Quality of life and Mental Health among Heamodialysis Patients in Aseer Region, Saudi Arabia

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ABSTRACT

Background: Renal failure and dialysis are a great burden on patients and physicians. Classically, many studies have focused on the physical consequences of renal failure and dialysis. However, psychological impacts of this chronic condition (e.g., depression, anxiety, and stress) are also highly reported in these patients, irrespective of their disease stage.

Aim: This study aims to assess the effect of renal dialysis on patients' quality of life and mental health in Aseer region, Saudi Arabia.

Methods: A correlational cross-sectional study was conducted on all patients undergoing haemodialysis (HD) in the largest governmental centre in Abha (the capital city of Aseer region) during the study period. Data were collected by the researchers through direct, in-place interviews of eligible patients using pre-structured data collection sheets prepared by the researchers after thorough literature review and expert consultation. The collected data include socio-demographic, economic, clinical data and any relevant data that were obtained from participants and their medical records. Mental health evaluation was done by structured clinical interview using the Depression, Anxiety, and Stress Scale (DASS-21). Quality of life was assessed by the Quality-of-Life Index (Dialysis Version 3).

Results: A total of 162 HD patients were included in the study. Patient age ranged from 18 to 64 years with mean age of 44.6 ± 11.9 years. Among the participants, 87 (53.7%) were male. Renal dialysis duration was less than 5 years in 67 patients (41.4%) and 10 years or more in 34 patients (21%). Depression was mild to moderate among 24.6% of the patients. In addition, 24.1% of the patients complained of mild to moderate anxiety, while 7.4% had severe anxiety. Stress was mild to moderate among 7.4% of the patients. Around 77.2% of the study patients had good satisfaction levels regarding their life, while 3.1% had poor satisfaction levels. Finally, 87% of the patients had a positive perception of their life importance.

Conclusion: In conclusion, the current conducted study showed that patients on haemodialysis had, on average, good quality of life with mild negative impacts on psychological health. Young patients with higher level of education and adherence to the restrictions of dietary and fluid intake showed the highest scores for quality of life and lowest scores for psychological symptoms.

Keywords: Renal dialysis, Renal disease, Quality of life, Psychological health, Mental health, Anxiety, Depression, Aseer region, Saudi Arabia

INTRODUCTION

Worldwide, the number of end-stage renal disease (ESRD) patients in need of dialysis has increased due to the aging of the population and high rates of chronic health problems[1]. Renal failure and dialysis represent a heavy burden for both patients and physicians[2,3]. Typically, dialysis patients have many symptoms and consequences that may have serious medical outcomes; most, however, had a negative influence on patients' daily activities and quality of life. Many studies have focussed on the physical consequences of renal failure and dialysis[4,5]. The physical impact of renal failure affects patients' mental health including depression, anxiety and stress. These mental health sequelae are highly reported among patients, irrespective of their disease stage[6,7]. Other common serious mental complications include suicide[8], delirium[9], sleep disorders[10] and PTSD[11].

Haemodialysis is a complex process that requires patients to make recurrent visits to hospitals or dialysis centres, typically three times a week, resulting in considerable changes to the patients' usual way of living[12-14]. Also, long-term dialysis therapy has negative impacts on caregivers by restricting their daily schedule, increasing the patients' dependence on them, disturbing caregivers' marital, family and social relationships, and decreases economic opportunities. Thus, dialysis

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causes significant disruptions in the lifestyles of patients and their families[15]. In this study, researchers will explore the mental health status of such patients, as well as their quality of life. The study aims to identify the current psycho-social health status and quality of life of dialysis patients as well as which factors are associated with good psychological outcomes.

