

Emotional Disturbances in Diabetes Mellitus

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ABSTRACT

Introduction: The emotional disturbances are most prevalent psychiatric disorders (depression- 3.8%-49.5% and anxiety-14-41%) in both type-1 and type-2 diabetes patients. Aim of the research was to study Emotional disturbances in Diabetes Mellitus (Type 2) patients.

Material and Methods: A total of 100 diagnosed Diabetes Mellitus (Type 2) patients attending medical OPD of a tertiary care hospital and 100 normal healthy relatives of patients were evaluated before commencement of treatment by Hamilton Rating Scale for Depression, Beck Anxiety Inventory and the formal psychiatric interview. The clinical diagnosis was made as per Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition). The data were analyzed by Z-test to test the statistical significance.

Results: The clinical evaluation revealed that statistically significant number of patients suffered from psychiatric diagnostic entity namely Major Depressive Disorder-20 % (30% females and 13.33% males), Generalized Anxiety Disorder-16% (32.5% females and 05% males) and Sexual Disorders -52% (66.66% males and 03% females).

Conclusions: The more females suffered from depression (30% vs 13.33%), Generalized Anxiety Disorder (32.5% vs 05%). However, the males suffered more from sexual disorders (66.66% vs 03%). In conclusion, the females suffered more from psychiatric disorders than males.

Key Words: Depression, Anxiety, Sexual disorders

turbances in Diabetes Mellitus (Type 2) and to compare the prevalence of psychiatric morbidity in males and females Diabetes Mellitus (Type 2) patients.

MATERIAL AND METHODS

The approval for ethical clearance from the review board of local institutional ethical committee has already been obtained. The following criteria were used for selection of patients for the study:-

1. The patients were not suffering from any other physical illness except Diabetes Mellitus (Type 2).
2. The patients did not have any past history of psychiatric disorders.

The study was carried out at medical OPD of a large tertiary care hospital. The patients were studied before commencement of treatment. The study group constituted every newly diagnosed Diabetes Mellitus (Type 2) patients and the control group constituted the 100 healthy relatives of patients (nearly matching with age and sex of study group patients).

All patients were assessed in a common protocol via a formal psychiatric interview. Psychiatric history and mental status examination were recorded on a specially designed proforma. The Diagnostic and Statistical Manual of Mental Disorders (DSM-V)⁹ diagnostic criteria were used in making the clinical diagnoses.

The standardized psychological tests administered to the patient were:-

Hamilton Rating Scale for Depression (HRSD),¹⁰ Beck Anxiety Inventory (BAI).¹¹

Statistical Analysis

The analysis of collected data was carried out using SPSS package and preliminary tables generated were used as baseline data to find out the effect of Diabetes Mellitus (Type 2) in causation of psychiatric morbidity. The difference between two proportions (study group patients sample proportion and control sample proportion) were evaluated by Z-test.

RESULTS

The demographic characteristics (age & sex, and educational

INTRODUCTION

Psychiatric problems are common in diabetes mellitus and nearly 33% suffer from mental disorders.¹ The serious psychiatric disorders (depression, anxiety and other disorders) have been reported in 10.4 per cent cases with diabetes.² Depression interferes with patients' daily life and routine and reduces their quality of life. About 6.7 percent of U.S. adults aged 18 and older have depression.³ The stress of managing diabetes every day and the effects of diabetes on the brain may contribute to depression.^{4,5} In the United States, people with diabetes are twice as likely as the average person to have depression.⁶ One study estimated that 14% of individuals with diabetes suffered from generalized anxiety disorder, with double this figure experiencing a subclinical anxiety disorder and triple this figure having at least some anxiety symptoms.⁷ Sexual problems are also common in diabetes and Erectile Dysfunction occurs in approximately 50% men.⁸

In view of the above, it was considered proper to perform clinical study of diabetes mellitus (type-2) patient to know the psychological status of diabetes mellitus (type-2). Aims and objectives of the study were to study the Emotional dis-

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status) of Diabetes Mellitus (Type 2) patients are presented in Table 1. Mean age of the patients was 43.72 years. The range of age was 31 to 60 years. The details of patients in age group wise revealed (16% males and 12% females in 31-40 years age group, 32% males and 20% females in 41-50 years age group, 12% males and 8% females in age group 51-60 years age). Details of total patients in each group revealed (28% in 31-40 years age group, 52% in 41-50 years age group and 20% in 51-60 years age group).

