# Quality of life of patients with end stage renal disease undergoing haemodialysis: a sample from two haemodialysis centre in Baghdad

**Hind Walid Khuder**[1], **Faris Hassan Al Lami**[2], **Adnan Abduladheem AL Jber**[3]

## ABSTRACT

**INTRODUCTION**: The quality of life is an important predictor of outcome in end stage renal disease patients. The quality of life needs to be regularly assessed. Our study describes quality of life, as well as demographic and clinical variables associated with quality of life in chronic haemodialysis patients in two centres in Baghdad, Iraq, 2017.

**OBJECTIVE**: Is to assess the QoL and its contributing factors in ESRD patients undergoing haemodialysis in Baghdad, Iraq, 2017.

**METHODS**: This was a descriptive cross sectional study conducted at dialysis unit in Baghdad and Al-Karama Teaching Hospitals from March to May 2017. Patients who are diagnosed as ESRD on chronic haemodialysis during the period of the study was included. The participants were directly interviewed according to a special questionnaire designed for the purpose of the study; it contains items exploring socio-demographic data, clinical data. Data regarding assessment of effect of kidney disease on quality of life were collected by kidney disease quality of life-short form 1.3 versions .The maximum score of the total quality of life was 100 points. The score had been categorized as excellent > 80 score, good (61-80) score, moderate (40 – 60) score, and the poor score (< 40).

**RESULTS**: The total number of participants was 248 patients. The mean of quality of life was 47.63±16.22. The total score was excellent in 12 participants (4.8%), good in 47 (19%), moderate in 99 (39.9%), and poor in 90 participants (36.3%). The highest mean of quality of life domains was found for social support subscale, the low scores was reported for work status, role limitation due to physical problem, role limitation due to emotional problem, general health, and sexual function.

**CONCLUSION**: The study had shown that the quality of life of haemodialysis patients was highly impaired and it clearly defines how the disease state adversely affects the physical and mental status of the patient.

**Key words**: Quality of Life, Haemodialysis patients, End stage renal disease, Iraq.

**Iraqi New Medical Journal January 2020;6(11)**

## INTRODUCTION

Kidney failure has a substantial impact on life expectancy and health-related quality of life (HRQoL). Although dialysis prolongs life for patients with end stage renal disease (ESRD), morbidity and mortality remain high in this population.[1,2] Renal replacement therapy (RRT) is not a cure for chronic kidney disease (CKD), but helps to prolong life and improve patients' Quality of Life (QoL).[3,4]

QoL, though equally important to assess the quality and outcomes of medical care, is not routinely measured. QoL instruments measure individual's own views of his wellbeing. The core components of QoL are physical, functional, psychological/emotional, and work/occupational.[5] Most studies looking at QoL in individuals with chronic renal failure focus on ESRD. The effect of treatment modality has often been explored, and it has been established that ESRD patients receiving RRT experience a decline in QoL.[6-9]

ESRD has a greater effect on QoL than do

[1] MBChB, Diploma FM. Family physician. Al-Sindibad Health care Centre, Al-Russafa Health Directorate, Baghdad, Iraq.
[2] MBChB, MSc, PhD, FFPH, Assistant Professor of community Medicine, College of Medicine , Baghdad University, Baghdad, Iraq.
[3] MBChB, FICM med, FCIM neph, Baghdad Teaching Hospital, Medical City, Baghdad, Iraq.

**Corresponding Author**: Adnan Abduladheem AL Jber, Baghdad Teaching Hospital, Medical City, Baghdad, Iraq. Email address: aamh1976@gmail.com

other diseases and that this effect is related to the importance of associated comorbidities; it was found that clinical disorders impair the QoL of ESRD patients whose first dialysis is unplanned.[7]

