A STUDY OF CORRELATION OF ANXIETY LEVELS WITH BODY MASS INDEX IN NEW MBBS STUDENTS

Background: Medical students represent a highly educated population and encounter multiple stresses. Newly admitted MBBS students may experience anxiety. Altered BMI can lead to mental health disorders.

Aims & Objective: The present study aims to assess the anxiety levels among the new MBBS students and to evaluate a correlation between BMI and anxiety levels.

Materials and Methods: 150 new MBBS students were taken and divided into groups- Group-A, hostellers and Group-B, day-scholars; Hamilton Anxiety scale was used to assess the anxiety levels. These anxiety scores were correlated with their BMI values.

Results: The anxiety scores were significantly more in female students as compared to the male students. Among the females the anxiety scores were more in female hostellers than their male counterparts. The difference in anxiety scores in male and female day scholars was not significant. Correlation studies showed only a significant correlation between BMI and anxiety scores in male hostellers.

Conclusion: Anxiety is present in newly admitted MBBS students varying from mild to severe form. To tide over this anxiety different strategies should be adopted which include counseling and stress management techniques at the very start of the curriculum.

Key Words: MBBS Students; Body Mass Index (BMI); Anxiety

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INTRODUCTION

Anxiety is a physiological and psychological state characterized by cognitive, somatic, emotional and behavioral components.[1] It is a general state of uneasiness that causes nervousness, fear, apprehension, and worrying. It is a bodily response to a perceived danger or threat that could be real or imagined and triggered by an individual's thoughts, beliefs and feelings. These disorders affect how we feel and behave, and they can manifest real physical symptoms.[2] Stress, depression and anxiety can contribute to absenteeism and lack of confidence among the people.[3]

One of the most common problems facing college students is anxiety. Students are burdened with the pressure of being in a new environment, being far and wide from home and stress of the race of doing well in the studies. These students may face many psychological problems most frequent is the anxiety disorder. Typically, anxiety disorders involve disturbances in mood, thinking, behavior and physiological activity. They present as adjustment disorders with anxious disorders, test or performance anxiety, social phobia and sometimes may turn into severe forms as depression and panic disorders.[4]

Medical students represent a highly educated population and they encounter multiple stresses and emotional challenges during their transformation from a student to a young knowledgeable physician.[5] So there is a need to quantify the anxiety, depression and its associated factors among medical students so that the affected students should be counseled and rehabilitated and if untreated, can lead to mental distress and have a negative impact on their cognitive functioning and learning.[6]

The potential sources of stress among students may include academic stress, enormous syllabus to be covered in a limited period of time, sudden change in their style of studying, lack of proper guidance, thought of failing in exams, relationship with peer groups, expectations of parents, change in medium of education and to all above the hostilities have their own set of problems including hostel friends, hostel food, peer pressure and displacement from home.[7]

As far as academic stressors are concerned, academic performance especially in the First Professional, examination criteria dissatisfaction and being overburdened with test schedule were significantly associated with anxiety, which is the case in a number of other studies as well, suggesting academic stressors as being a source of psychological distress among medical students.[8,9]

Some researchers suggest that obesity can lead to common mental health disorders, whilst others have

found that people with such disorders are more prone to obesity.[10] The connection between obesity and common mental health disorders is an important public health issue. Both these conditions have major implications for health care systems across the globe and account for a significant proportion of the global burden of disease.[11] Most recently, it has been hypothesized that psychological factors, as well as behavioral factors, may play a part in development of obesity. Body mass index (BMI) is the most commonly used tools for assessing body composition because of the simplicity and low cost.[12]

A number of studies have focused on the mental health of young medical students. In our present study, we have tried to find out the anxiety levels in newly admitted MBBS students, grouping them as day scholars and hostellers and tried to correlate the anxiety levels with their body mass index.

MATERIALS AND METHODS

The present study is a prospective study and was carried out on 150 newly admitted MBBS students in SGRDIMSR, Amritsar in the first month after admission in the college (i.e. approximately in the month of September) with voluntary participation after understanding the nature of study. The research protocol was approved by the Ethical committee and an informed consent was taken. All the students were in age group of 18-19 years. They were divided into two groups; Group-A, hostellers and Group-B, day-scholars.

Anxiety levels were assessed using Hamilton anxiety scale.[13] It is a widely used scale to evaluate anxiety symptoms at baseline and consists of 14 items. Each item is rated on a 0-4 scale (0 = not present, 4 = severe) with a final item which rates behavior. Sum of the score of each will be noted as anxiety score. To ensure anonymity, the subjects will be asked not to put their names on the questionnaire.

