Home Self-Care for Client with Hemodialysis

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Abstract

Background: Hemodialysis is a therapy that filters waste, removes extra fluid and balances electrolytes (sodium, potassium, bicarbonate, chloride, calcium, magnesium and phosphate) when the kidneys are in a state of renal failure. **Aim of the study:** Evaluate home self-car for clients with hemodialysis. **Design** was used a quasi-experimental. **Setting**: Hemodialysis unit in Ashmon district Hospita**l,** Menofia governorate**. The study sample** A purposive sample of 80 clients hemodialysis **Tools** used were (1) An interview questionnaire used to collect data from clients, assistance related to demographic data and knowledge related to RF. (2) Client practices of self-care items, included Fluid, diet, medication and vascular access management. (3) Assessment of client activities of daily living**,** (4) Check list assessment of safety home environment. **Results:** finding of the present study revealed that, the age for more half of clients their age ranged from aged over 40-60 years. There is statistically significant relation pre and post program related to client's knowledge about RF, diet regimen, fluid, vascular access and medication. There is statistically significant relation pre and post program related to clients self-care practices at home related to fluid intake and diet, medication, vascular access and exercise, there is statistically significant relation pre and post program related to HD clients related to daily living activity and safe home environment. There is significant correlation clients satisfaction practices pre and post program about RF. There is significant correlation between age, education levels and occupational with client's practices about RF. **Concluded:** Revealed that. Improve client's self-car, effect positively through knowledge and practices towards health problems, through activity of daily living for client with hemodialysis post program implementation. **Recommendations:** Health educational program to improve clients self-care practice, 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**.**

Introduction

Chronic kidney disease (CKD) is a condition in which the kidneys are damaged and cannot filter blood as well as they should. CKD has varying levels of seriousness that can range from leakage of extra protein into the urine to kidney failure requiring dialysis, in which a machine filters the blood like healthy kidneys would, or a kidney transplant, where a kidney is donated from another person. If left untreated, CKD can progress to kidney failure (also known as end-stage renal disease) and early cardiovascular death *National Center for*

Chronic Disease Prevention and Health Promotion (NCCDPHP), 2015.

End-stage renal disease (ESRD) has become a public health concern worldwide, and the total number of ESRD patients requiring renal replacement therapy has been growing drastically, resulting of the death of thousands and financial crisis for client and their families. *(Mohamed, 2013).*

It was stated by **(Mohamed, 2013)** that chronic kidney disease (CKD) is at least three to four times more frequent in Africa than in developed countries. Worldwide more than 30 in every 10,000 develop CKD5.

Also, according to the **United States Renal Data System (USRDS) 2014,** report, over 636,000 patients received treatment for ESRD nearly 450,000 received either hemodialysis or peritoneal dialysis and over 186,000 were living with a kidney transplant. Total prevalence of patients on dialysis in Egypt is 650 per million and the estimated annual incidence of ESRD is around 192 per million *(Barsoum, 2013).*

According to the *National Kidney Foundation (NKF) 2015,* report, 10% of the population worldwide is affected by chronic kidney disease (CKD), and millions die each year. Kidney disease is the 9th leading cause of death in the United States, over 89,000 clients with end stage renal disease (kidney failure) die annually. In the U.S. more than 660,000 Americans are being treated for ESRD. Of these, 468,000 are dialysis patients and more than 193,000 have a functioning kidney transplant, estimate that more than 10% of adults in the. United States more than 20 million clients may have CKD.

Also, According to *the (Centers for Disease Control and Prevention, 2017)* reported that 30 million people or 15% of US adults are estimated to have CKD, 48% of those with severely reduced kidney function but not on dialysis are not aware of having

CKD and most (96%) people with kidney damage or mildly reduced kidney function are not aware of having CKD.

Hemodialysis can be an outpatient or inpatient therapy. Routine hemodialysis is conducted in a dialysis outpatient facility, either a purpose built room in a hospital or a dedicated, standalone clinic. Less frequently hemodialysis is done at home. Dialysis treatments in a clinic are initiated and managed by specialized staff made up of nurses and technicians; dialysis treatments at home can be self-initiated and managed or done jointly with the assistance of a trained helper who is usually a family member *(NKF, 2013and Wikipedia, 2016).*

"Orem's Self-Care Model describes a structure wherein the nurse assists the client, where needed, to maintain an adequate level of self-care. The degree of nursing care and intervention depends on the degree to which the client is able which may be one of wholly compensatory, partially compensatory or supportive educative *(Sitzman & Eichelberger, 2011).*

