

ORIGINAL ARTICLE

A Study of Psychiatric Comorbidities in a Sample of Egyptian Patients with End-Stage Renal Disease on Hemodialysis

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Background	Chronic renal failure is considered a major world health problem and in Egypt as well.
Objectives	To assess psychiatric comorbidities in patients with end-stage renal disease (ESRD) and the effect of ESRD on patient's quality of life (QOL).
Patients and Methods	A total of 140 patients undergoing hemodialysis treatment in the hemodialysis unit of Benha University Hospital were chosen by nonrandom technique, and a descriptive cross-sectional study was conducted using a semi-structured interview, clinical psychiatric assessment, psychometric test measuring psychiatric disease [Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders-4th ed. (DSM-IV) axis I Disorders], and psychometric test measuring QOL.
Results	The study revealed that more than half of the studied sample experienced psychiatric illness (82.1%), including depression and anxiety. Depression was the most common psychiatric illness detected among the studied group (67.1%) followed by generalized anxiety disorder (53.6%) and panic attacks (8.6%). The total QOL score was affected by 59.2% in patients with ESRD with psychiatric illness.
Conclusions	There is high incidence of psychiatric disorders among patients with ESRD, with depression and anxiety disorders being the most prevalent disorders and that adversely affect QOL observed in patients with ESRD.
Keywords	End-stage renal disease, Hemodialysis, Psychiatric comorbidities. Egyptian Journal of Psychiatry 2024,

INTRODUCTION

End-stage renal disease (ESRD) has become a public health concern worldwide as the total number of patients with ESRD requiring renal replacement therapy has been growing drastically (Bello *et al.*, 2005). In developing countries like Egypt, there is an increase in the prevalence and incidence of ESRD, exerting a great burden on the health system (Zahran, 2011).

The last stage of this illness is ESRD, at which point hemodialysis treatment is necessary for patient survival (White *et al.*, 2005). This therapeutic option imposes a considerable burden on both patients and their families, which can be also worsened by several other complications (D'Onofrio *et al.*, 2017). Common psychological effects

include depression, anxiety, fatigue, decreased quality of life (QOL), and increased suicidal risk (Chen *et al.*, 2010).

AIM OF THE STUDY

Our study aimed to spot light at the prevalence of psychiatric disorders among patients with ESRD on dialysis and their effect on QOL of patients with ESRD so as to put on suitable recommendations that might improve their pattern of life.

PATIENTS AND METHODS

A total of 140 patients undergoing hemodialysis treatment in the hemodialysis unit of Benha University

Hospital were included by convenient sampling and a descriptive cross-sectional study was conducted at the beginning of February 2013 and continued till the required sample size was completed.

Inclusion criteria

Mini-mental state examination was used to choose patients with ESRD who are stable enough to complete the assessment (patients who are alert, conscious, and oriented to time, place, and person and scored ≥ 24).

Exclusion criteria

Patients experiencing any psychiatric disorders or other medical illnesses before renal affection were excluded. However, patients experiencing diabetes mellitus and hypertension were included because they represent the major two causes of renal failure.

Ethical consideration

(1) An approval from Research Ethics Committee in Benha Faculty of Medicine was obtained.

(2) An informed written consent was obtained from the patients before their participation in our study; it included data about aim of the work, study design, site of the study, time of the study, patients involved in the work, tool used in it, and confidentiality.

All patients were subjected to the following:

(1) A semi-structured interview that emphasized the demographic data including age, sex, residency, marital status, number of off springs, occupational state, and the educational level.

(2) Clinical psychiatric assessment was done by the researcher and some of the supervisors of this research.

(3) Psychometric test measuring psychiatric disorders [Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders-4th ed. (DSM-IV) axis I disorders (SCID)]. The Arabic version of the SCID-I used in this study was translated and validated through previous research conducted by El Missiry *et al.*, (2003) in the Institute of Psychiatry, Ain Shams University.

(4) Psychometric test measuring QOL (PCASEE quality of life scale), where P= physical, C= cognitive, A= affective, S= social, E= economic-social stressors, E= ego function domains (Bech, 1997).