SF-36 has been used as a generic core for the Kidney Disease Quality of Life (KDQoL) instrument; a self-report measure that includes a 36-item health survey as the generic core, supplemented with multi-item scales targeted at particular concerns of individuals with kidney disease and on dialysis (symptoms/problems, effects of kidney disease on daily life, burden of kidney disease, cognitive function, work status, sexual function, quality of social interaction, sleep). Multi-item measures of social support, dialysis staff encouragement and patient satisfaction, and a single-item overall rating of health were also included.[10] The KDQoL SF, a short version of the KDQoL, actually a SF-36 supplemented with 43 disease-specific items, was shown to be a reliable tool in HRQoL assessment in dialysis patients.[11] Using the Kidney Disease Quality of Life Short Form (KDQoL-SF), scores for three components of HRQoL; physical component summary (PCS), mental component summary (MCS), and kidney disease component summary (KDCS) were determined. Lower scores for the three major components of HRQoL were strongly associated with higher risk of death and hospitalization in haemodialysis patients, independent of a series of demographic and co-morbid factors.[11]

The objective of this study is to assess the QoL and its contributing factors on ESRD patients undergoing haemodialysis in a single Haemodialysis centre in Baghdad, Iraq 2017. This study could serve as the basis for developing and implementing future health promotion programs to improve quality of life in patients undergoing haemodialysis to help them cope with the life style changes and hardships caused by haemodialysis.

## METHODS

**Study design, Setting:** This was a descriptive cross-sectional study conducted at dialysis unit in Baghdad and Al-Karama Teaching Hospitals in Baghdad from March to May 2017.

**Definition of the case; inclusion and exclusion criteria:** The participants of the study were patients with end stage renal disease who undergoing haemodialysis during data collection period. The following patients were excluded from the study:

- Patients aged less than 18 years.
- Patients with severe mental or cognitive problems, hearing problems or active psychosis.
- Patients undergoing emergency dialysis.
- Patients who refuse to participate.
- Patient with dialysis duration of less than 3 month.

**Sampling:** We enrolled patients in our study using a convenient sampling methods.

**Data Collection:** The participants were directly interviewed by using a special questionnaire designed for the purpose of the study; it took about 20-30 minutes for each patient to complete the form. It contains items exploring socio-demographic data, clinical data. Data regarding assessment of effect of kidney disease on quality of life (QoL) were collected by using kidney disease quality of life-short form 1.3 versions (kdqol-sf1.3).[12] The socio-demographic data were age, gender, marital status, level of education, living status, residence, working status, and owning house. The clinical data were the cause, duration of dialysis, Kidney disease quality of life-short form 1.3 versions (kdqol-sf1.3).

A self-reported instrument was developed for individuals with kidney disease and on dialysis. It contains disease target items focus on health-related concerns in individuals with kidney disease and on dialysis; symptoms /problem (12 items), effect of kidney disease on daily life (8 items), burden of kidney disease (4 items), Work status (2 items), cognitive function (3 items), quality of social interaction (3 items), sexual function (2 items), sleep (4 items), social support (2 items), dialysis staff encouragement (2 items), patient satisfaction (1 item).[13]

KDQoL-SF 1.3 also include a 36 item health survey multi-item measures of physical and mental health status: physical functioning (10 items), role limitations caused by physical health problems (4 items), role limitations caused by emotional health problem (3 items), social functioning (2 items) emotional well-being (5 items), pain (2 items), energy/ fatigue (4 items), and general health perception (5 items). The fi-

nal item asks respondent's rate their health on a 0-10 scale ranging from "worst possible" to "best possible" health.[12]

The scoring procedure done by transforming the raw precoded numeric values of items to a 0-100 possible range with higher transformed scores always reflecting better quality of life except 4 items which require additional instruction: Item 17 to 22 need to be multiplied by 10 to be on a 0-100 range. Item 23, subtract 1 (possible minimum) from the precoded value, divide the difference by six (difference between possible maximum and minimum then multiply by 100. Item 16 scored on the sexual function scale.[14]

In the second and final step the scoring processes, items in the same scale are averaged together to create the scale scores.[14] The total QoL score was divided into four levels:[15]

- ***Poor***: Total QoL score less than 40.
- ***Moderate***: Total QoL score is 40-60.
- ***Good***: Total QoL score is 61 to 80.
- ***Excellent***: Total QoL score more than 80.

**Statistical analysis**: The questionnaire forms were gathered, checked, and the needed calculations were done. Data were analysed with Statistical Package for Social Sciences (SPSS) version 20 and the results were presented as tables. Descriptive statistics were used to assess the mean and standard deviation for patient numerical demographics. Chi square test of independence was performed to identify the factors affecting the QoL through cross-classifying the QoL different demographic and medical characteristics. The statistical significance of the study was set at P of 5% level of significance.

