

Quality of Life for Adult Client with Chronic Kidney Disease

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Abstract

Background: Chronic kidney disease is a reduced glomerular filtration rate and it an important cause of death and loss of disability-adjusted life-years worldwide. **Aim:** was to assess the quality of life for adult clients' with chronic kidney disease. **Design:** A descriptive study design was utilized in the current study. **Sample:** A Purposive sample with 122 adult Client with chronic kidney disease with the following criteria: adult male and female, age ranged from 21-50 years. **Setting:** the study was conducted in renal insufficiency outpatient clinics at Ain Shams University Hospitals, Cairo governorate. **Tools: first:** An interviewing questionnaire sheet (knowledge & compliance), and **second:** Kidney disease Quality of Life. **Results:** The mean age of the study sample were 23.4 ± 15.2 years. More than one third (36.1% & 35.0% respectively) of the client with chronic kidney disease had satisfactory knowledge and compliance level about their disease, and more than half (52.5%) of them had poor Quality of Life level. There was no statistical significance relation between client quality of life and their knowledge but there were statistical significance relation between client quality of life and their compliance. **Conclusion:** More than one third of the client with chronic kidney disease had satisfactory knowledge and compliance level about their disease, more than half of them had poor QoL level, and more than one third of them had average QoL. There were a relation between client knowledge and their compliance and between their quality of life and their compliance. **Recommendation:** Patients should to be provided with sufficient relevant written and visual knowledge to facilitate educating them about kidney disease, importance of hemodialysis, care of fistula, therapeutic regimen, and follow-up.

Keywords: Adult client, Chronic Kidney Disease, Quality of Life.

Introduction

Adequate kidney function is essential to the maintenance of a healthy body. If a person has complete kidney failure and treatment is not provided, death is inevitable (Lewis et al., 2014). Chronic kidney disease (CKD) involves progressive, irreversible loss of kidney function. The Kidney Disease Outcomes Quality Initiative (KDOQI) of the National Kidney Foundation defines chronic kidney disease as the presence of kidney damage or a decreased glomerular filtration rate (GFR) less than $60 \text{ mL/min/1.73 m}^2$ for longer than 3 months. The last stage of kidney failure, end-stage kidney (renal)

disease (ESKD), occurs when the GFR is less than 15 mL/min (Liyanage et al., 2015).

Projected worldwide population changes suggest that the potential number of cases of end-stage kidney disease will increase disproportionately in developing countries, such as China and India, where the numbers of elderly people are expanding (Lewis et al., 2014). According to the sex, males with pre-existing diabetes, hypertension and CKD of Asia, Europe, Australia, Africa-Americans and developing countries such as Africa, China and India are at higher risk for End-Stage Renal Disease (ESRD) (Liyanage et al., 2015).

Epidemiology of chronic kidney disease; according to the 2010 Global Burden of Disease study chronic kidney disease was ranked 27th in the list of causes of total number of global deaths in 1990 (age-standardized annual death rate of 15.7 per 100 000), but rose to 18th in 2010 (annual death rate 16.3 per 100 000) (Lozano et al., 2013). While in Egypt according to Institute for Health Metrics and Evaluation (IHME) chronic kidney disease was ranked 7th cause of death in 2016 (IHME, 2016).

The causes of CKD are diabetes (about 50%) and hypertension (about 25%). Less common etiologies include glomerulonephritis, cystic diseases, and urologic diseases. The increasing prevalence of CKD has been partially attributed to the increase in risk factors, including an aging population, rise in rates of obesity, and increased incidence of diabetes and hypertension the prognosis and course of CKD are highly variable depending on the etiology, patient's condition and age, and adequacy of health care follow-up. ESKD was recognized as a disability (Jha et al., 2013).

Quality Of Life (QOL) is defined as the individual perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to goals, expectation, standards and concerns. It is a multidimensional concept comprised of several domains, the person, physical health, psychological state, level of independence, social relationships, personal beliefs and her/ his relationships (Liyanage et al., 2015).

Although there is no universal description of quality of life, it is sometimes described as a wellness resulting from a combination of physical, functional, emotional and social factors. Chronic conditions affect the QOL of adult people and contribute to disability and reduce their

ability to live independently (Wallander & Koot, 2016).