The sex distribution revealed 60% males and 40% females. Educational status revealed that 48% patients had studied <10 standard, 36% up to 10-12 standard and 16% upto graduation.

Depression

In our study, 20% Diabetes Mellitus (Type 2) patients (as per DSM-V criteria) suffered from statistically significant (P value 0.000) Major Depressive Disorder (Table 2) which was more and statistically significant among females than males (30% vs. 13.33%).

Evaluation by Hamilton Rating Scale for Depression (Table 3) revealed depression in 32% (mild depression-16%, moderate depression-10% and severe depression-06% patients). It also revealed more and statistically significant depression (P value 0.001) in females than males (50% vs 20%). The severity level was also higher and statistically significant among

the females than males i.e. -mild depression (25% vs 10%) (P value 0.081), Moderate depression (15% vs 06.66%) (P value 0.096) and severe depression (10% vs 03.33%) (P value 0.054).

Anxiety Disorder

In our study, 16% Diabetes Mellitus (Type 2) patients (as per DSM-V criteria) suffered from statistically significant (P value 0.004) Generalized Anxiety Disorder (Table 2) which was more and statistically significant among females than males (32.5% vs 05%).

Evaluation by Beck Anxiety Inventory (Table 4) revealed anxiety in 45% (mild anxiety -20%, moderate anxiety -22% and severe anxiety -03% patients). It also revealed more and statistically significant (P value 0.000) anxiety in females than males (62.5% vs 33.33%). The severity level was also higher and statistically significant (P value 0.001) among the females than males i.e. - Mild anxiety (35% vs 01%) (P value 0.014) and moderate anxiety (22.5% vs 21.66%) but non-significant severe anxiety (05% vs 01.66%) (P value 0.312).

Sexual Disorders

In addition to above, a considerable and statistically significant (P value 0.000) number of patients (Table 2) also suffered from sexual disorders- 52% viz 66.66% males and 03% females.

The detailed evaluation (Table-2) also revealed more sexual disorders in males namely (Male erectile disorder in 41.66% and premature ejaculation 08.33%).Hypoactive sexual desire disorder in males was also more in males than females (16.66% vs. 03%).

DISCUSSION

Psychiatric problems are common in diabetes mellitus and nearly 33% suffer from mental disorders.¹ The serious psychiatric disorders (depression, anxiety and other disorders) have been reported in 10.4 per cent cases with diabetes.²

The emotional disturbances are most prevalent psychiatric disorders (depression- 3.8%-49.5%) and anxiety- 14-41%)

Age Group (in years)	Male	Female	Total Percentage
31-40	16	12	28
41-50	32	20	52
51-60	12	08	20
Total	60	40	100
Education Status			
<10	28	20	48
10-12	20	16	36
Graduate	12	04	16
Total	60	40	100

Table-1: Demographic Profile of 100 Diabetes Mellitus (Type 2) Patients

Psychiatric disorders	DM (Type 2) Patients			Control			Z- test	
	Male N=60	Female N=40	Total %	Male N=60	Female N=40	Total %	Z	P
Major Depressive Disorder	08 (13.33%)	12 (30%)	20%	01 (01.66%)	02 (05%)	03%	3.78	0.000 (S)
Generalized Anxiety Disorder	03 (05%)	13 (32.5%)	16%	01 (01.66%)	03 (07.5%)	04%	2.83	0.004 (S)
Total	11/60 (18.33%)	25/40 (62.5%)	36%	02/60 (03.33%)	05/40 (12.5%)	07%	4.99	0.000 (S)
Sexual Disorders	40 (66.66%)	12 (03%)	52%	03 (05%)	02 (05%)	05%	7.36	0.000 (S)
Male Erectile Disorder	25 (41.66%)	NA	25%	03 (05%)	NA	03%		
Premature Ejaculation	05 (08.33%)	NA	05%	NIL	NA	00%		
Hypoactive Sexual Desire Disorder	10 (16.66%)	12 (03%)	22%	NIL	02 (05%)	02%		

