A Study of Quality of Life of Patients on Regular Haemodialysis at Sohag University Hospital 2015

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Abstract

Background: Haemodialysis has a considerable impact on health related quality of life. Haemodialysis alters the life style of the patients and their families and interfere with their lives. It's important to assess QoL of patients on haemodialysis and determine factors that alter the QoL. **Aim of the work:** The aim of this study was to assess QoL of patients on regular haemodialysis and determine some factors that affect the QoL. **Patients and methods:** This cross sectional hospital based study targeted a total coverage of patients in haemodialysis unit at Sohag University Hospital (198 patients) from September 2014 to December 2015 using KDQOL-SF^{TM} instrument. **Results:** Total number of the studied patients was 198. The mean age was 48.8 years and the mean duration of dialysis was 4.19 years, most participants were males (64.1%), married (73.3%), illiterate (53%), unemployed (82.3%), and rural residents (77.8%), their monthly income ranged from 200-500 LE (48.5%). The most affected aspect was physical health component (PCS) which recorded the lowest scores, followed by mental component score (MCS) followed by kidney disease component summary (KDS) (95.28, 46.15, 90.04 consecutively). PCS, MCS, KDS scores were statistically significantly higher in male gender, employed, higher family income and higher level of education. Scores were insignificantly affected by marital status. **Conclusion:** Quality of life of patients on haemodialysis at Sohag University Hospital was impaired especially in the physical and mental component. Female gender, older age, longer duration of dialysis, low level of education, un employment and low family income leads to impaired quality of life. Much attention should be paid to improve physical and psychological aspects of the patients.

Introduction

The ultimate goal of health care is to restore or preserve functioning and well-being related to health. Health related quality of life is the functional effect of a medical condition and/or its consequent therapy upon a patient[1]. The purpose of health related quality of life (HRQOL) measurement is to quantify the degree to which the medical condition or its treatment impacts the individual's life in a valid and reproducible way. These measurements can then be used to measure changes in HRQOL over time, to compare the HRQOL of patients with different conditions or who receive different treatments[2].

End stage renal disease (ESRD) is one of such chronic diseases causing a high level of disability in different domains of the patients' lives, leading to impaired quality of life. Survival of ESRD patients has been largely improved nowadays because of

medical progress, advanced technology and better patient care. The availability of various renal replacement therapies (RRT) has reduced the severity of symptoms and resulted in longer survival of ESRD patients[3].

End stage renal disease (ESRD) has become a worldwide public health problem[4.] The number of patients being treated for ESRD globally was estimated to be 2,786,000 at the end of 2011 and continues to increase at a significantly high rate. Of these 2,786,000 ESRD patients, approximately 2,164,000 were undergoing dialysis treatment [haemodialysis (HD) or peritoneal dialysis (PD)] and around 622,000 people were living with kidney transplants. At the end of year 2011, haemodialysis remained the most common treatment modality, with approximately 1,929,000 patients undergoing haemodialysis (89% of all dialysis patients) and around 235,000 patients undergoing peritoneal dialysis (11% of all dialysis patients)[5]. In Egypt the Prevalence of ESRD has increased from 403 PMP (per million populations) at year 2003 to 483 PMP at year 2004. In Sohag governorate the prevalence rate of ESRD was 276 PMP during year 2003[6]. Then, the prevalence rate has increased to become 316 PMP during year 2010[7].

Hemodialysis therapy is time-intensive, expensive and requires fluid and dietary restrictions. Long-term dialysis therapy itself often results in a loss of freedom, dependence on caregivers, disruption of marital, family, and social life, and reduced or loss of financial income [8]. Hemodialysis alters the life style of the patient and family and interferes with their lives. The major areas of life affected by ESRD and its treatment includes employment, eating habits, vacation activities, sense of security, self-esteem, social relationships, and the ability to enjoy life[9]. Due to these reasons the physical, psychological, socioeconomic, and environmental aspects of life are negatively affected, leading to compromised quality of life[10].

