The Professional Medical Journal
www.theprofesional.com

DOI: 10.17957/TPMJ/17.3708

ORIGINAL PROF-3708

PREVALENCE OF DEPRESSION;

A CROSS-SECTIONAL STUDY AMONG MBBS STUDENTS OF SARGODHA MEDICAL COLLEGE, SARGODHA PAKISTAN

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Article received on:
01/11/2016
Accepted for publication:
15/02/2017
Received after proof reading:
07/03/2017

ABSTRACT… Objectives: This study was conducted to assess the prevalence of depression and associated risk factors among medical students at different levels (1st to 5th year) of their MBBS course. **Study Design:** Cross-sectional study. **Setting:** Sargodha Medical College, Sargodha. **Period:** April to September 2016. **Material and Methods:** A sample of 200 medical students (including 147 female and 53 male) was chosen by random sampling. PHQ-9 scale was used to evaluate depression among participants. Data was collected on a specially designed questionnaire containing sociodemographic and educational characteristics and was analyzed using SPSS 16.0. **Results:** Out of 200 respondents, who participated in study, 75.5% reached depression criteria. The age range of majority of students (53%) was 20-22 year. Factors such as female gender, year of medical college, staying in hostel, both pre and post exam depression, academic pressure, high competition, overburdened test schedules and worries about future were found to be significantly associated with depression. **Conclusion:** The results depict that frequency of depression among MBBS students during their academic years is very high, making them highly susceptible individuals. This demands the necessity for pervasive enactment of therapeutic measures by medical college administration, including assessment, education and provision of mental health services.

Key words: Depression, Prevalence, Medical Students, Cross-sectional study.

Article Citation: Uttra AM, Uttra MGM, Rauf A, Uttra MM, Hassan UH, Batool A. Prevalence of depression; a cross-sectional study among MBBS students of Sargodha medical college, Sargodha Pakistan. Professional Med J 2017;24(3):482-489.
DOI: 10.17957/TPMJ/17.3708

INTRODUCTION

Mental problems are gaining public health prominence owing to augmented prevalence, following in substantial disability and morbidity. Depression is extremely frequent and according to WHO estimates, depression is 4th principal source of disease affliction and debility.[1] Medical students are valuable resource for human future and depression in them negatively affects patient care, leads to decreased quality of life, less output and learning difficulties.[2] The environment of medical colleges is considered as extremely stressful and since 1950s mental health of medical students has been a matter of concern for many researchers.[3] Numeral studies have been directed on factors allied with depression of medical students and consequences of such depression are quite troubling for trainee physicians.[4] The factors which add to poorer mental health of medical students compared with general population include lack of sleep, higher academic burden, inability to cope, exposure to patient's suffering and death, financial concerns, increased mental tension and psychological pressure.[5] Depression affect students both professionally and personally, which result in diminished life satisfaction among students.[6]

A literature review identified only a few studies conducted in Pakistan on depression among medical students.[4,7,8,9,10,11] As there is a lack of data regarding prevalence of depression and the role of precipitating factors of depression among medical students in Pakistan so, the present study was undertaken to look for prevalence of depression among medical students of Sargodha Medical College, Sargodha, Punjab Pakistan, using a diagnostic tool i.e., Patient Health Questionnaire (PHQ-9)[12] for depression, associations of depression with demographic

and educational characteristics and the extent to which stressors predict depression. Assessing the burden of depression among medical students can inform us of their status of mental health and related risk factors.