Community health nurse role is infection prevention, patient assessment and monitoring, documentation, fluid management, patient education, and providing comfort and encouragement. nephrology nursing has remained focused on humanizing the process for people with complex care needs, preserving the patient's dignity, teaching, supporting, and involving the patient and family in their care, it is apparent that nephrology nurses have always been responsible for a significant amount (or majority) of the care of patients with kidney disease (Roomizadeh et al., 2014).

Significance of the study:

Chronic renal failure is gaining more attention not only in Egypt but also worldwide as well. So that the problem should attain almost importance, and be on the top of the agenda in any form of medical, environmental and social reform (Mohsen, et al., 2013).

According to the study done in El Minia governorate reported that prevalence of ESRD was 367 per million populations (El-Minshawy, 2011) and study done in Assuit governorate by El-Arbagy, (2016) mentioned that prevalence of ESRD was 366 per million populations. Also, according to the latest WHO data published in 2017 kidney disease deaths in Egypt reached 20.433 or 3.98% of total death. The age adjusted death rate is 32.88 / 100.000 of population ranks Egypt 20 in the world and 7th cause of death in its ((IHME), World Health Rankings,(2018).

According to recent study done by Hamed, et al., (2017) to assess QoL of patients on regular hemodialysis and determine some factors that affect the QoL concluded that quality of life of patients on hemodialysis at Sohag university hospital was impaired especially in the physical and

mental component and much attention should be paid to improve physical and psychological aspects of the patients.

Aim of the study:

The aim of the study is to assess the quality of life for adult client with chronic kidney disease through:

- Assessing client's knowledge and compliance related to chronic kidney disease.
- Determining quality of life of clients with chronic kidney disease.

Research questions:

1. What is client's knowledge related to chronic kidney disease?
2. What is the quality of the life exhibited by clients with chronic kidney disease?
3. Is there relationship between quality of life among clients with chronic kidney disease and socio-demographic factors?
4. Is there relationship between quality of life and client's knowledge related to with chronic kidney disease?

Subjects and Methods

Research design:

A descriptive analytical design was used in the present study to meet the aim of the study.

Study setting:

The present study was conducted at renal insufficiency outpatient clinics at Ain shams university hospitals in Cairo governorate.

Sample:

A purposive sample through the year (2016) was about 1220 cases; the Sample size in the current study were calculated 10% equals (122) adult Client with chronic kidney disease according to the following inclusion criteria: adult male and female patients, age ranged from 21- 50 years old as the most common age in the renal insufficiency without any psychiatric disorders.

Tools of data collection: three tools were utilized for data collections included the following:

Tool I: Interviewing questionnaire sheet:

It was developed by the researcher based on the recent related literature review and reviewed by professors in community health nursing and consisted of three main parts

Part (1): Socio-demographic characteristics for Adult client with chronic kidney disease (9 items): this part covering age, sex, marital status, educational level, place of residence, employment status, income, the family bread winner, and no. of family

Part (2): Adult client knowledge about:

A. the chronic kidney disease (6 items) regarding component of urinary system, meaning, signs and symptoms, complications, ways of improvement, importance of kidney treatment and side effect of medication.

B. Adult client knowledge about the hemodialysis (6 items) as meaning of hemodialysis, importance of hemodialysis, precaution before dialysis, complications of hemodialysis, fistula location, and the way to care with fistula.

❖ Scoring system for knowledge:

Each correct response took one score, and incorrect answer took zero score. It contained 12 questions, so score of general client's knowledge about kidney diseases and hemodialysis was 12. If the total scores less than 50% was considered as unsatisfactory (less than 6) while score of 50% (up to 6) and more was considered as satisfactory level of knowledge

Part (3): Adult client compliance (15 questions) with therapeutic regimen as nutritional pattern, and precautions to save the fistula.

❖ Scoring system:

Each yes response took one score, and no response took zero score. It contained 15 questions. If the total scores < 60% was considered as un-satisfactory while score of $\geq 60\%$ was considered as satisfactory level.