Z- test- Z- test of significance, P-P Value, Z- Z Value, S-Significant, NA- Not Applicable

Table-2: Psychiatric Disorders Among 100 Diabetes Mellitus (Type 2) Patients

Depression Scores	DM (Type 2) Patients			Control			Z-Test	
	Male N=60	Female N=40	Total %	Male N=60	Female N=40	Total %	Z	P
0-7(No Depression)	48(80%)	20(50%)	68%	52(86.66%)	35(87.5%)	87%	3.22	0.001(S)
8-12 (Mild)	06(10%)	10(25%)	16%	05(8.33%)	03(07.5%)	08%	1.74	0.081 (S)
13-15 (Moderate)	04(06.66%)	06(15%)	10%	02(03.33%)	02(05%)	04%	1.66	0.096 (S)
16 or more (Severe)	02(03.33%)	04(10%)	06%	01(01.66%)	00(00%)	01%	1.92	0.054 (S)
Total cases of Depression	12/60 (20%)	20/40 (50%)	32/100 (32%)	08/60 (13.33%)	05/40 (12.5%)	13/100 (13%)	3.21	0.001 (S)

Table-3: Distribution of depression scores on Hamilton Rating Scale for Depression

Anxiety scores	DM (type 2) Patients			Control			Z-Test	
	Male N=60	Female N=40	Total %	Male N=60	Female N=40	Total %	Z	P
No anxiety	40(66.66%)	15(37.5%)	55%	55(91.66%)	30(75%)	85%	4.63	0.000 (S)
0-21 (Mild)	06(01%)	14(35%)	20%	03(05%)	05(12.5%)	08%	2.45	0.014 (S)
22-35 (Moderate)	13(21.66%)	09 (22.5%)	22%	02(03.33%)	04(01%)	06%	3.26	0.001 (S)
36 or more (Severe)	01(01.66%)	02(05%)	03%	00(00%)	01(02.5%)	01%	1.01	0.312 (NS)
Total cases of anxiety	20/60 (33.33%)	25/40 (62.5%)	45/100 (45%)	05/60 (8.33%)	10/40 (25%)	15/100 (15%)	4.63	0.000 (S)

S- Significant, NS- Not Significant

Table-4: Distribution of anxiety scores on Beck Anxiety Inventory

among both type-1 and type-2 diabetes patients.¹² The other study mentioned that approximately 6.2% of the population of the United States or 17 million people suffered from it.¹³ Our study revealed considerable amount of psychiatric disorders (36%) as per DSM-V criteria, in Diabetes Mellitus (Type 2) patients. Major Depressive Disorder was found in 20% and Generalized Anxiety Disorder in 16%. In addition to above, a significant number of Diabetes Mellitus (Type 2) patients also suffered from Sexual disorders- 52%.

Depression

Studies evaluating the relationship between depression and diabetes have yielded mixed results. For example, the prevalence of depression in patients with diabetes mellitus ranges from 3.8% to as high as 49.5%.¹²

The prevalence of clinically relevant depressive symptoms among patients with diabetes is in the range of 31%.¹⁴ The prevalence of major depressive disorder (MDD) is approximately 10%,¹⁵ which is double the overall prevalence in people without a chronic medical illness.

Gavard et al (1993) found a mean prevalence of depression in individuals with diabetes of 14% by diagnostic interview.¹⁶ Results from a meta-analysis based on 39 studies showed that 11% of patients with diabetes met the criteria for comorbid major depressive disorder.¹⁴

In our study, 20% Diabetes Mellitus (Type 2) patients (as per DSM-V criteria) suffered from statistically significant (P value 0.000) Major Depressive Disorder (Table 2) which was more and statistically significant among females than males (30% vs 13.33%). The study by other researcher also mentioned that prevalence of depression was much higher in women than in men.¹⁴

Evaluation by Hamilton Rating Scale for Depression (Table 3) revealed depression in 32% (mild depression-16%, moderate depression-10% and severe depression-06% patients). It also revealed more and statistically significant (P value 0.001) depression in females than males (50% vs 20%). The sever-

ity level was also higher and statistically significant (P value 0.081) among the females than males i.e. -mild depression (25% vs 10%), Moderate depression (15% vs 06.66%) (P value 0.096) and severe depression (10% vs 03.33%) (P value 0.054). This conforms to the study of¹⁴ in which 31% experienced different depressive symptoms. However, Gavard et al,¹⁶ using self-report symptoms scales found 15.4% depression in controlled studies and 19.6% in uncontrolled.

