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Original Research Article

A Study on the Relation between Depression and Anxiety with Eating Disorder in Students, Politicians and Businessmen of a Suburb Region of Kolkata, India

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ABSTRACT

The present study put forward that there might be a potential relationship between depressive mood and symptoms of eating disorders in students or people engaged in occupations like politics and business. The study area chosen was district of 24 Parganas, India, due to the fact that most of the people in this region are engaged either in business or in active politics. Beck's depression inventory – II, Beck's anxiety inventory and eating disorder test EAT-26 were used as instruments. It was observed that there was significant ($p<0.05$) difference in the level of depression between the students and politicians, but there was no significant difference between the other groups. This has been substantiated by the fact that there was significant ($p<0.05$) difference in the occurrence of eating disorders between the students and politicians. There was no significant difference in the anxiety levels between the groups.

Keywords: Depression, Anxiety, Eating disorder, Students, Businessmen, Politicians.

INTRODUCTION

Eating disorders are characterized by an overwhelming, consuming drive to be thin and a morbid fear of gaining weight and losing control over eating. People, particularly females with an eating disorder experience extreme disturbances in their eating behaviors and related thoughts and feelings. The two most serious eating disorders are anorexia nervosa (anorexia) and bulimia nervosa (bulimia). There is, however, a third eating disorder, commonly known as binge eating disorder (BED), which has no other specification. [1] Anorexia is characterized by an intense fear of being obese and a relentless pursuit of thinness. A significant proportion of people with anorexia will also develop bulimia. The essential features of bulimia are binge eating and inappropriate compensatory methods to prevent weight gain. The methods include self-induced vomiting and inappropriate use of laxative and fluid tablets. Incidentally, BED is one of the most dangerous psychological disorders which cause damage to individual and social consequence, ultimately leading to death. [2]

Common features of eating disorder problems are social with pronunciation, insomnia, irritability, confusion, depressed mood (feeling hopeless, guilty, and worthless) and impulse control difficulties. [3] Risk factors associated with rating disorder symptoms

include negative effect, decreased self-esteem, negative body image or body dissatisfaction, neuroticism, impulsiveness, depression and psychological distress. [4,5] It was also noted that when people are depressed they eat more which might be an attempt to mold these negative feelings and depression may also relate to external eating. [6] Psychological characteristics, particularly depression is linked with inclination for obesity and weight gain. [7] There is a belief of eating disorders are associated only to females, which lead to misdiagnosis and silence among suffering males. [8] However, people are less aware of eating disorders among males and there are less preventive programs for males with eating disorders. It was observed that there are significantly higher rates of suicide attempts, depression, and anxiety among males with eating disorders. [9] Almost all individuals face psychological or behavioral problems in their life span. There are variety of disorders that can prevail in young people by influence of genetics, habituation and preferences. Depression and eating disorders are most prevalent in young people worldwide; depression currently estimated as the fourth leading etiology of disability and anticipated that it will become the second progressive cause of illness by 2020 throughout the world. [3] Depression is a recognized mental health problem that adversely impact upon the individual's ability to function and sufferer's daily life. It is a global health problem that may have a varied presentation colored by socio-cultural & other factors. Depression is a disorder of mood that involves symptoms of sadness, discouragement and feelings of hopelessness, as well as loss of appetite, difficulty in sleep and loss of energy. [10] Due to depression, society has bearing considerable economic costs, because thousands of sufferers' fail to perform social and occupational functions. [11] Major depression frequently co-occurs with other psychiatric problems. The 1990–92 National Comorbidity Survey (USA) reports that 51% of those with major depression also suffer from lifetime anxiety. The age period to young adulthood has been identified as the typical age of onset for the initial episode of depression. [12] A most prevalent mental health problem in the world is depression, and it is considered more prevailing in women than in men. [13] Depression patients have a higher rate of body mass index (BMI) and eating disorder than patients without depression. [14] Recent researches showed that there might be some relation between eating disorder and depression. [15] They are co-occurring disorders, which means that both are responsible for the onset of the other. The problem may start because of the emphasis our society puts on thinness, on being model or movie stars are regarded as beautiful. Too often teenagers judge themselves by how close they come to that ideal. Teens or young women in particular start dieting severely; in the hope of reaching what they think is the perfect body. Because they often have a poor self-image and feel they can never be too thin, the dieting pattern goes to extremes. [16,17] On the contrary, very little research has focused on the relationship between people in social occupations and disordered eating in non-clinical samples. Social occupation like politics is one of the most stressful jobs in modern world, especially in large republics like India. This type of research is undoubtedly important, especially in non-clinical samples composed of political personalities for whom disordered eating might be a common case, not only for their occupation, but also for their limited management of time. This is also true for people engaged in business. In the present study, we hypothesized that there might be a potential relationship between depressive mood and symptoms of eating disorders in students or people engaged in occupations like politics and business. The region of 24 Parganas, a suburb area of Kolkata metropolis, has been selected due to the

fact that most of the people in this region are engaged either in business or in active politics. Students of this region are, undoubtedly, inclined to either of the above mentioned occupations.