## RESULTS

**Socio-demographic characteristics**: The total number of the study sample was 248; their distribution by socio-demographic characteristics is shown in table 1. Males were 157 (63.3%). The age of the participants ranged between 18 and 80 years old, the mean was 51.02±16.43 years and the most frequent age group was 51-70 years.

The highest proportion of participants was of primary school level of education (34.7%).

**Table 1: Distribution of study sample by Socio-demographic characteristics**

| Socio-demographic variable | | No(n=248) | % | p value |
|---|---|---|---|---|
| Age (years) | <30 | 32 | 12.9 | 0.000 |
| | 30-50 | 72 | 29.0 | |
| | 51-70 | 119 | 48.0 | |
| | >71 | 25 | 10.1 | |
| Gender | Female | 91 | 36.7 | 0.004 |
| | Male | 157 | 63.3 | |
| Education level | Illiterate | 18 | 7.3 | 0.027 |
| | Primary | 86 | 34.7 | |
| | Secondary | 71 | 28.6 | |
| | Collage | 65 | 26.2 | |
| | Post graduation | 8 | 3.2 | |
| Marital status | Married | 182 | 73.4 | 0.000 |
| | Single | 33 | 13.3 | |
| | Widowed | 25 | 10.1 | |
| | Divorced | 8 | 3.2 | |
| Living status | With family | 242 | 97.6 | 0.000 |
| | Alone | 6 | 2.4 | |
| Working status | Working | 68 | 27.4 | 0.000 |
| | Not working | 129 | 52.0 | |
| | Retired | 51 | 20.6 | |
| Owning house | Owned house | 162 | 65.3 | 0.118 |
| | Rented | 86 | 34.7 | |
| Residence | Urban | 210 | 84.7 | 0.215 |
| | Rural | 38 | 15.3 | |
| Duration of dialysis | ≤ 1 year | 90 | 36.3 | 0.023 |
| | 1-3 years | 77 | 31.0 | |
| | 3-5 years | 73 | 29.4 | |
| | > 5 years | 8 | 3.2 | |

**Table 2: Frequency distribution of total QoL score categories**

| Quality of life score | Frequency | % |
|---|---|---|
| Poor | 90 | 36.3 |
| Moderate | 99 | 39.9 |
| Good | 47 | 19.0 |
| Excellent | 12 | 4.8 |

Most of participants were married (73.4 %); 97.6% were living with their families, 65.3% of them owned their house, and 84.7% live in urban area.

Around 52.0% of patients were not currently working, 27.4% were currently working and 20.6% were retired. The median duration of dialysis was 24.0 months with minimum value of 3 months and the maximum value of 156 months (13 years).

**The distribution of QoL score**: Table 2 shows the distribution of QoL total Scores into 4 categories; Excellent > 80 score, good 61-80 score, moderate 40 – 60 score, and the poor score < 40, for the total score and the domains. The total score was excellent in 12 participants (4.8%),

**Table 3A: Frequency distribution of SF-36 domains by total score categories**

| The SF36 domain | Poor n=90 | | Moderate n= 99 | | Good n= 47 | | Excellent n=12 | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Physical function | 99 | 39.9 | 79 | 31.8 | 40 | 16.1 | 30 | 12.09 |
| Role limitation due to physical problem | 156 | 62.9 | 27 | 10.9 | 17 | 6.8 | 48 | 19.3 |
| Bodily pain | 75 | 30.3 | 58 | 23.4 | 62 | 25.0 | 53 | 21.3 |
| Social functioning | 67 | 27.0 | 51 | 20.5 | 57 | 22.9 | 73 | 29.4 |
| Emotional well being | 97 | 36.6 | 94 | 37.9 | 48 | 19.3 | 9 | 3.6 |
| Role limitation due to loss of vitality energy | 89 | 35.8 | 99 | 39.9 | 55 | 22.1 | 5 | 2.07 |
| Role limitation due to emotional problem | 173 | 69.7 | 7 | 2.8 | 23 | 9.2 | 45 | 18.1 |
| General health perception | 116 | 47.7 | 102 | 41.1 | 25 | 10.1 | 5 | 2.01 |

