

Depressive disorders before and after renal transplantation

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Summary

Chronic and debilitating diseases like chronic kidney disease have numerous psychiatric consequences and strongly affect the mental health status of patients. The objectives of this study were to assess and quantify Depressive Disorders among End Stage Renal Disease (ESRD) patients, waiting for renal transplantation and 3 months after Renal Transplantation. It was a descriptive and analytical, follow up study which was conducted in the department of Psychiatry, Bangabandhu Sheikh Mujib Medical University (BSMMU) from July, 2013 to September, 2014. Cases were taken from department of Nephrology, BSMMU and Center for Kidney Diseases & Urological (CKDU) Hospital, Shyamoly, Dhaka. Adult ESRD patients waiting for Renal Transplantation of either sex were included. A total of 45 patients were taken and SCID-I CV (Clinician Version) was applied for diagnosis of Depressive Disorder. Severity was assessed by Bangla version of short-form of the Depression Anxiety Stress Scale-21(DASS-21-BV). Depressive Disorders were found among 51.1% of patients before renal transplantation and 28.9% of patients after transplantation. Severity scoring of Depression revealed, 8.7% had extremely severe, 21.7%, 39.1% and 30.4% had severe, moderate and mild level of Depression respectively before renal transplantation. After renal transplantation 13.1%, 21.7%, 21.7% of patients had severe, moderate and mild level of Depression respectively. Frequency of Depressive Disorders were significantly more before renal transplantation (χ^2 value=4.63, $p=0.03$). Severity also significantly reduced 3 months after renal transplantation (χ^2 value=13.98, $p=0.007$). Depressive Disorders are highly prevalent among ESRD patients. So, strong consultation-liaison psychiatric services are needed to provide proper treatment to this group of patients.

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Introduction

Depressive disorder is a global public health concern and is one of the most common mental disorder in the world. In 2012, depression is estimated to affect 350 million people of the world and is a common complication of chronic illnesses.¹ In End Stage Renal Disease, when kidney function declines to < 12% to 15%, patient's survival depends on renal replacement therapy (RRT). Many psychiatric problems are also associated with this procedure. Among them depression is a frequent and most common problem.² A study in North America showed the frequency of depression is 25% to 30% among ESRD patients, especially after initiation of renal replacement therapy. It has also been recognized among renal transplant recipients.³ Subjects living alone were 2.5 times more likely to be depressed as those living with others.⁴ Female gender, unemployment, low income are risk factors for depression both in general and CKD populations. Younger age is associated with more mental distress than older age.⁵⁻⁷ An Indian study revealed a successful renal transplantation dramatically improves the quality of life and the patients feel free from dependence on a machine, dietary restriction and loss of work days due to dialysis. The prevalence of depression in ESRD patients was 86.7% as compared to 56.7% in post renal transplant patients.⁸ Another similar study in Turkey revealed, levels of satisfaction with quality of life after operation among recipients were 85.5% and among donors were 62.8% respectively.⁹ Prevention and treatment of depression is crucial because it is strongly associated with several important outcomes of CKD. Recipients having depression experiences negative transplant outcome like return to dialysis, chronic allograft rejection, even death. Different authors concluded that monitoring the presence of depression and enhancing psycho-social support should be part of the routine care in the CKD population.^{3,10} In Bangladesh a study was performed regarding Depressive Disorders among ESRD patients before and during dialysis revealed 53.3% of ESRD patients on dialysis having depressive disorders; 56.8% before initiating dialysis & 50.9% on dialysis treatment.¹¹ Another study was done about twenty years back regarding psychiatric aspects among patients suffering from severe renal failure revealed 54% of patients having depression as a part of psychiatric morbidity.¹² Therefore, in the view of above findings and paucity of Bangladeshi studies in this field, the current study was aimed at finding out the frequency and severity of Depressive Disorders among ESRD patients before and after renal transplantation and detection of association between socio-demographic variables and Depressive Disorders among this group of patients.

