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SCREENING OF DEPRESSION AMONG POST GRADUATE MEDICAL STUDENTS OF A TEACHING INSTITUTE IN MAHARASHTRA

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ABSTRACT: BACKGROUND: According to World Health Organization, depressive disorders are the fourth leading health problem in the world. Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological well-being of the student. One-fourth to one-third of the post graduate medical trainees and residents develop clinical depression at some point in their training period. As minimal literature is there documenting prevalence of depression among post graduate medical students, this study was undertaken with the objective of screening of depression among post graduate medical students of a teaching institute of Maharashtra. **SETTING AND DESIGN:** Cross-sectional study conducted in a tertiary care hospital of a teaching institute in a district of Maharashtra from July 2013 till September 2013 targeting all post graduates students of the institute. **METHODS AND MATERIALS:** A pre-tested structured questionnaire with details regarding socio demographic characteristics and factors influencing mental health status was used to collect the information from post graduate medical students. Patient Health Questionnaire (PHQ-9), based on PRIME MD Today (Primary Care Evaluation of Mental Disorders), was used to provisionally diagnose depression. **STATISTICAL ANALYSIS:** Statistical software Open Epi Version 2.3 for proportions and chi square test. **RESULTS:** Out of 81 respondents, 40 had depressive symptoms based on the PHQ-9 scores of 5 or more than 5, giving a prevalence of 49.4% among postgraduate students in this study. Prevalence of mild, moderate, moderately severe and severe depression was 25(30.9%), 9(11.1%), 4(4.9%) and 2(2.5%) respectively. **CONCLUSION:** Depression among post-graduate medical students is common. It is unrecognized, under-estimated and not properly addressed. This issue should be properly addressed because of its possible impact on quality of health care services in teaching hospitals and on training outcome.

KEYWORDS: Depression, post graduate medical students, PHQ-9.

INTRODUCTION: Non-communicable diseases such as mental disorders may replace infectious and communicable diseases as the leading cause of disability and premature death. One of the mental disorders which have a particularly high prevalence is depression.¹ According to World Health Organization (WHO), depressive disorders are the fourth leading health problem in the world. Major depressive disorder is estimated to be the second disabling disease of mankind in 2020.²

Depression is defined according to the WHO as a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration.³

Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological well-being of the student.⁴ Among all physicians, resident doctors have an exceptional position. Residency training is a stressful course

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with frequent encounters with severely ill patients, lengthy work hours, persistent threat of being sued by patients, and a need to study regularly to keep up to date. These factors make them vulnerable to depression.⁵

One-fourth to one-third of the post-graduate medical trainees and residents develop clinical depression at some point in their training period although much higher rates were reported in some other studies.⁶ Variable prevalence rates for depression among medical students and residents have been reported ranging from 2% to 35%, with the highest rates among residents.^{6,7} In a study on depression and its associated risk factors in medical and surgical post graduate trainees at a teaching hospital overall frequency of depression was 59.88% which is higher than the Washington study that shows frequency of depression as 12% among emergency medicine residents in 2003 to 2004.^{8,6} In a multi-centre study to find out the prevalence of depression among post-graduate medical trainees, two-fifth of post-graduate medical trainees were found to be suffering from mild to moderate depression.⁹

However, there is minimal information in the literature documenting the prevalence of depression among post graduate medical students in India especially Maharashtra state. Studies of such nature will be a useful tool to take appropriate steps like counseling for the depressed post graduate medical students. Hence, this study was undertaken for screening of depression among postgraduate medical students of a teaching institute of Maharashtra.

MATERIAL & METHODS: This cross-sectional study was conducted in a teaching institute in Maharashtra from July 2013 till September 2013. All post-graduate students (total 110 students) of this institute constituted the target population for the study. Data was collected by visiting all departments of the teaching institute by administering a pre- tested structured questionnaire to the post graduate medical students. Details pertaining to objectives were collected in that questionnaire. Permission and clearance was obtained from institutional ethical committee before start of the study. Participation was voluntary, informed verbal consent was obtained from the participants and they were ensured that confidentiality and anonymity would be maintained throughout the study after explaining the purpose of study. The participants were assured that data would be used only for scientific purpose of the study.