MATERIALS AND METHODS

Participants

The investigation was carried out on a sample of 90 persons. Out of 90 samples, 30 samples each were students, politicians and businessmen – both female and males. Purposive sampling method was employed to select the sample. No inclusion/exclusion criteria were adopted. Ages of participants ranged from 22 to 60, with a mean age of 22.41±2.94 for students, 45.32±1.22 for businessmen and 58.82±3.17 for politicians. Most students (95.3%) were in their second year of post graduate curriculum, and most (98.6%) were single and never married. Both written questionnaire and direct interview method were used as the method of collecting data. Only those samples that were willing to give response were selected. Instructions were given to them properly for data collection in family environment. The responses given by the subjects were carefully scrutinized on the spot by the investigator. Then only the persons having depression were selected as sample and they were further asked to fill up the General Background Schedule, Beck's Depression Inventory, and Eating Attitudes Test (EAT-26).

Instruments

General Background Schedule – It was consisted of 11 questions. There were two types of questions – one type was about personal data and the other was about physical data. Demographic and physical data were collected through it. Questionnaire contained items like name, age, sex, educational background, height, weight etc. From the physical data, body mass index (BMI) of each individual was calculated.

Beck's Depression Inventory-II [18] – It was a self-report measure of depression. It contained 21 questions, each one with four answer options. The answers carried scores 0 to 3. Among 21 questions, 15 questions dealt with psychological symptoms and only 6 were concerned with somatic symptoms. It had high reliability and validity. The maximum score was 63 and minimum 0. The subject chose the statement closest of his present mental state. The number mentioned against each alternative statement given in the inventory was the score for that particular alternative. The score for any item was the number mentioned against the alternative, the subject had chosen. Scores for all the 21 questions were added up to obtain the total score and it was compared with the following categories of depression to find out the level of depression of the subject - score 0-13 = minimal, 14-19 = mild, 20-28 = moderate and 29-63 = severe.

Beck's Anxiety Inventory [19] – The Beck Anxiety Inventory (BAI) is a 21-item multiple-choice self-report inventory that measures the severity of an anxiety in adults and adolescents. Because the items in the BAI describe the emotional, physiological, and cognitive symptoms of anxiety but not depression, it can discriminate anxiety from depression. Each of the items on the BAI is a simple description of a symptom of anxiety in one of its four expressed aspects: Subjective (e.g. unable to relax), Neurophysiologic (e.g. numbness or tingling), Autonomic (e.g. feeling hot) or panic-related (e.g. fear of losing control). The BAI requires only a basic reading level, can be used with individuals who have intellectual disabilities, and can be completed in 5 - 10 minutes using the pre-printed paper form and a pencil. Each question has the same set of four possible answer choices, which are arranged in columns and are answered by marking the appropriate one with a cross. These are: not at all (0 points), it did not bother me much (mild, 1 point), it was very unpleasant, but I could stand it

(moderate, 2 points) and I could barely stand it (severe, 3 points). Scores for all the 21 items are added up to obtain the total score and it is compared with the following categories of anxiety used - score 0-9 = minimal, 10-16 = mild, 17-29 = moderate and 30-63 = severe.

Eating Attitude Test (EAT-26) [20] – The Eating Attitude Test (EAT) is one of the most widely used self-report eating disorder instruments to date. The 26-item version, which was a variant of the original 40-item questionnaire, was used in the study as it was highly reliable and valid. It was consisted of 26 questions, and the responses ranged from 'always' to 'never'. The scoring was done in the following manner – always = 3, usually = 2, often = 1, sometimes, rarely, never = 0. All the scores were summed up and it produced a possible range of 0 – 78 with score higher than "20" indicating eating disorder. With the scoring of these 26 items, BMI is also important to assess the eating disorder. If subject is "underweight" according to age/gender matched norms, it is an important risk factor for a serious eating disorder. There were also 4 behavioral questions indicating the presence of extreme weight-control behaviors as well as providing an estimate of their frequency. If any of the 4 items scored 'yes', then there was increased risk for eating disorder.

Ethical considerations

Prior to inclusion in the study, all patients were asked to sign an informed consent form containing the objectives of the study. All participants were informed of the purpose of the research project and were given guarantees of confidentiality and anonymity by the research team. The instruments included in the research protocol were applied individually and data were collected by the researcher.

