

## Gender Distribution Of Depression Among Undergraduate Medical Students By Using PHQ-9 Scale

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### ABSTRACT

**Objective:** To evaluate the depression on different stages (mild, moderate and severe) among undergraduate students of pre-clinical & clinical settings on the basis of gender.

**Study Design and Setting:** The cross sectional study was carried out among undergraduate medical students of Bahria University medical and dental College (BUMDC) Karachi from September 2017 – December 2017.

**Methodology:** The participants were 125 medical students of first year MBBS and 125 students of final year MBBS which were labeled as pre-clinical and clinical groups respectively. The survey instrument used was PHQ-9 scale. This scale divides depression into mild, moderate and severe categories with the help of scores. Percentage of students in different levels of depression was calculated in both the groups.

**Results:** Mild depression was experienced more (39%) in pre-clinical medical students and (32%) in clinical students. On the other hand clinical medical students showed an upward trend for “severe depression” (19%) as compare to preclinical students (6%) as showed in Table 1. Gender based comparison was done between male and female students in pre-clinical and clinical groups separately. Strikingly, the results showed that females were more depressed than males in both cohorts.

**Conclusion:** It was concluded that severe depression was equal in males and females in the preclinical group as compared to clinical group. Gender based comparison showed that severe depression was higher in females than males of clinical years whereas mild and moderate depression was also more frequents in females of clinical years.

**Key words:** Depression, Pre-clinical, PHQ-9scale.

### INTRODUCTION:

Studying medicine is no doubt a privilege but on the other hand it is considered to be one of the toughest courses. Medical students face sheer mental stress<sup>1, 2</sup> because of various factors including academic burden, clinical responsibilities, assessments and examinations in addition to intellectual demands. All the above stress factors make them prone to poor mental health which leads to major depressive disorders.<sup>3</sup> Depression is a common mental disorder which is expressed as depressed mood, loss of interest or pleasure, disturbed appetite, disturbed sleep, decreased energy, feeling of guilt or low self-worth and poor concentration.<sup>4</sup> Physically the person might show symptoms of vertigo, tachycardia, sweating and tremors. Depressive symptoms may have serious outcomes like

dropping out of medical school, drug addiction, and suicidal thoughts.<sup>1</sup> According to Patient health questionnaire 9 (PHQ-9) scores of 5, 10, 15 and 20 represent mild, moderate and moderately severe and severe depression.<sup>5</sup> Ample researchers have observed that young adults studying in medical schools have higher percentage of depressive symptoms than their age fellows studying in non-medical courses.<sup>6</sup> Moreover, an ascent in the severity is seen from first year to final year of medicine.<sup>6,7,8</sup> High physical, intellectual and emotional demands of medical courses augmenting the risk of developing some types of psychological illnesses as major depressive disorders.<sup>9</sup>

The percentage distribution of depression among medical students in public universities has been estimated to 10.4% in Greece<sup>10</sup>, 15.2% in USA<sup>11</sup>, 24% in UK<sup>12</sup>; 21.7% in Malaysia<sup>9</sup>, 29.1% in India<sup>13</sup> and as high as 60% in Pakistan according to Inam et al.<sup>14</sup>

Anxiety and depression were found to be present in 70% and 60% according to a Pakistani study.<sup>15</sup> Previous studies conducted in Pakistan also revealed that higher number of female medical students were screened positive for depression and suicidal ideation as compared to males.<sup>16</sup> It is imperative for medical educators to know the magnitude and causative factors of depression among basics and clinical medical students which not only affect their health and academic performance but may also, have serious consequences like suicide.<sup>17</sup> It is of utmost important that medical curriculum should be formulated on a student friendly which can provide healthy learning environment without imposing extraordinary

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stress on students. This study will create a baseline for educators to identify the gravity of the problem, hence design the curriculum accordingly.<sup>18</sup>

The aim of the study was to compare depression among first year and final year students in clinical and pre-clinical environment based on gender distribution.

#### METHODOLOGY:

This cross sectional questionnaire based survey was carried out among undergraduate medical students of (BUMDC) Karachi from September 2017 – December 2017. The participants were 125 medical students of first year MBBS and 125 students of final year MBBS. The first 2 years of basic sciences classes have little exposure to clinical teaching and therefore were termed as “preclinical”, while 3<sup>rd</sup>, 4<sup>th</sup> and final year were termed as “clinical” as they spend ample time in the clinical setting of a hospital. The questionnaire was distributed in their classrooms after the lecture. Out of 250 students, 200 students were in attendance and received the questionnaire. Non-attendees and incomplete responses were excluded from the study. Informed consent was included containing participants right to decline altogether or leave the questions unanswered. The questionnaire did not incorporate name, address or signature of the participants. The study was approved by Institutional Review Committee of BUMDC.