(5) Statistical analysis of the collected data, which were tabulated and analyzed using SPSS, version 16 software (SPSS Inc., Chicago, Illinois, USA). Data were presented as number, percentages, and mean \pm SD. χ^2 , Fisher's exact test, Mann-Whitney *U* test, Kruskal-Wallis test, and Spearman correlation coefficient (ρ) were used as tests of significance (Greenberg, 1996). The accepted level of significance in this work was stated at 0.05 ($P < 0.05$ was considered significant).

Diagnosis was made according to the DSM-IV diagnostic criteria (American Psychiatric Association, 1996).

We considered the percentage 100% as a reference to compare with as we did not have a control group in this study to compare the QOL in them with QOL in patients with ESRD.

RESULTS

Regarding the sociodemographic data, more than half of the patients with ESRD (54.3%) were in the age group more than 50 years, 30.7% were in the age group 31–50 years, and 15% were in the age group 20–30 years. Males were 63.5%, whereas females were 36.5 % of the 140 patients with ESRD recruited in this study, which reflects a highly statistically significant correlation ($P < 0.001$). Regarding the educational level of the patients with ESRD, 47.9% were illiterate, 7.1% had primary educated, 26.4% were high school educated, and 18.6% were university graduated. Concerning the occupational state of patients with ESRD, 54.3% of them stopped working after dialysis, 32.9% of them were not working before dialysis, and only 12.9% of them were still working. Two-thirds of the patients with ESRD were married (77.1%), whereas 10.7% of them were single, 4.3% were divorced after dialysis, and 7.9% were widowed. Moreover, more than half of the patients with ESRD (54.3%) started dialysis 5 years ago or more, 43.6% started dialysis 1–5 years ago, and only 2.1% of them started dialysis less than 1 year ago.

There is a highly statistically significant correlation between ESRD and the presence of psychiatric illness, as more than two-thirds (82.1%) of patients with ESRD had a psychiatric illness and only 17.9% of them did not have any psychiatric illness ($P < 0.001$).

The most common psychiatric disorders among patients with ESRD were depression, generalized anxiety disorder, and panic disorder, with 11.4% of them experiencing mild depression, 39.3% experiencing moderate depression, and 16.4% experiencing severe depression. Regarding anxiety disorders, 53.6% experienced generalized anxiety disorder and 8.6% experienced panic disorder, whereas no symptoms suggestive of psychosis were detected (Table 1).

There was a statistically significant correlation between marital status and the presence of depression (Table 2), as depression was more observed in married patients than single, divorced, or widowed patients ($P < 0.05$). At the same time, there was no statistically significant correlation between sex of the patients and their age and the presence of depression ($P > 0.05$). Moreover, there was no statistically significant correlation between the presence of depression and the educational level or the occupational state ($P > 0.05$).

Table 1: Types of the psychiatric disorders among patients with end-stage renal disease as assessed by Structured Clinical Interview for DSM-IV axis I Disorders scale:

Variables	N= 140 [n (%)]
Major depressive disorder	
Absent	46(32.9)
Mild	16(11.4)
Moderate	55(39.3)
Severe	23(16.4)
Manic episode	
Absent	140(100.0)
Hypomania	
Absent	140(100.0)
Dysthymia	
Absent	140(100.0)
GAD	
Absent	65(46.4)
Present	75(53.6)
OCD	
Absent	140(100.0)
Panic attacks	
Absent	128(91.4)
Present	12(8.6)
Social phobias	
Absent	140(100.0)
Specific phobias	
Absent	140(100.0)
PTSD	
Absent	140(100.0)
Somatization	
Absent	140(100.0)
Psychotic disorders	
Absent	140(100.0)

GAD: generalized anxiety disorder; OCD: obsessive-compulsive disorder; PTSD: posttraumatic stress disorder.

Regarding suicidal ideation, there was a statistically significant correlation between age and suicidal ideation, as it was more observed in young age ($P < 0.05$).

Moreover, there was a statistically significant correlation between marital status and suicidal ideation. It was more observed in married patients than single, divorced, and widowed (47.8%) ($P < 0.05$).

Regarding the educational level, there was a statistically significant correlation between the educational level and presence of suicidal ideations, being more observed in primary educated than high school and university educated (30.4%) ($P < 0.05$).

However, no statistically significant correlation was found between sex of the patients and the occupational

state and the presence of suicidal ideations ($P > 0.05$ for both of them) (Table 3).