MATERIALS AND METHODS

The cross-sectional study was carried out on MBBS students (from 1st year to 5th year) of Sargodha Medical College (SMC), Sargodha (Punjab), Pakistan from April 2016 to September 2016. The approval was obtained from head of institution for conducting the study. A total of 200 Medical students participated, 40 from each study year (1st to 5th year MBBS). Sampling was done by using systematic, stratified random sampling technique. A self-administered questionnaire was prepared for data collection and distributed among students along with Patient Health Questionnaire (PHQ-9), after elucidating basis of study and taking verbal consent. The inclusion of students was voluntary and anonymous. The study comprised of students who had spent more than six months in college. The questionnaire was handed over to students who were available at the time of distribution. The students were directed to return completed questionnaire. Students were asked about basic demographic characteristics (like age, gender, marital status, residence, year of study and total family income). Information was also acquired about different variables accompanying depression and stressors contributing towards depression. A Patient Health Questionnaire (PHQ-9) scoring from 0 – 27 was used to evaluate prevalence of depression and it's grading.[19] The nine items of PHQ 9 are centered entirely on nine diagnostic criteria for major depressive disorder. The symptoms were rated on a 4-point scale ranging from 0 to 3 with a total maximum score of 27. The following cut-off points for depression were used: 0-4 no depression; 5-9 mild depression; 10-14 moderate depression; 15-19 moderately severe depression and 20-27 severe depression. The cumulative scores and personal data of participants were entered in SPSS version 16.0. Descriptive statistics was used to analyze the data.

RESULTS

Out of 215 MBBS students, 200 students completed questionnaires, giving a response rate of 93.83%. Sociodemographic characteristics of study group are presented in Table-I. Majority of subjects, 106 (53%) were between 20-22 year age, of which 81 (40.5%) were depressed while, 25 (12.5%) were not depressed. Females comprised 73.5% (147/200) and males comprised 26.5% (53/200) of participants. Most of the students 110 (55%) were residing in college hostels, while the rest 90 (45%) were living in homes. Hostelites were found to be more depressed 82 (41%) as compared to day scholars 68 (34%). Most of the surveyed subjects 174 (87%) were single, whereas, 13 (6.5%) were married and 13 students did not respond to this question. Of those responded, 127 (63.5%) unmarried students were depressed and 10 (5%) married were depressed. Besides, family income of 132 (66%) respondents was >50000 Rs. Depression was prevalent in 5 (2.5%), 14 (7%), 35 (17.5%) and 96 (48%) of students with monthly family income $\leq$ 14999 Rs, 15000-29999 Rs, 30000-50000 Rs and >50000 Rs respectively.

Table-II shows frequency of depression according to year of study among MBBS students of SMC. Results according to PHQ-9 scoring depicted that, 49 (24.5%) students had no depression and 151 (75.5%) students had depression. Of those depressed participants, 42% had mild depression, 24% had moderate depression, 8% were moderately severe depressed and 1.5% were in severe depression. Interestingly, it was instituted that prevalence of depressive symptoms was high among newly entered students (1st year, 85%) as compared to senior students (5th year, 60%). Moreover, incidence of depression was found to be more among female students versus male students in each year of study as depicted in Table-II.

Table-III describes variables associated with depression. Out of 19.5% students who stated family history of depression, only 15.5% were depressed. However, 52.5% participants were suffering from depression even they had no

family history of depression. Personal history of depression was reported by 27% students. Students who had no personal history of depression (46.5%) were significantly more depressed than students who had personal history of depression (24%). Likewise, majority of students (81%) reported no history of failure in examination and out of them 50.5% were depressed. Whereas, only 17% out of 19% participants with exam failure history were depressed. It was found that 12% students were addicted to smoking and 88% were not addicted. Depression was found to be more prevalent in non-smokers (56.5%). With regard to timing of depression, a higher proportion of depressed students (35%) stated both pre and post exam depression, while 34% depressed subjects reported pre-exam depression and 15 students (7.5%) did not respond to this question.