METHODOLOGY

A correlational cross-sectional study was conducted on all patients undergoing haemodialysis (HD) in the largest governmental centre in Aseer region during the period 6 June to 22 July, 2021. Among 270 HD patients in the three haemodialysis centres in Aseer, the researchers collected a sample of 162 HD patients. 107 HD patients were excluded for failing to meet the inclusion criteria, which were as follows: clinically stable patients of both genders with end-stage renal disease, able to understand and answer questions, willing to participate by signing the informed consent. Exclusion criteria were: patients aged below 18, those with impaired cognitive and/or hearing and/or sight which would interfere with interviewing, and those who refused to grant informed consent. Data were collected by the researchers through direct, in-place interviews of eligible patients using pre-structured data collection sheets prepared by the researchers after intensive literature review and expert consultation. The data collected included socio-demographic, economic, clinical data and any relevant data that were obtained from participants and their medical records. Mental health evaluation was done using structured clinical interviews using the Depression, Anxiety, and Stress Scale (DASS-21)[16,17]. Quality of life was assessed by the Quality-of-Life Index (Dialysis Version 3)[18], which was collected by administering the questionnaire to the participants, who read the instructions and began to read the questions without any further explanation from the researchers in order to avoid any bias.

Data Analysis: After data were extracted, they were revised, coded, and fed to statistical software IBM SPSS version 22 (SPSS, Inc. Chicago, IL). All statistical analyses were done using two-tailed tests. P value less than 0.05 was statistically significant. For patients' quality of life scale, the discrete scores for each domain (satisfaction and importance) were calculated with the overall score ranging 34-204 for each domain. Patients' overall domain-related scores were categorized as poor if their score ranged from 34 to 90, average if their score ranged from 91-147, and good if their score ranged from 148-204. As for the psychological health scale (DASS-21), the depression, anxiety and stress scores were categorized in reference to cut-off points defined by the official scale. Descriptive analysis based on frequency and percent distribution was done for all variables, including patients' socio-demographic data, medical history, renal dialysis data, and adherence to fluid and dietary plan. Also, patients' quality of life and psychological health were graphed for frequency distribution. Cross-tabulation was used to assess the distribution of patients' quality of life and psychological health by their bio-clinical data and to test the relationship between patients' quality of life and psychological assessment. Relations were tested using the Pearson chi-square test and exact probability test for small frequency distributions.

RESULTS

A total of 162 HD patients were included in the study. The results show the following patient-connected factors to be independently associated with quality of life and mental health: age, sex, occupation, marital status, level of education, monthly income, and co-morbidities. Patients' ages ranged from 18 to 64 years with mean age of 44.6 ± 11.9 years. The average patients age was 44.6 ± 11.9 (mean ± standard deviation). 87 (53.7%) of patients were males. Regarding employment status, a total of 95 (58.6%) patients were not working, 35 (21.6%) were currently working, and 32 (19.8%) were retired. Regarding marital status, 101 (62.3%) patients were married and 41 (25.3%) were single. Regarding educational level, 28 (17.3%) were illiterate, 57 (35.2%) had secondary education, and 47 (29%) were university graduates. Regarding financial data, a monthly income below 5000 SR was reported by 73 (45.1%) patients, and 10 (6.2%) had monthly income exceeding 15000 SR. Regarding co-morbidities, 96 (59.3%) were hypertensive, 54 (33.3%) were diabetic, and 41 (25.3%) had no chronic diseases (Table 1).

Table 1: Bio-demographic data of patients on haemodialysis, Saudi Arabia

Bio-demographic data	No	%
Age in years		
< 30	22	13.6%
30-39	33	20.4%
40-49	40	24.7%
50+	67	41.4%
Gender		
Male	87	53.7%
Female	75	46.3%
Work		
Not working	95	58.6%
Working	35	21.6%
Retired	32	19.8%
Marital status		
Single	41	25.3%
Married	101	62.3%
Divorced / widow	20	12.3%
Educational level		
Illiterate	28	17.3%
Basic education	30	18.5%
Secondary education	57	35.2%
University / more	47	29.0%
Monthly income		
< 5000 SR	73	45.1%
5000 - 10000 SR	48	29.6%
10000 - 15000 SR	31	19.1%
> 15000 SR	10	6.2%
Other diseases		
None	41	25.3%
DM	54	33.3%
HTN	96	59.3%
Cardiac diseases	8	4.9%
Asthma	3	1.9%
Hypothyroidism	8	4.9%
Others	16	9.9%