**Table 3 B: Frequency distribution of kidney disease domains by total score categories**

| Kidney disease domains | Poor n=90 | | Moderate n= 99 | | Good n= 47 | | Excellent n=12 | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Symptoms/problem | 13 | 5.2 | 135 | 54.4 | 92 | 37.0 | 8 | 3.2 |
| Effect of kidney disease | 117 | 47.1 | 91 | 36.6 | 36 | 14.5 | 4 | 1.6 |
| Burden of kidney disease | 136 | 54.8 | 69 | 27.8 | 37 | 14.9 | 6 | 2.4 |
| Work status | 185 | 74.5 | 0 | 0 | 0 | 0 | 63 | 25.2 |
| Cognitive function | 82 | 33.0 | 99 | 39.9 | 57 | 22.9 | 10 | 4.03 |
| Quality of social interaction | 31 | 12.5 | 103 | 41.5 | 85 | 34.2 | 29 | 11.7 |
| Sexual function* | 64 | 35.2 | 74 | 40.6 | 32 | 17.6 | 12 | 6.6 |
| Sleep | 53 | 21.3 | 93 | 37.5 | 86 | 34.6 | 16 | 6.4 |
| Social support | 31 | 12.5 | 18 | 7.25 | 46 | 18.5 | 153 | 61.7 |
| Dialysis staff encouragement | 55 | 22.1 | 77 | 31.4 | 91 | 36.6 | 25 | 10.1 |
| Patient satisfaction | 52 | 20.9 | 111 | 44.7 | 67 | 27.1 | 18 | 7.2 |

*In sexual function domain total numbers of patients are 182 who represent the currently married participants.

good in 47 (19.0%), moderate in 99 (39.9%), and poor in 92 participants (36.3%).

**The distribution of QoL domains by total score categories:** Table 3A shows that the highest number of patients lies within poor category except for role limitation due to loss of vitality, energy in which the biggest number lies within moderate category. While in table 3B the QoL domains, most of patients lie within moderate category except for working status and sexual function which lies in poor category and social support lies within good category.

**Mean ± SD of QoL subscales of the study population:** The total mean QoL of haemodialysis patients was 47.63±16.22. The highest mean was found for social support subscale, the lowest was for work status, role limitation due to physical problem, role limitation due to emotional problem, general health, and sexual function.

The mean of total QoL score by socio-demographic variables: Table 5 shows that males have higher mean score of level of QoL. QoL scores increases with increasing educational level, higher scores found in working, single, living alone. Meanwhile age (51-70) years, decrease educational level being divorced or widowed, not working associated with lower scores of QoL.

**The mean of total QoL score by clinical and biochemical variables:** As shown in table 6 QoL is more with more duration of the dialysis.

## DISCUSSION

ESRD has a considerable impact on the functional status and QoL perceived by the patient. Even in relatively early stages, it may be accompanied by symptoms that affect daily life. The present study focused on the assessment of HRQoL among ESRD patients undergoing haemodialysis. Several standard questionnaires are available, KDQoL-SF1.3 a specific instrument to evaluate patients with kidney disease, was se-

**Table 4: Mean±SD of QoL domains of the study population**

| QoL domains | mean ± SD |
|---|---|
| Physical function | 46.43 ± 27.19 |
| Role limitation due to physical health problem | 30.58 ± 40.76 |
| Bodily pain | 56.49 ± 29.59 |
| Social functioning | 60.82 ± 31.19 |
| Emotional well being | 43.04 ± 21.55 |
| Role limitation due to loss of vitality energy | 45.59 ± 20.80 |
| Role limitation due to emotional problem | 29.18 ± 39.67 |
| General health perception | 39.82 ± 19.20 |
| Symptoms/problem | 57.88 ± 12.87 |
| Effect of kidney disease | 43.62 ± 16.34 |
| Burden of kidney disease | 40.68 ± 19.60 |
| Work status | 28.23 ± 45.1 |
| Cognitive function | 48.26 ± 19.68 |
| Quality of social interaction | 58.41 ± 19.26 |
| Sexual function | 37.5 ± 32.27 |
| Sleep | 55.88 ± 21.00 |
| Social support | 77.59 ± 22.76 |
| Dialysis staff encouragement | 57.53 ± 21.47 |
| Patient satisfaction | 52.81 ± 16.48 |