The physical, psychological and economic health of persons with CKD, as well as that of their families, has been found to be severely impacted, Especially during the end-stage of the disease can influence elders' self-management abilities (i.e. basic and instrumental physical activities of daily living needed to live and function independently) to deal with their Illness. In addition, social support has been shown to be positively associated with self-efficacy and to have a direct influence on the self-efficacy and self-management of persons receiving hemodialysis for ESRD *(Parinda et al., 2012).*

Nursing assessment is important in the care of patients receiving dialysis in order to improve their quality of life at home. Home care nurses observe and assess the health of their clients. They monitor vitals and

reactions to medications and look for changes in behavior and condition. Home care nurses report directly to the client's physician and family, especially regarding concerns for new medical conditions or worsening health *(Jennifer and Veronica, 2014).*

Self-care enables patients to improve their self-care abilities by making more knowledgeable decisions, and assuming greater personal responsibility for their health. To promote healthy behaviors, health concepts and self-care strategies must be delivered to the patients in an understandable, accessible, and cost-effective manner. The more understanding the better making decisions about treatment and lifestyle changes that may help feeling better; both physically and emotionally *(Sitzman & Eichelberger, 2011).*

Significance of the study

The Academy of Protection Against end stage renal disease (ENRD) reported that there is increase in the number of the RF to be 15000 cases, this mean in Egypt the number reached 200/per million people, more than the number of WHO100/per million people. The number of cases increased in Aswan, Assyut, and Ben-Suef where it reached 500/ per million people. The statically reported number of cases increased to be 400/ per million people. According to the WHO, reported at 2020 Egypt is expected to have the largest number of renal failure *(Arnold, 2011).*

In entire Egypt, there are no recent data on the prevalence of ESRD; however, the last statistics were calculated in 2004, and the prevalence rate of ESRD was 483 pmp. In El-Minia governorate 2007, one of the upper Egypt governorates, the number of patients with ESRD was 367 pmp, in Sohag governorate 2010, the number of patients with ESRD was 316 pmp, whereas in Menoufia governorate in the delta region, the number of patients with ESRD on regular hemodialysis at the end of the year 2011 was 414 pmp **(El-Arbagy, 2016)**

End stage renal disease is a treating disease for saving the clients life, in Egypt, each year, over 117 case per million were on HD, according to statistics and medical records department at Cairo university hospital in the period from 2007 to 2011, the hemodialysis patients were increasing (11986, 14421, 14904, 17612 and 17800 respectively *(Khattab, 2010, Khodir et al., 2012).*

According to the (*NKUDIC, 2015).* In Egypt, the estimated annual incidence of ESRD is around 74 per million and the total prevalence of patients on dialysis is 264 per millio*n.*

Self-care develop it is important to assist those patients to reach improved selected clinical and laboratory outcomes, doing the activities of daily living independently and adhere to self-care instructions. In order to provide optimal care for patients undergoing hemodialysis *(Mohamed, 2016).*

Aim of the study:

The aim of this study was to evaluate home self-care for client with hemodialysis. Through:

1. Assess knowledge and practice toward factor affecting self-care for client with hemodialysis.

2. Assess home environment of client with hemodialysis.

3. Designing and Implementing educational program based on detected health needs and problems for client with hemodialysis

4. Evaluating the effect of education program on health problems, stress and daily life activities for client with hemodialysis.

Research Hypothesis:

The program will improve self-car for clients with hemodialysis through their knowledge and practices towards health problems related to stress and activities of daily living.

Subjects and Methods

Research Design:

A quasi experimental design was used to achieve the aim of the study.

Sample:

A purposive sample was selected, the total number of clients (80). Selected randomly to represent the sample subjects according to inclusion criteria. The adult clients aged 20- years or above already is receiving hemodialysis.

Tools: Two tools was used for data collection.

The first tool: An Interview Questionnaire and included the following parts.

Part I: Demographic data of the hemodialysis clients.

Part II: client hemodialysis knowledge about ESRD, HD, vascular access, and the therapeutic regimen.

➢ **Scoring system**

The total items knowledge of the items (41 statements). The scoring system was followed according to outcome of clients

in answering the questions and classified into three categories as follow: - From 0 to 49 was graded as incorrect answer (poor knowledge score), from 50 to 69 was graded as (average knowledge score) and from 70 to 100 was graded as (good knowledge score).

Part III: It was concerned with client hemodialysis practices of self-care items; Fluid management practices; Diet; Medication and Vascular access management practices.