Table 2 shows a description of renal dialysis (RD) data among the studied patients in Aseer region, Saudi Arabia. Duration of RD was less than 5 years for 67 (41.4%) patients, and 10 years or more for 34 (21%) patients. The vast majority (98.1%; 159) of the patients underwent 3 RD sessions per week. 76 (46.9%) patients were on a renal transplant waiting list; 28 (41.2%) had been waiting for 3-4 years, and 14 (20.6%) had waited for 5 years or more. As for adherence to the restriction on the daily required liquid intake (0-10 scale), poor adherence (1-4) was reported among 24 (14.8%) patients, 62 (38.3%) were moderately adherent (5-7), and 76 (46.9%) had high adherence (8-10). Regarding

adherence to the daily required diet (0-10), poor adherence (1-4) was reported among 30 (18.5%), while 68 (42%) had high adherence.

Table 2: Description of renal dialysis data among study patients, Saudi Arabia

Renal dialysis data	No	%
Duration of RD		
< 5	67	41.4%
5-9	61	37.7%
10+	34	21.0%
Frequency of RD sessions / week		
2	1	.6%
3	159	98.1%
4	2	1.2%
Are you on renal transplant waiting list?		
Yes	76	46.9%
No	86	53.1%
If yes, since how many years?		
< 3	26	38.2%
3-4	28	41.2%
5+	14	20.6%
How adherent you are to the restrictions on amount of liquids you are required to take daily (0-10)?		
1-4	24	14.8%
5-7	62	38.3%
8-10	76	46.9%
How adherent you are to the diet you are required to follow daily (0-10)?		
1-4	30	18.5%
5-7	64	39.5%
8-10	68	42.0%

Figure 1 shows the psychological health among patients on haemodialysis in Aseer region, Saudi Arabia. Depression was mild to moderate among 24.6% of patients. In addition, 24.1% of patients complained of mild to moderate anxiety, while 7.4% had severe anxiety. Stress was mild to moderate among 7.4% of the study patients. The patients had a mean depression score of 6.1 out of 21 points, a mean anxiety score of 5.8 out of 21 points, and a mean stress score of 7.1 out of 21 points.
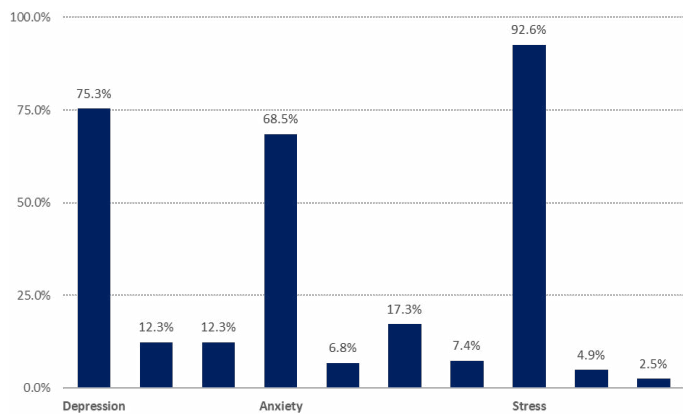

Figure 1: Psychological health among patients on haemodialysis, Saudi Arabia

Figure 2 shows the quality of life for patients on haemodialysis in Aseer region, Saudi Arabia. Around 77.2% of the study patients

reported good satisfaction levels regarding their life, while 3.1% had poor satisfaction levels with a mean satisfaction score of 162.8 ± 25.6. Finally, 87% of the patients had a good perception regarding their life importance, while 13% had an average perception with mean score of 173.8 ± 22.2.
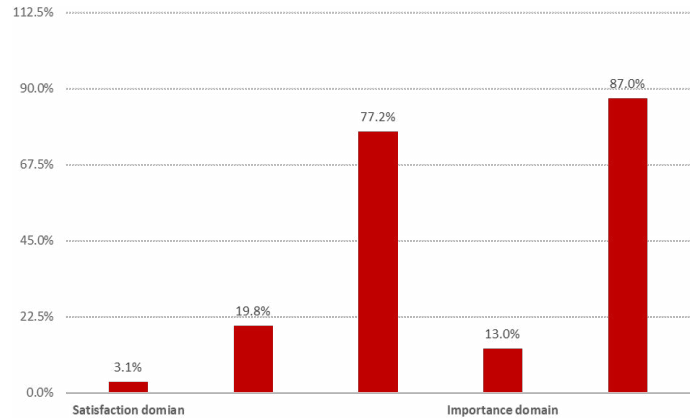