Patient Health Questionnaire (PHQ-9), based on PRIME MD Today (Primary Care Evaluation of Mental Disorders), was used to provisionally diagnose depression. This is a self-administered questionnaire which assists in screening, evaluating and provisionally diagnosing depression. This instrument asks the respondent to indicate the frequency of various symptoms over the past two weeks. It has been field tested and validated in large primary care patient samples. The nine items of the PHQ 9 are based directly on the nine diagnostic criteria for major depressive disorder in Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM IV). The classification system pertains to: (1) anhedonia, (2) depressed mood, (3) trouble sleeping, (4) feeling tired, (5) change in appetite, (6) guilt or worthlessness, (7) trouble concentrating, (8) feeling slowed down or restless, and (9) suicidal thoughts.¹⁰

Study subjects were classified on the basis of PHQ-9 Score. The total score ranges from 0 to 27, subdivided into five categories: 1 to 4 is minimal, 5 to 9 is mild, 10 to 14 is moderate, 15 to 19 is moderate-severe; and 20 and above is severe.¹¹

Data was analyzed by using statistical software Open Epi Version 2.3 for proportions and chi square test.

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RESULT: Thus total 81 postgraduate students (out of 110) participated in our study. The response rate was 73.63%.

Males being 54 (66.7%) outnumbered the females which were only 27 (33.3%) out of all residents. Male: female ratio being 2:1. Approximately half of students, 40(49.4%) were in age group of 27-30 years, 33(40.7%) were in age group of 23-26 years and only 8(9.9%) were in age group of ≥ 31 years. Around three fourth, 60 (74.1%) of all the 81 study participants were unmarried. 50 post graduate students (61.7%) were enjoying their intended medical speciality courses (Table 1).

Out of 81 respondents, 40 had depressive symptoms based on the PHQ-9 scores of 5 or more than 5, giving a prevalence of 49.4% among postgraduate students in this study and almost half, 41 residents (50.6%) had score less than 5 reflecting that they were not in depression. Prevalence of mild, moderate, moderately severe and severe depression was 25(30.9%), 9(11.1%), 4(4.9%) and 2(2.5%) respectively (Fig 1). Factors studied were age, sex, marital status and intended medical speciality among postgraduate students, none of these factors were significantly associated with level of depression (p value >0.05). Maximum, 22(27.2%) in age group of 27-30 years were not in depression. No student in age group of 23-26 and > 31 years were severely depressed whereas 2(2.5%) students in 27-30 years age group were found to be severely depressed. 27 males out of 54(50%) were found to be depressed and 13 females out of 27(48.14%) were found to be depressed. 11 married subjects out of 21 (52.38%) were found to be depressed as compared to 29 unmarried out of 60 (48.33%) unmarried study participants. 28 study subjects out of 50 (56%) who got intended medical speciality were not found to be depressed and 18 out of 31 (58.06%) study participants who did not get their intended medical speciality were found to be depressed. Only 1 (1.2%) resident each with or without intended medical course were in severe depression respectively (Table 1).

Out of the 81 respondents, 14(17.2%) had little interest or pleasure in doing things nearly every day as compared to 28(34.6%) who never felt the same. 6 (7.4%) felt down, depressed or hopeless nearly every day and more than half the days also and 25(30.9%) felt the same on several days over the past two weeks as compared to 44(54.3%) of the total never felt the same. 14(17.3%) had trouble falling or staying asleep, or sleeping too much as compared to 36(44.4%) who never had such sleep disturbances. 26(32.1%) never felt tired or lack of energy while 11(13.6%) felt tired on almost every day in the past two weeks. 39(48.2%) out of 81 had no eating problems, while 16(19.7%) suffered from either poor appetite or over eating almost every day in the past two weeks. 71(87.6%) respondents never felt bad about themselves, while 5(6.2%), 3(3.7%) and 2(2.5%) felt bad about themselves on several days, more than half days and nearly every day respectively in the past two weeks. 23(28.4%) had trouble concentrating on things such as reading newspaper or watching television, while the rest 58(71.6%) never had such trouble. 12(14.8%) used to move or speak slowly, or being so fidgety or restless, rest 69(85.2%) had no such issues. 4(5%) out of 81 respondents had thoughts of being dead or hurt themselves in past two weeks with 2(2.5%) having such thoughts on nearly every day. Majority (95%) subjects never had feeling of hurting oneself or suicidal tendency (Table 2).

DISCUSSION: Residency involves stress to both the personal and professional lives of residents. It demands long hours within the training environment, as well as dedication outside of it. Residents must cope with clinical, academic, physical, and social demands while working up to 80 hours a week.⁶

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The reliable and valid depression screening tool, PHQ-9 was used in our study. The overall response rate in our study was 73.63% which was comparable to other studies in the past. Yousuf A et al got response rate of 82.69%.⁸ The response rates were 90% among the 1st-year residents, 71% in 2nd-year residents, and 62% in 3rd-year residents in a study conducted by Shanafelt TD et al.¹² Eman I et al got a 94% response rate in the study of perceived depression, anxiety and stress among Saudi postgraduate orthodontic students.¹³ A lower response rate of 53% was found in the trainees in a study on prevalence of depression among post-graduate medical trainees by Zaman S et al.⁹