➢ **Scoring system**

The total items of practice (15 statements) for each item, a correct response was scored "1" and "0" for the incorrect answer. The total score was 15 grades, which distributed on its items and classified into two categories: * < 60% was graded as incorrect answer (unsatisfactory).* ≥ 60% was graded as correct answer (satisfactory)

Part V: Concerned with client hemodialysis practice exercises.

Part VI: Assessment of Client Activities of Daily Living

➢ **Scoring system**

It was include 13 items or questions, each items has 3scoring levels: (1) for Not done, (2) for partial done and (3) for done

The Second Tool: Checklist for client's hemodialysis for safety home environment it was adopted from *Abdel-Azez, (2004)*.

Scoring system

The scoring system was (0) for unsuitable modified environment and (1) for suitable modified environment.

Content validity:

A panel of three experts from the Head of Community Health Department. Faculty of Nursing, Ain Shams University, reviewed the tools for reviewed the tools for clarity, relevance. Comprehensiveness, understanding and applicability.

Reliability:

The reliability of the added question was assessed by using test-retest for a group of 10 clients who were asked to fill the questions and were asked to fill the same questions after two weeks. The answers in the two testing were analyzed and computed for reliability. It reaches 87% (r = .87) which is considered reliable.

Field of work:

▪ Approvals were obtained from the head directors of dialysis unit to get their agreement to conduct the study.

▪ An informed consent was taken from each client who agreed to participate in the study after explaining the objective assuring that it hasn't any harmful effects on them and the information will be treated confidentially. They were informed that they can leave the study at any time without giving any reason.

▪ The study was carried out from the beginning of August 2016 to end of January 2017 in Ashmon district Hospital, Menofia governorate undergoing hemodialysis, interviewed in hemodialysis unit's 3days per week (Saturday, Tuesday and wends day) in the shift from 11am, to5pm.

▪ The researchers helped the illiterate clients to complete the satisfaction sheet.

Pilot study

A Pilot study carried out on (10%) from the sample to test the applicability of the tools, techniques. The obtained results from pilot study helped in the necessary modification of the tools; according to available resources these was included in the main study sample.

Statistical Analysis:

Results were tabulated and statistically analyzed using standard computer program using Microsoft office Excel 2016 and SPSS V.21 program for MICROSOFT WINDOWS 10 (Campbell, 2006).

Two types of statistics were done:

Descriptive statistics: that includes the following test:

• The description of data was in the form of mean ($\square$) SD for quantitively data, and frequency and proportion for qualitative data.

• The mean is the sum of all observations by the number of observation. While the standard deviation is a measures the degree of scatter of individual varieties around their mean.

• Standard student-t test (t): was used for comparison between two groups about normally distributed (parametric) quantitative data.

Analytical statistics: that includes the following test.

• **Chi-square test is used or Fisher Exact test** if the expected frequencies per cell are less than 5. **Mann-Whitney test:** it is a nonparametric test of **Student's t-test; Correlation coefficient test (Person test)**;

Significance of the result:

Results were considered significant if $P \leq 0.05$ and highly significant if $P \leq 0.01$.

Result

Table (1): shows that the hemodialysis clients aged over 40-60 years were 52.5% followed by 20 to 40 years were 26.3 %, while the hemodialysis clients aged more than 60 years recorded the lowest percentage which was 21.3%.

Also, 55% of hemodialysis clients were male, 93.8% of the hemodialysis clients were married. 33.8 % of the hemodialysis clients had illiterate education, while 26.3 % of them had primary education. 30% of them were general employees and house wives, while 23.8% of them were vocational. It also shows 41.3% of hemodialysis clients had 3 kid, while the hemodialysis clients which had more than 3 kids were scored 25%. 47.5% of hemodialysis clients had sufficient income; nevertheless, 52.5% of them had insufficient income. Also, 93.7% of hemodialysis clients weren't smoking.

Table (2): illustrated that, a high statistically significant difference (P<0.001) were observed between pre & post program. Results revealed that, the highest percent of hemodialysis client 80%, 88.8%, 78.8%, 80%, 86.3%, 75%, 75%, 78.8%, 68.75%, 61.3%77.5% and 80% their perspective was poor for kidney functions, definition of renal failure, types of RF, causes, signs & symptoms RF, diagnosis of RF, complications of RF, protective measures from RF, meaning HD, function of HD machine, complication during session and after session in pre-program respectively, advanced to 93.75%, 93.75%, 100%, 91.25%, 91.25%, 90%, 91.25%, 100%, 97.5%, 95%, 96.25% and 97.5% their perspective was good for that previous items respectively in post-program.

