ASSESSMENT OF DEPRESSION IN HEMODIALYSIS PATIENTS AND ITS IMPACT ON QUALITY OF LIFE

Ashraf Hassan Abdelmobdy [1], Yasser Abdelrazek Mohamed[2], Fatma Alzahraa Mohamed[1] and Cherry Reda Kamel Attalla[1].

[1] Internal Medicine Department, and [2] Psychiatry Department, Faculty of Medicine, Ain Shams University, Cairo, Egypt.

Corresponding Author:
Ashraf Hassan Abdelmobdy
Tel: 002-01093989048

E-Mail:
ashrafnephro@med.asu.edu.eg

Received: 14/9/2022
Accepted: 26/9/2022

Online ISSN: 2735-3540

ABSTRACT:

Background: *It is widely believed that hemodialysis (HD) patients are at a significantly increased risk for developing mental health issues. Depression is generally recognized as the most prevalent psychological issue among cases who have end-stage renal disease (ESRD), which will negatively impact their quality of life (QOL).*

Aim of the work: *To assess the severity of depression in hemodialysis patients and its impact on physical and mental health.*

Methods: *Five hundred people with HD were the subjects of a cross-sectional study. Beck's Depression Inventory (BDI) was used to determine the frequency of depressive symptoms. The BDI consists of 21 questions, each on a scale from 0 to 3. Quality of life was measured using the SF-12, a condensed version of the more comprehensive SF-36 Health Survey that includes 12 questions.*

Results: *The mean age of 500 HD patients was (51.14 11.70) years, ranging from 16 to 82 years. Approximately 8% of our patients had no depression, 28.6% had mild depression, 38.8% had moderate depression, and 24.6% had severe depression. Mean mental component score (MCS) was 42.65±5.79, mean physical component score (PCS) was 39.01±7.21, and the mean total score was 81.66 ±12.04. Total, mental, and physical scores were all significantly correlated with BDI levels. A rise in physical and mental functions is associated with decreased depression.*

Conclusion: *Depression is prevalent among our dialysis patients, regardless of its degree. Various aspects of QOL are impacted in our dialysis patients. Depression is highly statistically significant in predicting PCS, MCS, and the total score of short form 12 version 1(SF12v1).*

Keywords: *Hemodialysis; Renal disease; Depression and Quality of Life.*

INTRODUCTION:

The burden of sickness, dietary restrictions, functional limits, coexisting chronic illnesses, unpleasant effects of drugs, shifts in self-perception, and fear of mortality all contribute to the stress that patients experience on a daily basis, it is believed that HD patients are highly susceptible to emotional problems [1]. Depression is widely regarded as the most common psychological issue encountered in ESRD patients [2]. HD patients are associated with lower QOL, poorer treatment compliance, increased numbers of co-existing illnesses, heightened prevalence of functional impairments, and increased mortality [3]. These patients' immunologic and stress responses, nutritional health, and compliance with dialysis and other medical regimens may all be impacted

by this [4].

Health-related quality of life (HRQOL), morbidity, and death have all been linked to depression in a number of studies [5]. Although HD survives them from death, the disease imposes significant limitations on their lives. Therefore, it is suggested that HD patients utilize adaptive methods.

QOL is one of the significant indicators of general well-being and a major factor in determining the acceptability of a particular treatment. Epidemiological studies on the general population with a higher QOL may have a longer life expectancy [6].

Depression is considered to be one of the psychological factors strongly associated with low QOL. Furthermore, the majority of HD patients with depression also have poor QOL.

Poor quality of sleep itself has a substantial adverse effect on QOL both in the general population and in patients on HD [7]. Patients' QOL is affected by their connections to others, both socially and familial. In order to have a high quality of life, it is essential to have a strong support system comprised of family and friends. But the opposite is true: when patients don't feel loved and accepted by their loved ones, it can have a negative impact on their health by lowering their self-esteem and giving them a sense of hopelessness and helplessness, which in turn can lead to low mood, depression, resignation, and a sense that life is pointless[8].

AIM OF THE WORK:

To assess the severity of depression in hemodialysis patients and its impact on physical and mental health.

PATIENTS AND METHODS:

This cross section study was conducted in the HD unit of Ain Shams University Hospital in the period between October 2019 till October 2020. **Inclusion Criteria:** The study involved 500 prevalent HD patients who were maintained on thrice weekly HD sessions, four hours /session, with bicarbonate containing dialysate and heparin-based anticoagulation. Informed consent was obtained from all patients. **Exclusion Criteria:** Patients intellectually unable to answer the questionnaires, patients with advanced malignancy, chronic inflammatory disease, and advanced heart failure.

Study Procedures:

All participants were subjected to: taking of full history, general examination and the Following laboratory investigations: CBC (complete blood picture), Urea reduction ratio, serum albumin and serum ferritin, transferrin saturation %(TSAT %), parathyroid hormone (PTH), serum calcium, and serum phosphorus.

With the help of the BDI, a questionnaire with 21 questions with graduated answers from 0 to 3 will be used to determine the frequency with which individuals experience depressive symptoms like sadness, guilt, tiredness, concern with personal appearance, ability to work, sexual interest, and other related emotions.

The test's sensitivity is 92% and its specificity is 80%.[9].

The SF-12, a short-form survey comprised of 12 questions taken from the longer short form-36 (SF-36) Health Survey, was used to measure quality of life. Two scales were constructed by combining, scoring, and weighting questions to reveal aspects of cognitive and physical health-related quality of life.

Statistical analysis:

Using IBM's Statistical Package for the Social Sciences (IBM SPSS) version 23, we gathered, cleaned, coded, and entered data. When the data were parametric, we showed the mean, standard deviation, and range; when the data were not parametric, we showed the median and interquartile range (IQR). Furthermore, numerical and

percentage representations of qualitative factors were provided. The Chi-square test and the Fisher exact test were used to compare qualitative data from different groups where the expected count in any cell was less than 5. Independent t-test was used to compare two groups based on quantitative data with parametric distribution. One-way analysis of variance (ANOVA) was used to compare more than two groups utilizing quantitative data with a parametric distribution. The Kruskal-Wallis test was used to compare more than two groups utilising non-parametrically distributed quantitative data. Pairwise correlations between quantitative parameters within the same group were evaluated using Spearman correlation coefficients. We used a 95% confidence interval and an acceptable error of 5%. P value < 0.05 was considered significant.

RESULTS:

Table (1): Demographic and characteristic data of the studied patients.

		Total no. = 500
Age (years)	Mean ± SD	51.14 ± 11.70
	Range	16 – 82
Sex	Female	215 (43.0%)
	Male	285 (57.0%)
Marital status	Single	58 (11.6%)
	Married	442 (88.4%)
Employment	No	410 (82.0%)
	Yes	90 (18.0%)
BMI(Kg /m2)	Mean ± SD	24.81 ± 3.39
	Range	14 – 34
Smoking	No Yes	471 (94.2%) 29 (5.8%)

*BMI: body mass index

Table (2): Distribution of study sample according to Clinical characteristic:

		Total no. = 500
Access	AVF	463 (92.6%)
	Central venous line	37 (7.4%)
Dialysis vintage (D.V) (months)	Median (IQR)	37 (24 – 60)
	Range	5 – 240
Dialysis frequency/week	2	3 (0.6%)
	3	497 (99.4%)
Dialysis duration (session hours)	Mean ± SD	4.00 ± 0.00
	Range	4 – 4
Interdialytic weight gain (kg)	Mean ± SD	2.42 ± 0.82
	Range	0.5 – 5
Shift	1	280 (56.0%)
	2	220 (44.0%)
Adequacy(KT/V)	Mean ± SD	1.23 ± 0.18
	Range	1.1 – 4.5

Table (3): Distribution of study sample according to Investigations

		Totalno.=500
Hemoglobin (gm/dL)	Mean±SD Range	10.25±1.12 7–14
Calcium (mg /dl)	Mean±SD Range	8.47±0.73 5.6–11
Phosphorus(mg /dl)	Mean±SD Range	4.42±1.12 1.5–9.6
Parathyroid hormone (PTH) (pg/dl)	Median(IQR) Range	316 (167– 482.5) 12 –3652
Ferritin(mg /dl)	Median(IQR) Range	360.5(209.5–554.5) 26 –2032
TSAT(%)	Median(IQR) Range	25 (21–31) 6 – 146
Albumin(gm/dL)	Mean±SD Range	3.75±0.29 2.6–4.7

Table (4): Assessment of study sample as regard BDI score and SF12 score

		Total no.= 500
Score of BDI questionnaire	No	40(8.0%)
	Mild Moderate	143(28.6%) 194(38.8%)
	Severe	123(24.6%)
SF12physical score	Mean ±SD	39.01±7.21
	Range	24.42– 54.21
SF12mental score	Mean ±SD	42.65±5.79
	Range	25.78- 56.51
SF12total score	Mean ±SD	81.66 ±12.04
	Range	54.19- 110.17

Table (5): Relation for BDI score with demographic data.