Sociodemographic characteristic	MBBS Students		Total n=200
	Depression	No Depression	
Age			
≤ 19 yrs.	33 (16.5%)	10 (5%)	43 (21.5%)
20-22 yrs.	81 (40.5%)	25 (12.5%)	106 (53 %)
> 22 yrs.	35 (17.5%)	16 (8%)	51 (25.5%)
Marital Status			
Married	10 (5%)	3 (1.5%)	13 (6.5%)
Unmarried	127 (63.5%)	47 (23.5%)	174 (87%)
Residence			
Hostel	82 (41%)	28 (14%)	110 (55%)
Home	68 (34%)	22 (11%)	90 (45%)
Monthly Family Income (Rs)			
≤ 14999	5 (2.5%)	0 (0%)	5 (2.5%)
15000-29999	14 (7%)	3 (1.5%)	17 (8.5%)
30000-50000	35 (17.5%)	11 (5.5%)	46 (23%)
> 50000	96 (48%)	36 (18%)	132 (66%)

Table-I. Sociodemographic characteristics of study participants

Severity of depression	Gender	Year of Study					
		1st Year n=40	2nd Year n=40	3rd Year n=40	4th Year n=40	5th Year n=40	Total n=200
No depression	**Male**	2	0	1	1	7	49 (24.5%)
	Female	4	11	6	8	9	
Mild depression	**Male**	4	8	2	3	5	84 (42%)
	Female	15	14	13	7	13	
Moderate depression	**Male**	4	1	4	3	2	48 (24%)
	Female	6	4	9	11	4	
Moderately severe depression	**Male**	0	1	3	2	0	16 (8%)
	Female	3	1	2	4	0	
Severe depression	**Male**	0	0	0	0	0	3 (1.5%)
	Female	2	0	0	1	0	
% of students with depression	**Male**	20%	25%	22.5%	20%	17.5%	**75.5%**
	Female	65%	47.5%	60%	57.5%	42.5%	
	Total	**85%**	**72.5%**	**82.5%**	**77.5%**	**60%**	

Table-II. Prevalence of depression (using PHQ-9) according to year of study

Variables	Yes/No	MBBS Students		Total n=200
		Depression	No Depression	
Family history of depression	Yes No	31 (15.5%) 105 (52.5%)	8 (4%) 56 (28%)	39 (19.5%) 161 (80.5%)
Personal history of depression	Yes No	48 (24%) 93 (46.5%)	6 (3%) 53 (26.5%)	54 (27%) 146 (73%)
Exam failure	Yes No	34 (17%) 101 (50.5%)	4 (2%) 61 (30.5%)	38 (19%) 162 (81%)
Smoking addiction	Yes No	21 (10.5%) 113 (56.5%)	3 (1.5%) 63 (31.5%)	24 (12%) 176 (88%)
Timing of depression	Pre-exams Post-exams Both	68 (34%) 5 (2.5%) 70 (35%)	29 (14.5%) 2 (1%) 11 (5.5%)	97 (48.5%) 7 (3.5%) 81 (40.5%)

Table-III. Variables associated with depression among study participants

The stressors contributing towards depression are illustrated in Table-IV. In total, 152 (76%) participants divulged academic pressure. The prevalence of depression was significantly higher in students who complained of academic pressure (62%), compared to those who did not (13%). Financial pressure was evinced by 19.5% of total participants and depressive symptoms were higher in students (59%) who did not have financial pressure, showing financial pressure do not contribute to depression. Family problems was not a matter related to depression, as a higher proportion of students (48%) with depression symptoms manifested no family issues. The prevalence of depression was considerably higher in students who complained of high competition (40%) compared to students who did not complain of high competition (35%). Similarly, overburdened test schedule was found to be another stressor of depression among MBBS students of SMC as 57.5% participants specifying too many test activities were found depressed. Students who signified frequent concern for their professional future (53%) were also notably more depressed in comparison to students who had no such distresses (22%). Students who had good relationship with their parents (65.5%) and lecturers (40.5%) had higher depression rate as compared to students who did not have good relationship with their parents (9.5%) and teachers (34%). Same was the case with students who reported gender discrimination by teachers (54%) compared to those who did not state gender discrimination (21%).