Fig. (1): revealed that 78.8%, had a poor knowledge regarding importance diet for hemodialysis clients, respectively in pre-program improved to 82.5%, their perspective was good for that previous items respectively in post-program.

Fig. (2): indicated that, there was significant (P<0.001) improvement in hemodialysis clients' knowledge at post-program compared to pre-program, the highest percent of knowledge related to fluid regimen and fluid for ESRD were 98.5%, and 77.5% their perspective was poor for source of calcium and phosphorus, health problems with high level of calcium and phosphorus, benefits of law pickles and salts, importance measure fluid intake, amount fluid intake daily, health problems with high fluid intake between session at home and during session, high weight because high fluid intake in pre-program respectively, advanced to 95%, 95%, 97.5%, 96.3 %, 98.8%, 93.8%, and 92.5% their perspective was good for that previous items respectively in post-program.

Table (3): illustrates that, significant difference was observed between pre-& post program and the differences between them reached to highly significant level (P<0.001). 12.5%, 12.5%, 12.5 %, 11.3%, 12.5%, 10% and 10% of the hemodialysis client had a satisfactory practice about weight follow up at home, controlling of fluid intake, respected types of fluid, number of meals/day, follow methods during diet intake, follow at home after session and way of cooking foods containing potassium respectively in pre-program improved to 95.0%, 91.3%, 97.5%, 96.3%, 98.8%, 97.5% and 96.3% in post-program .

Table (4): shows that, 12.5%, 25%, 13.8%, 12.5% and 18.8% of the hemodialysis client were done their a satisfactory practices about taking prescribed medication doses others, occurs complication at home, dealing with cramps occurs at home, dealing with itching to reduce and in case low blood

pressure in pre – program while increased to 93.8%, 91.3%, 90%, 93.8% and 91.3% in post- program, and statistical significances between pre & post program were highly significant (P<0.001).

Fig (3): Illustrated that, 20% of the hemodialysis client were done their a satisfactory practices regarding daily check access, maintenance fistula and cleaning in pre – program while increased to 93.8%, in post- program, and statistical significances between pre & post program were highly significant (P<0.001).

Table (5): showed that no significant correlation was observed between age and occupation with patient's knowledge about renal failure (P > 0.005). On the other hand, significant correlation was detected between education levels and knowledge about renal failure, knowledge related to diet regimen, knowledge related to diet regimen and fluid and vascular access and medication for client HD.

Table (6): showed that no significant correlation were observed between age and self-care practices for fluid intake and diet, self-care practices for medication, self-care

practices for vascular access. In contrast, significant correlation was detected between age and self-care practices for safe home environment .Regarding education levels, our results indicated that non-significant correlation were observed between education levels and patient's practices about renal failure with the exception of self-care practices for exercise and safe home environment .Concerning occupation, results of this study revealed that a significant correlation was observed between occupation and patient's practices a **Table (7)** illustrated that checklist there was high statistically significant differences (P<0.001) regarding all items of save home environment. Most of these items were suitable for client's hemodialysis ranging from 61.3% - 95%.bout renal failure.

Fig (4): shows that 48.8%, of the hemodialysis clients done their going to the hospital for hemodialysis session, practice exercise and using a telephone respectively in pre – program improved to 80% in post- program, and statistical significances difference between pre-& post program was a highly significant level (P<0.001).

Table (1): Distribution of hemodialysis clients regarding their socio-demographic characteristics (n=80).

Socio – demographic Characteristics	No.	%
Age/ years		
20- 40	21	26.3
40- 60	42	52.5
60 +	17	21.3
Mean ± SD = 40 ± 0.692		
Gender:		
Female	36	45.0
Male	44	55.0
Marital status:		
Married	75	93.8
Single	3	3.8
Widowed	0	0.0
Divorced	2	2.5
No. of children:		
None	6	7.5
1	9	11.3
2	12	15
3	20	25
3	33	41.3
Educational level		
Illiterate	27	33.8
Read & write	16	20.0
Primary school	21	26.3
Secondary school	16	20.0
University education	0	0.0
Occupation		
General employee	24	30.0
Private employee	11	13.8
Vocational	19	23.8
Housewife	24	30.0
No work	2	2.5
Monthly income:		
Sufficient	38	47.5
Insufficient	42	52.5
Smoking		
Yes	5	6.3
No	75	93.7

Table (2): Distribution of client regarding their knowledge (pre and post) program about renal failure (n =80):