		Score of BDI questionnaire				Test value	P-value	Sig.
		No	Mild	Moderate	Severe			
		No. = 40	No. = 143	No. = 194	No. = 123			
Age (years)	Mean ± SD	38.25 ± 12.03	44.22 ± 9.67	52.79 ± 8.46	60.79 ± 9.08	98.452•	0.001	HS
	Range	20 – 63	16 – 62	20 – 72	23 – 82			
Gender	Female	17 (42.5%)	63 (44.1%)	74 (38.1%)	61 (49.6%)	4.117*	0.249	NS
	Male	23 (57.5%)	80 (55.9%)	120 (61.9%)	62 (50.4%)			
Marital status	Single	17 (42.5%)	24 (16.8%)	9 (4.6%)	8 (6.5%)	53.273*	0.001	HS
	Married	23 (57.5%)	119 (83.2%)	185 (95.4%)	115 (93.5%)			
Employment	No	26 (65.0%)	103 (72.0%)	166 (85.6%)	115 (93.5%)	30.152*	0.001	HS
	Yes	14 (35.0%)	40 (28.0%)	28 (14.4%)	8 (6.5%)			
Smoking	No	36 (90.0%)	129 (90.2%)	185 (95.4%)	121 (98.4%)	9.859*	0.020	S
	Yes	4 (10.0%)	14 (9.8%)	9 (4.6%)	2 (1.6%)			
BMI(kg /m2)	Mean ± SD	23.70 ± 3.47	24.47 ± 3.47	25.00 ± 3.16	25.27 ± 3.55	2.886•	0.035	S
	Range	16.6 – 28.7	14 – 34	15 – 34	16.8 – 33.4			

Table (6): Relation for BDI score with clinical characteristics

		Score of BDI questionnaire				Test value	P-value	Sig.
		No	Mild	Moderate	Severe			
		No. = 40	No. = 143	No. = 194	No. = 123			
Access	AVF	40 (100.0%)	141 (98.6%)	187 (96.4%)	95 (77.2%)	57.156*	0.001	HS
	Central venous line	0 (0.0%)	2 (1.4%)	7 (3.6%)	28 (22.8%)			
Dialysis vintage (months)	Median (IQR)	24 (15.5–36)	36 (24 – 48)	48 (24 – 60)	60 (32 – 96)	61.199≠	0.001	HS
	Range	5 – 72	7 – 240	5 – 204	6 – 240			
Dialysis frequency/ week	2	1 (2.5%)	2 (1.4%)	0 (0.0%)	0 (0.0%)	5.864*	0.118	NS
	3	39 (97.5%)	141 (98.6%)	194 (100.0%)	123 (100.0%)			
Interdialytic weight gain (kg)	Mean ± SD Range	2.03 ± 0.76 1 – 4	2.27 ± 0.74 1 – 4	2.55 ± 0.82 0.5 – 5	2.54 ± 0.84 1 – 4	7.545•	0.001	HS
Shift	1 (morning shift) 2 (afternoon shift)	15 (37.5%) 25 (62.5%)	70 (49.0%) 73 (51.0%)	123 (63.4%) 71 (36.6%)	72 (58.5%) 51 (41.5%)	13.075*	0.004	HS
Adequacy (KT/V)	1.23 ± 0.11 1.1 – 1.6	1.23 ± 0.11 1.1 – 1.6	1.25 ± 0.29 1.1 – 4.5	1.22 ± 0.10 1.1 – 1.5	1.21 ± 0.10 1.1 – 1.5	1.516•	0.210	NS

Table (7): Relation between BDI score and investigation

		Score of BDI questionnaire				Test value	P-value	Sig.
		No	Mild	Moderate	Severe			
		No. = 40	No. = 143	No. = 194	No. = 123			
Hemoglobin(gm/dl)	Mean ± SD	11.26 ± 1.03	10.71 ± 0.95	10.09 ± 1.02	9.66 ± 1.06	38.461•	0.001	HS
	Range	9.4 – 13.1	8.2 – 14	7 – 12.9	7.4 – 12.5			
Calcium (mg/dl)	Mean ± SD	8.49 ± 0.92	8.54 ± 0.79	8.42 ± 0.69	8.45 ± 0.67	0.872•	0.455	NS
	Range	6.8 – 10.8	6.8 – 11	5.6 – 10.5	6.3 – 10			
Phosphorus(mg/dl)	Mean ± SD	4.36 ± 1.21	4.50 ± 1.10	4.45 ± 1.08	4.29 ± 1.20	0.905•	0.438	NS
	Range	2.9 – 9.1	1.5 – 7.6	2.2 – 9.6	2.1 – 7.6			
Parathyroid hormone(pg/dl)	Median (IQR)	209 (137.5 – 412)	309 (220 – 521)	325.5 (192 – 480)	295 (154 – 495)	7.006≠	0.072	NS
	Range	12 – 1248	14 – 1819	22 – 3652	14 – 985			
Ferritin(mg/dl)	Median (IQR)	341 (168.5 – 600)	375 (230 – 552)	365 (206 – 589)	323 (162 – 445)	5.539≠	0.136	NS
	Range	50 – 997	26 – 1719	42 – 2032	50 – 985			
TSAT (%)	Median (IQR)	28 (20.5 – 32)	↑27 (22 – 31)	25 (21 – 32)	24 (20 – 28)	12.776 ≠	0.005	HS
	Range	13 – 146	6 – 77	7 – 50	14 – 45			
Albumin(gm/dL)	Mean ± SD	3.88 ± 0.29	3.82 ± 0.26	3.71 ± 0.27	3.71 ± 0.31	8.039•	0.001	HS
	Range	3.2 – 4.5	3.4 – 4.7	2.6 – 4.7	3 – 4.6			

Table (8): Correlation between QoL with Socio-demographic characteristics, clinical examination and investigations

	SF12 physical score		SF12 mental score		SF12 total score	
	r	P-value	r	P-value	R	P-value
Age (years)	-0.678	0.000	-0.545	0.000	-0.670	0.001
BMI(kg /m2)	-0.150	0.001	-0.099	0.026	-0.141	0.002
Dialysis vintage (months)	-0.330	0.000	-0.350	0.000	-0.375	0.001
Interdialytic weight gain (kg)	-0.183	0.000	-0.142	0.002	-0.185	0.001
Adequacy(KT/V)	0.083	0.062	0.112	0.012	0.104	0.020
Hemoglobin (gm/dl)	0.371	0.000	0.318	0.000	0.378	0.001
Calcium (mg/dl)	0.016	0.716	0.067	0.133	0.036	0.419
Phosphorus(mg/dl)	-0.024	0.590	-0.025	0.582	-0.034	0.451
Parathyroid hormone (pg/mL)	0.024	0.591	-0.015	0.736	0.002	0.967
Ferritin(mg/dl)	0.060	0.184	0.109*	0.015	0.094*	0.035
TSAT(%)	0.131**	0.003	0.167**	0.000	0.158**	0.001
Albumin(gm/dl)	0.147**	0.001	0.134**	0.003	0.163**	0.001

Table (9): Correlation between BDI score and SF12 score

		Score of BDI questionnaire				Test value	P-value	Sig.
		No	Mild	Moderate	Severe			
		No. = 40	No. = 143	No. = 194	No. = 123			
SF12 physical score	Mean ± SD	47.57 ± 3.74	44.81 ± 3.90	38.28 ± 4.89	30.63 ± 4.21	287.556•	0.001	HS
	Range	38.32 – 54.21	28.08 – 53.23	28.22 – 48.39	24.42 – 42.6			
SF12 mental score	Mean ± SD	49.60 ± 4.50	46.24 ± 4.14	42.43 ± 3.89	36.57 ± 4.32	163.432•	0.001	HS
	Range	41.45 – 56.51	28.45 – 55.84	25.78 – 52.68	25.78 – 46.44			
SF12 total score	Mean ± SD	97.17 ± 5.53	91.05 ± 6.49	80.71 ± 7.29	67.20 ± 7.45	328.605•	0.001	HS
	Range	79.77 – 110.17	72.49 – 103.2	56.97 – 101.05	54.19 – 88.28			

