Original Article

IMPACT OF PSYCHOLOGICAL HEALTH ON ACADEMIC PERFORMANCE OF MEDICAL STUDENTS. WHERE DO WE STAND?

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ABSTRACT:

BACKGROUND & OBJECTIVE: The objective of our study is to evaluate the prevalence of anxiety, stress and depression in undergraduate MBBS students to correlate it with self-efficacy, life satisfaction and to evaluate its effect on academic performance. We have also considered the relation between academic year and last year score.

METHODOLOGY: A total of 800 self-administered questionnaires were filled by 1st year to final year undergraduate students using non-probability, purposive sampling. The 10-minute questionnaire comprised of four sections: (1) demographics (2) Depression, Stress and Anxiety Scale (DASS) 21 scoring system (3) Satisfaction with Life Scale (4) General Self-Efficacy Scale. The demographic questions included participants' age, gender, and year of study, residence and last year professional examination score percentage. A percentage below 50% was named as low achievers. A percentage from 50% to 70% was considered as moderate achievers and above 70% as high achievers.

RESULTS: In this sample of 505 students 180 (35.6%) were male undergraduates consisting of 18.6% from 1st year, 26.5% from 2nd year and 20.8%, 18% and 16% from 3rd year, 4th year and final year respectively. The depression, anxiety and stress rate were 69.5%, 78.6% and 63.4% respectively. Generally, depression, anxiety and stress were found more in females as compared to males. Anxiety was more common as compared to stress and depression. Students of 4th year were experiencing least psychological stress.

CONCLUSION: Moderate level of depression, stress and anxiety is necessary for good grades but excess of these psychological problems leads to emotional exhaustion and has a negative effect on learning and academic score. These psychological problems also lower the general self-efficacy of a student and are associated with low satisfaction with life.

KEYWORDS: DASS-21, Satisfaction with life scale, General self-efficacy, Undergraduate medical students, King Edward Medical University.

INTRODUCTION:

Medicine is generally considered as one of the most difficult and exhausting fields of education as its academic and professional requirements are quite demanding. Extended curricula, on and off detailed examinations and fear to fail are few causes of continuous and persistent stress, depression and anxiety among medical students [1]. Most common and important root factors of stress in Pakistani medical students' life are examinations, hectic, tough and frequent long duration study classes [2]. Various studies witnessed a high prevalence of psychological disorders among students of the medical profession. As per universal review published in 2006, medical students of United States of America and Canada suffer from a greater incidence of psychological disorders, self-destructive thoughts and suicidal ideation as compared to the general population [3]. Many other studies have shown the prevalence of psychological disorders in medical students of different ethnic groups. Incidence of stress was found to be 20.9% in a medical institute of Nepal, 63.8% in a medical school of Saudi Arabia And About 90% in a medical institute situated in Pakistan [4-6].

Psychological distress among students studying in medical school has detrimental results and thus brings about poor academic performance, sleep disturbances, alcohol misuse, disturbed relationships and skepticism [7,8].

The psychological health of these students has also been demonstrated as self-efficacy and satisfaction with life [9]. It has been shown that students' self-efficacy trusts their capabilities and thus has a strong impact on their academic performance. Previous studies have claimed a strong association between self-efficacy and academic performance of students [10].

Multiple studies have shown the association between stress and academic achievement among Pakistani MBBS students. However, few studies showed the bright side of psychological health, in the form of life satisfaction and self-efficacy among Pakistani MBBS students. So, the study determines the psychological health (including its both bright and negative sides) and its association with academic outcome for MBBS students of KEMU, Lahore, Pakistan.

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METHODOLOGY:

King Edward Medical University, Lahore, Pakistan (KEMU) offers a 5-year-long Bachelors program of Medicine and Surgery (MBBS) which is divided into 2 preclinical years and 3 clinical years. University use a combination of conventional and new teaching procedures, which consists of teacher-centered instructional methods, long duration lectures, lessons, seminars and practical teaching. Students are on and off evaluated with written exams, vivas and practical's throughout the year, and at the end of each year a final examination is conducted by the University. A passing grade of 50% is compulsory for promotion to next academic year.