		Client knowledge						Chi square	
Items		**Pre**			**Post**				
		Poor	Average	Good	Poor	Average	Good	X^2	P-value
Kidney functions	No.	64	16	0	0	5	75	12.952	0.004**
	%	80	20	0	0	6.25	93.75		
Definition of renal failure	No.	71	9	0	0	6	75	13.233	0.001**
	%	88.8	11.3	0	0	7.5	93.75		
Types of RF	No.	63	14	3	0	0	80	37.862	0.000**
	%	78.8	17.5	3.8	0	0	100		
RF causes	No.	64	16	0	0	7	73	19.393	0.008**
	%	80	20	0	0	8.75	91.25		
Signs & symptoms RF	No.	69	11	0	2	5	73	22.754	0.004**
	%	86.3	13.8	0	2.5	6.25	91.25		
Diagnosis of RF	No.	60	20	0	3	5	72	45.07	0.000**
	%	75	25	0	3.75	6.25	90		
Complications of RF	No.	60	20	0	0	7	73	15.031	0.005**
	%	75	25	0	0	8.75	91.25		
Protective measures from RF	No.	63	17	0	0	0	80	52.24	0.000**
	%	78.8	21.3	0	0	0	100		
MeaningHemodialysis	No.	55	25	0	1	1	78	18.03	0.003**
	%	68.75	31.25	0	1.25	1.25	97.5		
Function of hemodialysis machine	No.	49	31	0	1	3	76	33.731	0.002**
	%	61.3	38.8	0	1.25	3.75	95		
Complication during session	No.	62	16	2	0	3	77	61.277	0.000**
	%	77.5	20	2.5	0	3.75	96.25		
Complication after session	No.	64	16	0	0	2	78	22.50	0.000**
	%	80	20	0	0	2.5	97.5		
General mean	No.	62.00	17.58	0.42	0.58	3.67	75.83		
	%	71.79	19.39	0.53	0.63	4.48	86.67		

** P<0.001 is highly significant   *****P<0.5 is a significant, NS is Non-significant $X^{2\,=}$ Chi-Squared

Fig. (1): Distribution of hemodialysis clients regarding their knowledge about importance diet for hemodialysis clients.
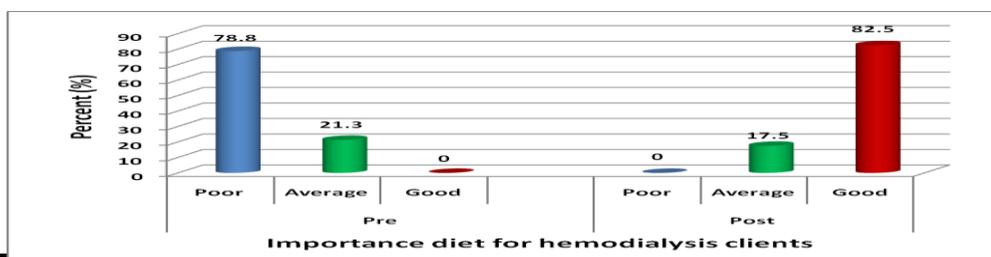
Fig. (2): Distribution of hemodialysis clients regarding their knowledge about amount fluid intake daily.
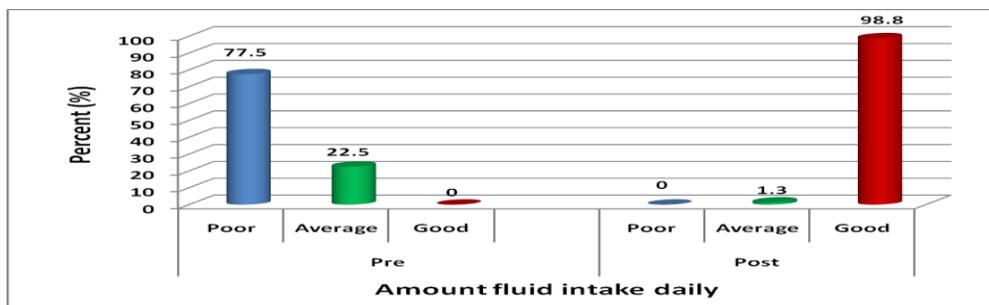
Table (3): Distribution of hemodialysis client regarding self-care practices as stated by them for fluids intake and diet at home (n =80).