Generalized Anxiety Disorder

Anxiety among patients with diabetes is higher than in the general population.¹⁷ One study estimated that 14% of individuals with diabetes suffered from generalized anxiety disorder, 28% experience a subclinical anxiety disorder and 42% have at least some anxiety symptoms.⁷ In our study, 16% Diabetes Mellitus (Type 2) patients (as per DSM-V criteria) suffered from statistically significant (P value 0.004) Generalized Anxiety Disorder (Table 2) which was more and statistically significant among females than males (32.5% vs 05%).

Evaluation by Beck Anxiety Inventory scores (Table 4) revealed anxiety in 45% (mild anxiety 20%, moderate anxiety -22% and severe anxiety -03% patients). It also revealed more and statistically significant (P value 0.000) anxiety in females than males (62.5% vs 33.33%). The severity level was also higher and statistically significant (P value 0.014) among the females than males i.e. - Mild anxiety (35% vs 01%) and moderate anxiety (22.5% vs 21.66%) (P value 0.001) but non-significant (P value 0.312) severe anxiety (05% vs 01.66%). Our study is consistent with the findings of other researchers where anxiety disorders were reported in 14 to 41% of the sample.¹²

Sexual Disorders

Sexual problems are common in Diabetes Mellitus (type-2). The Male Erectile Dysfunction occurs in approximately 50% cases of Diabetes.⁸

In addition to depression and anxiety disorders, a considerable and statistically significant (P value 0.000) number of patients

(Table 2) also suffered from 52% Sexual Disorders (66.66% in males and 03% in females).

The detailed evaluation (Table-2) also revealed more sexual disorders in males namely (Male erectile disorder in 41.66% and premature ejaculation in 08.33% patients). Hypoactive Sexual Desire Disorder in males was also more than females (16.66% vs. 03%). This conforms to above study.

Strengths of the Study

We have categorically inquired about Sexual Disorders both from male and female patients. The Sexual Disorders, especially Male Erectile Dysfunction are more common (50%). Transient erectile dysfunction may be a problem at times of poor glycaemic control, and retrograde ejaculation and ejaculatory failure may also occur. In women, orgasmic dysfunction and reduced vaginal lubrication have been reported.^{18,19} It has given strength to our study in finding out more Male Erectile Dysfunction (41.66%), hypoactive sexual desire disorder (10%) among males than females (16.66% vs 03%).

Limitations of the Study

Our study has assessed only emotional disorders (depression and anxiety) and sexual disorders. However, other psychiatric disorders like, cognitive disorders (dementia and others) have not been explored due to non-application of related neuropsychological tests. The details of primary causative major psychiatric disorders like depression and anxiety for sexual disorders, the effect of duration of illness and other sociodemographic factors on psychiatric morbidity have also not been studied.

CONCLUSIONS

The study revealed that clinically (DSM-V) a significant number (36%) of Diabetes mellitus (Type 2) patients suffered from psychiatric diagnostic entity (Major depressive disorder in 20% and Generalized Anxiety disorder in 16%) and other psychiatric morbidities (sexual disorders in 52%).

It is evident from above, that the present study showed a considerable amount of psychiatric morbidity. Hence, it is recommended that a detailed psychiatric work up to be sought by treating physician in all Diabetes mellitus (Type 2) patients so that preventable & and treatable psychiatric morbidity is not missed as many patients may initially present only with psychiatric signs and symptoms. All individual with Diabetes should be regularly screened for the presence of subclinical psychological distress and psychiatric disorders (depression and anxiety) by interview or with a standardised psychological test.

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