Regarding anxiety disorders, there was a highly statistically significant correlation between age and the presence of anxiety in patients with ESRD ($P < 0.001$). Anxiety was observed to increase with increasing age, being most common in age group more than 50 years old (62.7%) (Table 4). More males experienced anxiety disorders than females (52 and 48%, respectively), with a statistically significant correlation ($P < 0.05$).

There was a highly statistically significant correlation between marital status and anxiety in patients with ESRD ($P < 0.001$). Anxiety was more observed in married patients than single, divorced, or widowed ones (85.3%).

Regarding the educational level and the occupational state, there was no statistically significant correlation between them and the presence of anxiety in patients with ESRD ($P > 0.05$).

The study presented a highly statistically significant correlation between QOL and the presence of psychiatric illness among patients with ESRD ($P < 0.001$) (Table 5). It was found that there is a reduction in all domains of QOL in patients with psychiatric illness compared with patients without psychiatric illness. The most affected domains are the social, affective, and ego domains, with mean±SD of 5.24±3.803, 7.36±6.157, and 7.43±5.793, respectively. However, the cognitive domain was the least affected one (11.90±6.128).

There was a highly statistically significant correlation between QOL score and the presence of depression in patients with ESRD ($P < 0.001$) (Table 6). There is a reduction in scores of all domains of QOL in patients with ESRD with depression compared with patients without depression. The most affected domains are the social, affective, and ego domains, with mean±SD of 4.53±3.064, 7.09±5.866, and 7.11±5.276, respectively. However, the least affected domain was the cognitive domain (11.43±5.813) (lower scores are indicators of poorer QOL).

Moreover, there was a highly statistically significant correlation between the presence of anxiety and the total QOL score in patients with ESRD ($P < 0.001$) (Table 7). A reduction in total QOL score in patients with anxiety compared with patients without anxiety was observed. Moreover, there was a highly statistically significant correlation between anxiety and the affective, physical, and cognitive domains ($P < 0.001$), with mean values of 6.06, 8.61, and 10.80, respectively, and a statistically significant correlation between anxiety and economic domain ($P < 0.05$), with a mean value of 8.86.

There was a statistically nonsignificant correlation between anxiety and the social and ego domains ($P > 0.05$), with mean values of 5.80 and 7.76, respectively.

Table 2: Sociodemographic data and major depressive disorder assessed by Structured Clinical Interview for DSM-IV axis I Disorders scale:

Variables	Major depressive disorder (N= 94) [n (%)]	Absent major depressive disorder (N=46) [n (%)]	χ^2 /Fisher's exact test	P
Age				
20–30	15(16.0)	6(13.0)	0.25	0.88
31–50	28(29.8)	15(32.6)		
>50	51(54.3)	25(54.3)		
Sex				
Male	55(58.5)	34(73.9)	3.7	0.07
Female	39(41.5)	12(26.1)		
Marital status				
Single	12(12.8)	3(6.5)	8.8	0.022*
Married	68(72.3)	40(87.0)		
Divorced after dialysis	3(3.2)	3(6.5)		
Widow	11(11.7)	0		
Number of children				
Non	21(22.3)	10(21.7)	3.9	0.13
1–3	32(34.0)	23(50.0)		
>3	41(43.6)	13(28.3)		
Education				
Illiterate	50(53.2)	17(37.0)	3.99	0.25
Primary educated	7(7.4)	3(6.5)		
High school	21(22.3)	16(34.8)		
University	16(17.0)	10(21.7)		
Occupation				
Working	11(11.7)	7(15.2)	0.35	0.84
Not working	31(33.0)	15(32.6)		
Stopped working after dialysis	52(55.3)	24(52.2)		

χ^2 , χ^2 test; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

Table 3: Sociodemographic data and suicidal ideation:

Variables	Suicidal ideation (N=23) [n (%)]	No suicidal ideation (N=117) [n (%)]	χ^2 /Fisher's exact test	P
Age				
20–30 years	9(39.1)	12(10.3)	11.6	0.002*
31–50 years	7(30.4)	36(30.8)		
>50 years	7(30.4)	69(59.0)		
Sex				
Male	16(69.6)	73(62.4)	0.43	0.51
Female	7(30.4)	44(37.6)		
Marital status				
Single	6(26.1)	9(7.7)	15.0	0.002*
Married	11(47.8)	97(82.9)		
Divorced after dialysis	3(13.0)	3(2.6)		
Widow	3(13.0)	8(6.8)		
Number of children				
Non	12(52.2)	19(16.2)	22.3	<0.001**
1–3	11(47.8)	44(37.6)		

