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Research Article

**DEPRESSION IN MEDICAL STUDENTS A COMPARATIVE
CROSS-SECTIONAL STUDY AT KING EDWARD MEDICAL
UNIVERSITY**¹Maryam Zaeem¹King Edward Medical University, Lahore.**Article Received:** September 2021 **Accepted:** October 2021 **Published:** November 2021**Abstract:**

Medical students are considered by the society as young intellectual elites, destined to become proficient doctors, and accordingly, are expected to have unlimited reservoirs of strength and stamina to see them through their training. Burdened by this expectation, pressured to excel among their peers, overwhelmed by the amount of information to absorb and haunted with self-doubt over their abilities, many medical students suffer from burnout and a significant number face depression.

Objective: *To find frequency of depression in medical students of KEMU using HAM-D and AKUADS and its association with the academic year.*

Design: *Cross-sectional study*

Place and Period: *King Edward Medical University, Lahore; from February to May, 2013.*

Subjects and Methods: *30 students from each class (n=150) selected through convenient sampling were given questionnaires based on Hamilton Depression Scale (HAM-D) and Agha Khan University Anxiety and Depression Scale (AKUADS). Data was collected, compiled and analyzed using SPSS version 16. The frequencies and percentages of depression and its symptoms according to both scales were tabulated. The association of frequency of depression with each academic year was also determined. Then, using HAM-D as a standard scale, the sensitivity of AKUADS was calculated through cross tabulation.*

Results: *Out of 150 students 90 students (60%) had depression according to HAM-D and 92 students (61.3%) according to AKUADS. Students in the initial years of education exhibited depression more frequently with its frequency declining over the course of academic years. Using HAM-D as standard scale, the sensitivity of AKUADS was calculated to be 77.8%.*

Key words: *Depression, medical students, comparative, cross-sectional, HAM-D, AKUADS, King Edward Medical University*

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INTRODUCTION:

Medical students are considered by the society as young intellectual elites, destined to become proficient doctors, and accordingly, are expected to have unlimited reservoirs of strength and stamina to see them through their training. Burdened by this expectation, pressured to excel among their peers, overwhelmed by the amount of information to absorb, haunted with self-doubt over their abilities, many medical students suffer from burnout and a significant number face depression. Depression is not an abstract phenomenon but a mental disorder which negatively affects our insight, our outlook and our attitude towards life. It is characterized by psychological symptoms such as depressed mood, self-reproach, agitation and suicidal ideation, and somatic symptoms such as anorexia, insomnia, hyperactivity or inaction. This study is centered on depression in medical students of King Edward Medical University. For this purpose, we use two depression rating instruments; Hamilton Rating Scale for Depression (HAM-D) and Agha Khan University Anxiety and Depression Scale (AKUADS). HAM-D is a multiple item questionnaire used to find out the existence and severity of depression and to evaluate the effectiveness of depression therapies. AKUADS is an indigenous screening instrument developed at the Agha Khan University, Pakistan. It is a 25 item questionnaire based on local symptom complexes as expressed in Urdu.

Medical students experience burnout, depression and mental illness at a much higher rate than the rest of the population, with mental health deteriorating over the course of medical education. [1- 4] These symptoms of depression and mental deterioration have been associated with suicidal ideation. [5-7] 11% of med students have seriously considered dropping out of med school. [8] In most medical schools, the environment itself is an all prevailing pressure providing an authoritarian and inflexible system; one that encourages competition instead of cooperation among the students. [9] Students who are pressured to choose the medical profession and subjected to external expectations from their medical professions are more prone to depression. [10] On July 16 in Chicago, the AOA House of Delegates approved a resolution to increase awareness of medical student depression along with its treatment and therapy options. [11] Studies show that students who experience depression during their undergraduate training are more prone to continue facing depression during the internship, post-graduation, and later into physician's practical life. [12] While this state of deteriorating mental and physical health affects the

student's ability and willingness to learn, it may take a toll on their practice in the long run. [13]

Although depression in medical students and its consequences are being recognized as an increasing focus of concern by the western world, *our* people remain woefully ignorant of the fact. Medical students themselves are unaware of their condition and attribute their symptoms to exhaustion, pre-test jitters or just feeling the blues. This is a matter of concern as depression subsequently affects the mental health of the students, the mental peace of their family, and ultimately, the well-being of the patients. Even bigger concern is the denial on the part of medical students that they are stressed out and depressed. This study aims to evaluate the actual status of depression among the medical students of KEMU and its association with the academic year using two depression rating instruments; HAM-D and AKUADS.