Statistical analysis

Data were entered into the Statistical Package for the Social Sciences (SPSS) version 17.0 (IBM Corporation). Descriptive and inferential analyses were conducted using one-way ANOVA followed by Tukey's post-hoc test for multiple comparisons between subject categories. Significance was set at 5%.

RESULTS AND DISCUSSION

Figure 1 shows the comparative mean scores of depression, anxiety and eating disorders in different participant groups.

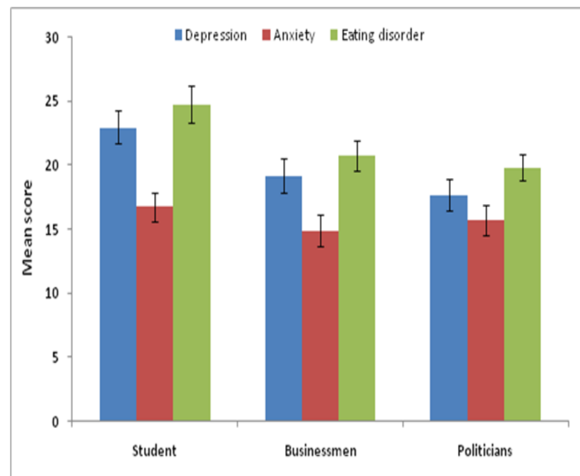

Figure 1: Comparative mean scores of depression, anxiety and eating disorders in different participating groups

There was a significant difference of depressive attitude between students and politicians (*p*=0.013), as obtained from Tukey's post hoc test. There was also a tendency of increasing depressive nature amongst students. The figure also indicated that there was no significant difference of anxiety score between the three groups, as obtained from Tukey's post hoc test. There was a significant difference of eating disorder between students and politicians (*p*=0.013), as obtained from Tukey's post hoc test. Between students and businessmen, the level was marginally non-significant (p=0.055) as obtained from calculation.

Figure 2 shows prevalence of different types of depression, anxiety and eating disorders in students, businessmen and politicians.

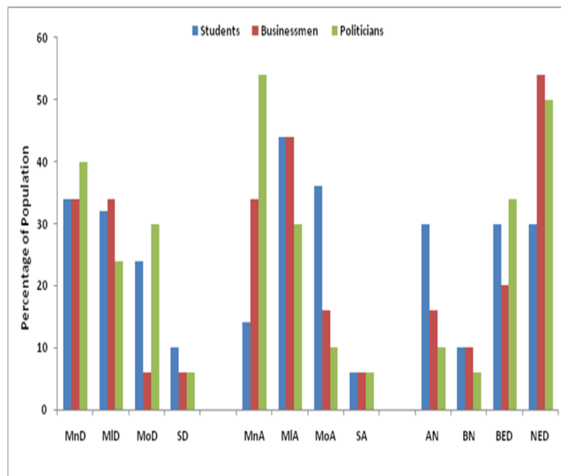

Figure 2: Prevalence of types of depression, anxiety and eating disorders in different participating groups. MnD – minimal depression, MlD – mild depression, MoD – moderate depression, SD – severe depression, MnA – minimal anxiety, MlA – mild anxiety, MoA – moderate anxiety, SA – severe anxiety, AN – anorexia nervosa, BN – bulimia nervosa, BED – binge eating disorder, NED – no eating disorder.

It is clear from the figure that these populations did not suffer from severe depression and anxiety usually. This had been substantiated by the occurrence of lesser eating disorders amongst them. The figure also depicts that anorexia nervosa was the most in the students among three groups. However, among eating disorders, binge eating disorder was the most observed in the different groups (*ca.* 30%, 20% and 34% respectively in students, businessmen and politicians).

Table 1 shows the relation of depression with eating disorders amongst the three study groups.

Table 1: Correlation between different types of depression and different types of eating disorders among the groups. Results expressed as occurrence in percentage (%) of subjects.

Group	Eating disorder	Depression			
		Minimal	Mild	Moderate	Severe
Students	Anorexia nervosa	-	-	23	7
	Bulimia nervosa	-	-	10	-
	Binge eating disorder	-	-	17	13
	No eating disorder	10	17	3	-
Businessmen	Anorexia nervosa	-	-	-	10
	Bulimia nervosa	-	-	6	-
	Binge eating disorder	-	4	13	17
	No eating disorder	20	20	11	-
Politicians	Anorexia nervosa	-	-	-	16
	Bulimia nervosa	-	-	10	-
	Binge eating disorder	-	-	13	7
	No eating disorder	24	20	10	-

Table 2: Correlation between different types of depression and body mass index (BMI) among the groups. Results expressed as occurrence in percentage (%) of subjects.