Client practice		Practice				Chi square	
		Pre		Post			
		Satisfactory	Un Satisfactory	Satisfactory	Un Satisfactory	X^2	P-value
Weight follow up at home	No	10	70	76	4	60.102	0.000
	%	12.5	87.5	95.0	5.0		
Controlling of fluid intake	No	10	70	73	7	110..96	0.000
	%	12.5	87.5	91.3	8.7		
Respected types of fluid	No	10	70	78	2	72.93	0.000
	%	12.5	87.5	97.5	2.5		
Number of meals/day	No	9	71	77	3	55.60	0.000
	%	11.3	88.8	96.3	3.8		
Follow methods during diet intake	No	10	70	79	1	44.145	0.000
	%	12.5	87.5	98.8	1.3		
Follow at home after session	No	8	72	78	2	22.08	0.000
	%	10.0	90.0	97.5	2.5		
Way of cooking foods containing potassium	No	8	72	77	3	38.61	0.000
	%	10.0	90.0	96.3	3.8		
General Mean	No.	9.29	70.71	76.86	3.14		
	%	11.61	88.40	96.10	3.94		

****** P<0.001 is highly significant   *P<0.5 is a significant, NS is Non-significant $X^{2}=$ Chi-Squared

Table (4): Mean differences distribution of hemodialysis client regarding to self-care practices as stated by them for medication at home (n =80):

Items		Groups				Chi square	
		Pre		Post			
		Satisfactory	Un Satisfactory	Satisfactory	Un Satisfactory	X^2	P-Value
Taking prescribed medication doses others	No %	10	70	75	5	76.20	0.000**
		12.5	87.5	93.8	6.3		
Occurs complication at home	No %	20	60	73	7	14.50	0.013*
		25.0	75.0	91.3	8.7		
Dealing with cramps occurs at home	No %	11	69	72	8	11.00	0.012*
		13.8	86.3	90.0	10.0		
Dealing with itching to reduce	No %	10	70	75	5	76.20	0.000**
		12.5	87.5	93.8	6.3		
In case low blood pressure	No %	15	65	73	7	68.13	0.001**
		18.8	81.3	91.3	8.8		
General Mean	No. %	13.20 16.52	66.80 83.52	73.60 92.04	6.40 8.02		

** P<0.001 is highly significant   *P<0.5 is a significant, NS is Non-significant X^2 = Chi-Squared

Fig. (3): Distribution of hemodialysis client regarding to self-care practices for vascular access at home about maintenance fistula and cleaning.
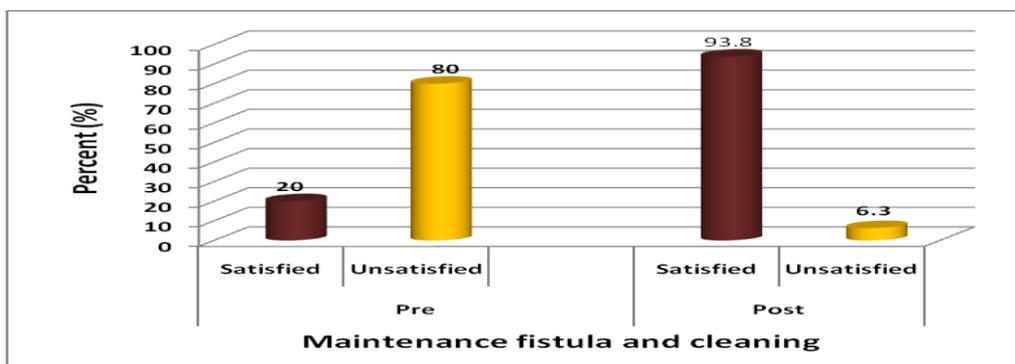
Table (5): Correlation coefficient between age, educational level and occupation with client's knowledge about Renal Failure

Items	Age/year		Educational level		Occupation	
	R	P value	R	P value	R	P value
knowledge about renal failure	-0.101	0.936	0.595	0.020	0.366	0.545
knowledge Related to diet regimen	-0.095	0.940	0.557	0.032	0.325	0.593
knowledge related to diet regimen and fluid	-0.098	0.938	0.577	0.030	0.346	0.568
Vascular access and medication for client HD	-0.120	0.923	0.616	0.026	0.368	0.542

Table (6): Correlation coefficient between age, educational level and occupation with client's practices about Renal Failure

Items	Age/year		Educational level		Occupation	
	R	P value	R	P value	R	P value
Self-care practices for fluid Intake and diet	0.288	0.814	-0.250	0.750	-0.809	0.001
Self-care practices for medication	0.268	0.827	-0.230	0.770	-0.799	0.002
Self-care practices for vascular access	0.256	0.835	-0.219	0.781	-0.793	0.007
Self-care practices for exercise	0.989	0.005	-0.883	0.117	-0.376	0.624
Stress	0.246	0.842	0.342	0.573	0.252	0.683
Safe home environment	-1.000	0.000	1.000	0.000	1.000	0.000

Table (7): Checklist for client's hemodialysis for safe home environment (n =80).