Table 3: Continue:

Variables	Suicidal ideation (N=23) [n (%)]	No suicidal ideation (N=117) [n (%)]	χ^2 /Fisher's exact test	P
>3	0	54(46.2)		
Education				
Illiterate	6(26.1)	61(52.1)	17.3	0.002*
Primary educated	7(30.4)	3(2.6)		
High school	6(26.1)	31(26.5)		
University	4(17.4)	22(18.8)		
Occupation				
Working	3(13.0)	15(12.8)	0.14	1.0
Not working	7(30.4)	39(33.3)		
Stopped working after dialysis	13(56.5)	63(53.8)		

χ^2 , χ^2 test; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

Table 4: Sociodemographic data and anxiety disorders assessed by Structured Clinical Interview for DSM-IV axis I Disorders scale:

Variables	Anxiety disorders (N=75) [n (%)]	Absent anxiety disorders (N=65) [n (%)]	χ^2 /Fisher's exact test	P
Age				
20–30 years	3(4.0)	18(27.7)	15.5	<0.001**
31–50 years	25(33.3)	18(27.7)		
>50 years	47(62.7)	29(44.6)		
Sex				
Male	39(52.0)	50(76.9)	9.3	0.002*
Female	36(48.0)	15(23.1)		
Marital status				
Single	0	15(23.1)	20.4	<0.001**
Married	64(85.3)	44(67.7)		
Divorced after dialysis	3(4.0)	3(4.6)		
Widow	8(10.7)	3(4.6)		
Number of children				
Non	9(12.0)	22(33.8)	10.4	0.005*
1–3	31(41.3)	24(36.9)		
>3	35(46.7)	19(29.2)		
Education				
Illiterate	31(41.3)	36(55.4)	4.7	0.19
Primary educated	4(5.3)	6(9.2)		
High school	24(32.0)	13(20.0)		
University	16(21.3)	10(15.4)		
Occupation				
Working	5(6.7)	13(20.0)	0.14	1.0
Not working	28(37.3)	18(27.7)		
Stopped working after dialysis	42(56.0)	34(52.3)		

χ^2 , χ^2 test; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

Table 5: Quality of life among patients with and without psychiatric disorder:

QOL domains	With psychiatric disorder (N=115)	Without psychiatric disorder (N=25)	Z of MWU test	P
	Mean±SD	Mean±SD		
Physical	8.89(5.641)	20.48(3.765)	6.8	<0.001**
Cognitive	11.90(6.128)	24.16(1.700)	7.4	<0.001**
Affective	7.36(6.157)	23.00(1.914)	7.7	<0.001**
Social	5.24(3.803)	15.20(3.547)	7.2	<0.001**
Economic	8.62(8.247)	15.72(7.208)	4.5	<0.001**
Ego	7.43(5.793)	16.72(6.017)	5.9	<0.001**
Total	49.46(25.615)	115.28(14.190)	7.3	<0.001**

MWU: Mann–Whitney U test; QOL: quality of life; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

Table 6: Quality of life among end-stage renal disease patients with and without depression:

QOL domains	With major depressive disorder (N=94)	Without major depressive disorder (N=46)	Z of MWU test	P
	Mean±SD	Mean±SD		
Physical	8.55±5.142	15.89±7.604	4.96	<0.001**
Cognitive	11.43±5.813	19.52±7.107	6.07	<0.001**
Affective	7.09±5.866	16.41±8.880	5.57	<0.001**
Social	4.53±3.064	12.10±5.457	7.55	<0.001**
Economic	7.93±7.934	13.89±8.279	4.62	<0.001**
Ego	7.11±5.276	13.13±7.830	4.35	<0.001**
Total	46.67±23.104	90.95±36.009	6.45	<0.001**

MWU: Mann–Whitney U test; QOL: quality of life; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

Table 7: Quality of life among patients with and without anxiety:

QOL domains	With anxiety (N=75)		Without anxiety (N=65)		Z of MWU test	P
	Mean±SD	Mean±SD	Mean±SD	Mean±SD		
Physical	8.61	5.716	13.67	7.303	4.23	<0.001**
Cognitive	10.80	5.970	17.89	6.899	5.69	<0.001**
Affective	6.06	5.669	14.87	8.243	6.26	<0.001**
Social	5.80	4.197	8.43	6.177	1.67	0.09
Economic	8.86	8.736	11.07	8.116	2.14	0.032*
Ego	7.76	5.543	10.63	7.811	1.91	0.056
Total	47.90	26.231	76.58	37.294	4.39	<0.001**

MWU: Mann–Whitney U test; QOL: quality of life; P value more than 0.05 insignificant; *P value less than 0.05 significant; **P value less than 0.001 highly significant.