The subjects were asked to fill the anxiety questionnaire without knowing the interpretation of the scoring system. History of any chronic illness or any kind of psychiatric illnesses was ruled out.

Body weight was measured without shoes, for height the subject would stand in erect position with bare feet on flat floor against a vertical scale and with heels touching the wall and head straight. BMI was measured by weight in kilograms divided by square of height in meters (kg/m^2).[12]

Statistical Analysis

Mean and Standard Deviation were calculated and student's unpaired t-test and Pearson's correlation were used for comparison. The difference was considered significant if the p-value was <0.05 & highly significant if the p-value was <0.001. The data was analysed and valid conclusions were drawn.

RESULTS

In the present study conducted on 150 first year MBBS students the prevalence of anxiety is 31.3% among males (21.9% mild, 7.8% moderate, 1.6% severe) and 62.8% among females (31.4% mild, 20.9% moderate, 10.5% severe) as shown in Pi- diagram (Figure 1). Overall it is 49.3%. Difference in prevalence of anxiety is statistically highly significant among males and females (p < 0.001).

Table 1 shows the mean values of BMI in both male and female students along with the respective mean values of anxiety score. According to the table, the difference in the mean value of BMI in male hostellers and male day scholars was not significant. Similarly the difference in mean value of BMI in female hostellers and female day scholars was also not significant. The difference in mean values for anxiety score in male hostellers and male day scholars was not significant, whereas, the difference in mean value for anxiety score in female hostellers and female day scholars was highly significant. Thus, the anxiety scores were significantly more in female students residing in hostel.

Table-1: Mean values of BMI & Anxiety scores						
Gender	Hosteller/ Day Scholars	N	BMI	P value	Anxiety Score	P value
Male	Hostellers	40	22.67 ± 3.10	0.720NS	11.13 ± 4.40	0.898NS
	Day Scholars	25	22.96 ± 3.42		10.96 ± 5.96	
Female	Hostellers	70	20.42 ± 2.96	0.646NS	17.00 ± 6.24	<0.001**
	Day Scholars	15	20.05 ± 2.37		9.53 ± 6.79	

NS: p > 0.05; Not Significant; ** p < 0.001; Highly significant

Table-2: Comparison between male and female students with respect to BMI and anxiety scores					
Gender	N	BMI	P value	Anxiety Score	P value
Male	65	22.78 ± 3.20	< 0.001**	11.06 ± 5.01	< 0.001**
Female	85	20.36 ± 2.85		15.68 ± 6.92	

** p < 0.001; Highly significant

Table 2 shows an overall comparison between male and female students with respect to the mean values of BMI and anxiety scores. The difference in mean values of BMI in male and female students was highly significant. The

difference in mean value for anxiety score in males and females was also highly significant.