Materials and methods

It was a descriptive and analytical, follow-up study. Study was done in department of Psychiatry, BSMMU. Cases were taken from inpatient and outpatient departments of Nephrology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka and Center for Kidney Diseases & Urological (CKDU) Hospital, Shyamoly, Dhaka. Adult patients diagnosed as ESRD (CKD-stage-V), decided for renal transplantation of either sex were included in this study. From present and previous treatment records 66 patients were recruited initially according to selection criteria. Among them 2 did not gave consent, 1 patient filled the questionnaire inappropriately, 6 of them withdrew themselves in the follow up interview, 5 of them suffered from acute graft rejection, 2 of them became unfit for renal transplantation due to donor and investigation related problems and 5 of them died after Renal transplantation before the follow up interview. Ultimately 45 patients were taken as sample. Informed consent was taken from the respondents and ethical issues were considered throughout the study. The participants were interviewed by semi-structured questionnaire (in Bangla) for socio-demographic and illness related variables. SCID-I (clinician version) was applied and the diagnosis was made with context of DSM-IV-TR. Severity of depression was measured by using DASS-21-BV (Bangla Version). Though the DASS-21-BV is a self-reported questionnaire, in this study almost all the patients filled up this during face to face interview. We narrated the statements of the questionnaire and the patients chose the appropriate one. A sum of the scores of seven questions of the sub-scales for depression were completed by the researchers by the scoring template and then evaluated as per the severity-rating index. Comparison of frequency of depression before Renal transplantation and three months after Renal transplantation was analysed by chi-square test and comparison of severity of depression scoring was analysed by chi-square test and paired student-t test. P-value ≤ 0.05 was taken as significant. Data analysis was performed by Statistical package for social science (SPSS) version-20.

Results

Among 66 approached, total 45 cases were participated in this study; therefore the participation rate was 68.1%. Most of the patients (68.9%) were within 18-37 years of age and next within 38-57 years (31.1%). Among the patients 84.4% were male and 15.6% were female. 26.7 % of patients read up to secondary level, 73.3 % completed graduation. Regarding occupation, 53.3% were service holder and 11.1% were housewife. Among the 45 patients, 73.3%, 24.4% and 2.2% were married, unmarried and widower respectively and 25 patients (55.6%) were principal earning member of their family. Most of them had poor family and social support and the status revealed 71.1% had no such support. Depressive Disorders were more among patients having poor family or social support. Proportion of the Disorders was more among patients suffer less than 1 year and more than 5 years. Hypertension was the most prevalent co-morbid medical illness (68.9%), Diabetes mellitus was the second (37.8%) and Dyslipidaemia was the third (11.1%). Patients having comorbid physical illnesses suffered more with Depressive Disorders. Reduction of working performance was found in 28 patients (62.2%). Negative impact on working performance significantly increased Depressive Disorders (Table 1).

Table 1: Distribution of respondents according to socio-demographic and illness related variables (n=45)

Characteristics	Frequency	Percentage
Age (in years)		
18-37	31	68.9
38-57	14	31.1
Mean \pm SD: 35.04 \pm 9.77; Range: 19-57 years		
Sex		
Male	38	84.4
Female	7	15.6
Educational status		
Up to secondary	12	26.7
Bachelor and above	33	73.3
Occupation		
Service	24	53.3
Housewife	5	11.1
Others	16	35.6
Marital status		
Married	33	73.3
Unmarried	11	24.4
Widower	1	2.2
Main earner of family		
Yes	25	55.6
No	20	44.4
Familial or social support		
Yes	13	28.9
No	32	71.1

Characteristics	Frequency	Percentage
Duration of renal disease		
< 1 year	10	22.2
1-5 years	31	68.9
>5 years	4	8.9
Associated comorbidity		
HTN	23	51.1
DM	9	20.0
Dyslipidemia	2	4.4
HTN & DM	5	11.1
HTN, DM and dyslipidemia	3	6.7
No history	3	6.7
Working performance		
Reduce	28	62.2
No change	17	37.8

Most of the caregivers were spouse (34%), followed by parents (24%), children (22%) and siblings (20.0%) (Fig 1). The duration of giving care to the respondents was ranged from 1 to 10 years with the mean duration of 3.93 (\pm 2.33) years (Fig 2). Major depressive disorder was found among 44% of the caregivers (Fig 3).