Figure 2: Quality of life for patients on haemodialysis, Saudi Arabia

Table 3 shows the distribution of psychological health by haemodialysis patients' bio-clinical data in Aseer region, Saudi Arabia. There was a significant association between patients' educational level and anxiety where 43.4% of patients with basic education had anxiety compared to 25.5% of university graduated patients (p = .048). Also, 37.2% of patients who were not waiting on renal transplant waiting list showed anxiety in comparison to 25% of those on the list (p = .049). Anxiety was detected among 35.5% of patients with high compliance to the restrictions on amount of liquids required daily versus 12.5% of those with low compliance (p = .048).

Table 4 shows the distribution of quality of life by haemodialysis patient's bio-clinical data in Aseer region, Saudi Arabia. Patients' satisfaction regarding their life was significantly associated with age; 73.1% of old-age patients had good satisfaction, compared to 68.2% of young age group (p = .047). Also, 85.5% of highly adherent patients to the restrictions on amount of liquids required daily had good satisfaction, versus 33.3% of poorly adherent patients (p = .001). Good satisfaction was found among 85.3% of patients with high adherence to the required daily diet, versus 40% of those with poor adherence (p = .001). Perception of life importance was significantly higher among highly educated patients (93.6%) versus 71.4% of those with low education (p = .030). Also, 82.6% of patients on a renal transplant waiting list had good perception regarding their life importance versus 82.6% of those who were not on a renal transplant waiting list (p = .049).

Table 5 depicts the relationship between haemodialysis patients' quality of life and psychological health in Aseer region, Saudi Arabia. Good life satisfaction level was detected among 67.5% of depressed patients in comparison to 80.3% of normal patients (p = .094). Exactly 68.6% of patients with anxiety had good satisfaction of their life compared to 81.1% of those without anxiety (p = .035). Also, good satisfaction level was detected among 66.7% of stressed patients versus 78% of non-stressed (p = .408). As for life importance perception, good perception was detected among 75% of depressed patients versus 91% of non-depressed patients. Also, 76.5% of patients with anxiety had good perception versus 91.9% of those with no anxiety (p = .007).

Table 3: Distribution of psychological health by haemodialysis patient's bio-clinical data, Saudi Arabia