Items	Groups				Chi square	
	Suitable		Unsuitable			
	No	%	No	%	X^2	P-value
Case house building	67.0	83.8	13.0	16.3	36.45	0.000**
The noise outside the home	68.0	85.0	12.0	15.0	36.45	0.000**
The noise inside the home	70.0	87.5	10.0	12.5	36.45	0.000**
lighting at home	73.0	91.3	7.0	8.8	36.45	0.000**
A lighting of rooms	75.0	93.8	5.0	6.3	36.45	0.000**
lighting during the night next to the bed	68.0	85.0	12.0	15.0	36.45	0.000**
lighting hallways and bathrooms	66.0	82.5	14.0	17.5	33.8	0.000**
Ventilating the house	74.0	92.5	6.0	7.5	26.45	0.000**
Hygiene at home	76.0	95.0	4.0	5.0	31.25	0.000**
Water	61.0	76.3	19.0	23.8	22.05	0.000**
Sanitation	58.0	72.5	22.0	27.5	16.2	0.000**
Floor	67.0	83.8	13.0	16.3	36.45	0.000**
Furniture	65.0	81.3	15.0	18.8	11.25	0.000**
Bathroom	67.0	83.8	13.0	16.3	36.45	0.000**
Stairs and roads	67.0	83.8	13.0	16.3	36.45	0.000**
The house near of the hospital:	49.0	61.3	31.0	38.8	4.05	0.044*
General Mean	**66.94**	**83.70**	**13.06**	**16.36**		

** P<0.001 is highly significant   *****P<0.5 is a significant, NS is Non-significant $X^2 =$ Chi-Squared

Sabah Fawzy Bassiouny, Nawal Mahmoud Soliman, Suheir Mekhemar, Hemat Abdelmoneem

Fig. (4): Distribution the hemodialysis clients regarding to daily living activities at home about going to the hospital for hemodialysis session.
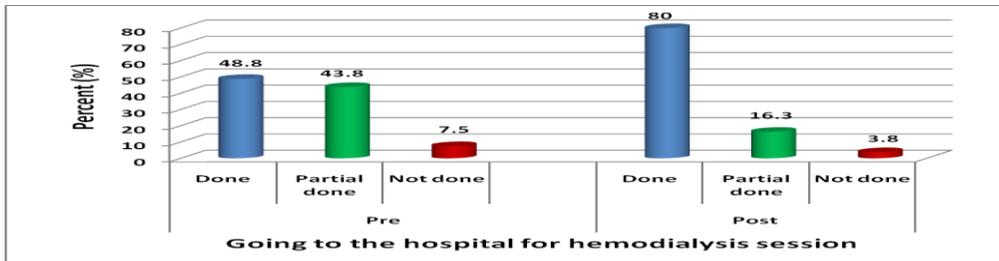
Dissection

The demographic and medical characteristics of hemodialysis clients are displayed in table **(1)** the present study findings shows that the more than half of the hemodialysis clients were male and their ages over 40-60 years. This findings in the same line with study that was done in Egypt by *Mohamed (2013)* who studied" Assessment of factors affecting the quality of life among patients undergoing hemodialysis at Cairo" who reported that, approximately three quarters of client undergoing HD were in the age group 40-60 years.

Also, agreed with study done in Egypt by *Abo Deif (2015)* about " Effect of an Educational program on adherence to therapeutic Regimen among Chronic Kidney Disease Stage 5 Patients Under maintenance Hemodialysis" who found more than half of the study subjects were male. while finding disagreed with *Mohamed (2001) and Mohamed (2015)* found in their studies conducted at Egypt, that the ratio between males and females undergoing hemodialysis was 2:1 respectively, also finding disagreed with *Black and matassarin-jacobs (2005)* how mentioned that the clients with EDRD and undergoing

hemodialysis are equally affect dialysis in both sexes.

According to their **marital status**, slightly the majority of the hemodialysis clients were married finding in the same line with the study that done in Egypt by *Mohamed (2015)* about **"**Epidemiological study of patients on regular hemodialysis at the Kafer El-Shakh**"** who reported that more than two thirds of them were married than .Similarly study that done in Mansoura by *Ali et al., (2011)* about " Impact of Teaching Guidelines on Quality of Life for Hemodialysis Patients" who reported that near three fifth of the studied patients were males and nearly two thirds of them were married.