Accumulated data in the recent decade shows that health-related quality of life markedly influences dialysis outcomes. Evaluation of health related quality of life (HRQOL) in haemodialysis patients is becoming very important. Attention thus needs to be focused not only on how long but also on how well end stage renal disease (ESRD) patients' live[11]. Assessment of Health related quality of life in haemodialysis patients helps to plan the individual strategy of treatment, to determine the efficacy of medical intervention and to evaluate the quality of medical care. It provides the opportunity to evaluate the psychological burden of chronic disease, and the effect of specific treatment[12]. It also helps in comparing alternative treatments, improving clinical outcomes, facilitating rehabilitation of ESRD patients, and enhancing patient satisfaction. Several authors have suggested that regular HRQoL monitoring become part of regular ESRD patient assessment and incorporated into the continuous quality assurance and quality improvement systems[13].

Aim of the work: This study aimed to assess quality of life of the haemodialysis patients in Sohag University Hospital through assessing different domains of quality of life of the patients as physical, mental, social domains.

Patients and Methods:

A cross sectional hospital based study, targeted at total coverage of patients on chronic haemodialysis at Sohag University Hospital .

The period of study was from September, 2014 to December, 2015.
Eligibility criteria: All adult patients of any age, whether males or females who were on regular haemodialysis at the haemodialysis Unit of Sohag University Hospital at time of study were asked to participate. The patient who accepted to participate in the study and gave a written consent (which is included in the questionnaire) were interviewed. Accordingly the total number of patients on regular haemodialysis during period of study were 215 patients. Of them 198 were enrolled in the study and the rest refused to participate. The respondent rate was 92%.

Study tool: An interview was conducted using a questionnaire. It included 2 parts; the first part included basic socio demographic data. The second part is the kidney disease quality of life short form questionnaire (KDQOL-SF[TM]) which comprised questions that cover quality of life (QOL) domains[14]. Demographic data and economic data included data about gender, age , residence, marital status, educational level, occupation, duration of dialysis, monthly family income and income satisfaction.

The KDQOL-SF[TM] is a multi-item measure developed for individuals with kidney disease and on dialysis. It consists of data about physical, mental health state of the patient and his (her) kidney disease: (a) Physical health components summary (PCS) included the following items: Physical functioning (10 items), role-physical (4 item), bodily pain (2 item) and general health (5 items). (b) Mental health component summary (MCS) included the following: Fatigue/energy (4 items), social functioning (2 items), role-emotional functioning (3 items) and emotional wellbeing (5 items). (c) Kidney disease component summaries

(KDS) included the following : Symptom/problem list (12 items), effects of kidney disease on daily life (8 items), burden of kidney disease (4 items), cognitive function (3 items), work status (2 items), sexual function (2 items), quality of social interaction (3 items), sleep (4 items), social support (2 items), dialysis staff encouragement (2 items) and patient satisfaction (1 item). The final item of the questionnaire was the overall health rating item asks respondents to rate their health on a 0-10 responses scale ranging from "worst possible (as bad or worse than being dead)" to "best possible health".

Scoring: The scoring procedure for the KDQOL-SF[TM] first transform the raw pre-coded numeric values of items to a 0-100 possible range, with higher transformed scores always reflecting better quality of life. Each item is put on a 0-100 range so that the lowest and highest possible scores are set at 0-100, respectively. Scores represents the percentage of total possible scores achieved. In the second and final step in the scoring process, items in the same scale averaged together to create the scale score.

Statistical analysis: The collected data were subjected to statistical analysis using (SPSS – version 16). P-value is considered significant if less than 0.05. P-value is calculated using Mann-Whitney test.

Results

Total number of the studied patients was 198. As shown in table (1) the mean age was 48.8 years and the mean duration of dialysis was 4.19 years, most participants were males (64.1%), married (73.3%), illiterate (53%), unemployed (82.3%), and a rural residents (77.8%), their monthly income ranged from 200-500 LE (48.5%).

Table (2) shows the mean score for each domain of the KDQOL-SF^{TM} instrument among studied population. It was found that generally the most affected aspect was physical health component summary (PCS) which obtained the lowest scores, followed by mental component score (MCS) followed by kidney disease component summary (KDS) (95.28, 46.15, 90.04 consecutively).