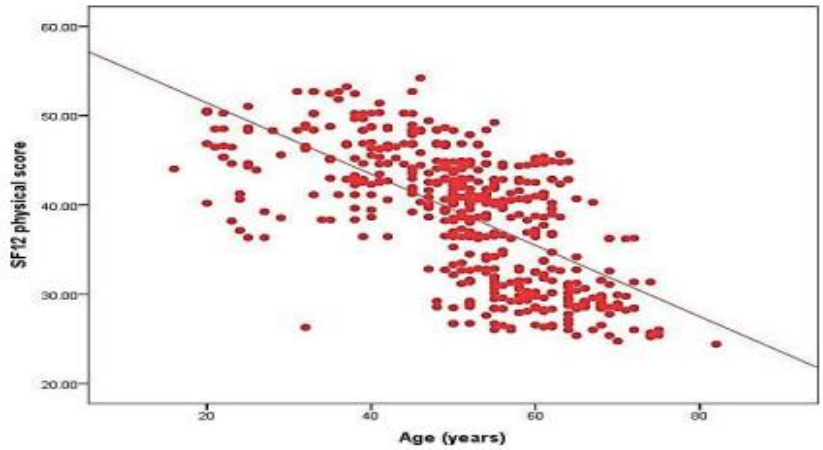

Figure (1): Correlation between SF12 physical score with age

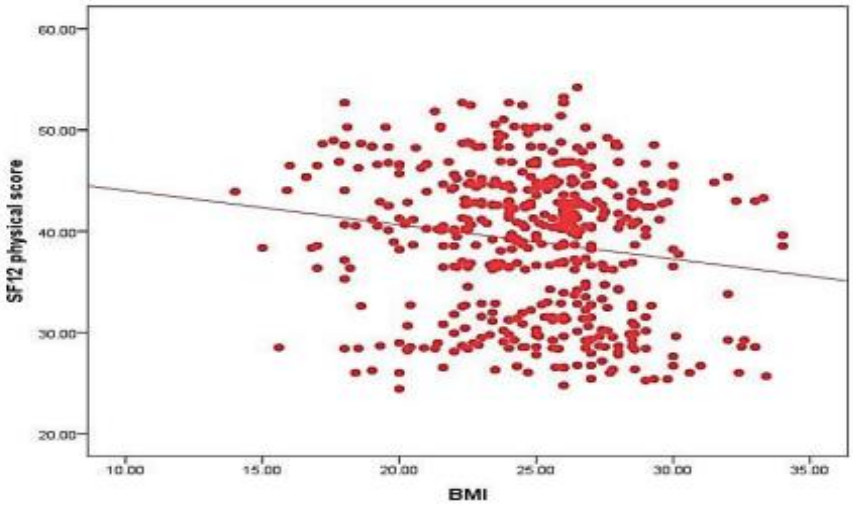

Figure (2): Correlation between SF12 physical score with BMI

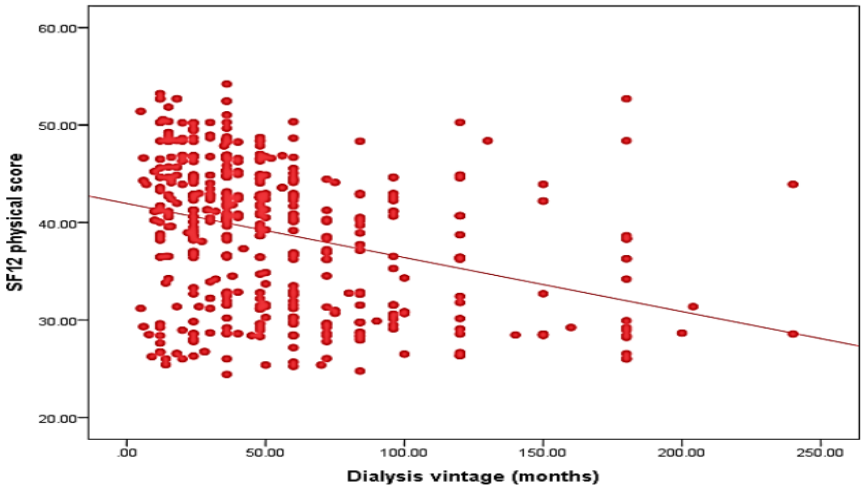

Figure (3): Correlation between SF12 physical score with dialysis vintage

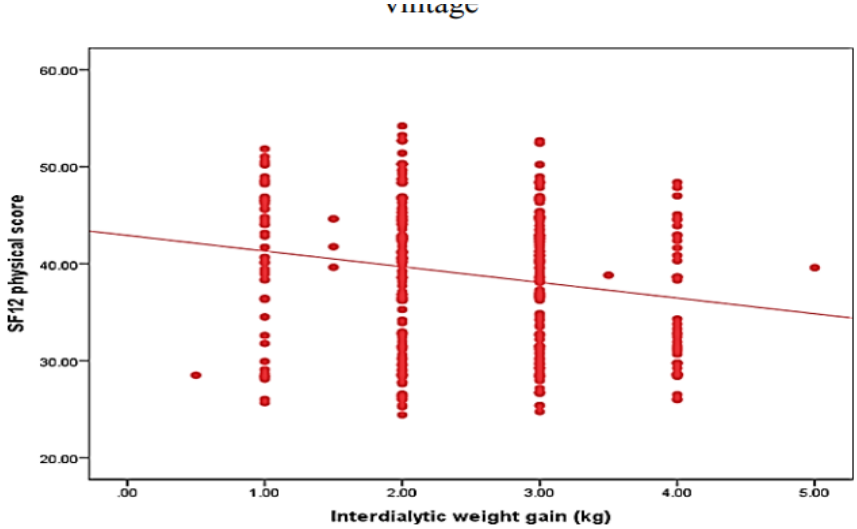

Figure (4): Correlation between SF12 physical score with interdialytic weight gain

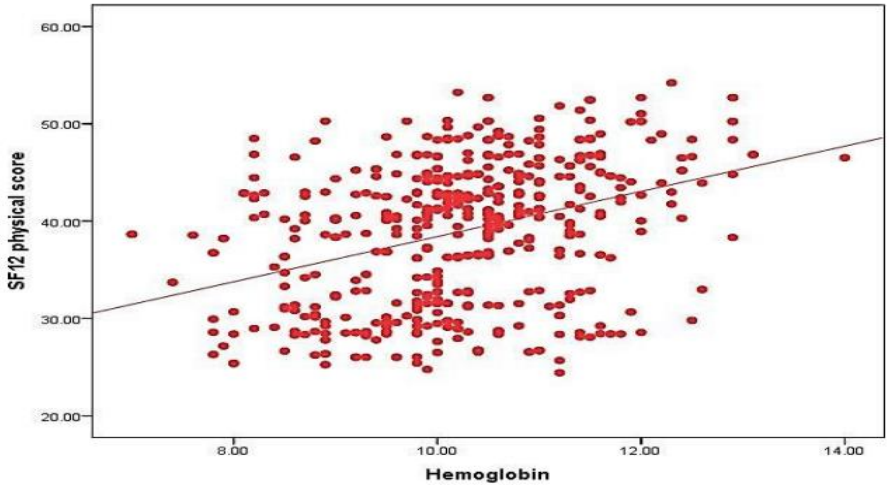

Figure (5): Correlation between SF12 physical score with Hemoglobin

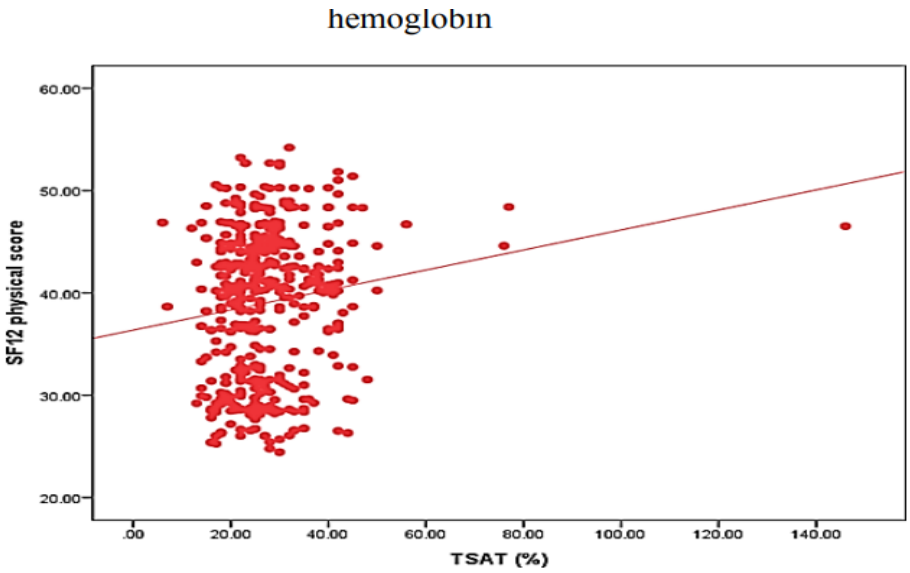

Figure (6): Correlation between SF12 physical score with TSAT%.