This cross-sectional study was held at KEMU, Lahore. The study has been approved by the institutional review board of King Edward Medical University, Lahore. Students from all academic years of the MBBS degree program, enrolled with University during the study period were included in this study. Students who were on psychological treatment or medications were not included in this study. Study was conducted from February, 2018 to April, 2018. This study period was quite suitable and accurate ahead of examinations. A total of 800 self-administered question papers were given out to undergraduate students of 1st year to final year using non-probability, purposive sampling. Two verbal reminders were given over a period of seven days. A total of 505 students returned filled questionnaires. We got the signed written informed consent from all participants of this research program. They were guided about the objective of this study and were assured anonymity.

The 10 minute questionnaire consisted of four sections: (1) Demographics (2) Depression, Stress and Anxiety Scale (DASS) 21 scoring system (3) Satisfaction with Life Scale (4) General Self-Efficacy Scale. The demographic questions included participants' age, gender, and year of study, residence and last year

professional examination score percentage. A percentage below 50% was named as low achievers. A percentage from 50% to 70% was considered as moderate achievers and above 70% as high achievers.

The DASS 21 Scale was utilized to evaluate anxiety, depression and stress, and it showed us the negative side of psychological health. It comprised of 21 questions, each question answered on answer scale from 0-3. Anxiety, depression and stress had seven questions each. Question numbered 3, 5, 10, 13, 17, 16 and 21 were designed for depression. The question numbered 2, 4, 7, 9, 15, 20, 19 were designed for anxiety. Whereas question numbered 1, 6, 8, 11, 14, 12 and 18 were evaluating stress. In DASS-21 scoring system, normal scores were 0-4 depression score, 0-3 anxiety score and 0-7 stress score. Mild grade was given a score of 5-6 for depression, 4-5 for anxiety and 8-9 for stress. A score 7-10 for depression, 6-7 for anxiety while 10-12 for stress was labeled as moderate grade. Severe category included 11-13 depression score, 8-9 anxiety score, and 13-16 stress score. Any score above these values were categorized as extremely severe categories.

The bright side of psychological health was evaluated by General Self-Efficacy (GSE) scale and Satisfaction with Life Scale (SWLS). GSE comprised 10 questions, each question marked from 1–4, providing a collective score of 10 to 40. A score of 10 indicates no self-efficacy. A score of 11-20 represents low self-efficacy while score of 21-30 was considered as moderate self-efficacy. Finally a score of 31-40 showed high self-efficacy. SWLS consisted of five questions, each question scores from 1–7, resulting in a total score 5 to 35. Extremely satisfied score was labeled for a score of 31-35. A score of 26-30 and 21-25 was considered as satisfied and slightly satisfied respectively while score 20 marked as neutral. A score of 15-19 showed a slightly dissatisfied person. A score of 10-14 was classified as dissatisfied and a score of <9 was considered as extremely dissatisfied. All data was entered in SPSS 22. All scores were categorized and cross tabulated to identify the impact of positive (GSE & SWLS) and negative aspects (DASS 21) of psychological well-being on academic performance using independent sample t test and chi-square test. P-value ≤ 0.05 was considered significant.

RESULTS:

Total 505 students correctly filled the form. Out of those 505 students 180 (35.6%) were male undergraduates and 325 (64.4%) were female undergraduates. About 18.6% students were from 1st year, 26.5% were from 2nd year and 20.8%, 18% and16% were from 3rd year, 4th year and final year respectively.

The depression, anxiety and stress rates were 69.5%, 78.6% and 63.4% respectively. Mean stress in female undergraduates was significantly (p=0.03) higher (2.46 ± 1.31 vs 2.21 ± 1.22) as compared to male students. The mean depression level in male undergraduates (2.57 ± 1.45) was not significantly (p=0.070) different from female undergraduates (2.81 ± 1.44). similarly, there was no significant (p=0.535) difference in mean anxiety between male (3.26 ± 1.49) and female (3.34 ± 1.50) undergraduates. It showed only DASS stress score in female undergraduates was significantly higher in female undergraduates as compared to male undergraduates.

Association of DASS score with gender and academic scores showed a significant relationship of stress with academic scores (p= 0.015) Table I. According to academic years, depression scores were not significantly associated with academic years (p= 0.28) Figure-I. Though stress (p= 0.01) and anxiety score (p= 0.05) had significant association with academic scores respectively. (Figure-II, III).

The mean value of Satisfaction with Life Scale was (22.96 ± 6.45) and the mean of General Self-Efficacy (GSE) was (27.40 ± 5.62). Significant association was found between stress and GSE only (p= 0.05) (Table-II).