Group	BMI	Depression			
		Minimal	Mild	Moderate	Severe
Students	Underweight	-	7	33	3
	Normal	6	7	-	-
	Overweight	2	3	17	10
	Obese	2	-	3	7
Businessmen	Underweight	-	7	-	3
	Normal	8	20	10	-
	Overweight	8	-	20	-
	Obese	4	-	10	10
Politicians	Underweight	-	-	10	-
	Normal	15	28	14	-
	Overweight	6	7	7	-
	Obese	3	-	10	-

It is clear from the table that businessmen and politicians usually did not suffer from eating disorders. Moderately depressed subjects of all three groups usually suffer from eating disorders and the proportion among the students is more compared to the other two groups. It is also clear from the table that severely depressed subjects showed some type of eating disorder in all three groups, but none of them developed bulimia nervosa.

As we look into the correlation between different types of depression and BMI of the subjects, as furnished in Table

2, it is clear that students were either underweight (43%), or they are overweight and obese (44%). However, businessmen and politicians possessed normal BMI, although there was a tendency of the businessmen being overweight and obese. The data also substantiates that fact that only the mild to moderately depressed businessmen or politicians showed eating disorders and altered BMI, as observed by comparing Tables 1 and 2.

Table 3: Correlation between different types of anxiety and different types of eating disorders among the groups. Results expressed as occurrence in percentage (%) of subjects.

Group	Eating disorder	Anxiety			
		Minimal	Mild	Moderate	Severe
Students	Anorexia nervosa	-	26	8	7
	Bulimia nervosa	-	-	6	-
	Binge eating disorder	-	-	23	-
	No eating disorder	13	17	-	-
Businessmen	Anorexia nervosa	-	-	10	6
	Bulimia nervosa	-	-	6	-
	Binge eating disorder	-	13	14	-
	No eating disorder	34	17	-	-
Politicians	Anorexia nervosa	-	-	6	6
	Bulimia nervosa	-	-	7	-
	Binge eating disorder	-	7	20	-
	No eating disorder	17	37	-	-

Table 4: Correlation between different types of anxiety and body mass index (BMI) among the groups. Results expressed as occurrence in percentage (%) of subjects.

Group	BMI	Anxiety			
		Minimal	Mild	Moderate	Severe
Students	Underweight	6	18	16	3
	Normal	4	18	-	-
	Overweight	-	7	12	4
	Obese	3	-	9	-
Businessmen	Underweight	2	3	2	3
	Normal	16	10	12	-
	Overweight	8	10	7	3
	Obese	8	7	9	-
Politicians	Underweight	4	6	-	-
	Normal	10	36	12	-
	Overweight	3	-	10	6
	Obese	-	2	11	-

It is clear from the above table that subjects with mild to moderate anxiety of all three groups usually suffer from eating disorders and the proportion among the students and politicians is more compared to the businessmen. It is also clear from the table that subjects with severe anxiety showed only anorexia nervosa.

As we look into the correlation between different types of anxiety and BMI of the subjects, as furnished in Table 4, it is clear that students having mild to moderate anxiety were not obese but most of them were underweight (34%). It has been reported previously that anxiety is one of the crucial prevalent factors of student life and it obviously affected the health of the students, as also observed in our study. [21] However, businessmen and politicians possessed normal BMI, although there was a tendency of the businessmen being overweight and obese. The data also indicated the fact that only minimal to mildly anxious businessmen or politicians showed no change in BMI, clearly indicating peace of mind due to their stable profession and experience.

The role of depression in eating disorders is poorly understood. [22] Multiple studies indicated previously that depressive disorder is the most common co-morbid diagnosis in people with eating disorders. [23] It might be possible that the experience of depression causes an individual more vulnerable to development of eating disorder. Eating disorders have also been associated with obsessive-compulsive behavior and anxiety, as

observed in numerous studies. [24,25] In our study, it has also been observed that depression and anxiety was related to eating disorders in three distinct categories of people of the society. It was however also observed that depression or anxiety affected students most, as compared to politicians and businessmen, probably due to stable socio-economic situations in these two population categories.

CONCLUSION

The present study indicated that there could be a correlation between depression and anxiety with eating disorders in students, businessmen and politicians. The most telling effect of anxiety and depression on BMI was found to be development of underweight in the subjects suffering from anorexia nervosa. Prevalence of bulimia nervosa was very less in the subjects of all three groups. It was observed that depression or anxiety affected students most, as compared to politicians and businessmen, probably due to stable socio-economic situations in these two groups.

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