| Table-3: Correlation Coefficient between BMI and Anxiety Score			
	r value	**P value**	**Significance**
Overall	-0.138	0.091	Not Significant
Males	-0.150	0.234	Not Significant
Females	0.078	0.477	Not Significant
Male Hostellers	-0.370	0.019	Significant
Male Day Scholars	0.090	0.668	Not Significant
Female Hostellers	0.003	0.979	Not Significant
Female Day Scholars	0.402	0.137	Not Significant
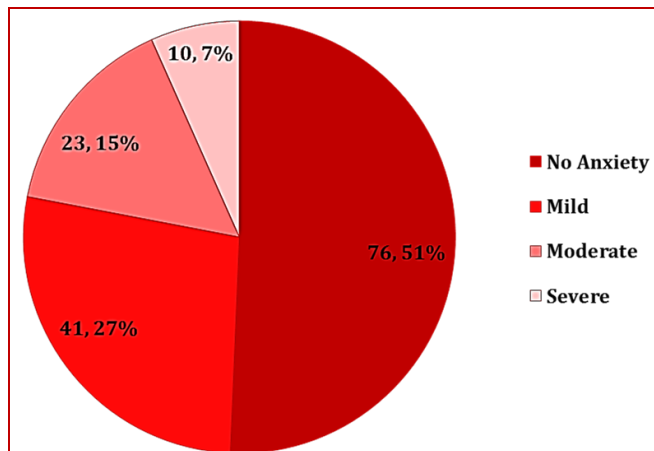
Figure-1: Prevalence of Anxiety
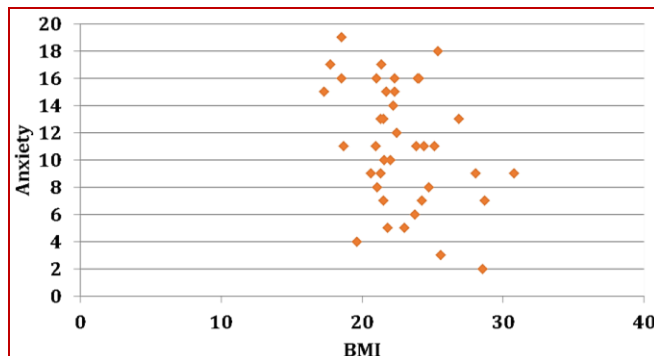
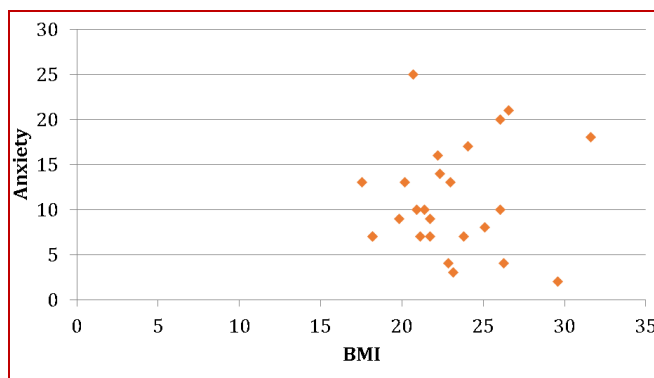Figure-2: Correlation of BMI and Anxiety in Male Hostellers

Figure-3: Correlation of BMI and Anxiety in Male Day Scholars

Table 3 shows the correlation study results between BMI and anxiety score in all the groups and sub-groups. No significant correlation could be drawn between BMI and

anxiety scores in male day scholars, female hostellers and female day scholars. Only a significant correlation could be drawn between BMI and anxiety score in male hostellers. These correlation studies are depicted by the following Scatter Diagrams (Figures 2-5).
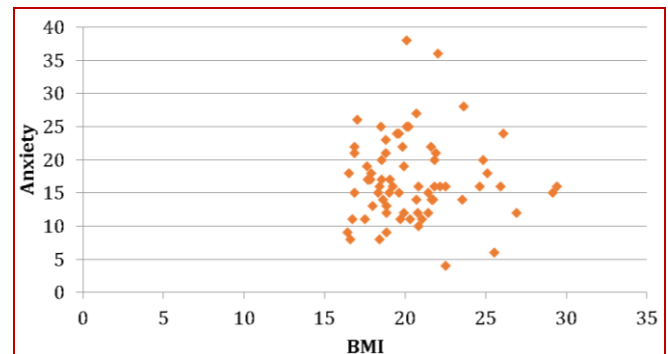

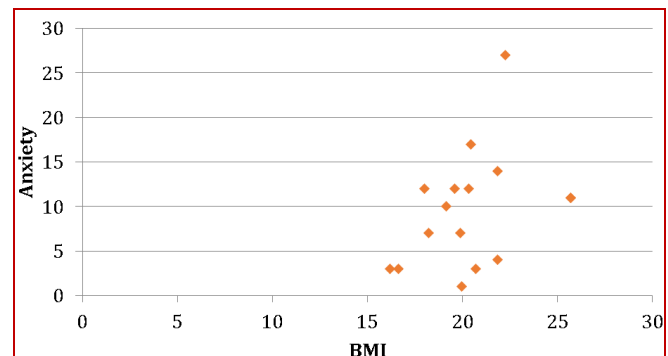Figure-4: Correlation of BMI and Anxiety in Female Hostellers

Figure-5: Correlation of BMI and Anxiety in Female Day Scholars

DISCUSSION

Anxiety has been associated to medical education because it can contribute to the development of anxiety and depression in medical students which may have possible negative academic and professional consequences on them.[14]

Life as a medical student possesses particular challenges and stressors which can impact quality of life.[15] The commonest anxiety symptoms among medical student are sleep disturbances, anorexia, panic attacks, tachycardia, palpitations, emotional disturbances and social problems.[5,16-19]