Tool II: Kidney disease quality of life the short form (KD QoL -SFTm) version 1.3. It was developed and validated by Abd El Hafeez, et al., (2012) and adopted by the investigator to measure quality of life the short form included Overall burden of diseases on the physical side (11 items), psychological (mental side) (3 items), emotional, and spiritual (3 items), and social interaction (5 items).

Scoring system:

The higher scores reflecting better quality of life. Selected always took zero score and never took two scores If the total scores less than 60% (26.4 scores) was considered as poor QOL, 60% - less than 75% (26.3 - < 33 scores) was considered as average QOL, and more than 75% was considered as good QOL (< 33.1 scores).

Preparatory phase:

The study tools were developed by the researcher after an extensive review of the relevant literature related to quality of life for adult client with chronic kidney disease by using books, article, journals, and internet. Those served to develop this study tools for data collection.

Pilot study:

A pilot study was conducted on 10% of the study sample (12 adult client with CKD) in a selected setting to evaluate the applicability & clarity of the tools and time needed for each questionnaire to be completed. According to this pilot study, the required modifications were made. It also served to estimate the time required for filling the questionnaire which was 30- 40 minutes. The process of pilot study took two weeks. Those patients who were involved in the pilot study were included in the study.

Content validity & reliability

The tools were tested for content validity by 5 experts of academic and nursing staff from faculty of nursing at Ain shams university hospitals. Modifications were done accordingly, and then the tools were designed in its final format. Also, reliability of tools was tested by using Cronbach's alpha test was reported in the next table (1).

Table (1): reliability of knowledge, compliance and QoL and subdomains of Adult Client with Chronic Kidney Disease

Items	Reliability
Knowledge	.720
Compliance	.801
QoL	
Physical	.887
Spiritual	.872
Emotional	.721
Social	.848
Nutrition	.796
Total	.825

Field Work:

The study was carried out over two day per week from renal insufficiency outpatient clinics at Ain shams university hospitals in Cairo governorate. The investigator was explained the purpose of the study to patients before starting the interview where each patient was interviewed individually. Data collection was done during the morning shifts two day/ week, Saturday and Thursday, 2- 3 patient / day for six months from the period July 2016 to December 2016. The total time needed for interviewing questionnaire ranged from 45 minutes to answer all questions.

Ethical consideration:

Acceptance of ethical committee at Faculty of Nursing, Ain shams university hospitals gained then an oral permission for voluntary participation was obtained from patients and the nature and purpose of the study were explained. The investigator initially introduced him to all patients and they were assured that the collected data

would be absolutely confidential. Patients were informed that participation is voluntary and that they could withdraw at any time of the study. Confidentiality of the patient's data was ascertained. Confidentiality and anonymity were assured. Patient's names were coded for data entry so that their names could not be identified.

III. Administrative Design:

An official permission was obtained from the head of the renal insufficiency outpatient clinics at Ain shams university hospitals in Cairo governorate through an issued letter from the dean of faculty of nursing/ Ain shams university hospitals. An approval letter from the dean of faculty of nursing, Ain shams university hospitals to the head of renal insufficiency outpatient clinics at Ain shams university hospitals. The investigator took approval for conducting the study from the head of renal insufficiency outpatient clinics at Ain shams university hospitals. Investigator started with introducing himself and explains the aim of the study for the patient assured that the data collected would be confidential and would be only used to achieve the purpose of the study. The purposes of the study were explained to the patient.

IV. Statistical Design:

Statistical analysis was done by using Statistical Package for the Social Science (SPSS 20.0). Quality control was done at the stages of coding and data entry. Data were presented by using descriptive statistics in the form of frequencies and percentage for qualitative variables, and mean & standard deviation (SD) for quantitative variable. Chi square (X^2) was used to test the association between two qualitative variables or to detect relation between two or more proportions and the sample size large. Fisher's exact test used to test the association between two qualitative variables or to detect relation between two or more proportions and the sample size is small. Graphs were done for data visualization using

Microsoft Excel and statistical significance was considered at $p \leq 0.05$.

Results:

Table (1): This table showed that 36.1% of the adult client's with chronic kidney disease their age ranged between 30 to less than 40 years with the mean age was 23.4 ± 15.2 years, 63.1% of them was male and married (66.4%), 44.2% have technical education, 50.8% of them lives in rural area. As regard to employment status there was 60.7% of them working and has enough income 68.9%.