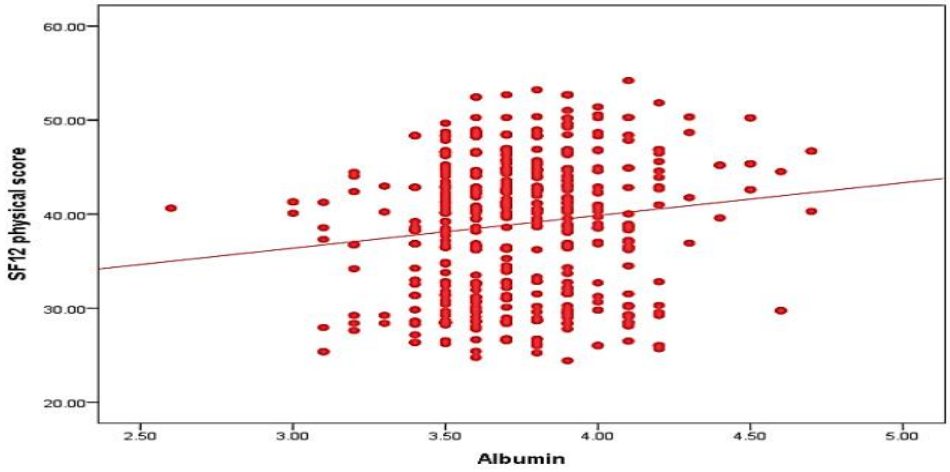

Figure (7): Correlation between SF12 physical score with Albumin

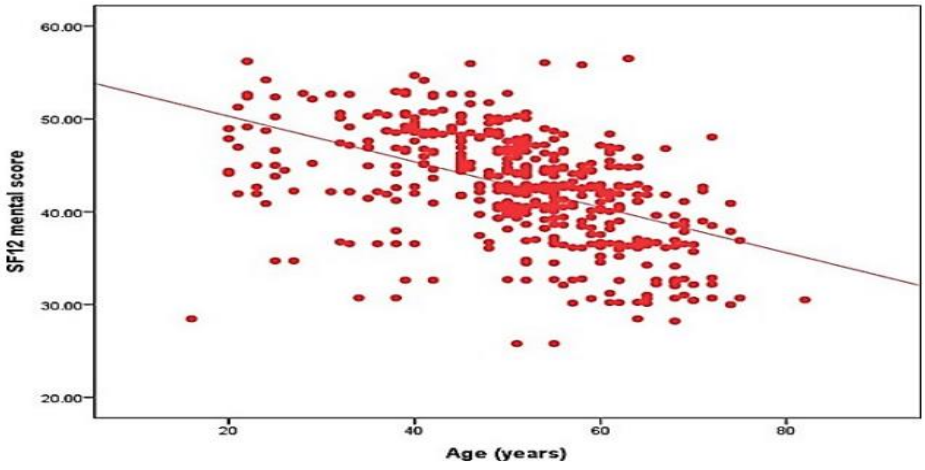

Figure (8): Correlation between SF12 mental score with Age.

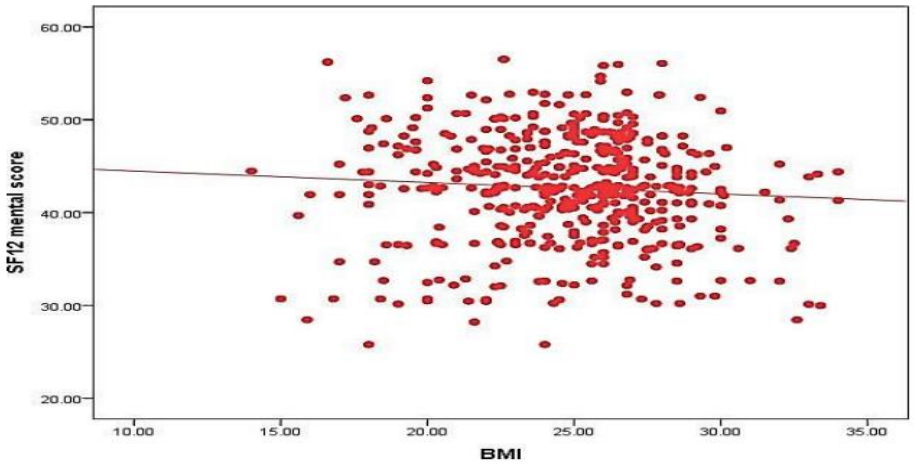

Figure (9): Correlation between SF12 mental score with BMI.

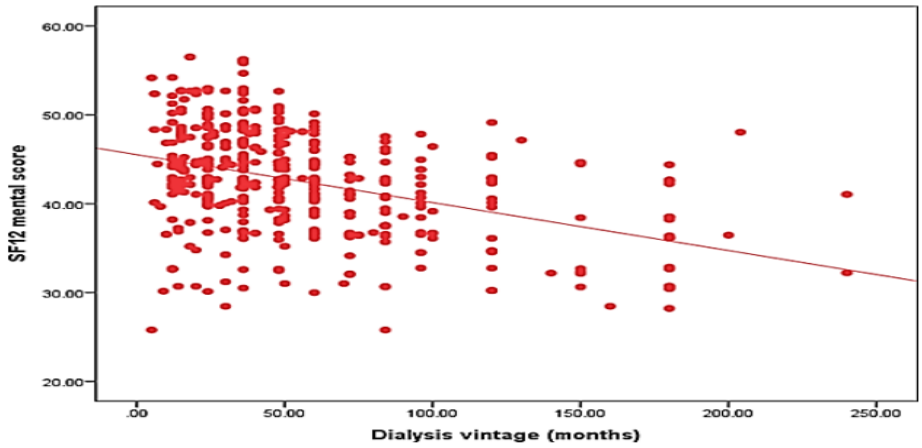

Figure (10): Correlation between SF12 mental score with Dialysis Vintage.

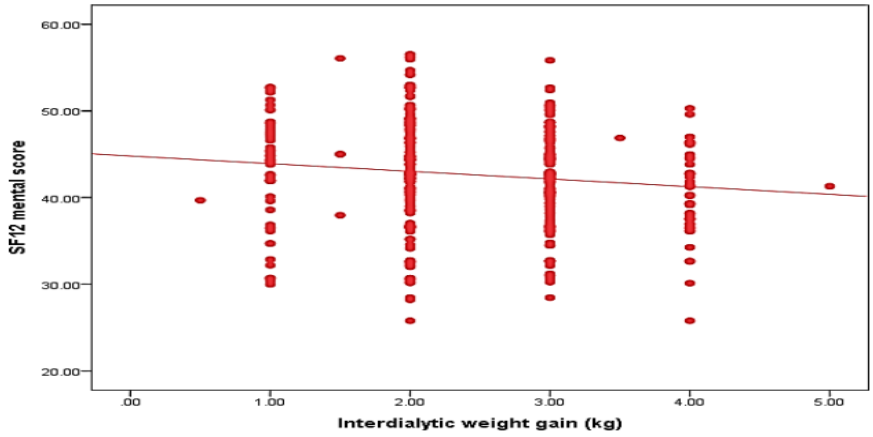

Figure (11): Correlation between SF12 mental score with Interdialytic Weight Gain.

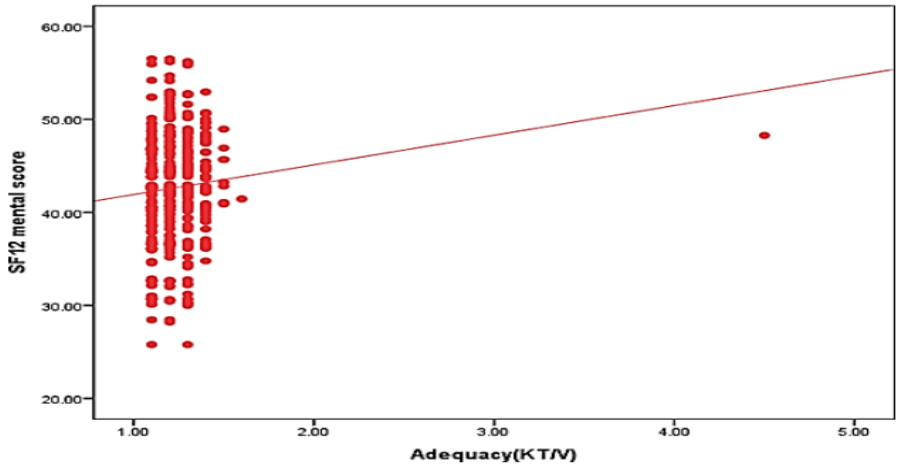

Figure (12): Correlation between SF12 mental score with Adequacy.

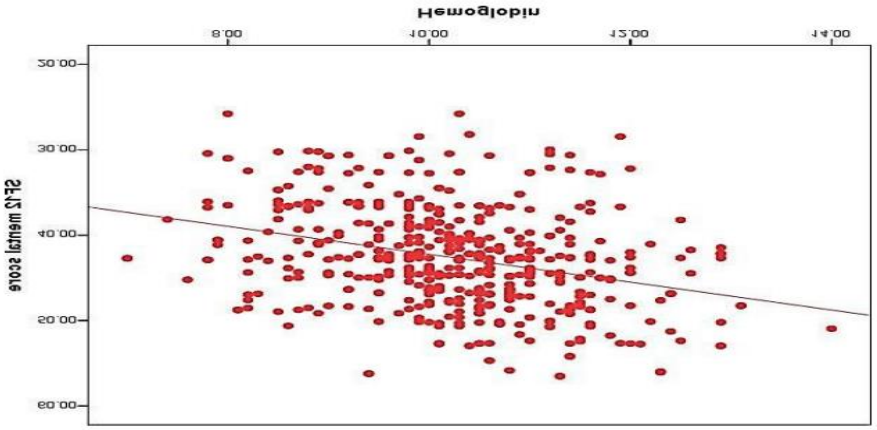

Figure (13): Correlation between SF12 mental score with Hemoglobin.

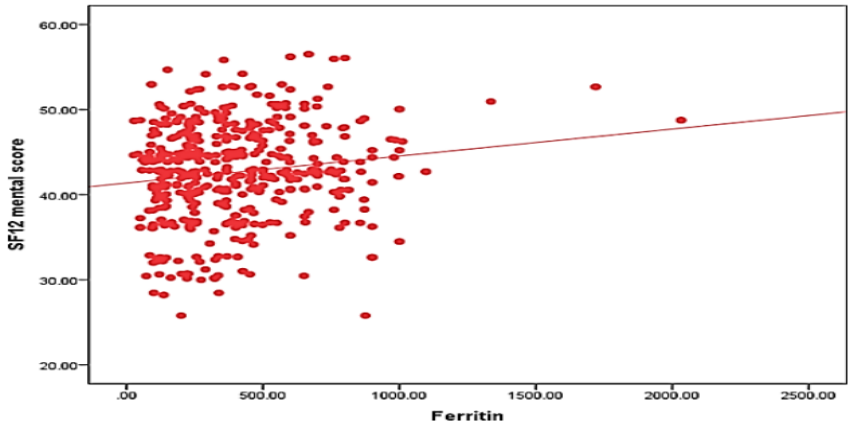

Figure (14): Correlation between SF12 mental score with Ferritin.