Table-I: Association of DASS score with gender and academic score.

DASS Score	Gender		p-value	Academic Score			p-value
	Male	Female		Low Achievers	Moderate Achievers	High Achievers	
DEPRESSION							
Normal	64	90	0.058	5	78	45	0.465
Mild	26	40		1	34	14	
Moderate	37	95		8	76	28	
Severe	29	40		1	39	17	
Extremely Severe	24	60		3	47	15	
ANXIETY							
Normal	40	68	0.968	7	64	25	0.015
Mild	12	20		0	17	9	
Moderate	41	72		2	45	39	
Severe	35	61		4	59	18	
Extremely Severe	52	104		5	89	28	
STRESS							
Normal	72	113	0.170	7	108	47	0.446
Mild	38	50		4	40	21	
Moderate	38	81		2	71	22	
Severe	24	60		5	38	21	
Extremely Severe	8	21		0	17	8	
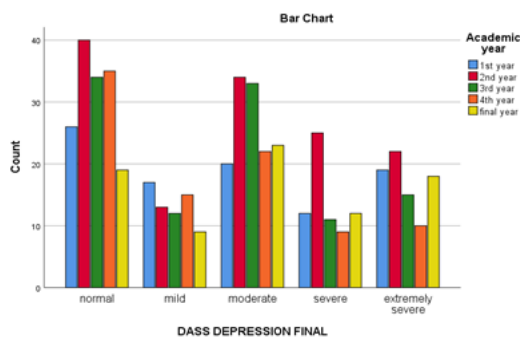
Figure-I: Association of Depression score with academic year.
$x^2= 18.78$, df= 16, p= 0.28
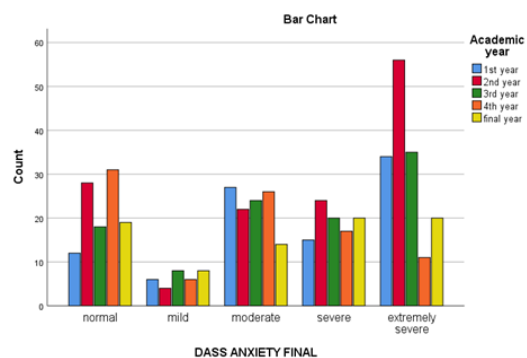
Figure-II: Association of anxiety score with the academic year.
$x^2= 29.81$, df= 16, p= 0.01
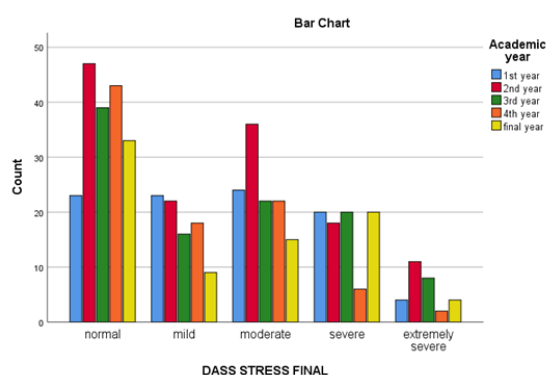
Figure-III: Association of Stress score with academic year.
$x^2= 41.31, df= 16, p= 0.05$

Table-II: Association of DASS score with General Self Efficacy (GSE) and Satisfaction With Life Scale (SWLS). (In SWLS, 1 is Extremely Dissatisfied, 2 is Dissatisfied, 3 is Slightly Dissatisfied, 4 is Neutral, 5 is Slightly Satisfied, 6 is Satisfied, 7 is Extremely Satisfied).

DASS SCORE	General Self Efficacy				p-value	Satisfaction With Life Scale							p-value
	NO	LOW	Moderate	High		1	2	3	4	5	6	7	
DEPRESSION													
Normal	0	12	89	53	0.39	15	13	24	7	41	41	23	0.12
Mild	0	10	37	19		1	7	8	1	25	18	6	
Moderate	0	15	84	32		6	15	18	7	35	42	7	
Severe	0	9	44	16		1	4	9	9	19	22	5	
Extremely Severe	1	12	47	24		0	7	19	5	19	22	12	
ANXIETY													
Normal	0	6	70	32	0.31	3	9	17	3	26	35	15	0.75
Mild	0	4	19	09		0	4	4	2	9	9	4	
Moderate	0	13	63	37		4	11	22	2	32	33	9	
Severe	1	10	62	22		2	10	14	8	30	24	6	
Extremely Severe	0	25	87	44		4	12	21	14	42	44	19	
STRESS													
Normal	0	13	119	53	0.05	5	16	31	8	49	54	21	0.61
Mild	1	13	51	23		3	4	10	3	24	35	9	
Moderate	0	21	57	40		3	11	16	9	37	30	12	
Severe	0	8	58	18		2	11	18	8	20	18	7	
Extremely Severe	0	3	16	10		0	4	3	1	9	8	4	