Stressors	Yes/No	MBBS Students (n=200)		Total n=200
		Depression	No Depression	
Financial pressure	Yes No	32 (16%) 118 (59%)	7 (3.5%) 43 (21.5%)	39 (19.5%) 161 (80.5%)
Family problems	Yes No	54 (27%) 96 (48%)	11 (5.5%) 39 (19.5%)	65 (32.5%) 135 (67.5%)
Academic pressure	Yes No	124 (62%) 26 (13%)	28 (14%) 22 (11%)	152 (76%) 48 (24%)
Too many test activities	Yes No	115 (57.5%) 35 (17.5%)	32 (16%) 18 (9%)	147 (73.5%) 53 (26.5%)
High competition	Yes No	80 (40%) 70 (35%)	13 (6.5%) 37 (18.5%)	93 (46.5%) 107 (53.5%)
Worries about future	Yes No	106 (53%) 44 (22%)	22 (11%) 38 (19%)	128 (64%) 82 (41%)
Inadequate parent child relation	Yes No	19 (9.5%) 131 (65.5%)	1 (0.5%) 49 (24.5%)	20 (10%) 180 (90%)
Inadequate teacher student relation	Yes No	68 (34%) 81 (40.5%)	17 (8.5%) 34 (17%)	85 (42.5%) 115 (57.5%)
Gender discrimination by teachers	Yes No	42 (21%) 108 (54%)	10 (5%) 40 (20%)	52 (26%) 148 (74%)

Table-IV. Stressors contributing towards depression among study participants

DISCUSSION

Depression is strikingly more frequent among medical students rather than general populace[13] hence, depression can be adopted as strong indicator for appraising mental ailments among them. Academic course of MBBS students is arduous and thus learning medicine is a tough practice. The strain of sumptuous examination and colossal syllabus can collapse their mental health, which may influence their overall performance and precipitate a cascade of consequences at both personal and professional ends.[9]

In the present research, depression subsided with growing age that might be attributable to improved coping strategies followed by senior students. Hostel residents were found to be more depressed than day scholars, the reason might be homesickness, as they live away from home and also challenging new study environment might progress mental distress. Another study has also reported homesickness as cause of depression.[14] It was instituted that single students were more prone to depression as compared with married subjects. This perhaps be as single students observe more hectic events than married students for instance, financial, graduation, employment and marriage stresses. These findings are supported by former research.[15] Furthermore, it was seen that monthly household income did not have much effect on prevalence of depression in existing research. This finding is parallel to another Pakistani study, which indicated that such demographic variable did not affect prevalence of depression.[9]

The prevalence rate of depression (75.5%) in present study differs from those conducted formerly in other medical colleges of Pakistan such as Multan, 43.89%[7], Islamabad, 40.9%[8], Wah, 35.1%[4], but comparable to surveys conducted in Lahore and Karachi, 60-70%.[9,10] These dissimilarities could be because of different study methods, different evaluation scales used and different educational settings of medical colleges. Additionally, high frequency of depression among 1st year students in existing study could be justified on the basis of stress of new learning atmosphere, greater work load with constraint to accomplish, modifications in eating and sleeping routines and dearth of recreation activities. Besides, subsidence of symptoms in senior students can be explicated by a steady adoption to study course and surroundings.[16] The outcomes of present investigation correlates with results of previous investigation.[17] Moreover, results reveal that occurrence of depression was more among female students as opposed to male students, which corroborates other Pakistani and Western studies, which reported higher psychological dejection amid female students.[18,19] The reason might be females are more ambitious, more perturbed to score higher marks in exams, have propensity to over describe psychological and medical symptoms and most prominently less inclined towards exercise.[7]

A positive family and student history of depression are distinguished risk factors for depression[20] but in current investigation these factors did not relate considerably to depression amongst participants. Contrary to earlier findings[21], being addicted to smoking had no substantial alliance with progression of depression in our study, which could be due to small number of respondents however, our findings are consistent with some other study.[22] Additionally, both pre and post-exam depression was found in maximum students. These illustrations are contrary to some other studies, where depression was significantly correlated with pressure prior to exam.[23,24]