The lowest scores were in the scales of work status, general health and energy of the patients (20.95, 25.38, 32.68 consecutively), the highest scores were the social support, quality of social interaction and cognitive function (72.94, 76.36, 86.04 consecutively).

The effect of gender, marital status, income, level of education and work status on the three component summaries was shown in table(3). PCS, MCS, KDS scores were statistically significant higher in male gender, employed, higher family income and higher level of education. Scores were insignificantly affected by marital status.

As shown in table (4) a highly significant negative weak correlation between age and the PCS, MCS, KDS (p-value=0.000, r=0.3, 0.2, 0.2 consecutively). Also highly significant negative weak correlation between duration of dialysis and the PCS, MCS, KDS (p-value=0.000, r=0.2, 0.3, 0.3). There was highly significant positive weak correlation family income and PCS, MCS, KDS (p-value=0.000, r=0.1).

Also a highly significant strong positive correlation between KDS and MCS (p-value <0.001, r=0.8) as well as between KDS and PCS (p-value <0.001, r=0.8).

Discussion

The current study gave a detailed description of QOL scores of patients on regular haemodialysis at Sohag University Hospital.

On comparing the scores of the three composites domains of the KDQOL-SF^{TM}, it was found that the lowest score was seen in physical component summary (PCS) (mean score= 30.06) followed by mental component summary (MCS) (mean score= 46.15) and the highest score was the score of kidney disease component summaries (KDS) (mean score= 60.97). This could reflect people's ability to psychologically adapt to their situation over time.   In line with the current study, the cross sectional study done in El-Minia, Egypt[15] and the study done in Saudi Arabia [16] showed that PCS scores were lower than MCS and KDS scores (52.7, 54.1, 59.7 respectively). Also the study done in Egypt[17,] the study done in Benin, Nigeria [18] all of them showed that PCS score was lower than MCS score and KDC score. In other words, despite the worsening of the physical health status, the mental health of dialysis patients is relatively preserved.

As regard Gender, it was found that in the current study men scored higher than women at the three main domains PCS, MCS and KDS with statistically highly significant difference.

These findings were in line with other studies in Egypt[15,19] showed that men scored higher than women with statistically significant difference in the PCS and KDS scores while there is insignificant difference in the MCS score (p-value= 0.004, 0.001, 0.6).

This also agreed to study done in Saudi Arabia[16.] Men scored statistically significant higher than females in the three domains PCS, MCS, KDS domains (p-value= 0.000, 0.001, 0.001 consecutively).

However the results of the current study were different from the study done in Egypt[20] which showed no significant difference between men and

women as regard all domains of quality of life.

As regard Marital status the current study showed that there was insignificant difference between married and unmarried patients as regard all aspects of quality of life. In line with the current study the cross-sectional studies done in Saudi Arabia[21] and in Chile[22] both showed insignificant difference between married and un married patients, marital status was insignificantly associated with quality of life score. However this was different from study done in Turkey[23] suggested there is better perception of quality of life among people living with other persons. Living with someone more strongly influences the perceived QoL.

In the current study education had a positive impact on quality of life as those who had educational level above secondary school scored higher with highly significant difference compared to those below secondary school education (p-value=0.000). In line with this, a study in El-Minia, Egypt[15] which revealed that a higher educational level was associated with higher PCS, MCS and KDCS scores . Also the study in Alexandria, Egypt[19,] the study in Cairo, Egypt[20] and the cross sectional study in Saudi Arabia[24].

As regard Employment status the current study revealed that there was significant difference between employed and unemployed in quality of life as those who had job scored higher than those who were jobless and especially in the physical aspects as it showed very high statistically significant difference (p-value=0.000). While there is statistically insignificant difference between both groups as regard mental health component (MCS) while in the cross-sectional study done in china showed statistically significant difference between employed and unemployed as

regards MCS scores only (p-value=0.05)[25].