**Table 5. The mean of total QoL score by socio-demographic variables:**

| Socio-demographic variables | | Mean ± SD |
|---|---|---|
| Age (years) | <30 | 44.79 ± 15.058 |
| | 30-50 | 56.33 ± 14.454 |
| | 51-70 | 43.63 ± 16.539 |
| | >70 | 45.48 ± 11.424 |
| Gender | Female | 43.21 ± 13.07 |
| | Male | 50.36 ± 17.29 |
| Educational Level | Illiterate | 42.28 ± 14.938 |
| | Primary | 45.28 ± 18.648 |
| | Secondary | 47.94 ± 14.346 |
| | Collage | 52.60 ± 15.054 |
| | Post graduation | 53.00 ± 5.976 |
| Marital status | Married | 48.21 ± 16.920 |
| | Single | 56.18 ± 9.923 |
| | Widowed | 37.20 ± 11.045 |
| | Divorced | 35.00 ± 10.690 |
| Living status | With family | 47.05 ± 15.829 |
| | Alone | 75.17 ± 5.565 |
| Work status | Working | 65.71 ± 13.005 |
| | Not currently working | 39.11 ± 11.565 |
| | Retired | 45.59 ± 9.920 |

**Table 6. The mean of total QoL score by clinical variables**

| Clinical variables | | Mean ± SD |
|---|---|---|
| Dialysis duration | ≤ 1 year | 50.30 ± 16.351 |
| | 1-3 years | 46.96 ± 15.776 |
| | 3-5 years | 46.73 ± 15.994 |
| | > 5 years | 35.50 ± 16.243 |

lected for determining QoL of the study population.

In this study, the mean of the total HRQoL score was 47.63 ± 16.22 and this lies within the rank of moderate level of HRQoL. This percent was the same result of a study conducted in Egypt by Abdulghani et al, in 2015 on 81 patients in which the mean of total score was found 47.2± 25.2.[16] But it was lower than scores found in Saudi Arabia in a study conducted on 100 patients on chronic haemodialysis (HD) in 2011 in which the mean of total QoL score was 60.4± 27.3[17] and also lower than the mean of total QoL in Iran in a multicenter study that was done on 6930 patients in 2013 the mean was 51.12± 13.42.[18]

In the current study, only the social support domain was in the level "good". While work status domain, sexual function, general health, role limitation due to emotional problem and role limitation due to physical problem domains were all in level "poor". This result is lower than the scores of HRQoL domains reported from studies done in Iran and Saudi Arabia[17, 18] and much lower than scores reported from Japan, Europe and USA.[19]

The best QoL scores in our patients were found in social support domain 77.07±22.7 and social interaction 60.43±31.32 which is the same scores found in Nayana et al study from India that was done on 50 patients in 2015.[20]

The most affected dimension of QoL in this study was patients' perception for work function and role of physical limitation scores that were relatively low 28.23 ± 43.27, 30.33 ± 40.69 respectively. Same finding were found in an Egyptians study[16] and in a Romanian study done by Sieca et al on 706 patients in 12 dialysis centres in 2009.[21]

Only 27.4 % of patients were working (full or part time), the remaining were not working either due to being retired, in working-age but searching for a suitable job, or can't work due to physical limitation. The same percentages were found in Jordan in a study that was done on 138 HD patients in 2011[22] and in Egypt; however, it was higher than the results of Al-Saedy et al study that was done at 2011 in Baghdad.[23] Working participants had the highest QoL scores.

Concerning gender, the results revealed that female had lower QoL scores in all domains. The reasons for poor QoL in women are not clear

and seem to be related to psychological and social factors, rather than the illness itself.[24, 25] This agrees with results of a Korean study[26] which recruited 237 patients in 2010, and an Egyptian study.[16]

The mean age of this study is 50.93 ± 16.49; most of patients were within the age group of (51-70) years which is nearly the same found in Rostomi et al from Iran.[18] This age group showed the least mean of total QoL scores.