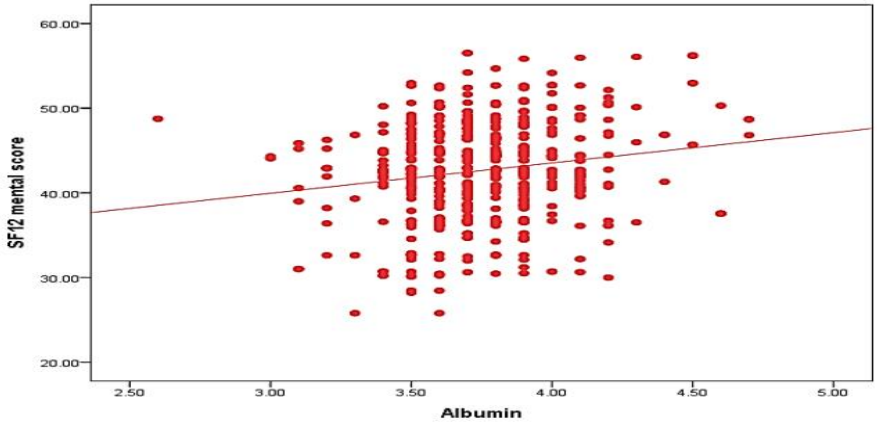

Figure (15): Correlation between SF12 mental score with Albumin.

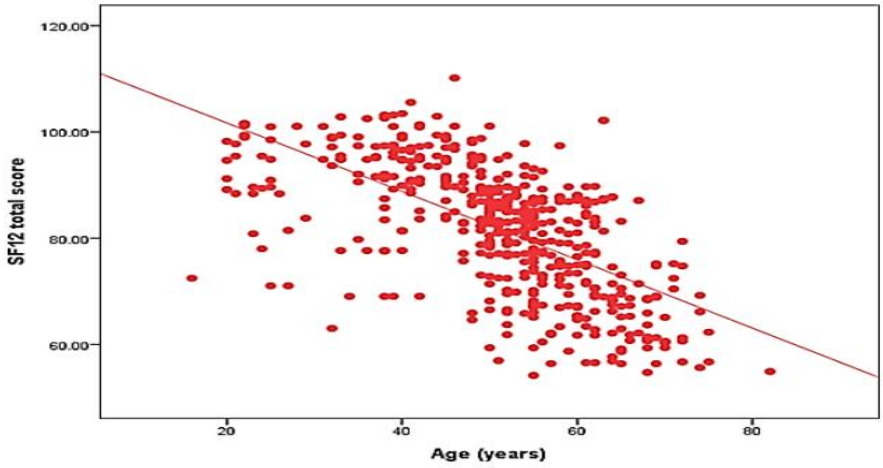

Figure (16): Correlation between SF12 total score with Age.

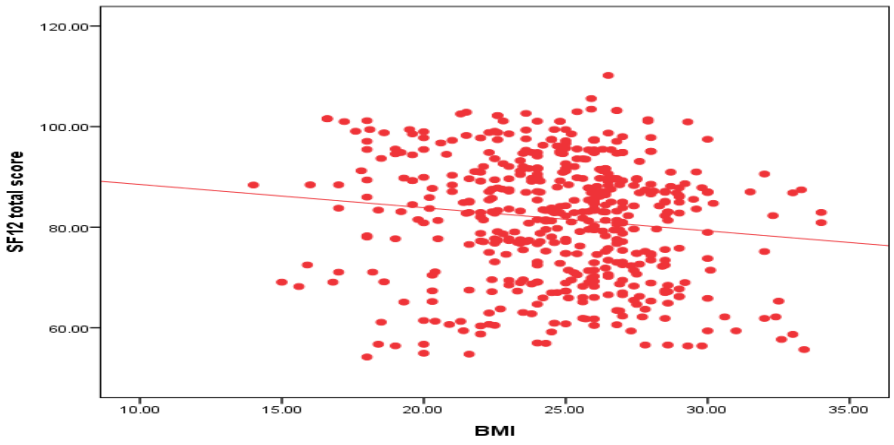

Fig (17): correlation between SF12 total score with BMI.

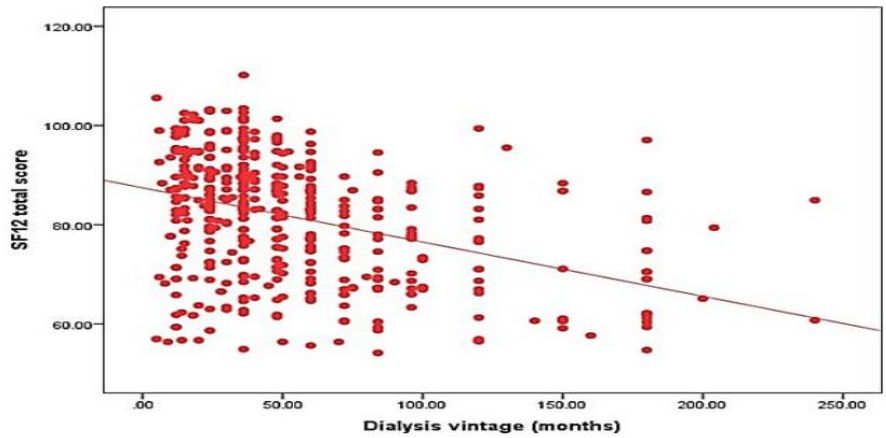

Figure (18): Correlation between SF12 total score with Dialysis vintage.

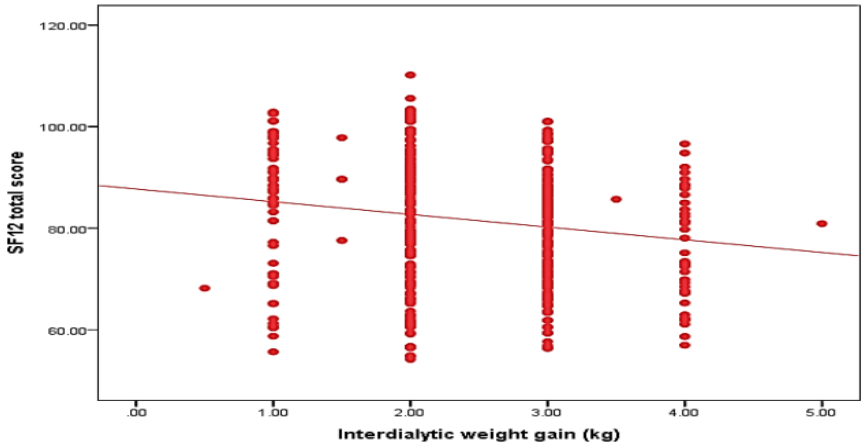

Figure (19): Correlation between SF12 total score with Interdialytic weight gain.

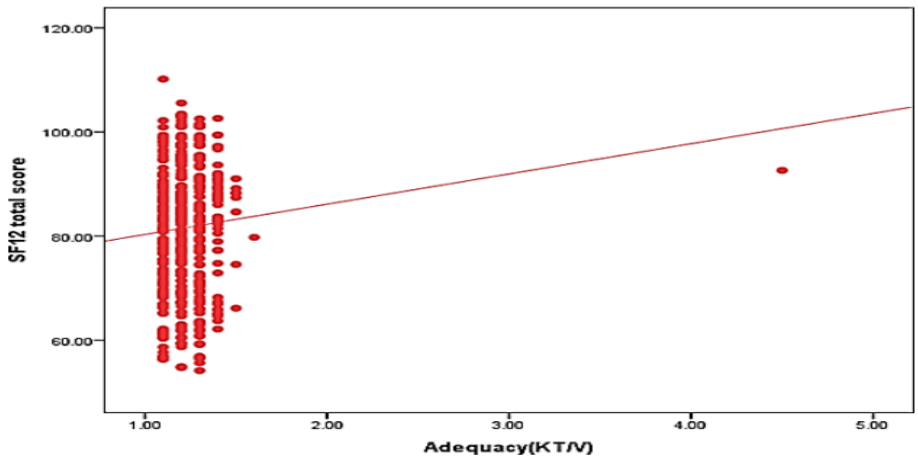

Figure (20): Correlation between SF12 total score with Adequacy.