As regard family income, the current study showed that patients whose monthly family income was higher than 1000 LE scored higher and had better quality of life with highly significant difference than those whose monthly family income was lower than 1000 LE (p-value= 0.001, 0.000). In line with the current study, a study done in Saudi Arabia[16] in which MCS and PCS scores were significantly higher among the higher income group. The results of the current study were different from the study done in china in which no statistically significant difference was found between PCS, MCS, KDS mean scores when the patients were evaluated for monthly income[25].

On doing correlation coefficient analysis in the current study it has been found a highly significant strong positive correlation between the three scales of quality of life (PCS, MCS, KDS) (p-value= 0.000, r= 0.8). This was in line with the study done in Saudia Arabia that showed moderate positive correlation between the three main scales of quality of life (PCS, MCS, KDS) (P=0.0001, r= 0.6)[16.]

On doing correlation coefficient between age and the three main domains Physical component summary (PCS), Mental component summary (MCS) and Kidney disease component summary(KDS), the current study showed highly significant negative weak correlation between age of studied haemodialysis population and PCS, MCS, KDS (r=0.3, 0.2, 0.2 respectively, P-value=0.000).

In line with the current study the study done on 161 patients at Sheikh Khalifa Medical City in the UAE. The results showed Advanced age has been linked with the deterioration of physical activity (r = -0.3, p= 0.001 and r =-

0.096, p= 0.26 consecutively)[26]. On doing correlation coefficient analysis between duration of dialysis and the three main domains; Physical component summary (PCS), Mental component summary (MCS) and Kidney disease component summary (KDS), the current study showed highly significant negative weak correlation between duration of dialysis and PCS, MCS, KDS (r= 0.2, 0.3, 0.3 respectively, p-value=0.000). In the same line with the current study, the study in Egypt, which showed a negative correlation between duration of dialysis and PCS scores[20]?

Conclusion: Quality of life of patients on haemodialysis at Sohag University Hospital showed marked impairment especially in the physical and mental component. The lowest scores were in the scales of work status, general health and energy of the patients while the highest scores were

social support, quality of social interaction and cognitive function. Female gender, older age, longer duration of dialysis, low level of education were the most important factors associated with impaired life quality. Having a job and high family income had leaded better quality of life.

Recommendations: Great interest should be specified for assessing quality of life of patients with different chronic important diseases like diabetes, hypertension, cardiac, chest or other liver diseases to know the real size of the problem and what we need to improve these patients' quality of life. The importance of health education programs in improving quality of life's score of haemodilysis patients. Rehabilitation programs will help the patients with low PCS and MCS scores.

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Table (1): Socio-Demographic Characteristics of the Studied Haemodialysis Patients at Sohag University Hospital 2015.

Variable	N Total = 198	Percentage (%)
Gender		
Male	127	64.1
Female	71	35.9
Residence		
Urban	44	22.2
Rural	154	77.8
Marital status		
Single	33	16.7
Married	146	73.7
Widowed	14	7.1
Divorced	5	2.5
Family income		
100-200 LE	15	7.6
200-500 LE	96	48.5
500-1000 LE	44	22.2
>1000 LE	43	21.7
Educational level		
Illiterate	105	53
Read & Write	13	6.6
Below 2^{ry} school	17	8.6
Above 2^{ry} school	63	31.8
Occupation		
No job	163	82.3
Employee	19	9.6
Skilled worker	13	6.6
Student	3	1.5
Age in years		
Mean±SD	48.8 ± 1.4	
Duration of dialysis in years		
Mean± SD	4.19 ± 4	

Table (2): Mean Scores for Each Domain of The KDQOL-SF™ Instrument among Studied Population at SUH 2015.