DISCUSSION

We found that most of the studied patients with ESRD were males, which was similar to the study done by Elhadad *et al.*, (2020). This could be explained by the ratio between men and women reaching renal insufficiency due to hypertensive nephropathy or glomerulonephritis is 1.6 men for each woman (Silbiger and Neugarten, 1995). Similarly, there are more than two men affected by immunoglobulin A nephropathy or membranous nephropathy for each woman (Silbiger Rekola *et al.*,

1991). This may be because of the possible protective role of estrogens in the progression of renal disease (Hecking *et al.*, 2014).

In agreement with the study done by Goyal *et al.*, (2018), our study revealed that more than half of the studied patients with ESRD were above 50 years old.

Moreover, similar to the study that was done by Gadia *et al.*, (2020), we found that the majority of patients with ESRD were married.

Our study showed that about half of the studied patients were illiterate, which come in agreement with the study done by Mahedy *et al.*, (2018). However, our results were in contrast with the study done by Andrade and Sesso (2012), which found 61.1% of hemodialysis patients were primary school educated and 11.1% of hemodialysis patients were illiterate. These findings could be explained by that low educational level is associated with lack of health knowledge and consequently lack of health care and concerns.

Our findings agreed with the study done by Goyal *et al.*, (2018), who stated that the high levels of unemployment (75.5%) of patients with chronic kidney disease (CKD) on hemodialysis reflect the tremendous stress and strain that they are undergoing.

The present study showed that more than half of the studied sample started dialysis 5 years ago or more. This finding was supported by the study done by Sagwa *et al.*, (2003).

In agreement with our study, Lui *et al.*, (2017) stated that CKD and hemodialysis positively correlated with suicide. Moreover, our results agree with Keskin and Engin (2011), who stated that predictors of suicide in patients with ESRD include lower educational state, whereas disagrees with them regarding age and sex, as they stated that suicidal ideations positively related to old age and male sex. Suicidal ideations in young patients could be explained by our finding that this group of patients suffered more from severe depression (table not included).

Suicidal ideations in married patients could be explained by the results obtained in this study that married patients suffered more from depression compared with single, widowed, or divorced one. Moreover, Keskin *et al.*, (2019) stated that sexual problems caused by the disease may lead to negative emotions and feelings of guilt and anger. This situation may be more pronounced in married couples who feel a responsibility to meet each other's sexual needs.

Increased suicidal ideations in lower educated patients could be explained by that lower educated patients with ESRD seemed to evaluate their mental health in a more negative way and reported suffering from higher levels of anxiety, insomnia, and severe depression (Theofilou, 2011).

In the same line with our study, Elhadad *et al.*, (2020) stated that the most prevalent psychiatric disorders among patients with ESRD were depression and anxiety disorders. Moreover, Al-Jabi *et al.*, (2021) found that the prevalence of depression was 73.1% among patients with ESRD on hemodialysis.

Our findings also agree with the study done by Cukor *et al.*, (2008), which was done using a sample of 70 randomly selected hemodialysis patients who were assessed using SCID-I scale, Hospital Anxiety and Depression Scale, and Kidney Disease QOL Short Form

and found that 71% of the sample received a DSM-axis diagnosis. However, our findings disagree with them, as they found that 19.6% had major depressive disorder, 1.4% had generalized anxiety disorder, 21% had panic disorder, 9.8% had dysthymic disorder, 26.6% had specific phobias, 2.8% had the diagnosis of obsessive-compulsive disorder, 4.2% had posttraumatic stress disorder, and 4.2% had social phobia.