Aims and Objectives:

1. To find the frequency of depression in students of King Edward Medical University.
2. To observe the association of frequency of depression with the academic year.
3. To find out sensitivity of AKUADS using HAM-D as a standard scale.

MATERIALS AND METHODS:

It is a cross-sectional study conducted amongst students of King Edward Medical University.

Study Instruments:

1. Hamilton Depression Scale (HAM-D)
2. Agha Khan University Anxiety and Depression Scale (AKUADS)

Data Collection:

To find the frequency of depression in students of King Edward Medical University, 150 students took part in the survey. 30 students from each class were selected through convenient sampling. After receiving written consent, they were given questionnaires based on Hamilton Depression Scale (HAM-D) and Agha Khan Anxiety and Depression Scale (AKUADS). Data was collected, compiled and analyzed using SPSS version 16. The frequency and percentage of depression as measured by HAM-D and AKUADS was tabulated. The frequency and percentage of depression in students of each academic year was also found. The symptoms of depression measured by both scales along with their frequencies and percentages were given in separate tables. Lastly, cross tabulation was done between the total scores of HAM-D and

AKUADS to find out the sensitivity of AKUADS using HAM-D as a standard scale.

RESULTS:

Out of 150 students, 90 students (60%) had depression according to HAM-D and 92 (61.3%) students had depression according to AKUADS. According to HAM-D, 22 first year students (14.66%), 18 second year students (12%), 22 third year students (14.66%), 17 fourth year students (11.34%) and 11 final year students (7.34%) had depression. According to AKUADS, 21 first year students (14%), 21 second year students (14%), 20 third year students (13.3%), 18 fourth year students (12%) and 12 final year students (8%) had depression. Both scales showed a higher frequency of depression in students of first, second and third year of education and a lower

frequency in the last two academic years. Students of final year had the lowest frequency of depression. The symptoms of depression measured by both scales along with their frequencies and percentages are given in table.5 and 6. Among these symptoms, depressed mood, insomnia, negative effect on work and activities and anxiety were more frequently experienced, as measured by HAM-D. AKUADS showed sleeplessness, lack of interest in daily activities, anxiety, preference to be alone, unhappiness, worrying and crying to be more frequent. Lastly cross tabulation was done between the total scores of HAM-D and AKUADS. Using HAM-D as a standard, sensitivity of AKUADS was calculated to be 77.8%. Both scales were statistically significant in detecting depression in our population and there was not much difference in their results.