Variable	Mean score N=198	Median	Minimum	Maximum	IQR
PCS	39.06	38.27	0	95.28	37.39
General health	25.38	25	0	90.60	25
Physical function	43.23	40	0	100	50
Role-physical function	34.87	50	0	100	50
Pain	52.85	45	0	100	22.5
MCS	46.15	52	0	100	43
Emotional wellbeing	47.73	52	0	100	16
Role-emotional	54.20	100	0	100	100
Social function	49.49	50	0	100	50
Energy/fatigue	32.68	30	0	100	31.25
KDS	60.97	59.26	32.24	90.04	14.97
Symptom/problem list	83.03	85.40	27.50	100	14.60
Effect of kidney disease	75.03	75	43.70	100	16.45
Burden of kidney disease	35.44	37.50	0	100	37.50
Cognitive function	86.04	100	13.30	100	26.70
Work status	20.95	0	0	100	50
Quality of social interaction	76.36	80	20	100	33.40
Sleep	65.39	58.30	26.60	100	26.70
Social support	72.94	66.6	0	100	16.70
Dialysis staff encourgment	55.36	50	0	100	15.62
Patient satisfaction	39.94	40	0	80	40

IQR= Interquartile range

Table (3): The Impact of Various Patient Characteristics on Scores in the Three Composite Domains of the KDQOL-SF™ Instrument among Studied Haemodialysis Population at SUH 2015.

	PCS		MCS		KDS	
	Mean score	*p-value*	*Mean score*	*p-value*	*Mean score*	*p-value*
Gender						
Male	43.92	<0.001	51.20	<0.001	62.70	0.002
female	30.36		37.11		57.88	
Income						
<1000LE	35.96	0.001	42.57	<0.001	59.05	<0.001
>1000LE	50.22		59.07		67.92	
Work status						
With job	47.81	<0.001	55.53	0.037	70.14	0.018
jobless	37.37		44.38		59.21	
Marital status						
Married	39.02	0.908	47.23	0.357	61.46	0.315
unmarried	39.16		43.11		59.61	

Table (4): Correlation (r) Analysis between Independent Variables (Age, Family Income, Duration Of Dialysis) and the Three Component Summaries of The KDQOL-SF™ Instrument among Studied Haemodialysis Population at SUH 2015.

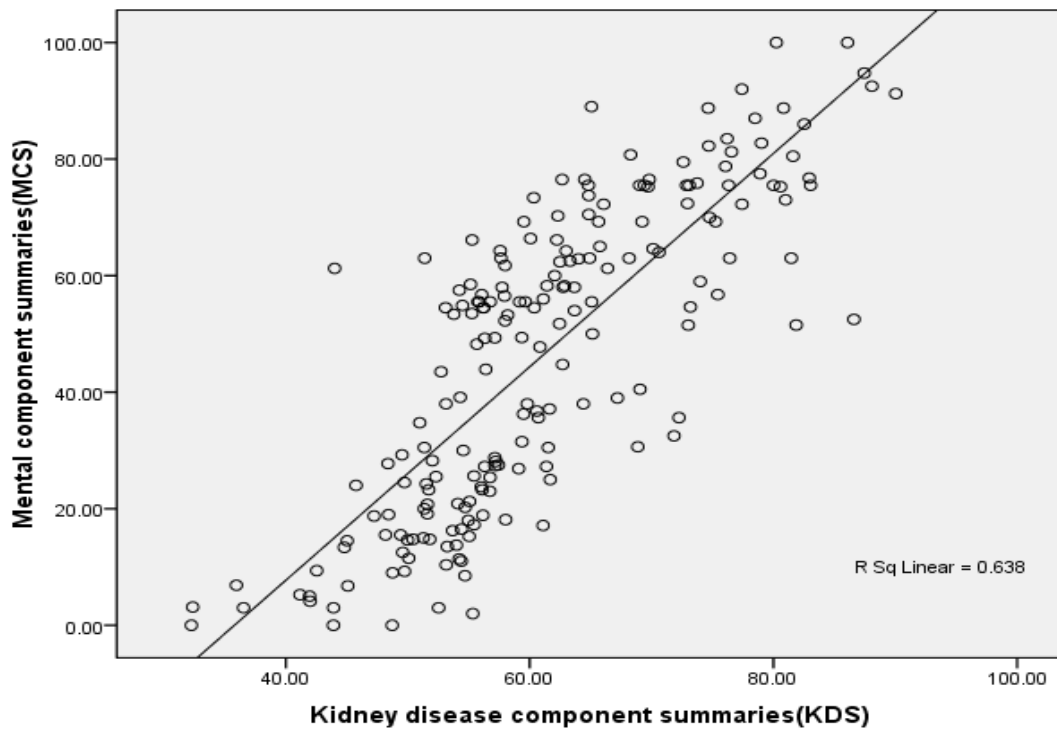| Variables	PCS		MCS		KDS	
	r	*p-value*	*r*	*p-value*	*r*	*p-value*
Age	-0.390	<0.001	-0.251	<0.001	-0.242	<0.001
Family income	0.137	<0.001	0.169	<0.001	0.171	<0.001
Duration of dialysis	-0.286	<0.001	-0.313	<0.001	-0.386	<0.001