The overall depression reported by our study by using PHQ-9 depression screening tool was 49.4% of which 30.86% had mild, 11.11% had moderate, 4.93% had moderately severe and 2.46% had severe depression. In another study in Iran by Sadeghi MD et al among 2251 resident doctors who worked in the hospitals of 3 medical universities located in Tehran (Iran) using Beck Depression Inventory scale found that 31.2% of the total study population had symptoms of depression (26% of the males and 39% of the females).⁵ In a similar study by Yousuf A et al on medical and surgical post graduate trainees conducted in Karachi, Pakistan, overall frequency of depression was found to be 59.88% using Zung Self-Rating Depression Scale. The lower prevalence 12.1% was reported by Katz ED et al among emergency medicine residents using the Center for Epidemiologic Studies Depression Scale (CES-D).⁶ In a multi institutional study by Goebert D et al among 532 residents using CES-D and the PRIME-MD, based on categorical levels from the CES-D, 7.2% had probable major depression and 4.7% had probable mild/moderate depression.⁷ In the tri-centre study by Amy M Fahrenkopf et al using the Harvard national depression screening day scale depression rates among pediatric residents was found to be 20%.¹⁴

Factors like age, sex, marital status and intended medical speciality among postgraduate students, studied in our study were not significantly associated with level of depression ($P > 0.05$). Similarly no significant gender association was found with depression in the study by Yousuf A et al.⁸ Women were found to have a significantly higher rate of probable major depression compared with men for both students and residents ($P < 0.001$) in a multi institutional study by Goebert D et al.⁷ Depression was more common among married, male trainees in a study on prevalence of depression among post-graduate medical trainees by Zaman S et al.⁹

To conclude, prevalence of depression (mild, moderate, moderately severe and severe) among postgraduate medical students was almost 50%. Therefore postgraduate medical students were facing psychological distress. The prompt measures to deal with depression will be likely to result in improved well-being of doctors and will result in better quality of care offered to patients. This issue should be properly addressed because of its possible impact on quality of health care services in teaching hospitals and on training outcome.

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Socio demographic characteristics		Depression category					P value
		None	Mild	Moderate	Moderately severe	severe	
Age (in years)	23-26	16(19.8)	12(14.8)	4(4.9)	1(1.2)	0(0.0)	0.117
	27-30	22(27.2)	12(14.8)	3(3.7)	1(1.2)	2(2.5)	
	>31	3(3.7)	1(1.2)	2(2.5)	2(2.5)	0(0)	
Sex	Male	27(33.3)	16(19.8)	6(7.4)	4(4.9)	1(1.2)	0.673
	Female	14(17.3)	9(11.1)	3(3.7)	0(0)	1(1.2)	
Marital status	Married	10(12.3)	4(4.9)	3(3.7)	3(3.7)	1(1.2)	0.125
	Unmarried	31(38.3)	21(25.9)	6(7.4)	1(1.2)	1(1.2)	
Intended Medical specialty	Yes	28(34.6)	12(14.8)	6(7.4)	3(3.7)	1(1.2)	0.517
	No	13(16)	13(16)	3(3.7)	1(1.2)	1(1.2)	

Table 1: Depression level based on socio demographic characteristics (n= 81)

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Sr. no.	Over the last 2 weeks, how often have you been bothered by any of the following:	Not at all	Several Days	More than half the days	Nearly every day
A	Little interest or pleasure in doing things?	28(34.6)	28(34.6)	11(13.6)	14(17.2)
B	Feeling down, depressed, or hopeless?	44(54.3)	25(30.9)	6(7.4)	6(7.4)
C	Trouble falling or staying asleep, or sleeping too much?	36(44.4)	23(28.4)	8(9.9)	14(17.3)
D	Feeling tired or having little energy?	26(32.1)	31(38.3)	13(16.0)	11(13.6)
E	Poor appetite or overeating?	39(48.2)	19(23.5)	7(8.6)	16(19.7)
F	Feeling bad about yourself—or that you are a failure or have let yourself or your family down?	71(87.6)	5(6.2)	3(3.7)	2(2.5)
G	Trouble concentrating on things, such as reading the newspaper or watching television?	58(71.6)	15(18.6)	1(1.2)	7(8.6)
H	Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual?	69(85.2)	7(8.6)	3(3.7)	2(2.5)
I	Thoughts that you would be better off dead or of hurting yourself in some way?	77(95)	2(2.5)	0(0)	2(2.5)

Table 2: Medical postgraduate students response to various components of Patient Health Questionnaire-9

(Figures in parenthesis indicates percentages)

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