High rates of mental discomfort in medical students have earlier been accredited to high competition, academic burden, undue stress of studies, privation of vacant hour, uncertainties about future due to inadequate post-graduation training prospects with limited pay and attitudes of teachers[25], which supports stressors responsible for depression in current study. In existing study, academic pressure was reported by a huge bulk of participants, which is akin to studies from India and other medical colleges of Pakistan, where academic stress and exams were described as most troublesome stressors. Learning medicine is relatively competitive as medical students have

to go through repeated examinations all through their academic years. In present research, too many test activities were found to be another stressor. This outcome corroborates with a previous finding, where vastness of syllabus and test schedule/exams was ominously related to cognitive despair among medical students.[26] Higher anticipations on academic performance and pressure from competition have allegedly been connected with depression as stress prompts pessimistic feelings concerning one's own academic performance.[27] This supports existing study, where high competition was found to be a reason for depression among medical students. In current study, financial pressure did not contribute to depression, the reason being majority of students belonged to financially stable families. These findings are in contrast to earlier findings, which interpreted that students going through any kind of financial stress were more likely to undergo depression than those who were stress free.[18,28] Likewise, family environment is perceived as an imperative protective factor against evolvement of depressive ailments. Indeed, quality of parental bonding has been established to be able to abridge harmful effects of stressors among medical students, resulting in functional adjustment.[13] Family problems was not a matter related to depression in present investigation. This is in contrast to former studies, where substantial alliance between existence of family problems and development of depression among medical students was reported.[28,29] Similarly, students having poor relationship with their parents have been formerly stated to be more depressed than those with good parent child relationship, as parents are an important source of financial and emotional support to students. For that reason, students with good relations with parents are less expected to become depressed owing to a better level of assistance from their families.[23] But in our study, case was different, parent child relation was good among most of the respondents. So, this stressor did not contribute significantly to depression. At the same time, poor relation of teachers with students and gender discrimination are a matter of great concern. A former study reports that students having poor relations with their lecturers are more depressed than students having good relations with their lecturers because poor teacher student relationship leads to concerns among students about their teacher's anticipations, hence adversely affecting their academic performance and ensuing in depression.[23] Moreover, in a latest study on medical students in Pakistan, 78% students stated being subjected to gender discrimination, which led to depression among them.[30] This is in contrast to results of present investigation, where students were having good relations with their teachers and gender discrimination was also not a factor interconnected with depression. So, these stressors do not relate significantly to depression among study population. In addition, a large number of depressed students were worried about their future in the existing study. Similar findings on concern for future were perceived in another research, delineating cumbersome requirements of medical course are vital stressors for depression.[13] The reason might be that academic demands for medical students are higher than those for other students, which comprise medical residency exam and preparation for job interviews which are very stressing.

The need of hour is to think about psychological well-being of medical students. Medical students are doctors of tomorrow and it is essential they are imparted right support at initial stages of their training to evade their depression. Firstly, existing medical curriculum should be evaluated to make medical course less nerve-racking. Secondly, medical colleges should offer leisure time and facilities for recreation to students at campus. Above all medical students should be stimulated to pursue apposite assistance for mental health distresses. At the same time, teachers should provide awareness and education of medical students to reduce the disgrace of depression.

CONCLUSION

The findings of present study highlight the fact that depression is a problem among MBBS students of Sargodha Medical College. The incidence of depressive symptoms in the current investigation is high, more than that appreciated

in general population. Depression was found in 75.5% of students. Factors found to have a significant association with depression in medical students in our study were female gender, year of medical college, staying in a hostel, both pre and post exam depression, academic pressure, high competition, too many test activities and worries about future. It seems that sociodemographic as well as educational risk factors are expressively connected with depression.

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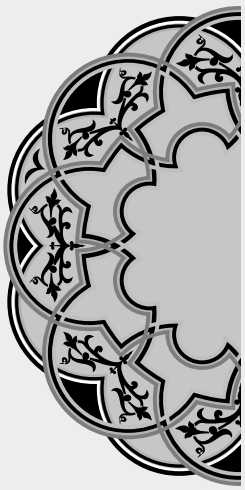

"Eighty percent of success is showing up."

Woody Allen

AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Dr. Malik Ghulam M. Uttra	Critical revision of article	
3	Dr. Abdul Rauf	Critical revision of article	
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