Psychiatric illness in patients with ESRD could be attributed to multiple stressors they face, such as financial problems, difficulty in holding a job, waning a sexual desire and impotence, fear of dying, fluid limitation, food limitation, itching, fatigue, limitations on time, risk of unemployment, transportation difficulties, loss of bodily function, length of dialysis treatment, and limitation of physical activities. Younger patients worry about marriage, having children, and the burden that they bring to their family (Shinde and Mane, 2014).

The current study revealed that there were no psychotic symptoms in ESRD patients. These findings are contradicted with the study done by Cukor *et al.*, (2008), who found that 10.2% of patients with ESRD had schizophrenia or other psychotic disorders. This may be owing to SCID-I scale used in the current study, which reports the presence or absence of each of the disorders being considered for the current episode (past month) only.

The current study showed that anxiety was more common in male patients than in female patients, whereas there was a nonsignificant correlation between sex of the patients and presence of depression. This comes in consistence with the study done by Elhadad *et al.*, (2020), who stated anxiety is more observed in males. However, it comes in disagreement with the study done by Araujo *et al.*, (2012), which was done on 400 patients with ESRD using Beck depression inventory and found that depression was more in female patients.

The sex difference concerning the more prevalence of anxiety among males could be attributed to the fact that married male patients undergoing hemodialysis are subjected to more stress caused by work, unemployment, living situations, and sexual dysfunction (Rezaei *et al.*, 2018).

Although there was a significant correlation between age and anxiety, there was a nonsignificant correlation between age and depression. These findings agree with Bossola *et al.*, (2010), whereas disagree with Gadia *et al.*, (2020), a study which was carried out on 150 patients with CKD, using Hospital Anxiety and Depression Scale, and found that there was no significant association between anxiety and age.

Our findings are in the same line with the study done by Gadia *et al.*, (2020), which showed that there was a nonsignificant correlation between age and depression. However, it contradicted with Keskin and Engin (2011), a study which was carried out on 92 patients with ESRD

using the Beck depression inventory scale and stated that depression among dialysis patients increases with increasing age.

The current study reveals that married patients suffered more from psychiatric illness either anxiety or depression than single, divorced, and widowed ones, which was in the same line with Andrade and Sesso (2012), whereas disagrees with Gadia *et al.*, (2020).

This may be attributed to the fact that development of a chronic illness in a couple may place strain on usual marital roles. Goyal *et al.*, (2018) have found that the high levels of unemployment (75.5%) of patients with CKD on hemodialysis reflect the tremendous stress and strain that they are undergoing, which force a shift in the individual's roles that spouses can become caregivers. In addition, Keskin *et al.*, (2019) stated that sexual problems caused by the disease may lead to negative emotions and feelings of guilt and anger. This situation may be more pronounced in married couples who feel a responsibility to meet each other's sexual needs.

The current study showed that there was a nonsignificant correlation between the presence of psychiatric illness either anxiety or depression and the educational level or occupational state. Regarding education, our findings come in agreement with the study done by Gadia *et al.*, (2020), but disagree with the study done by Araujo *et al.*, (2012), which stated that psychiatric illness was more in low educated and unemployed patients.

Our results come in accordance with Elhadad *et al.*, (2020), who stated that poor QOL was observed in patients with ESRD.

Lower QOL can be explained by that hemodialysis therapy is time intensive, expensive, and requires fluid and dietary restrictions. Long-term dialysis therapy itself often results in a loss of freedom; dependence on caregivers; disruption of marital, family, and social life; and reduced or loss of financial income (Lin *et al.*, 2005).

The least affected domain in patients with ESRD was the cognitive domain. This finding is in the same line with Spiegel *et al.*, (2008), who mentioned that Health Related QOL in ESRD showed the highest effect on physical functioning and the lowest on mental functioning; the effect of ESRD was least pronounced in mental health.

The current study also showed that anxiety largely affects the physical, affective, cognitive, and economic domains of QOL. However, there was a nonsignificant correlation between anxiety and social and ego domains. These findings come in the same line with Theofilou (2012), who found that there was a nonsignificant correlation between anxiety and the social domain of QOL.

CONCLUSION

There was a high incidence of psychiatric illness among patients with ESRD; depression and anxiety

disorder are the most prevalent psychiatric disorders among these patients. Poor QOL was observed in patients with ESRD.

RECOMMENDATIONS

Training programs should be initiated toward early detection of psychiatric illness among patients with ESRD along with early initiation of treatment.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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