomes were not associated with depression, anxiety and stress (Table 2).

Stressors such as fear of failing, academic overload, fear of unemployment after graduation, exams, and problems in time

management were considered the most potent stressors (Table 3).

	Total No. (%)	Mean Depressive Level	P Value	Mean Anxiety Level.	P Value	Mean Stress Level	P Value
Gender							
Male	32 (14.3)	12.3	0.317	12.4	0.950	15.9	0.360
Female	191 (85.7)	10.3		12.5		14.5	
Age							
≤ 22	151 (67.7)	10.1	0.223	13.1	0.102	15.3	0.106
>22	72 (32.3)	11.2		11.3		13.4	
Household income							
≤ RM1500	45 (20.2)	12.6		13.0		15.9	
RM 1501-5000	76 (34.1)	10.2	0.172	13.2	0.492	15.1	0.376
>RM 5000	102 (45.7)	9.9		11.8		13.9	
Social interaction							
Good	123 (55.2)	9.9		12.0		14.1	
Satisfactory	84 (37.7)	11.0	0.164	13.0	0.539	15.4	0.419
Poor	16 (7.2)	13.9		13.9		16.1	

Table 2. Factors determining significant emotional disturbances among undergraduate students of Kulliyyah (faculty) of Pharmacy.

Data was analyzed using Mann-Whitney U test for two independent variables and Kruskal-Wallis one-way analysis of variance for more than two independent variables. P values less than 0.05 was considered statistically significant. Data was presented as mean.

NO.	Stressor	Mean (SD)
1.	Fear of failing	2.58 (1.18)
2.	Academic overload	2.57 (1.03)
3.	Fear of unemployment after graduation	2.56 (1.20)
4.	Exams	2.50 (1.11)
5.	Problems in time management	2.46 (1.06)

Table 3. List of top five stressors.

Mean	Depressed	Not depressed	P Value	Anxiety	No anxiety	P Value	Stress	No stress	P Value
Fear of failing	2.8	2.3	0.002	2.8	2.1	0.000	3.1	2.2	0.000
Academic overload	2.8	2.4	0.002	2.8	2.1	0.000	2.9	2.3	0.000
Fear of unemployment after graduation	2.7	2.4	0.021	2.8	2.1	0.000	3.0	2.2	0.000
Exams	2.7	2.3	0.001	2.7	1.9	0.000	3.0	2.2	0.000
Problems in time management	2.8	2.1	0.000	2.6	2.00	0.000	3.0	2.1	0.000

Table 4. Top Five stressors in relation with Depression, Anxiety, and Stress.

Data was analyzed using Mann-Whitney U test for two independent variables. P values less than 0.05 was considered statistically significant. Data was presented as mean.

Regarding the association of the top five stressors chosen by the pharmacy students with depression, anxiety and stress, this study revealed that all the five stressors were significantly associated with higher mean score of depression, anxiety and stress (Table 4)

Discussion

The rate of depression among pharmacy in this study is higher than other studies as a study conducted in Malaysia such as a study among pharmacy students using patient Health Questionnaire-9 (PHQ-9) in which the prevalence was 33.3%¹⁵ and another studies among dental students using DASS-21, the rate was found to be 44.9% and 47.5% respectively^{16, 17}, It is also higher than that among medical students in which the rate was found to be 39.7%¹⁸ but it is lower than a study in Saudi Arabia among dental students which was 55.9%¹⁹ and also it is much lower than another study among science students in Malaysia in which the rate was 64.4%.²⁰

Regarding the severity of depression, it was found that 11.7% of pharmacy students had clinically significant depression which is lower than a study done by Lowe GA which revealed that 40% of university students were clinically depressed²¹ and it's also lower than the rate of clinically depressed (severe to extreme severe DASS-21scoring) science Malaysian students in which they were found to be 13.9%²⁰. However it is slightly higher than the results of another study in Malaysia in which the rate of clinical depression were 7%, 7.2% and 5.5% respectively.^{16, 18, 22}

The overall rate of Anxiety among dental students in this study was slightly higher than a study done in Malaysia among dental students during clinical years, in which the rate was 66.1%¹⁶, and it was also higher than the that among medical students in which the rate was found to be 65.8%¹⁸ and the rate was lower that among science student as the rate among them was found to be 84.5%²⁰. Despite the high overall rate of anxiety, it was clinically significant in 33.6% of the students which is slightly to a previous study in Malaysia.¹⁶

Although the overall rate of stress in our study is slightly lower to a previous study in Malaysia¹⁶, it is lower than other previous study in Pakistan among pharmacy students in which 58.9% of the students had high stress level.²³ Furthermore, in this study about 11.7% of pharmacy students had clinically significant stress which is comparable with the findings of previous studies using DASS in which the rates of severe to extremely severe stress were found to be 8.7 % 13.1% respectively.^{16, 24}

The reasons behind getting different rates of depression, stress and anxiety than previous studies may be due to the use of different assessment tools, type of course studied, sample size, stages of study, difficulty in curriculum and cultural differences.

Gender-wise, this study revealed that there was no significant difference in mean scores on DAS symptoms between female and male students, this is consistent with previous studies^{20, 25} While other studies revealed that the rate is higher among female students.¹⁸ Since both genders were living in similar environment and generally facing similar stressors during their academic period, authors believed that there was no difference in the rate of emotional disturbances between male and female students.

Academic and personal factors played an important role as source of stressors since most of the top five stressors chosen by pharmacy students were related to them. This finding is comparable with other studies in which the academic related factors were considered as the main sources of stressors^{3, 12, 26} All these five factors are significantly associated with depression, anxiety and stress.

The result of this study may aid in designing suitable intervention strategies and planning modifications in pharmacy curriculum to enhance the students' learning abilities and their life style.

Conclusions

Symptoms of depression, anxiety and stress are significantly existent among pharmacy students which need to be early detected. No significant differences between the genders in relation to DAS symptoms. Factors including examination and grades and fear of failing are significantly associated with DAS symptoms among the Pharmacy students.

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Declaration of Interest

The authors declare no conflict of interest.

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