Overall Depression frequency

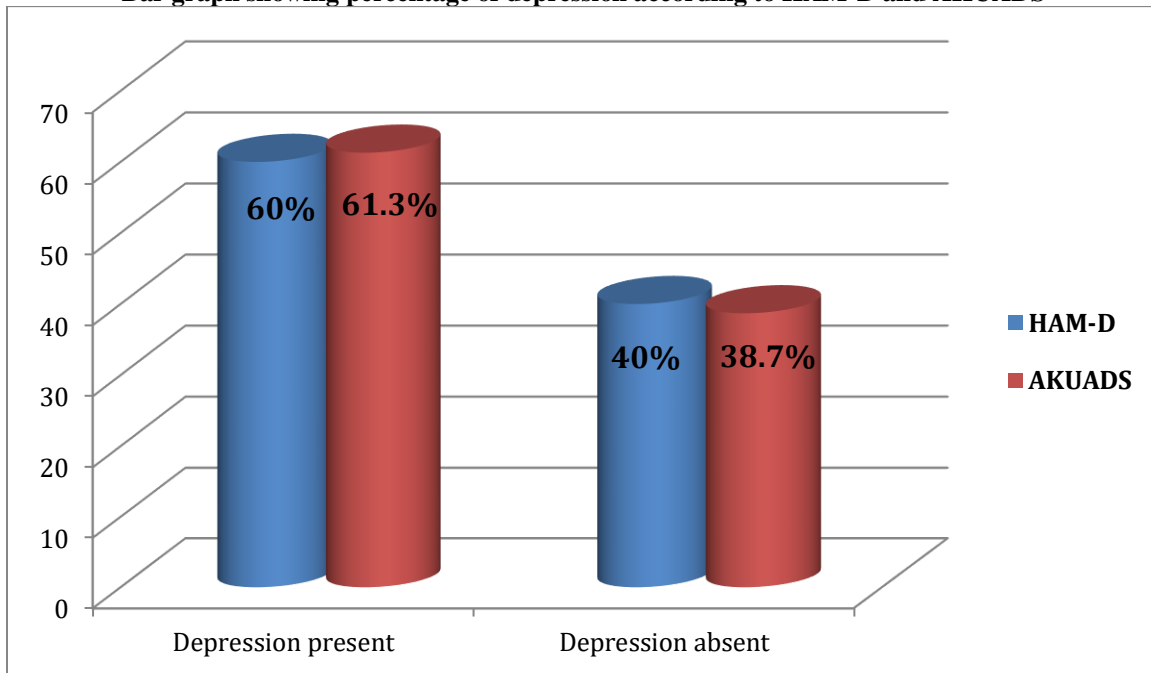
Table.1: Hamilton Depression Scale

	Frequency	Percentage
Depression present	90	60.0
Depression absent	60	40.0

Table.2: Agha Khan University Anxiety and depression Scale

	Frequency	Percentage
Depression present	92	61.3
Depression absent	58	38.7

Bar graph showing percentage of depression according to HAM-D and AKUADS



Depression frequency in association with academic year**Table.3: Depression according to HAM-D**

Class	Frequency	Percent	Valid percent
1 st year	22	14.66	73.3
2 nd year	18	12.0	60.0
3 rd year	22	14.66	73.3
4 th year	17	11.34	56.7
Final year	11	7.34	36.7

Table.4: Depression according to AKUADS

Class	Frequency	Percent	Valid Percent
1 st year	21	14.0	70.0
2 nd year	21	14.0	70.0
3 rd year	20	13.3	66.6
4 th year	18	12.0	60.0
Final year	12	8.0	40.0

Table.5: Symptoms of depression according to HAM-D

Depressed mood	Frequency	Percent
none	39	26.0
some feelings are present but I express them only when asked	87	58.0
most feelings are present and I express them without being asked	18	12.0
feelings are strong and I cry very frequently	3	2.0
I'm lost in these feelings all the time	3	2.0
Feelings of Guilt		
I'm not guilty	105	70.0
self-reproach and feelings of letting people down	14	9.3
I'm guilty	19	12.7
I'm guilty and my illness is punishment for my past deeds	11	7.3
I'm so guilty. I hear accusatory voices	1	.7
Suicidal thoughts		
I never think about suicide	130	86.7
I feel life is not worth living	5	3.3
I wish I were dead	11	7.3
I used to think about suicide; maybe I'll try it	4	2.7
Insomnia early	Frequency	Percent
I have no difficulty falling asleep	61	40.7
sometimes it is not easy falling asleep	78	52.0
I have difficulty falling asleep every night	11	7.3
Insomnia middle		
I sleep well	113	75.3
I'm restless and disturbed during the night	24	16.0
I wake up in the middle of the night	13	8.7