Factors		Depression		Anxiety		Stress	
		No	%	No	%	No	%
Age in years	< 30	6	27.3%	9	40.9%	4	18.2%
	30-39	7	21.2%	6	18.2%	1	3.0%
	40-49	8	20.0%	11	27.5%	3	7.5%
	50+	19	28.4%	25	37.3%	4	6.0%
p-value		.741		.175		.183$	
Gender	Male	24	27.6%	31	35.6%	8	9.2%
	Female	16	21.3%	20	26.7%	4	5.3%
p-value		.357		.221		.349	
Work	Not working	26	27.4%	30	31.6%	10	10.5%
	Working	6	17.1%	11	31.4%	1	2.9%
	Retired	8	25.0%	10	31.3%	1	3.1%
p-value		.487		.999		.196$	
Marital status	Single	12	29.3%	13	31.7%	5	12.2%
	Married	24	23.8%	32	31.7%	5	5.0%
	Divorced / widow	4	20.0%	6	30.0%	2	10.0%
p-value		.689		.988		.293$	
Educational level	Illiterate	4	14.3%	4	14.3%	1	3.6%
	Basic education	9	30.0%	13	43.3%	4	13.3%
	Secondary education	18	31.6%	22	38.6%	5	8.8%
	University / more	9	19.1%	12	25.5%	2	4.3%
p-value		.229		.048*		.396$	
Monthly income	< 5000 SR	17	23.3%	22	30.1%	6	8.2%
	5000 - 10000 SR	8	16.7%	11	22.9%	3	6.3%
	10000 - 15000 SR	12	38.7%	14	45.2%	1	3.2%
	> 15000 SR	3	30.0%	4	40.0%	2	20.0%
p-value		.160		.194		.352$	
Other diseases	Yes	30	24.8%	37	30.6%	8	6.6%
	No	10	24.4%	14	34.1%	4	9.8%
p-value		.959		.671		.506	
Duration of RD	< 5	21	31.3%	26	38.8%	6	9.0%
	5-9	11	18.0%	16	26.2%	4	6.6%
	10+	8	23.5%	9	26.5%	2	5.9%
p-value		.215		.241		.813$	
Are you on renal transplant waiting list?	Yes	17	22.4%	19	25.0%	4	5.3%
	No	23	26.7%	32	37.2%	8	9.3%
p-value		.519		.049*		.327	
If yes, since how many years?	< 3	7	26.9%	8	30.8%	2	7.7%
	3-4	6	21.4%	7	25.0%	0	0.0%
	5+	2	14.3%	3	21.4%	2	14.3%
p-value		.652		.794		.158$	
How adherent you are to the restrictions on amount of liquids you are required to take daily (0-10)?	1-4	4	16.7%	3	12.5%	2	8.3%
	5-7	17	27.4%	21	33.9%	5	8.1%
	8-10	19	25.0%	27	35.5%	5	6.6%
p-value		.582		.048*		.930$	
How adherent you are to the diet you are required to follow daily (0-10)?	1-4	9	30.0%	11	36.7%	3	10.0%
	5-7	18	28.1%	22	34.4%	3	4.7%
	8-10	13	19.1%	18	26.5%	6	8.8%
p-value		.369		.493		.553$	

P: Pearson X^2 test $: Exact probability tests

* P < 0.05 (significant)

Table 4: Distribution of quality of life by haemodialysis patient's bio-clinical data, Saudi Arabia