Regarding educational level which had significant impact on QoL scores, patients who completed college study had higher mean scores of QoL. Unlike the Romanian study which found that the lower the educational level was, the better the QoL scores.[21] These results are explained by the role of higher education in raising the awareness of the patients about the nature of chronic diseases and providing better coping ability regarding problems of haemodialysis treatment.

In terms of marital status, 73.2 % of the patients were married; this percentage was much higher than that found in a study that was conducted in Kirkuk, done on 94 patients in dialysis centre in Kirkuk General Hospital in which 62.8% of the total sample were married,[27] and even higher than that found in Jordanian[22] and Saudi studies.[28] Being unmarried is associated with higher mean score of QoL in this study.

The dialysis duration had a significant association with QoL score (the mean score of QoL decrease with increase of duration). This is agreeing with the Saudi studies[28] in which longer dialysis duration were negative predictors of QoL score.

This study has the following limitations:

- Being a cross-sectional study, temporal relationship cannot be verified, hence causality cannot be judged.
- Recall bias in obtaining information is expected in such a design.

## REFERENCES


1. De Wit GA, Ramsteijn PG, de Charro FT. Economic evaluation of end stage renal disease treatment. ***Health policy***. 1998 Jun 30;44(3):215-32.
2. Winkelmayer WC, Weinstein MC, Mittleman MA, Glynn RJ, Pliskin JS. Health economic evaluations: the special case of end-stage renal disease treatment. ***Medical Decision Making***. 2002 Oct; 22(5):417-30.
3. Fayers, P.M. and D. Machin, 2007. Quality of life: the assessment, analysis and interpretation of patient reported outcomes: second edition: Wiley;2013.
4. Saban KL, Stroupe KT, Bryant FB, Reda DJ, Browning MM and Hynes DM. Comparison of health-related quality of life measures for chronic renal failure: quality of well-being scale, short-form-6D and the kidney disease quality of life instrument. ***Qual of Life Research*** 2008; 17(8): 1103-15.
5. Fellow field L. What is Quality Of Life [Internet]. 2nd ed. 2009.
6. Mingardi G, Cornalba L, Cortinovis E et al. Health-related quality of life in dialysis patients. A report from an Italian study using the SF-36 health survey. ***Nephrol Dial Transplant*** 1999;14:1503–1510.
7. Khan I, Garratt A, Kumar A et al. Patients' perception of health on renal replacement therapy: Evaluation using a new instrument. ***Nephrol Dial Transplant*** 1995;10:684–689.
8. Mingardi G. From the development to the clinical application of a questionnaire on the quality of life in dialysis. The experience of the Italian collaborative DIA-QOL (Dialysis-Quality of Life) group. ***Nephrol Dial Transplant*** 1998;13:70–75.
9. Evans R, Manninen D, Garrison L et al. The quality of life of patients with end-stage renal disease. ***N Engl J Med*** 1985; 312:553–559.
10. Hays RD, Kallich JD, Mapes DL, Coons SJ, Carter WB: Development of the kidney disease quality of life (KDQOL) instrument. ***Qual Life Res*** 3: 329–338, 1994.
11. Mapes DL, Lopes AA, Satayathum S, McCullough KP, Goodkin DA, Locatelli F, Fukuhara S, Young EW, Kurokawa K, Saito A, Bommer J, Wolfe RA, Held PJ, Port FK: Health-related quality of life as a predictor of mortality and hospitalization: The Dialysis Outcomes and Practice Patterns Study (DOPPS). ***Kidney Int*** 2003;64:339–349.
12. Hays RD, Kallich JD, Mapes DL, Coons SJ, Amin N, et al. (1997) Kidney Disease Quality of Life Short Form (KDQOL-SF), version1.3: A manual for use and scoring. RAND, Washington D.C.
13. Hays, RD, Sherbourne CD, Mazel RM. The Rand 36 –Item Health Survey 1.0. ***Health Economics*** 1993;2:217-227.
14. Ware JE and Sherbourne CD. The MOS 36-item short- form health survey (SF-36). A. Conceptual framework and item selection. ***Medical Care*** 1992; 30: 473-483
15. Rajabi F, Dabiran S, Hatmi Z, Zamani G. Quality of life of epileptic patients compared to general population of Tehran. ***Acta Medica Iranica*** 2009; 47:75-78.
16. Abdelghany MA, Elgohary EE, Nienaa YA. Assessment of Health-Related Quality of Life in Patients Receiving Regular Hemodialysis. ***J Nephrol Ther*** 2016;6:246.15
17. Al Jumaih A, Al-Onazi K, Binsalih S, Hejaili F, Al-Sayyari A. A Study of Quality of Life and its Determinants among Hemodialysis Patients Using the KDQOL-SF Instrument in One Center in Saudi Arabia. ***Arab J Nephrol Transplant***. 2011;4(3):125-30.
18. Rostami Z, Einollahi B, Lessan-Pezeshki M, et al. Health-Related Quality of Life in Hemodialysis Patients: An Iranian Multi-Center Study. ***Nephro-urology Monthly*** .2013;5(4):901-912.
19. Fukuhara S, Lopes AA, Bragg-Gresham JL, et al. Health related quality of life among dialysis patients on three continents: the Dialysis Outcomes and Practice Patterns Study. ***Kidney Int***. 2003; 64(5):1903-1910.
20. Nayana SA, Balasubramanian T, Nathaliya PM, Hussain PN, Mohammed Salim KT, Muhammed Lubab P. A cross sectional study on assessment of health related quality of life among end stage renal disease patients undergoing hemodialysis. ***Clinical Epide-***