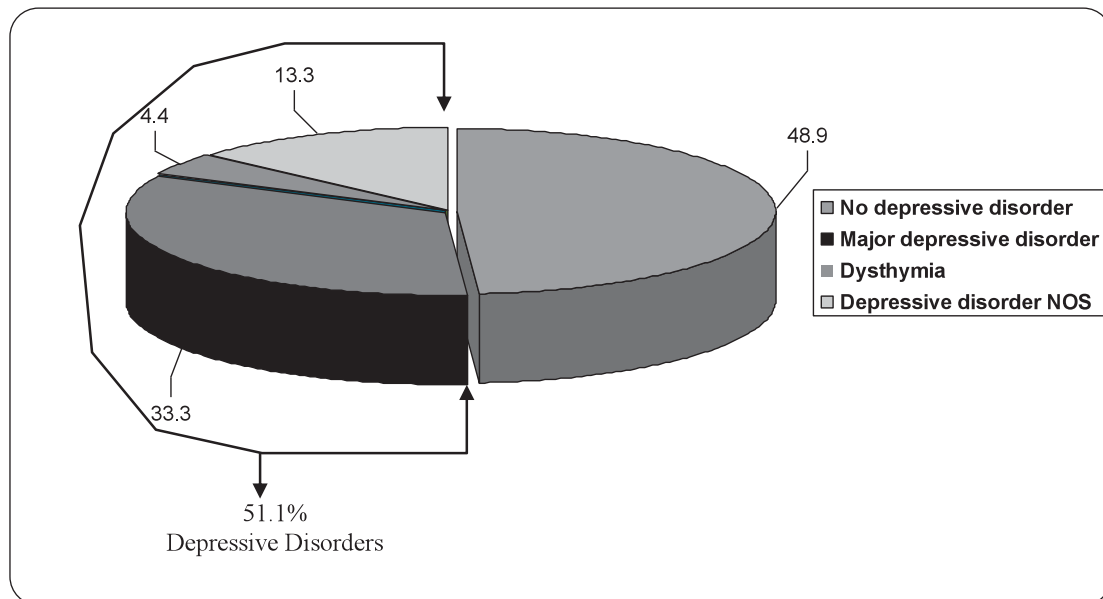


Figure 1: Percentage and type of Depressive Disorders among ESRD patients before Renal transplantation (n=45)

Subsequently after applying SCID-I-CV and assigning diagnosis according to DSM-IV-TR, Depressive disorders were found among 28.9% (n= 13) of patients 3 months after Renal transplantation in follow up visit. Major Depressive Disorder (MDD) was diagnosed among 24.4% (n=11) and 4.4% patients were suffering from Depressive Disorder NOS (DD NOS) (Figure 2).

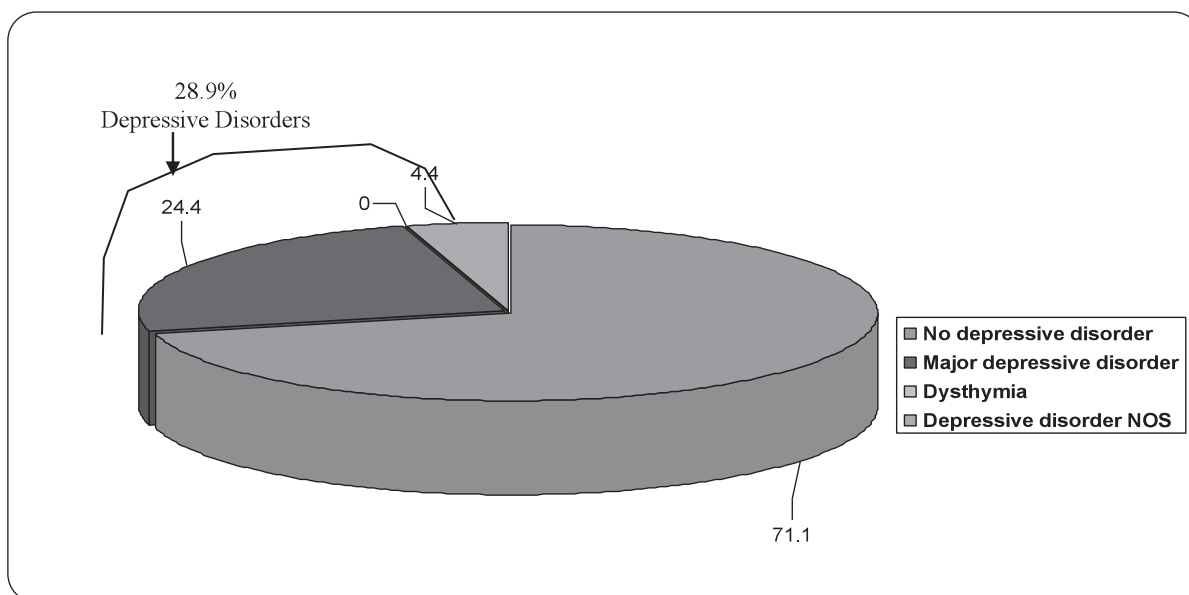


Figure 2: Percentage and type of depressive disorder among ESRD patients after Renal transplantation (n=45).