Factors		Satisfaction domain						Importance domain			
		Poor		Average		Good		Average		Good	
		No	%	No	%	No	%	No	%	No	%
Age in years	< 30	3	13.6%	4	18.2%	15	68.2%	1	4.5%	21	95.5%
	30-39	0	0.0%	5	15.2%	28	84.8%	4	12.1%	29	87.9%
	40-49	1	2.5%	6	15.0%	33	82.5%	3	7.5%	37	92.5%
	50+	1	1.5%	17	25.4%	49	73.1%	13	19.4%	54	80.6%
p-value		.047*						.178			
Gender	Male	2	2.3%	21	24.1%	64	73.6%	10	11.5%	77	88.5%
	Female	3	4.0%	11	14.7%	61	81.3%	11	14.7%	64	85.3%
p-value		.283						.549			
Work	Not working	3	3.2%	18	18.9%	74	77.9%	14	14.7%	81	85.3%
	Working	2	5.7%	7	20.0%	26	74.3%	3	8.6%	32	91.4%
	Retired	0	0.0%	7	21.9%	25	78.1%	4	12.5%	28	87.5%
p-value		.749$						.674			
Marital status	Single	2	4.9%	8	19.5%	31	75.6%	5	12.2%	36	87.8%
	Married	2	2.0%	21	20.8%	78	77.2%	11	10.9%	90	89.1%
	Divorced / widow	1	5.0%	3	15.0%	16	80.0%	5	25.0%	15	75.0%
p-value		.847						.226			
Educational level	Illiterate	0	0.0%	3	10.7%	25	89.3%	8	28.6%	20	71.4%
	Basic education	3	10.0%	8	26.7%	19	63.3%	2	6.7%	28	93.3%
	Secondary education	1	1.8%	11	19.3%	45	78.9%	8	14.0%	49	86.0%
	University / more	1	2.1%	10	21.3%	36	76.6%	3	6.4%	44	93.6%
p-value		.161						.030*			
Monthly income	< 5000 SR	2	2.7%	14	19.2%	57	78.1%	12	16.4%	61	83.6%
	5000 - 10000 SR	3	6.3%	8	16.7%	37	77.1%	3	6.3%	45	93.8%
	10000 - 15000 SR	0	0.0%	6	19.4%	25	80.6%	6	19.4%	25	80.6%
	> 15000 SR	0	0.0%	4	40.0%	6	60.0%	0	0.0%	10	100.0%
p-value		.468$						.150			
Other diseases	Yes	4	3.3%	22	18.2%	95	78.5%	19	15.7%	102	84.3%
	No	1	2.4%	10	24.4%	30	73.2%	2	4.9%	39	95.1%
p-value		.675						.075			
Duration of RD	< 5	2	3.0%	13	19.4%	52	77.6%	11	16.4%	56	83.6%
	5-9	2	3.3%	14	23.0%	45	73.8%	6	9.8%	55	90.2%
	10+	1	2.9%	5	14.7%	28	82.4%	4	11.8%	30	88.2%
p-value		.913						.527			
Are you on renal transplant waiting list?	Yes	1	1.3%	11	14.5%	64	84.2%	6	7.9%	70	92.1%
	No	4	4.7%	21	24.4%	61	70.9%	15	17.4%	71	82.6%
p-value		.111						.049*			
If yes, since how many years?	< 3	0	0.0%	5	19.2%	21	80.8%	4	15.4%	22	84.6%
	3-4	0	0.0%	3	10.7%	25	89.3%	2	7.1%	26	92.9%
	5+	0	0.0%	2	14.3%	12	85.7%	0	0.0%	14	100.0%
p-value		.676$						.241$			
How adherent you are to the restrictions on amount of liquids you are required to take daily (0-10)?	1-4	3	12.5%	13	54.2%	8	33.3%	0	0.0%	24	100.0%
	5-7	1	1.6%	9	14.5%	52	83.9%	10	16.1%	52	83.9%
	8-10	1	1.3%	10	13.2%	65	85.5%	11	14.5%	65	85.5%
p-value		.001*$						.118$			
How adherent you are to the diet you are required to follow daily (0-10)?	1-4	5	16.7%	13	43.3%	12	40.0%	2	6.7%	28	93.3%
	5-7	0	0.0%	9	14.1%	55	85.9%	8	12.5%	56	87.5%
	8-10	0	0.0%	10	14.7%	58	85.3%	11	16.2%	57	83.8%
p-value		.001*$						.430			

P: Pearson X^2 test $: Exact probability tests
* P < 0.05 (significant)

Table 5: Relation between haemodialysis patients' quality of life and psychological health, Saudi Arabia

QOL	Depression		Anxiety		Stress	
	Normal	Depression	Normal	Anxiety	Normal	Stress
Satisfaction domain						
Poor (34-90)	1.6%	7.5%	.9%	7.8%	3.3%	0.0%
Average (91-147)	18.0%	25.0%	18.0%	23.5%	18.7%	33.3%
Good (148-204)	80.3%	67.5%	81.1%	68.6%	78.0%	66.7%
p-value	.094		.035*		.408	
Importance domain						
Poor (34-90)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Average (91-147)	9.0%	25.0%	8.1%	23.5%	12.0%	25.0%
Good (148-204)	91.0%	75.0%	91.9%	76.5%	88.0%	75.0%
p-value	.009*		.007*		.197	

P: Exact probability tests

* P < 0.05 (significant)

DISCUSSION

The current study was conducted to assess psychosocial health status and quality of life among dialysis patients and to identify the factors that predict poor or good psychological outcomes. Health-related quality of life (QOL) is a method to assess patients' functioning, welfare, and general health perception while considering physical, psychological, and social factors (19). QOL is a main indicator of the efficiency of the health care patients receive. The QOL of patients with end-stage renal disease is affected by the disease progress and by the category of therapy received[20]. Many researchers interested in assessing the effect of such factors as anaemia, age, and comorbidity on patients' psychological health and QOL. Because most of these issues start during the pre-dialysis period, proper management may modulate patient outcomes[21].