Figure (1): illustrated that, 36.1% of the client with chronic kidney disease had satisfactory knowledge and 63.9% of them had unsatisfactory knowledge about their disease.

Figure (2): illustrated that, 41% of the client with chronic kidney disease had satisfactory compliance level and 59% of them had unsatisfactory compliance level about caring their disease.

Figure (3): illustrated that the distribution of the adult client QoL as regard shortness form 1.3, more than half (52.5%) of the client with chronic kidney disease had poor QoL level, 38.5% of them had average QoL and 9.0% of them had good QoL.

Table (2): shows that the relations between QoL and personal data, demonstrated that, 48.4% of poor QOL aged between 40- 49 years , 53.1% of them was male, 68.2% of them was married, 56.2% of them had technical education level, 45.3% of them was worked , and 82.8% of them had 4- 6 person in their family with statistically significance relation.

Table (3): found that 9.1% of the client had satisfactory knowledge had good QoL with no statistically significance relation between while 18.0% of the client

had satisfactory compliance had good QoL with statistically significance relation.

satisfactory compliance level with statistically significance relation in which p – value 0.000**

Table (4): presented that 56.0% of the client had satisfactory knowledge had

Table (1): Distribution of adult client's with chronic kidney disease as regards to their personal data (n= 122).

Personal data	No.	%
Age / year		
20-	37	30.3
30-	44	36.1
40- 49	41	33.6
Mean ± SD	23.4 ± 15.2 years	
Sex		
Male	77	63.1
Female	45	36.9
Marital status		
Single	20	16.4
Widow	19	15.6
Married	81	66.4
Divorced	2	1.6
Educational level		
Illiterate	6	4.9
Technical education	54	44.2
Middle school	14	11.5
High school education	6	4.9
University education	42	34.4
Residence		
Rural	62	50.8
Urban	60	49.2
Employment status		
Work	74	60.7
Not work	22	18.0
Work partial time	7	5.7
Student	4	3.3
housewife	15	12.3
Income		
Enough	84	68.9
Not enough	38	31.1
Who is the family bread winner		
Patient	76	62.3
Father	20	16.4
Husband / wife	26	21.3
No. of family		
2-3	42	34.4
4-6	74	60.7
6-10	6	4.9
Mean ± SD	4.3 ± 1.5 person	
Total	122	100

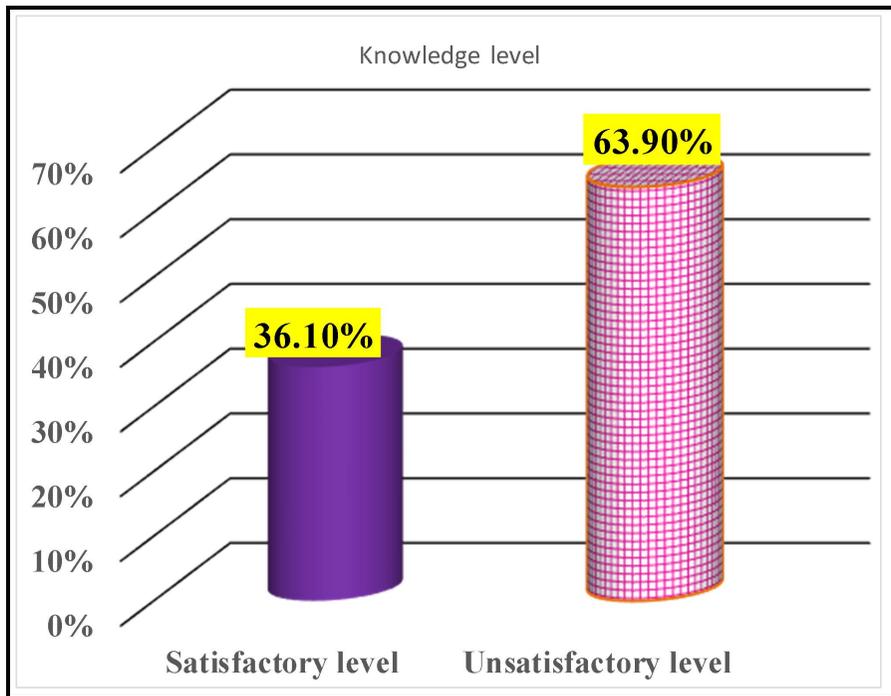


Figure (1): Distribution of the total adult client knowledge level as regard kidney disease and hemodialysis.