The change of depressive status was highly significant that was found by paired student-t test with the value of DASS-21 score among the two groups (Table- 2).

Table 2: Comparison of DASS-21 scoring before and after renal transplantation (n=45)

DASS-21 score	Before renal transplantation (Mean±SD)	After renal transplantation (Mean±SD)	t value	p value
DASS-21 score	12.53±6.92	9.42±5.25	7.74	<0.001**
Range	(4-32)	(4-26)		

p value measured by Paired t-test, ** = highly significant

The frequency and percentage of Depressive disorders were significantly reduced after renal transplantation than before although the values of DD after transplantation were also high (Table 3).

Table 3: Comparison of frequency of Depressive disorders before and after renal transplantation (n=45)

Depressive disorders	Before renal transplantation No. (%)	After renal transplantation No. (%)	Chi-square	p value
Present	23(51.1%)	13(28.9%)	4.63	0.03*
Absent	22(48.9%)	32(71.1%)		
Total	45(100.0%)	45(100.0%)		

p value, Chi-square test, * = Significant

Simultaneously the severity of the Depressive Disorders also significantly reduced following renal transplantation (Table 4).

Table 4: Comparison of severity of Depressive Disorders before and after renal transplantation (n=23)

Depressive disorders	Before renal transplantation (n=23) No. (%)	After renal transplantation (n=23) No. (%)	χ^2	p value
Normal	0(0.0%)	10(43.5%)		
Mild	7(30.4%)	5(21.7%)		
Moderate	9(39.1%)	5(21.7%)	13.98	0.007*
Severe	5(21.7%)	3(13.1%)		
Extremely severe	2(8.7%)	0(0.0%)		
Total	23(100.0%)	23(100.0%)		

p value ,Chi-square test, * = Significant

Discussion

Present study observed Depressive Disorders among 51.1% (n=23) of patients before Renal transplantation. Major Depressive Disorder (MDD) was diagnosed among 15 patients (33.3%). Six (13.3%) were suffering from Depressive Disorder NOS (DD-NOS) and two (4.4%) were suffering from Dysthymia. Subsequently in follow up visit, Depressive Disorders were found among 28.9% (n= 13) of patients after 3 months of Renal transplantation. Major Depressive Disorder (MDD) was diagnosed among 24.4% (n=11). Two (4.4%) were suffering from Depressive Disorder NOS (DD-NOS) and one of (2.2%) dysthymic patient became a case of Major Depressive Disorder on follow up visit, the so called double depression. Frequency of Depressive Disorders were more before renal transplantation than after (51.1% & 28.9%). It was hypothesized in the study that the frequency and severity of Depressive Disorders were reduced following renal transplantation, which was established by the results. When the treatment starts, symptomatic improvement of physical condition also leads to improvement of mood with the hope of be cured. This might be a possible explanation of higher rate of Depressive Disorders among patients before renal transplantation and many psychological problems related to renal transplantation like use of life-long immune-suppressants such as steroids-which have their own side effects, fear of rejection, and necessity of regular medical supervision, financial support, poor liaison Psychiatric services may cause depression after renal transplantation. Different studies also had almost similar results like, Ozcurumez et al. (2004) had found 94.4% of recipients were highly satisfied about their quality of life after operation and Pawar et al. (2006) had stated that successful renal transplantation was associated with improvement of depression, IQ and life satisfaction.^{8,13} In this study, more than 50% of patients were suffering from Depressive Disorders before renal transplantation and 33.3% had MDD, 13.3% had DD-NOS which have similarity with the study of Alim M (2013), where the researcher found 53.3% of ESRD patients on dialysis having depressive disorders; 56.8% before initiating dialysis and 50.9% on dialysis treatment. Among the 53.3%, 37% were suffering from MDD, 14.1% from DD-NOS.¹¹ In two other recent studies using validated instruments, the prevalence of Depressive Disorders had been about 26% (19% MDD, 4.84% dysthymia, 1.6% minor depression) and 27%, respectively; the majority of patients suffered from MDD.^{14,15} Though proportion of DD was high among their patients, in our country it was almost double to that. Reason of disparity might be due to different socio-economic condition and treatment facilities between western world and Bangladesh. During interview almost all expressed their concern regarding on-going treatment expenditure. Moreover, western people take more care of their mental health and probably more optimistic.