*miology and Global Health* 2017; 5(3): 148-153.

21. Seica A, Segall L, Verzan C, Vaduva N, Madincea M, Rusoiu S, et al. Factors affecting the quality of life of haemodialysis patients from Romania: a multicentric study. *Nephrol Dial Transplant*. 2009 ; 24(2):626-9
22. Shdaifat EA, Manaf MR. Haemodialysis in Jordan: Socio-demographic data, clinical analysis and projecting burden. *Middle East J Sci Res*. 2013;14:624-32.
23. Al-Saedy A. and Al-Kahichy H. The current status of hemodialysis in Baghdad. *Saudi Journal of Kidney Diseases and Transplantation* 2011; 22(2): 362.
24. Valderrábano F, Jofre R, López-Gómez JM. Quality of life in end-stage renal disease patients. *Am J Kidney Dis* 2001;38(3): 443-464.
25. Moreno F, Gomez JML, Jofre R, Valderrabano F, Gonzalez L, et al. Quality of life in dialysis patients. A Spanish multicentre study. *Nephrol Dial Transplant* 1996;11(2): 125-129.
26. Kim JY, Kim B, Park KS, Choi JY, Seo JJ, Park SH, Kim CD,Kim YL. Health-related quality of life with KDQOL-36 andits association with self-efficacy and treatment satisfaction in Korean dialysis patients. *Qual Life Res* 2013; 22(4): 753-758.
27. Ali RY. Quality Of Life For Hemodialysis Patients In Kirkuk Governorate/Iraq. *Kufa Journal for Nursing Sciences* 2014 Feb 26;3(3):160-167.
28. Bayoumi M, Al Harbi A, Al Suwaida A, Al Ghonaim M, Al Wakeel J, Mishkiry A. Predictors of quality of life in hemodialysis patients. *Saudi Journal of Kidney Diseases and Transplantation*. 2013 Mar 1;24(2):254.

**Abbreviation list:** Chronic kidney disease (**CKD**), End stage renal disease (**ESRD**), Haemodialysis (**HD**), Health-related quality of life (**HRQoL**), Kidney disease component summary (**KDCS**), Kidney disease quality of life-short form 1.3 versions (**kdqol-sf1.3**), Kidney Disease Quality of Life (**KDQoL**), Mental component summary (**MCS**), Physical component summary (**PCS**), Quality of Life (**QoL**), Renal replacement therapy (**RRT**), Statistical Package for Social Sciences (**SPSS**), United State of America (**USA**)

**Conflict of interest:** No conflict of interest to be declared.

**Funding:** Self funding.