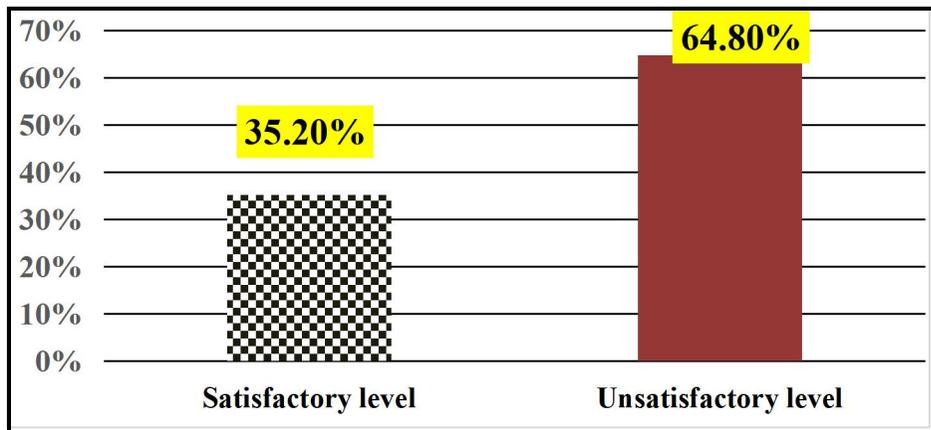


Figure (2): Distribution of the total adult client compliance level as regard kidney disease and hemodialysis.

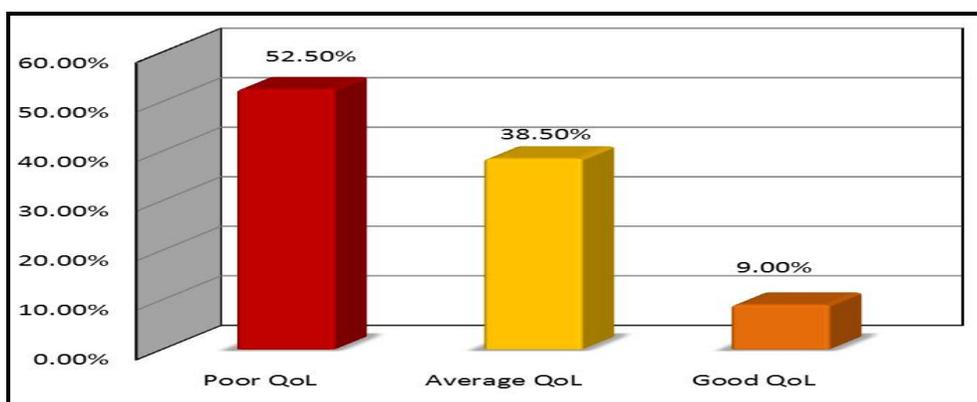


Figure (3): Distribution of the client quality of life as regard shortness form 1.3.

Table (2): Relations between quality of life and personal data of the studied sample (n= 122).