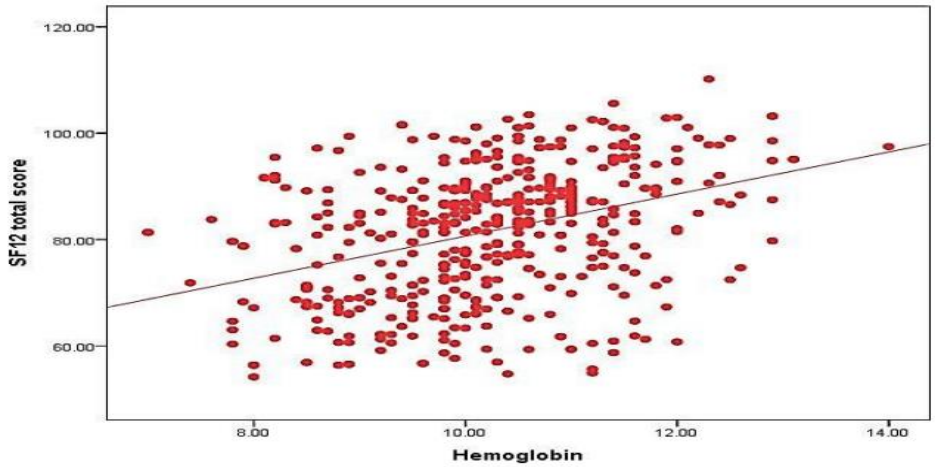

Figure (21): Correlation between SF12 total score with Hemoglobin.

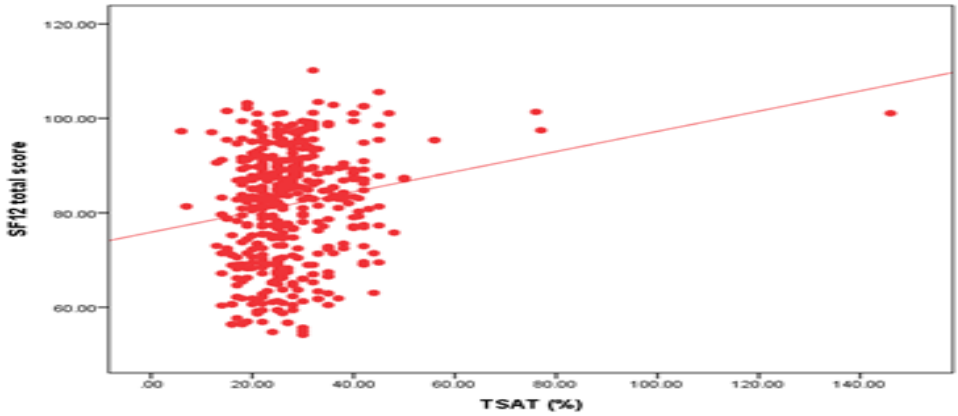

Figure (22): Correlation between SF12 total score with T SAT%

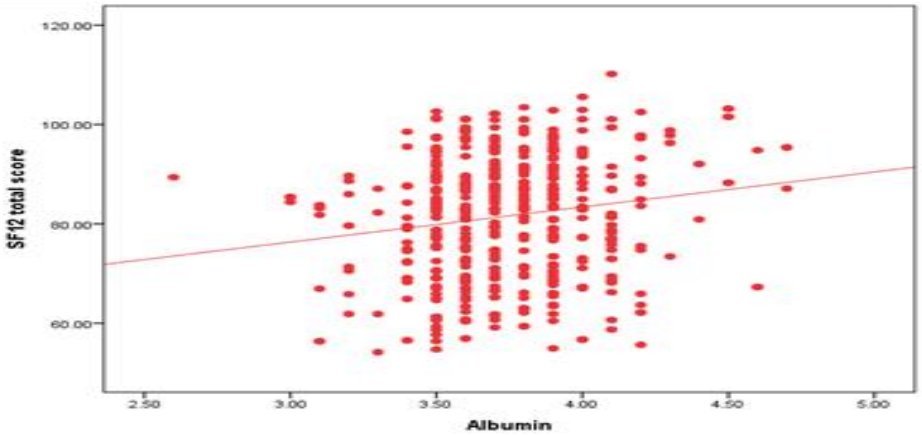

Figure (23): Correlation between SF12 total score with Albumin.

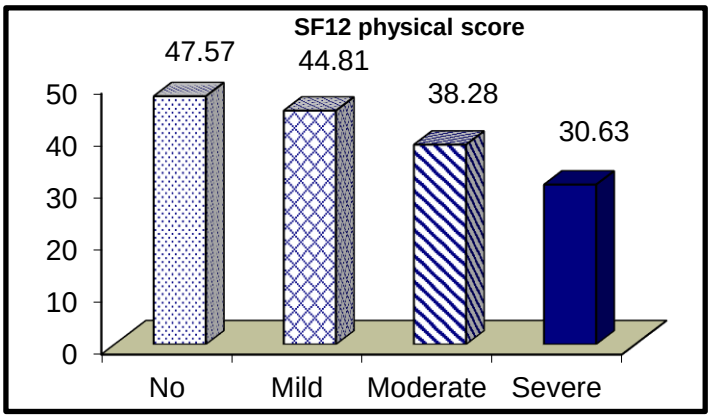

Fig. (24) Correlation between BDI severity and SF12 physical score
Depression severity is negatively correlated to SF12 physical score

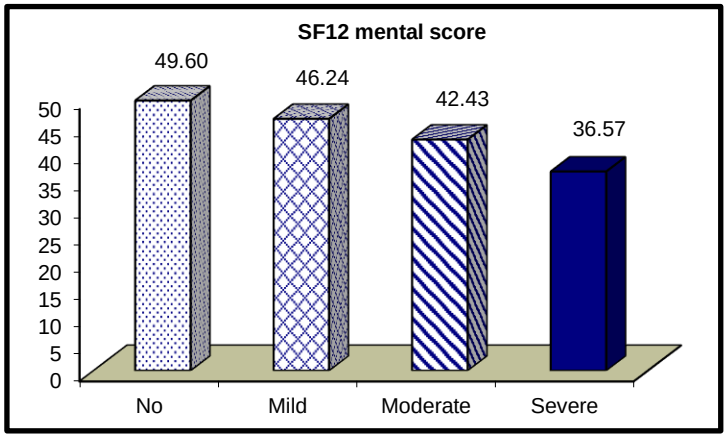

Fig (25) correlation between BDI severity and SF12 mental score
Depression severity is negatively correlated to SF12 mental score

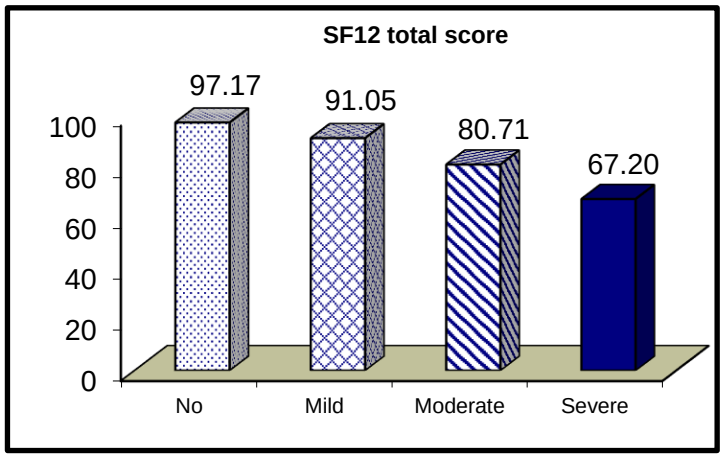

Fig (26) correlation between BDI severity and SF12 total score
Depression severity is negatively correlated to SF12 total score

DISCUSSION:

QOL is negatively impacted by end-stage renal illness since it is a chronic condition that causes significant disability across all areas of patients' lives [10].

In our study, the psychiatrist conducted an interview and gave the patient the Beck Depression Inventory. In spite of the fact that the BDI is essentially a self-report questionnaire, a psychiatric interview was undertaken to corroborate the results and guarantee that all diagnostic and Statistical Manual of Mental Disorders criteria were met.

Our study was carried out on 500 hemodialysis patients in Ain Shams university hospital and other hemodialysis unites. Their mean age was (51.14 ± 11.70) years ranged from 16 to 82 years. Majority of cases was males (57%) while (43%) were females. Their mean BMI was (24.81 ±3.39) ranged from 14 to 34. Majority of cases was non-smokers (94.2%) while only (5.8%) were smokers (Table 1).

Regarding to clinical examination, the distribution of our study sample is illustrated at Table 2. Access (AVF 92.6%, central venous catheter 7.4%). shift (morning shift 56% and afternoon shift 44%) and Dialysis vintage per month median was 37(24-60). The mean of the interdialytic weight gain was (2.42Kg ± 0.82) and mean of adequacy (KT/V) (1.23±0.18).

The means of investigations done like hemoglobin, calcium, phosphorus, albumin were (10.25±1.12), (8.47±0.73), (4.42±1.12), (3.75±0.29) respectively while the median of PTH, ferritin, TIBC were 316 (167 – 482.5) , 360.5 (209.5 – 554.5) , 25 (21 – 31) respectively illustrated at table (3).

BDI is an effective screening tool for assessing depression in HD patients. In our study, 8% of our patients had no depression, 28.6% of them had mild depression, 38.8% had moderate depression and 24.6% had severe depression illustrated in Table (4).

In *Donia's study* on 76 HD patients, Eighty five people were diagnosed with depression (76.3 percent). Of these, 18 had mild depression (23.7%), 15 had moderate depression (19.7%) and 25 had severe depression (32.9%) [11].