In the study, age of most of the patients (68.9%) ranges from 18-37 years, which was similar to Ozcuruimez et al. (2004).¹³ Indian researcher Chaturvedi SK and Pant VL (1985) found 84% the age range of 50 transplant recipient was from 20-39 years.¹⁶ The proportion of Depressive Disorders were more in this age group may be due to their negative role transition in employment, family and sexual roles and un-acceptancy of ESRD in this age. Though the findings were dissimilar with Alim M (2013)'s study done in Dhaka, Bangladesh among ESRD patients on dialysis. He found that proportion of Depressive Disorders were more in lower age group (<30 years). Number of male respondents were greater than female, which showed similarity with Alim M (2013)'s study and Amira (2011)'s study.^{11,17} But female suffered more with depression than male. Zalai M et al. (2008) also found young age, female gender, poor social support made patient vulnerable to depression.¹⁰ Depression was more among higher education group before transplantation and single people which was not significant (p -value >0.05). The findings correspond with the results of Chaturvedi SK and Pant VL (1985)'s study and Akman B et al. (2004)'s study.^{3,16} The exact causes were not clear, however unrealistic expectation, frustration, low self-esteem may be the cause of depression. In the study 71.1% of the recipients had no family or social support that was significantly associated with Depressive Disorders. Many researchers found this association like Zalai M et al. (2008) and Kimmel P et al. (2007).^{2,10} Low perceived social support, marital problem, eating dissatisfaction was associated with Depressive Disorders. Lack of sharing of psychological strain social or familial disharmony may further aggravates Depressive Disorder. About 8.9% patients have renal disease duration >5 years, experiences more Depressive Disorder. The findings show similarities with the results of Chaturvedi SK & Pant VL (1985).¹⁶ High frustration, inferiority feelings by continued renal disease may produce depression. Majority of them have co-morbid medical illnesses like Hypertension (68.9%), Diabetes mellitus (37.8%), Dyslipidaemia (11.1%). Significant reduction of working performance was found in 28 patients (62.2%). Presence of comorbid physical disease and negative impact on working performance were significantly associated with Depressive Disorder. The findings are consistent with those of Alim's study (2013).¹¹ Probably the stress aggravation by co-morbidities and economic crisis due to poor working performance along with ESRD may be the cause of depression. In the present study, severity scoring before renal transplantation revealed 2 cases (8.7%) were extremely severe, 5 cases (21.7%) were severe, 9 cases (39.1%) were moderate and 7 cases (30.4%) were mild. On the contrary, Severity scoring after renal transplantation revealed 3 cases (13.1%) were severe, 5 cases (21.7%) were moderate, 5 cases (21.7%) were mild. So, severity of Depressive Disorders reduced 3 months after renal transplantation than before. Proportion and severity of Depressive Disorders (DDs) were almost equal among the patients of both the hospitals but improvement of Depressive Disorders was more in BSMMU probably due to availability of better consultation-liaison psychiatric services. Different confounding variables that might affect the results of the study like- drug compliance, dietary habit of the recipients, substance abuse, other stressors were tried to ruled out with help of transplant surgeons, physicians and others hospital staffs and patient's care givers. But the effects of those variables could not be ruled out strictly due to lack of proper support. So results of the study should be considered keeping in mind the fact.

Conclusion

The present study concluded that, the frequency and severity of Depressive Disorders among ESRD patients waiting for renal transplantation were very high and were reduced significantly following renal transplantation. But still the percentages were also high following renal transplantation. About one third of the patients had severe depression. So steps are required to treat Depressive Disorders among ESRD patients to reduce their sufferings and improve quality of life. Strong Consultation-liaison Psychiatric services, pre-transplant counselling and psycho education as well as close psychiatric follow up is required to reduce negative outcomes of renal transplantation.

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