Personal data	Poor (n=64)		Average (n= 47)		Good (n= 11)		X ²	P- value
	No.	%	No.	%	No.	%		
Age / year								
20-	5	7.8	21	44.7	11	100.0	Fisher exact	.000*
30-	28	43.8	16	34.0	0	.0		
40- 49	31	48.4	10	21.3	0	.0	46.577	
Sex								
Male	34	53.1	36	76.6	7	63.6	6.414	0.04*
Female	30	46.9	11	23.4	4	36.4		
Marital status								
Single	4	6.2	7	14.9	9	81.8	Fisher exact	.0001*
Widow	15	23.4	4	8.5	0	.0		
Married	43	67.2	36	76.6	2	18.2	44.969	
Divorced	2	3.1	0	.0	0	.0		
Educational level								
Illiterate	6	9.4	0	.0	0	.0	Fisher exact	
Technical education	36	56.2	16	34.0	2	18.2		.000*
Middle school	8	12.5	5	10.6	1	9.10	28.549	
High school	0	.0	6	12.8	0	.0		
University education	14	21.9	20	42.6	8	72.7		
Residence								
Rural	37	57.8	20	42.6	5	45.5	2.664	.264
Urban	27	42.2	27	57.4	6	54.5		NS
Employment status								
Work	29	45.3	40	85.1	5	45.5		
Not work	14	21.9	2	4.3	6	54.5	Fisher exact	.000*
Work partial time	7	10.9	0	.0	0	.0		
Student	2	3.1	2	4.3	0	.0	32.842	
Midwife	12	18.8	3	6.4	0	.0		
Income								
Enough	39	60.9	35	74.5	10	90.9	5.056	.08*
Not enough	25	39.1	12	25.5	1	9.1		
No. of family								
2-3	7	10.9	27	57.4	8	72.7	Fisher exact	.000*
4-6	53	82.8	18	38.3	3	27.3		
6-10	4	6.2	2	4.3	0	.0	34.067	

NS= Not Statistical Significant

* = Statistical Significant

Table (3): Relation between the quality of life and total adult client knowledge level (n=122).

Item	Poor		Average		Good		Fisher exact	P- value
	No.	%	No.	%	No.	%		
Knowledge level								
Satisfactory (n = 44)	23	52.3	17	38.6	4	9.1	.001	.999
Unsatisfactory (n =78)	41	52.6	30	38.5	7	9.0		NS
Compliance level								
Satisfactory (n= 50)	16	32.0	25	50.0	9	18.0	17.239	.000**
Unsatisfactory (n = 72)	48	66.7	22	30.6	2	2.8		

NS= Not Statistical Significant

** P = Statistical Significant

Table (4): Relation between the total adult client knowledge level and their compliance level (n= 122).

Compliance level	Knowledge level				Fisher exact	P- value
	Unsatisfactory		Satisfactory			
	No.	%	No.	%		
Satisfactory (n = 50)	22	44.0	28	56.0	14.601	0.000**
Unsatisfactory (n =72)	56	77.8	16	22.2		

Discussion

Chronic kidney disease is an important public health problem that is characterized by poor health outcomes and very high healthcare costs. CKD is a major risk multiplier in patients with diabetes; hypertension, heart disease and stroke – all of which are key causes of death and disability in older people (**Internal Medicine Journal, 2014**). The aims of this study were to determine quality of life for adult clients with chronic kidney disease.

Based on the results of the present study regarding socio demographic data shows that, more than half of adult client were males, and one third of the studied sample their ages ranging between 40 to less than 50 years. This result evidenced that increasing prevalence of CKD partially attributed to the increase in risk factors which including an aging population. This finding disagreed with (**Ibrahim, 2012**) who reported that; more than one third of patients of the study sample were male. Also, disagree with (**Hinkle & Checver, 2014**) who revealed that end stage renal disease

occur in patients at any age, although the mortality rate in infants and young children is greater than adults in the presence of other. **in congruence with Zhang et al., (2012); Tim, (2015)** who reported that; the prevalence of CKD among females in the Chinese general population increases from 7.4% among those aged 18–39 years to 18.0% and 24.2% among those aged 60–69 and 70 years respectively. Relative increases in the prevalence of CKD with age are equally striking for populations in the U.S, Canada and Europe.

Regarding the adult clients' marital status; the same table reported that more than two third of clients were married. This result was in the same line with **Mohamed, et al., (2016)** assessed and identified the psychosocial health profile among patients with chronic renal failure and shed light social support available for them carried out at the hemodialysis unit at Assiut university hospital at Upper Egypt governorates , mentioned that; more than half of the studied sample was married.

Concerning the educational level; shows that more than one-third of adult client have technical education. The current study finding disagreed with **Abd El-Hamed (2011)** who studies " Impact of teaching guide lines on quality for hemodialysis patients nature and science" who found that a relatively high percentage of his studied clients were illiterate. Regarding residence, more than half of patients in were lived in rural areas.