Figure (1): Scatterplot Demonstrating Positive Correlation Between Kidney Disease Summary (KDS) and Mental Component Summary (MCS) Scores of The KDQOL-SF^{TM} Instruments Among Studied Haemodialysis Population at SUH. (r=0.80, p-value <0.001).
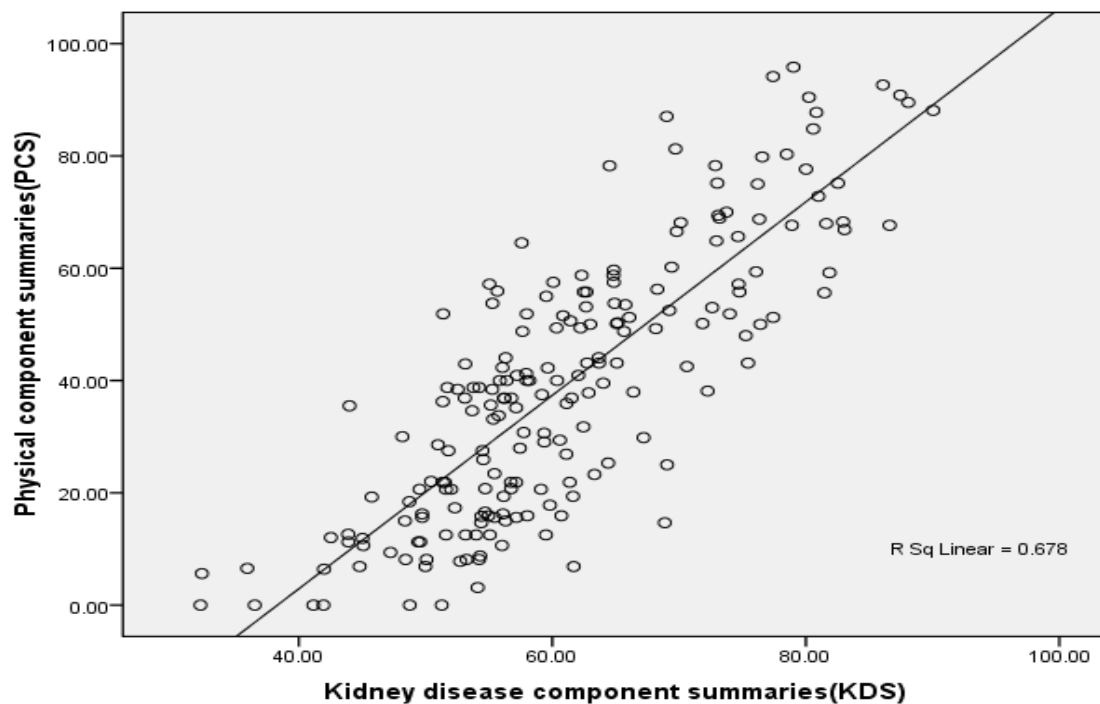

Figure (2): Scatterplot Demonstrating Positive Correlation Between Kidney Disease Summary (KDS) and Physical Component Summary (PCS) Scores of The KDQOL-SF^{TM} Instruments among Studied Haemodialysis Population at SUH (r=0.82, p-value <0.001).