Insomnia late		
I sleep well	69	46.0
I frequently wake up early morning but usually go back to sleep	70	46.7
I wake up early and I'm unable to get back to sleep	11	7.3
Work and activities		
I have no difficulty	65	43.3
I feel I'm not capable of working and get tired soon	36	24.0
I've lost interest in my activities and hobbies; I'm listless	28	18.7
the time I spent working and my productivity have decreased	19	12.7
I'm no longer capable of working or social activities	2	1.3
Retardation: Psychomotor		
my speech and thoughts are normal	113	75.3
there is slight retardation in both	30	20.0
there is pronounced retardation in both	4	2.7
I have severe difficulties in my speech, I can't concentrate	3	2.0
Agitation		
I'm not agitated	95	63.3
I used to fidget	13	8.7
I used to play with my hands, hair etc.	18	12.0
I always move about, I can't sit still	10	6.7
I wring my hands/bite my nails or lips/pull my hair, I'm on the run	14	9.3
Anxiety: Psychological		
nothing special	67	44.7
I have tension and I'm irritable	21	14.0
I'm worrying about minor issues	50	33.3
I'm anxious and fearful, I think something bad will happen	12	8.0
Anxiety: Somatic		
nothing special	75	50.0
Some symptoms are present but they are mild	54	36.0
Some symptoms are present and they are moderate	19	12.7
Most symptoms are present and they are severe	2	1.3
Somatic symptoms: Gastrointestinal	Frequency	Percent
None	102	68.0
I've lost my appetite but I eat anyway	42	28.0
I've difficulty eating without urging from others, I need medication for my GI symptoms	6	4.0
Somatic symptoms: General		
none	90	60.0
I have some heaviness in my limbs, backaches, headaches, muscle aches, loss of energy, tiredness	58	38.7
I have clear-cut symptoms	2	1.3
Menstrual disturbances (for females only)		
None	118	78.7
I have some problems	31	20.7
I have severe symptoms	1	.7
Hypochondriasis		

nothing special	110	73.3
I spend a considerable time with my symptoms	12	8.0
I'm frequently worrying about my health	24	16.0
I'm convinced that I've got a serious illness	4	2.7
Loss of weight		
None	109	72.7
probably my weight has increased	30	20.0
definite weight loss	11	7.3
Insight		
I'm not depressed OR I know that I'm depressed	60	40.0
yes, I'm depressed but it is caused by bad food, overwork, climate etc.	49	32.7
I swear, I'm not ill	41	27.3

Table.6: Symptoms of depression according to AKUADS

Symptom of depression	Never	Some-times	Mostly	Always	Don't Know
Sleeplessness	24(16.0%)	77(51.3%)	45(30.0%)	3(2.0%)	1(0.7%)
Lack of interest in daily activities	19(12.7%)	91(60.7%)	27(18.0%)	12(8.0%)	1(0.7%)
Lack of interest in hobbies	46(30.7%)	54(36.0%)	38(25.3%)	7(4.7%)	5(3.3%)
Anxiety	22(14.7%)	77(51.3%)	38(25.3%)	8(5.3%)	5(3.3%)
Sense of impending doom	54(36.0%)	62(41.3%)	14(9.3%)	5(3.3%)	15(10.0)
Difficulty in thinking clearly	50(33.3%)	73(48.7%)	22(14.7%)	3(2.0%)	2(1.3%)
Preference to be alone	38(25.3%)	55(36.7%)	45(30.0%)	10(6.7%)	2(1.3%)
Unhappiness	20(13.3%)	102(68.0%)	24(16.0%)	3(2.0%)	1(0.7%)
Hopelessness	66(44.0%)	61(40.7%)	17(11.3%)	4(2.7%)	2(1.3%)
Helplessness	64(42.7%)	66(44.0%)	17(11.3%)	3(2.0%)	0(0.0%)
Worrying	18(12.0%)	91(60.7%)	34(22.7%)	6(4.0%)	1(0.7%)
Crying	45(30.0%)	91(60.7%)	8(5.3%)	5(3.3%)	1(0.7%)
Suicidal thoughts	127(84.7%)	13(8.7%)	4(2.7%)	2(1.3%)	4(2.7%)
Loss of appetite	70(46.7%)	55(36.7%)	21(14.0%)	4(2.7%)	0(0.0%)
Retrosternal burning	92(61.3%)	48(32.0%)	6(4.0%)	2(1.3%)	2(1.3%)
Indigestion	70(46.7%)	65(43.3%)	10(6.7%)	4(2.7%)	1(0.7%)
Nausea	85(56.7%)	55(36.7%)	8(5.3%)	1(0.7%)	1(0.7%)
Constipation	60(40.0%)	68(45.3%)	17(11.3%)	4(2.7%)	1(0.7%)
Difficulty in breathing	112(74.7%)	30(20.0%)	5(3.3%)	2(1.3%)	1(0.7%)
Tremors	108(72.0%)	32(21.3%)	4(2.7%)	1(0.7%)	5(3.3%)
Numbness in hands and feet	99(66.0%)	42(28.0%)	7(4.7%)	2(1.3%)	0(0.0%)
Tension in neck and shoulders	59(39.3%)	67(44.7%)	20(13.3%)	4(2.7%)	0(0.0%)
Headaches	23(15.3%)	89(59.3%)	31(20.7%)	6(4.0%)	1(0.7%)
Body aches	41(27.3%)	84(56.0%)	21(14.0%)	3(2.0%)	1(0.7%)
Frequency in urination	86(57.3%)	41(27.3%)	15(10.0%)	3(2.0%)	5(3.3%)