Table (4) shows an assessment of our study sample regards SF12 score as follows: the mean of PCS was 39.01±7.21. The mean of MCS was 42.65±5.79. The mean of the total QOL score was 81.66±12.04. These results were very close to [12] that declare the results shown in other studies from different countries where all of them used SF-36 (Table 10).

Table (10): [12]

R*	Our study	KSA Qusay et al	EUROPE Mapes et al	JAPAN Fujisawa et al	USA Lopes et al	KOREA Park et al	BRAZIL Duarte et al	TURKEY Yildirim et al	ROMANIA Seica et al
PCS	39.01	47	35.5	41.8	33.1	53	60	62	46.3
MCS	42.65	57	43.3	44.8	46.6	51	68	71	55.1

*R: References

Our study showed that there is a statistical significant relation between BDI severity and age as (p=0.001), increasing age associated with increase depression. Also, there is statistical significant relation between BDI severity with marital status and employment as (p=0.001). depression increase with married and non-employed (Table 5).

The same is with BMI and dialysis vintage, Increase BMI and D.V associated with increase depression as (P=0.035 &P=0.001) respectively (Tables 5 & 6).

Also our study showed that there is statistical significant relation between BDI severity and access (P=0.001), depression increase with central venous catheter and there is statistical significant relation between BDI severity with interdialytic weight gain with (P=0.001), depression increase with increase interdialytic weight gain table (6).

Our study also showed that there is statistical significant negative relation between BDI severity and smoking (P=0.020) table (5), depression increase with non-smokers, while in study by **[13]** found no significant relation with it.

On the other hand, using independent t test showed that there is no statistical significant difference regarding BDI between male and female as (p = 0.249) (Table 5).

This was in agreement with **[14]** in his descriptive- analytical study on 200 hemodialysis patients, revealing that relation between BDI score and age was significantly positive (p<0.001) and also There was a strong correlation between employment and depressive symptoms (p<0.002). Patients who were unemployed were substantially more likely to suffer from depression than those who were gainfully employed. Moreover, he discovered that HD's impact on depression was independent of factors like a person's gender, marital status, or length of HD treatment (p>0.05).

Regarding ***Donia et al., 2015*** in her descriptive- analytical study on 100 hemodialysis patients, revealing that relation between BDI score and age was significantly positive [11]

Our study also found there are significant relations between BDI score with Access, BMI, interdialytic weight gain (Table 6) while in a study by ***(Bossola et al.,2010)*** found no significant relation with them **[15].**

Also we found significant relation between BDI score and dialysis shift (Table 6). This was in agreement with **[16]** .depression decrease in afternoon shift·

There was also a statistical significant negative relation between BDI score with hemoglobin, TSAT, albumin where (p=0.001, P=0.002, P=0.001) respectively table (7). A study of **[17]** found that there were negative correlation between scores and albumin (r = 0.43, p < 0.05), hemoglobin (r = 0.38) p = 0.015).

In our study, calcium, phosphorus, PTH, ferritin levels didn't show any significant difference between our different groups (Table 6) and it is nearly the same result of ***Bossola*** study which found that no significant relation between BDI score with calcium, phosphorus, PTH and ferritin as P values (0.78, 0.87, 0.45,0 .70) respectively **[18]**

Regarding quality of life , our results showed a statistical significant negative correlation between the physical, mental and total components of SF12 and age as (r=-0.678, r=-0.545,r=-0.670, p=0.000) table(8) (figures 1, 8 and 16 respectively) and this was the same with **[19]** where they found that There was a generally linear drop of PCS and MCS with age, with the lowest level in the 60-70 age group; nevertheless, PCS declined dramatically in the fifth, MCS in the seventh, and overall SF-36 score decreased over time. The same decrease in MCS was previously documented in the Spanish Cooperative Renal Patients Quality of Life Study. **[20]**

BMI also has a statistical significant negative correlation with PCS, MCS and TCS as (r=-0.223, p=0.026) (r=-0.099, p=0.026) (r=-0.141, p=0.002) as show in (table 8) (figures 2, 9 and 17 respectively).

(Hsieh et al, 2007), using the Chinese brief version of the World Health Organization QOL (WHOQOL-BREF) instrument showed that QOL in ambulatory hemodialysis patients was negatively correlated with BMI· **[21]**

For patients with BMI >24, overall QOL was significantly lower than in controls. Obese individuals are usually associated with chronic diseases, physical functional

limitations, increased bodily pain, lower self-esteem and a worse health-related QOL [22] ·Studies focused on patients with maintenance hemodialysis also showed overweight patients had a worse QOL than less-obese individuals [23]

In their meta-analysis, Brennan and colleagues found four studies assessing the connection between body mass index and health-related quality of life in ESRD. After controlling for potential confounders, the authors of a cross-sectional study of 65 patients with ESRD found statistically significant independent correlations between body mass index and the physical component summary (PCS; r = 0.35) and mental component summary (MCS; r = 0.31)[24]. An association between body mass index and SF-36 physical function scores was also discovered in a study including 75 dialysis patients [25]**.** A strong correlation was found with PCS but not with MCS [26] But ***Mingardi and his collegues*** found no evidence linking BMI to any of the SF-36 components [27] also ***Spiegel and his colleagues*** found the same results [28]

Also there is a statistical significant negative correlation between physical, mental and total components of SF12 with dialysis vintage and interdialytic weight gain table (8) (figures 3, 4, 10, 11, 18 and 19 respectively) , this was the same with [29]

KT/V also has a statistical significant positive correlation with MCS and TCS as(r=0.112, p=0.012) (r=-0.104, p=0.020) respectively table (8) (figures 12 and 20 respectively) and this was similar to [30] found that Hemodialysis patients' HRQOL, as assessed by the EQ-5D, the SF-36, or the kidney disease targeted categories of the KDQOL-SF, was substantially correlated with dialysis adequacy, a changeable variable. Kt/V remained strongly linked with HRQOL (as measured by the EQ-5D VAS or index scores) even after adjusting for the impact of other factors. There was a statistically and clinically significant rise in EQ-5D index scores of 0.031 for every 0.1 increase in Kt/V.

Some previous research did not find a connection between Kt/V and HRQOL; however this could be due to their small sample sizes. No correlation was discovered between Kt/V and HRQOL in two high-quality investigations by ***Merkus and colleagues*** reporting on cross-sectional analyses of the same 120 hemodialysis patients. It's important to note that the patients investigated were 3 months into dialysis, when some residual renal function is still possible and patients may still have temporary vascular access. Other factors, such as the presence of acute illness and adjustment to life on dialysis, may be more important drivers of HRQOL in the first few months after starting dialysis· [31]

Dogan and colleagues also showed that hemoglobin, TSAT have a positive correlation with PCS,MCS and no significant correlation with albumin [17] while in our study there is significant positive correlation with all of them (table 8) (figure 6) (except MCS is significantly correlate with ferritin not TSAT) (figure 14).

Our study showed that There is statistical significant correlation between BDI score with PCS, MCS and TCS as (p=0.001) (Table 9) (figures 24, 25 and 26 respectively), increase physical& mental functions are associated with decrease depression. Our study findings are incongruence with the results reported by ***Dogan and colleagues,*** which revealed negative correlations between depression and all QoL aspects according to SF-36 questionnaire [17] .It is also in agreement with [33] where they showed a lower QOL (both mentally and physically using SF-12 questionnaire) in patients with severe depression compared with those with mild to moderate depression. As QOL is a predictor of survival in HD patients [13]**.** Hence, correlation between QOL and BDI score focuses on the effects of depression on HD patients' survival.

Conclusion

Different components of quality of life (physical and mental) are affected among our dialysis patients. Depression score (BDI score) is in direct relationship with age, marital status and employment. Physical, mental and total components of SF12v1 have a significant negative correlation with age, BMI, dialysis vintage and interdialytic weight gain. Depression severity has significant negative correlation with PCS, MCS and the total score of SF12v1. Depression is highly statistically significant in predicting of PCS, MCS and the total score of SF12v1 and each increase in depression severity leads to significant decrease in them.

Conflicts of interest:

It is clear that there are no conflicts of interest between the authors of this paper.

Limitations of the study

The study follows a cross-sectional design, includes a relatively small sample size and is Influenced by substantial residual confounding

Data availability:

No data were used to support this study.

Acknowledgements:

The authors would like to thank the hemodialysis unit personnel and all the patients that have been included in this study.

Authors' contributions:

All of the authors were involved in the research's design. As a group, AHA, YAM, and CRKA worked together to analyze and interpret data. The initial draught was prepared by FAM. It was AHA, YAM and CRKA's job to revise the first version. The final version of the manuscript was approved by all of the writers.

Ethical considerations:

The authors have taken care to avoid any ethical difficulties (such as plagiarism, data manipulation, or multiple publications) at all costs.

Funding/Support

This study didn't receive any funding in any form.