Regarding quality of life, this study showed that more than three-quarters of the patients had good scores for both quality of life domains, i.e., their perceptions of life satisfaction and life importance. Good satisfaction was found among 77% of the patients, while a higher rate (87%) was detected for patients' life importance perception. A higher satisfaction rate was reported among middle-aged patients (who were diagnosed several years previously) than among young-aged patients (who were diagnosed recently and whose lives have not yet been impacted by the disease) and old-aged patients who may have many other age-related troubles affecting their quality of life. Also, higher satisfaction regarding life well-being was detected among patients who adhered to the daily dietary and liquid intake restrictions. Adherence helps patients to minimize drawbacks and negative consequences of the disease. Good perception of life importance was significantly higher among highly educated patients and patients waiting for renal transplant who hope to return to their normal lives.

Similar findings regarding the effect of RD on patients' QOL have been reported in many studies concerned with end-stage renal disease patients' quality of life. Moreno F et al.,[22] reported that 26% of HD patients had a severe quality of life restriction and that 31% had a good quality of life. Patients' work, recreation, activities, and sleep were the most affected issues. Cruz MC et al.,[23] also found that quality of life is decreased among patients in the early stages of renal disease. No association was detected between the stages of the disease and quality of life. Evans RW et al.,[24] reported that approximately 79% of transplant recipients were able to return to nearly normal levels of function, versus 47.5% to 59.1% of patients on dialysis. On three subjective measures (life satisfaction, well-being, and psychological affect) transplant recipients had a higher quality of life than patients

on dialysis. Few studies have assessed the QOL of patients in the early stages of chronic kidney diseases, particularly in the first two stages[25,26]. Such studies have estimated a significantly reduced QOL that is not recognized as being associated to the progression of renal dysfunction.

As for patients' psychological health, the current study results revealed that depression was seen among 1 out of 4 patients on dialysis, while 1 out of 3 had anxiety and about 1 out of 10 were stressed. Poor psychological well-being (anxiety) was more prevalent among patients with low educational attainment as well as patients with high adherence to fluid and dietary restrictions, because their desire to achieve better physical functioning imposed a psychological burden. Georgianne S et al.,[27] found that a large portion of patients on dialysis experienced psychological disorders. This included sleep disorders (68.1%), feeling a lack of rest (43.8%), lack of joy (41.1%), and irritability (37.5%). The disease itself was the most frequently reported source of stress (41.7%), followed by restriction of fluid intake (32.7%), decreased ability to travel (29.5%), dietary restrictions (25%). These findings are consistent with other many studies, revealing that patient with renal failure experienced low levels of physical well-being and high levels of depression, stress, poor sleep quality, and another various psychosocial issues[28-32]. The study also revealed that there was a significant effect of good psychological health on patients' quality of life, especially low anxiety and depression rates[33]. Furthermore, the study showed that age was a significant predictor of both anxiety and depression, such that older patients were more likely to be diagnosed with both anxiety and depression. Finally, it was found that patients with family problems were more likely to be diagnosed with anxiety.

CONCLUSIONS AND RECOMMENDATIONS

This study showed that patients on haemodialysis had, on average, good quality of life with low psychological health negative impacts. Young patients with higher levels of education and greater adherence to dietary and fluid intake restrictions showed the highest scores for quality of life and the lowest scores for psychological disorders. The effect of ESRD-related clinical symptoms and replacement therapy on patients' quality of life, repeated dialysis sessions, patients' compliance with treatment regimens, and the negative impacts of the disease on patients are the strongest factors that most significantly affect patients' physical and psychosocial well-being. The implementation of biopsychosocial model in assessing and treating dialysis patients by applying the corresponding scales of the anticipated psychological problems and interfering accordingly by using different psychotherapy modalities will definitely lessen their suffering and enhance their general wellbeing. In addition,

the health care providers should devote more attention to mental health issues that compromise their patients' quality of life. At the same time, mental health education programs would be very useful for the staff of dialysis units because they would raise caretakers' awareness toward the mental health of the patients.

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