Table.7: Cross tabulation between total scores of HAM-D and AKUADS

		HAM-D		Sensitivity	Odds Ratio	95% Confidence Interval		Chi-Square value	P-value
		Depression present	Depression absent			Lower	Upper		
AKUADS	Depression present	70	22	77.8%	6.045	2.934	12.457	25.656	.000
	Depression absent	20	38						

DISCUSSION:

This study shows that the students of King Edward Medical University experience depression frequently, with HAM-D measuring a 60% prevalence and AKUADS measuring 61.3% prevalence of depression. Overall prevalence of depression in this study is similar to that in the Thai study; 61.4% [14], but higher than that in the Malaysian; 41.9% [15] and the British study; 31.2% [16]. Such a high percentage of students experiencing depression shows that the educational system, though trains the students to develop medical knowledge and clinical skill, it puts a tremendous amount of stress on them as well.

Our study shows a higher frequency of depression in the first three years of medical education with a decline in its frequency over the last two years. Certain longitudinal studies which have followed up on medical students over the course of their academic years also suggest that depression rates increase during first year, peak during second year and then gradually decline over the later years of medical education. [17,18,19,20,21] These statistics suggest that the educational system is partially responsible for depression in students. Unlike American and Canadian medical students, who require a bachelor's degree before starting medical school, Pakistani students go through two years of premedical intermediate studies followed by five years of medical curriculum. This transition is accompanied by an abrupt increase in study load, overwhelming peer pressure and feelings of self-doubt resulting from failure to cope with these demands. This may be the reason for higher frequency of depression in the initial academic years.

Although the students of King Edward Medical University showed depression symptoms like lack of interest in activities, depressed mood, preference to be alone, insomnia and anxiety; suicidal ideation was rare. This is in contrast to American [22], Norwegian [23] and Swedish [24] medical students, who reported having suicidal thoughts frequently over the course of their studies. This suggests that the prevalence, causes, risk factors and consequences of depression in Pakistani medical students differ from their Western counterparts. This study was initiated to evaluate the actual status of depression in medical students of KEMU. A more wide-spread study involving other medical institutes of Pakistan needs to be conducted to achieve a more accurate estimate of depression among Pakistani medical students. Also researches should be designed to find the factors causing depression. This will serve as a milestone in formulating appropriate plans to prevent depression in medical students. Medical schools in Canada and United States have

initiated health-promotion programs to reduce stress and its negative effects on the health and academic performance of their students. [25,26, 27] Similar programs should be conducted in Pakistan medical institutes in order to produce healthy, proficient doctors who will be better able to care for their patients.

CONCLUSION:

This study shows that students of King Edward Medical University experience depression frequently. Now measure should be taken to reduce the causes of depression in medical students if we are to retain the commitment and enthusiasm with which the students started their medical education.

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