The PHQ-9 instrument derived from the primary care evaluation of mental disorders (PRIME-MD). It is a multipurpose brief self-report tool for screening, diagnosing, monitoring and measuring the severity of depression among patients in a primary care setting.<sup>5</sup> The PHQ-9 questions are about the level of interest in doing things, feeling down or depressed, difficulty in sleeping, energy levels, eating habits, self-perception, ability to concentrate, speed of functioning and thoughts of suicide.<sup>1</sup>

Responses were ranges from “0” (Not at all) to “3” (nearly every day). The total sum of responses suggests the varying levels of depression. Scores were ranges from 0-27. In general, a total 10 or above is suggested as the presence of depression.

#### RESULTS:

According to this study there were n=54 (27%) males and n=146(73%) females. Mild depression was experienced more (39%) in pre-clinical medical students and (32%) in clinical students. On the other hand clinical medical students showed an upward trend for “severe depression” (19%) as compare to preclinical students (6%) as showed in Table 1. Gender based comparison was done between male and female students in pre-clinical and clinical groups separately. Strikingly, the results showed that females were more depressed than males in both the groups. The pre-clinical female students outnumbered the male students in the category of “no depression”, “mild depression” and “moderate depression” except for “severe depression” where the number

Scale	Depression Level	Pre-clinical			Clinical		
		Male	Female	Total	Male	Female	Total
0-4	No depression	5	23	28	11	20	31
5-9	Mild	12	27	39	8	24	32
10-14	Moderate	5	22	27	7	11	18
15-27	Severe	3	3	6	3	16	19

Table 1: Distribution of pre-clinical and clinical medical students according to PHQ-9 scale on the basis of gender

was equal (3%). Similarly, clinical females were more depressed than the male participants for all the degrees of depression except for “moderate depression” where the difference was not very significant (table 1).

Comparison between male students of one group with males of the other revealed that a smaller number of pre-clinical students were not depressed (n=5%) than the clinical students (n=11%).

#### DISCUSSION:

This study surveyed the percentage distribution of depression in medical students in preclinical and clinical years, as very limited data is available in our country on this topic. The demands of undergraduate student training programs in medical schools create an ever increasing burden on students nowadays due to the competition between the medical colleges, over loaded curriculum and clinical rotations in early years of training which results in mental and physical deterioration of health.<sup>18</sup> Our findings showed the evaluation of depression on different stages (mild, moderate and severe) among undergraduate students of pre-clinical & clinical settings on the basis of gender distribution (table 1). It was found that females of both the groups having depressive symptoms outnumbered males of their respective groups (table 1). Systematic studies done in Canada and USA revealed that psychosocial distress was found higher among female medical students.<sup>6</sup> Local studies also show higher female preponderance in severely depressed category.<sup>19</sup> Some recent study done in India found that prevalence of depression is higher in males but the difference was not very significant.<sup>20</sup>

Another finding of this study was related to the year of study in the medical school and it was revealed by the results that students of clinical group were more severely depressed than pre-clinical students (table 1). These findings were coherent with the results of previous studies that stress level and extent of emotional disturbances amongst clinical medical students is high<sup>12, 21</sup> and it increases with increasing year of study. These outcomes could be due to academic burden because students have to compete in clinics along with non-clinical schedules. Whereas, another study suggests that anxiety and depression was higher among newly entered students than in senior students. Higher levels of anxiety can be related to the start of new challenging journey of education<sup>14</sup>. The smaller sample size and uncentered study was the limitations of the study. However we need to conduct this study on a larger scale in order to identify and prevent

the causative agents of this stress which might lead to psychiatric disorders in young generation. The utilization of PHQ-9 which was the validated tool was the strength of the study. As this study was done in a single medical university of Pakistan, the results cannot be generalized. Further studies should be done to explore the factors associated with depression.

Currently, medical curricula of our country do not cater personal and behavioral growth of the students. It is recommended for effective learning environment that workshops on stress management and awareness sessions about psychological well-being be conducted in medical schools throughout the country.

### CONCLUSION:

It was concluded that severe depression was equal in males and females in the preclinical group as compared to clinical group. Gender based comparison showed that severe depression was higher in females than males of clinical years whereas mild and moderate depression was also more frequent in females of clinical years.

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