DISCUSSION:

Academic pressure due to tough nature of medical practice and course work cause stress, anxiety and depression in medical students. Other potential cause of stress, anxiety and depression might be the involvement of human suffering, death, sexuality and fear. In medical colleges stress in students may lead to poor mental and physical health, reduction in self esteem of the student, negative impact on cognitive function and learning of the students. Damage to the psychological health has been reported in multiple researches. This depression and anxiety among medical students has not been only reported in developing countries, but also in developed countries. Psychological distress is a subjective experience. In other words, psychological discomfort may interfere with different subjective experiences and activities [11].

The subjective comfort has been conceived as a combination of two major elements: the emotional element and the cognitive element [12]. Researchers have proposed that general self-efficacy (GSE) can be considerably thrown into organizational theory, research, and practice [13]. General self-efficacy is the trust in one's ability to make out with a wide range of hard and difficult requirements [14].

In this present study it was noted that the depression, anxiety and stress rates were 69.5%, 78.6% and 63.4% respectively, with stress level showing a significant association with female gender. These results were in agreement with other studies like in a carried out in Saudi Arabia, the prevalence of stress among medical students was recorded 71.9%, with female students having predominantly higher rate of stress than males (77% vs 64%, p < 0.01) [15]. Another study also showed parallel results of anxiety and SWLS which were sensitive to gender and year of the study.

Literature has also shown the association of self-efficacy with gender. In a study it was observed that Self-efficacy was higher among female students as compared to male students. Life satisfaction score was comparatively higher among 2nd-year students as compared to other academic years. Depression was found to be the only variable that was associated with the academic scores. Female medical students were found to be suffering from higher psychological distress than males [16]. The results of our study are also parallel to these results and we found that mean value of Satisfaction with Life Scale was significantly higher in females with mean value of general self-efficacy (27.40 ± 5.62) as compared to mean value of (22.96 ± 6.45) in male students.

The stress, anxiety and depression levels have shown association with class of the medical student. In our study it was found out that moderate, severe and extremely severe depression was most common among 2nd year students. It was also found out that moderate anxiety was most commonly associated with 1st year medical students and severe and extremely severe anxiety with 2nd year medical students. In terms of stress, severe stress was more common among 1st year, 3rd year and final year students [17,18].

The results are similar in developed countries like a study from Sweden, used first year, third year and final year medical students to assess the stress, anxiety and depression levels [19]. In that study more females were found to be suffering from stress, anxiety and depression as compared to males. First year medical students were facing severe pressure from tough studies in contrast to other classes. Female undergraduates were found to be taking more stress than males [20]. Other local data also showed the same trend like a study from wah medical college showed Higher anxiety and depression scores with a significant association with gender (p=0.007) and year of study (p=0.001). Both anxiety and depression symptoms were quite frequent in 2nd year medical students with 43% students with depression and 61.6% with anxiety [21].

The main limitation of this study is that sample has been taken from students of all five-year students from a single medical institute. Only one scale for calculation of anxiety, stress and depression was used. The sample was not diverse enough to assess differences between private and public sector medical institute.

CONCLUSION:

It is concluded from the results of this study that psychological morbidity is very common in medical students. The female undergraduate students, 1st and 2nd year medical students were most commonly found to be stressed, anxious and depressed. Special attention should be given on psychological well being of the medical students for prevent distress among them. Further studies on larger level are recommended to explore causes, consequences, and solutions for this problem rather than simply describing it.

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Authors' Contribution:

Hamna Khan: Acquisition of data, drafting of the manuscript.
Ain-ul-Momina: Analysis and interpretation of data.
Muhammad Zeeshan Sarwar: Final editing & proof reading