A number of studies have focused on the mental health of young medical students as medical school is considered to be a time of significant psychological distress for physicians in training.[16] Some aspects of training may have unintended negative effects on medical students' mental and emotional health.[20] These studies have reported high prevalence rates of psychiatric disorders, such as anxiety and depression, among medical

students.[6,15,21,22]

The prevalence of anxiety in our study was 31.3% among males (21.9% mild, 7.8% moderate, 1.6% severe) and 62.8% among females (31.4% mild, 20.9% moderate, 10.5% severe). Overall it was 49.3%. Difference in prevalence of anxiety was statistically highly significant among males and females (p < 0.001). A study suggests that first year and fourth year students seemed to have more anxiety and depression due to stressors, although it was not statically significant. This could be due to the stress of new study environment for first year students. The pace of receiving knowledge is faster in a medical college than the student ever faced before.[23]

In our study, the difference in the mean value of BMI in male hostellers and male day scholars was not significant. Similarly the difference in mean value of BMI in female hostellers and female day scholars was also not significant.

The difference in mean values for anxiety score in male hostellers and male day scholars was not significant, whereas, the difference in mean value for anxiety score in female hostellers and female day scholars was highly significant. This is supported by the study which found that female students had increased levels of depression, anxiety, and phobias compared with their male counterparts.[24] Female students had more likely to demonstrate increased levels of psychological symptoms using a range of measures compared with their male colleagues. Being female, the environment and social support they are exposed in most cultures might be the cause for higher prevalence of mental distress among the females.[25]

No significant correlation could be drawn between BMI and anxiety scores in male day scholars, female hostellers and female day scholars. Only a significant correlation could be drawn between BMI and anxiety score in male hostellers. A similar study found no statistical significance in anxiety score between normal BMI group and overweight group but the mean levels of anxiety were higher in overweight group than normal weight group.[12]

A high occurrence of anxiety among students is seen when they enter their new professional medical curriculum which is found to be more in hostel students.[7] Stress prevalence is higher among first year MBBS students and diminishes progressively by fourth year.[26] When students enter college, they leave behind the comfort that

their parents and home provide them. The anxiety of new environment and academic performance add to their homesickness, which is known as separation anxiety in college students, where they find it difficult to share with another person. This condition predisposes students to a lot of psychosocial, mental and physical stress. The potential sources of stress among students may include academic stress, enormous syllabus to be covered in a limited period of time, sudden change in their style of studying, lack of proper guidance, thought of failing in exams, relationship with peer groups, expectations of parents, change in medium of education and to all above the hostilities have their own set of problems including hostel friends, hostel food, peer pressure and displacement from home.[7] As far as academic stressors are concerned, academic performance especially in the First Professional, examination criteria dissatisfaction and being overburdened with test schedule were significantly associated with anxiety, which is the case in a number of other studies as well, suggesting academic stressors as being a source of psychological distress among medical students.[8,9]

Academic pursuits take a heavy toll on the mental capacities of all students and medical students are more prone to anxiety and depression than their non-medical peers.[27] Mental health problems of medical students are a neglected domain. Healthy medical students are likely to become healthy physicians who can then model and promote healthy life-styles with their patients. Stress that begins in the student period may continue to future life.[28]

It has been reported that medical students are reluctant to seek appropriate help for mental health problems and view it as a weakness. This issue needs to be addressed and students should be encouraged to seek help along with provision of adequate facilities. Early signs of anxiety symptoms among medical students should be addressed.[29]

The present data can be used as a baseline information concerning mental status of medical students at the time of entrance in the medical college.

CONCLUSION

From the present study we can conclude that anxiety was present in the present study groups varying from mild to severe form. The anxiety scores were more in female students residing in hostel as compared to male students. We could draw a significant correlation between BMI and

anxiety scores in male hostellers and day scholars and none in their female counterparts. To tide over this anxiety, different strategies can be adopted including yoga and meditation. Counselling regarding the study pattern and time and stress management techniques should be done at the very start of the curriculum. Some kind of sports and creative activities should be made a part of their time table. Further evaluation of positive cases should be done with the help of a specialist. Follow up studies for monitoring prevalence of anxiety should be done. Preventive programmes should begin early in medical education and address a wide variety of concerns from academic to interpersonal relationships.

The limitations of our study include the identification of factors responsible for anxiety among medical students mainly in our study group, i.e. the first year students, which could have been in the form of well-structured questionnaires. A multicentric survey, which would have included other medical colleges in the state, would have improved the generalizability of the findings.

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