Regarding occupation; illustrated that more than half of patients were working. This result due to more than half of the studied sample was male. The current study findings disagreed with **Mohamed et al., (2016)** who reported that; the majority of patients (35.2%) were housewife, while manual work constituted 10% of them.

Concerning adult client knowledge regarding chronic kidney disease the current study revealed that, more than one third of them had satisfactory knowledge related to kidney disease. This may be due to more than one-third of adult client had university education. The present study finding consistence with the study done by **Abd Allah et al., (2015)** assessed the effectiveness of diet therapy program on dietary knowledge and compliance of elderly patients on regular hemodialysis conducted at the hemodialysis units of the Urology and Nephrology Centers at Zagazig university hospitals revealed deficient knowledge (18.9%) among the patients before the intervention. Also, **Eze, (2017)** explored the level of CKD awareness among Nigerians and if cultural beliefs affect individuals' health seeking behaviors, revealed very low levels of understanding and poor knowledge of CKD in Nigeria.

In additional **Ayed, et al., (2018)** showed the knowledge of the population Hail region on CKD and its causes, risk factors, appropriate treatment, and consequences, indicated that awareness remains unsatisfactory.

Regarding compliance level of clients' with chronic kidney disease the current result showed that more than one third (41%) of the client had satisfactory compliance level about their disease. This result in the same line with **Abd Allah et al., (2015)** presented that one quartered of elderly patient had satisfactory dietary compliance before the intervention.

The present study presented that the client QoL as regard shortness form 1.3, more than half of the client with chronic kidney disease had poor QoL level may be due to their knowledge level about the disease. In a study on the quality of life of hemodialysis patients which was conducted by **Abraham & Ramachandran, (2012)** estimated Quality of Life in hemodialysis patients found that the QOL of hemodialysis patients were significantly impaired. **Marinho, et al., (2017)** analyzed the quality of life of people with chronic kidney disease in the interior of Bahia, Brazil concluded that chronic kidney disease and hemodialysis treatment interfere with the individuals' quality of life, bringing greater losses in the work status and physical function, and better repercussion in the domains pain, social function, cognitive function and sexual function.

As regard relations between QoL and personal data, presented that, the majority of the clients who had poor QoL had 4- 6 persons in their family, more than two third of them was married, more than half of them was male, had technical education and near to half of them ranged between 40- 49 years, with statistically significance relation. This result from the researcher opinion is due to increase the number of family leads to increase family obligation and feel with the responsibilities which reflect on quality of life and lead to decrease quality of life. The study finding was in the same line with **Shdaifat and Abdul Manaf (2012)** measured the patients' and caregivers' QOL, and subsequently to compare QOL of patients and caregivers with general population in Jordan reported that there were

statistical significance relation between marital status, employment status and the QoL for the patient

The current study findings contradicted with the study done in Egypt by **Mohamed et al., (2016)** who found that, there were no statistically significant relation between clients' age and their QoL related to renal failure.

Conclusion

Based on the results of the present study, it can be concluded that: More than one third of the client with chronic kidney disease had satisfactory knowledge and compliance level about their disease, more than half (52.5%) of them had poor QoL level, more than one third (38.5%) of them had average QoL and the minority (9.0%) of them had good QoL. Also, the majority of the clients who had poor QoL had 4- 6 persons in their family, more than two third of them was married, more than half of them was male, had technical education and near to half of them ranged between 40- 49 years, with statistically significance relation.

Recommendations

Based on results of the present study the following can be recommended:

- There is a need for more studies to assess the quality of life of patients with CRD.
- Patients should be provided with sufficient relevant written and visual knowledge to facilitate educating them about kidney disease, importance of hemodialysis, care of fistula, therapeutic regimen, and follow-up
- Health educational program to improve clients self-care compliance, before starting HD sessions about medication, side effect of treatment, care of vascular access, diet and fluid restriction, important exercise , prevention and management of complication.
- It is important to keep in mind that a variety of factors that have an impact on

quality of life need to be considered and that there are likely unique points to consider in each country.

- ESRD care expands and the number of CKD patients' increases, the focus will need to shift from simply prolonging life to providing a better quality of life.

Further researches:

- Replication of the study on a larger probability sample in different geographical areas in Egypt to figure out the main aspects of these problems.

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