REFERENCES:

1. Zalai D, Szeifert L and NovakM. Psychological distress and depression in patients with chronic kidney disease. Semin Dial.2012; 25:428-438.
2. Kimme lPL, Peterson RA, Weihs KL, et al. Multiple measurements of depression predict mortality in a longitudinal study of chronic hemodialysis patients. KidneyInt. 2000; 57(5):2093–2098.
3. Battistello M .Management of depression in hemodialysis patients. CANNTJ.2012; 22 (3): 29-34.
4. Gerasimoula K, Lefkothea L, Maria L, et al. QOL in hemodialysis patients. Materia SocioMedica 2015; 27(5):305–309.
5. Losso R, Minhoto L, Riella M. Sleep disorders in patients with end-stage renal disease undergoing dialysis: Comparison between hemodialysis, continuous ambulatory peritoneal dialysis and automated peritoneal dialysis. International urologyand nephrology, 47(2), 369-375.
6. Kendrick T, El Gohary M, Stuart B, et al. Routine use of patient reported outcome measures (PROMs) for improving treatment of common mental health disorders in adults. Cochrane Database of Systematic Reviews. 2016(7).
7. Preljevic VT, Østhus TB, Os I, et al. Anxiety and depressive disorders in dialysis patients: associationtohealth-relatedqualityof life and mortality. General hospitalpsychiatry2013; 35(6):619-24.
8. Araujo SM, Bruin VM, Daher EDEF, et al. Risk factors for depressive symptoms in a large population on chronic hemodialysis. IntUrolNephrol2012; 44:1229-1235.
9. Watnick S, Wang PL, Demadura T& Ganzini L. Validation of 2 depression screening tools in dialysis patients.

American Journal of Kidney Diseases 2005; 46(5):919–924.

10. Saad, Marc M., et al. "Predictors of QOL in patients with end-stage renal disease on HD." *International journal of nephrology and renovascular disease* 8 (2015): 119.
11. Donia, A. F., Zaki, N. F., Elassy, M., & Elbahaey, W. (2015). Study of depression and QoL among hemodialysis patients: an Egyptian experience. *International urology and nephrology*, *47*(11), 1855-1862.
12. Mapes DL, Lopes AA, Satayathum S, et al. Health-related quality of life as a predictor of mortality and hospitalization: the Dialysis Outcomes and Practice Patterns Study (DOPPS). *Kidney Int.* 2003; 64(1):339–49.
13. Chen, Chih-Ken, et al. "Depression and suicide risk in hemodialysis patients with chronic renal failure." *Psychosomatics* 51.6 (2010): 528-528.
14. Čengič Band Resic H. Depression in hemodialysis patients. *Bosnian journal of basic medical sciences* 2010; *10*(Suppl1), S73.
15. Bossola M, Ciciarelli C, Conte GL, Vulpio C, Luciani G, Tazza L. Correlates of symptoms ofdepression and anxiety in chronic hemodialysis patients. *General hospital psychiatry 2010*; *32*(2), 125-131.
16. Teles F, Azevedo VFDD, Miranda CTD, Miranda MPDM, Teixeira MDC, & Elias RM. Depressionin hemodialysis patients:the role ofdialysis shift.*Clinics*2014;*69*,198-202.
17. Dogan E, Erkoc R, Eryonucu B, Sayarlioglu H, &Agargun MY. Relation between depression, some laboratory parameters, and quality of life in hemodialysis patients. *Renal failure* 2005; *27*(6), 695-699.
18. Bossola, M., Vulpio, C., &Tazza, L. (2011, September). Fatigue in chronic dialysis patients. In *Seminars in dialysis* (Vol. 24, No. 5, pp. 550-555). Oxford, UK: Blackwell Publishing Ltd.
19. Stojanovic Mand Stefanovic V. Assessment of Health-related Quality of Life in Patients Treated With hemodialysis in Serbia: Influence of Comorbidity, Age, andIncome.ArtificialOrgans2007*; 31:53-60*.
20. Moreno F, Gomez Lopez JM, Sanz-Guajardo D, Jofre R, Valderrabano F. QoL in dialysis patients. Spanish Cooperative Renal Patients QoL Study Group. *Nephrol Dial Transplant1996; 11:125–9.*
21. Hsieh, R. L., Lee, W. C., Huang, H. Y., & Chang, C. H. (2007). QoL and its correlates in ambulatory hemodialysis patients. *Journal of nephrology*, *20*(6), 731-738.
22. Kolotkin RL, Crosby RD, Williams R. Health-related quality of life varies among obese subgroups. *ObesityRes2002; 10:748-56*.
23. Kalantar-Zadeh K, Kopple JD, Block G, Humphreys MH. Association among SF 36 QoL measures and nutrition, hospitalization, and mortality in hemodialysis. *J Am Soc Nephrol 2001; 12:2797-806.*
24. Kalantar-Zadeh K, Kuwae N, Wu DY, et al. Associations of body fat and its changes over time with quality of life and prospective mortality in hemodialysis patients. *Am J Clin Nutr 2006; 83:202–210.*
25. Goller JL, McMahon JM, Rutledge C, Walker RG, Wood SE. Dialysis adequacy and self-reported health status in a group of CAPD patients. *Adv Perit Dial 1997; 13:128–133.*
26. Kusek JW, Greene P, Wang SR, et al. Cross-sectional study of health-related QoL in African Americans with chronic renal in sufficiency: The African American Study of Kidney Disease and Hypertension Trial. *AmJ Kidney Dis 2002;39:513–524.*
27. Mingardi G, Cornalba L, Cortinovis E, Ruggiate R, and Mosconi P, Apolone G. Health-relatedQoL in dialysis patients: A report from an Italian study using the SF-36 Health Survey. DIA-QOL Group. *Nephrol Dial Transplant1999; 14: 1503–1510.*
28. Spiegel BM, Melmed G, Robbins S, Esrailian E. Biomarkers and health-related QoL in end-stage renal disease: a systematic review. *Clin J Am Soc Nephrol. 2008;3(6):1759–68*.
29. Daniel, S. C., Azuero, A., Gutierrez, O. M., & Heaton, K. (2021). Examining the

relationship between nutrition, QoL, and depression in hemodialysis patients. *QoL Research*, *30*(3), 759-768.

30. Manns, B. J., Johnson, J. A., Taub, K., Mortis, G., Ghali, W. A., & Donaldson, C. (2002). Dialysis adequacy and health related QoL in hemodialysis patients. *ASAIO journal*, *48*(5), 565-569.

31. Merkus MP, Jager KJ, Dekker FW, de Haan RJ, Boeschoten EW, Krediet RT: Physical symptoms and quality of life in patients on chronic dialysis: results of The Netherlands Cooperative Study on Adequacy of Dialysis (NECOSAD). Nephrol Dial Transplant 14: 1163–1170, 1999

تقييم الاكتئاب لدى مرضى غسيل الكلى وأثره على جودة الحياة

أشرف حسن عبد المبدي [1] ياسر عبد الرازق محمد[2] فاطمة الزهراء محمد[1] شيري رضا كامل عطاالله[1].

قسم الباطنة ، كلية الطب، جامعة عين شمس ، القاهرة ، مصر. [1]

[2] قسم الطب النفسي ، كلية الطب ، جامعة عين شمس ، القاهرة ، مصر.

الخلفية: من المعتقد على نطاق واسع أن مرضى غسيل الكلى معرضون بشكل كبير لخطر الإصابة بمشكلات الصحة العقلية. يُعترف بالاكتئاب عمومًا باعتباره المشكلة النفسية الأكثر انتشارًا بين الحالات المصابة بمرض كلوي في مراحله الأخيرة ، مما سيؤثر سلبًا على نوعية حياتهم

الطريقة: خمسمائة شخص مع غسيل الكلى كانوا موضوع دراسة مقطعية. تم استخدام مخزون بيك للاكتئاب لتحديد تواتر أعراض الاكتئاب. يتكون جرد بيك للاكتئاب من ٢١ سؤالًا ، كل منها على مقياس من ٠ إلى ٣. تم قياس جودة الحياة باستخدام النموذج القصير ١٢ الإصدار ١. ، وهو نسخة مكثفة من الاستقصاء الصحي المختصر ٣٦ الأكثر شمولاً والذي يتضمن ١٢ سؤالاً

النتائج: بلغ متوسط عمر ٥٠٠ مريض غسيل كلى (٥١,١٤ ١١,٧٠) سنة تراوحت بين ١٦ و ٨٢ سنة. ما يقرب من ٨٪ من مرضانا لم يكن لديهم اكتئاب ، و ٢٨,٦٪ يعانون من اكتئاب خفيف ، و ٣٨,٨٪ يعانون من اكتئاب متوسط ، و ٢٤,٦٪ يعانون من اكتئاب حاد. كان متوسط درجة المكون العقلي ٤٢,٦٥ ± ٥,٧٩ ، وكان متوسط درجة المكون المادي ٣٩,٠١ ± ٧,٢١ ، وكان متوسط الدرجة الإجمالية ٨١,٦٦ ± ١٢,٠٤. كانت النتائج الإجمالية والعقلية والجسدية مرتبطة بشكل كبير بمستويات مخزون بيك للاكتئاب. يرتبط ارتفاع الوظائف الجسدية والعقلية بانخفاض الاكتئاب.

الخلاصة: الاكتئاب منتشر بين مرضى غسيل الكلى بغض النظر عن درجته. تتأثر جوانب مختلفة من جودة الحياة لدى مرضى غسيل الكلى لدينا. الاكتئاب ذو دلالة إحصائية عالية في التنبؤ بنتيجة المكون البدني ، ودرجة المكون العقلي ، والنتيجة الإجمالية للإصدار ١ من النموذج القصير ١٢.