Concerning their **educational level,** more than half of hemodialysis clients were illiterate, the present study on the same line with *Sobeh et al., (2009)* who reported that the majority of clients included in the study were illiterate; Also, *Salam and Abd El-Hady (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 However, a study done in Egypt by *Mohamed (2010)*who study about" Self Care management for Hemodialysis patients at home" found that

267

less than one third of HD clients were illiterate, almost equal percentage represented quarter of them were either secondary school education or university education.

Concerning the **monthly income,** more than half of hemodialysis clients had insufficient income, on the same line *Mohamed (2010)* who results showed that less than two thirds of client represented income was not enough for their needs, finding disagreed with study that done in Menoufia by *Abdullah (2013)* about" Epidemiology of Chronic Kidney Disease in an Egyptian village " who reported that Eighty five percent of them were of high sufficient income while fifteen percent were of insufficient income.

The present study finding indicated the majority of hemodialysis clients weren't smoking these finding disagree with study recently done in Egypt by *Abo Deif (2015)* who found a quarter of the study subjects were smokers.

According to the research hypothesis: The program will improve self-car for client's with hemodialysis through their knowledge and practices towards health problems related to stress and activities of daily living

After the end program clients knowledge illustrated that, a high statistically significant difference (P<0.001) were observed between pre & post program, in the present study results revealed that, the hemodialysis client knowledge improved from poor and average knowledge to good knowledge regarding to renal failure, diet regimen, fluid for ESRD clients, knowledge regarding to vascular access and medication for HD (table 2, fig 4, 5) after program implementation.

Considering client knowledge regarding renal failure revealed that, the majority of them had poor knowledge

preprogram related to kidney functions, definition of RF, RF causes, signs & symptoms RF, complication after session, more than three quarters had poor knowledge related to types of RF, diagnosis of RF, complications of RF, complication during session protective measures from RF, more than two thirds had poor knowledge related to meaning HD, function of HD machine, while after the program it improved to become for all of them good knowledge on the previous items. (Table 2)

The present study finding in the same line with study that was done in Egypt by *Abo Deif (2015)*who reported that indicating higher total and subtotal mean knowledge scores among the study subjects, (80.00 %) and (58.18 %) that ranked between satisfactory to good levels respectively. The majority had extremely unsatisfactory level of knowledge, as indicated by the pre-program assessment.

In similar study that was done in Egypt by *Ali (2013)* who studied about" Assessment of Nurses Knowledge and Practice provided to patients undergoing Hemodialysis" reported that, approximately half of his study sample had average knowledge about HD complication. In recently study that was done in Egypt by, *Basiony (2014)* who conduct" Assessment of nurse performance to Improved Hemodialysis Patient Care" reported that agreed with the present study finding, which revealed that all of his study sample lack of knowledge related to HD session problems.

The researcher argues that the initial level of client's knowledge pre-program implementation may be due to the health care personnel didn't give the necessary and required knowledge to these clients. In addition, clients in their dialysis unit would have not been given the chance to frequently to ask questions, either because they were embarrassed to do so or did not have enough knowledge to know what to ask about. This implies that more communication and

explanations on the interpretation of adherence indicators are required in order to assist patients to achieve a desired level of adherence. On the other hand the increased client's knowledge was gained through interactions with researcher and clients experiences with few reports of self-education.

In the present study, the clients knowledge related to diet regimen and reviled that, the majority of them had poor knowledge preprogram related to importance diet, nutrients negative effect when consumed excessively, benefits of protein, sodium and potassium, health problems with high all of them intake for all clients had poor and average knowledge while after the program the majority all of them good knowledge previous items respectively in post-program knowledge.

Also, the highest percent of knowledge for HD client related to diet regimen and measure fluid for ESRD had poor knowledge related to, source of calcium and phosphorus, health Problems with high level of calcium and phosphorus, benefits of law pickles and salts, importance measure fluid intake, amount fluid intake daily, health problems with high fluid intake between session at home and health problems during session high weight because high fluid intake, while after the program the majority all of them good knowledge previous items respectively in post-program knowledge.

The researcher argue that ensuring patients have family and professional support and implementing patient teaching programs to improve adherence with diet, fluid and medications into routine treatment is essential, such measures will facilitate adherence to treatment regimens and contribute to optimal health status and quality of life.

This finding agreed with study done in Egypt by *Kamal (2007)* who studied about "Quality of life patient with end stage renal disease" who reported the majority of study subjects good knowledge related to this important aspect of conservative management but this good knowledge didn't achieve compliance towards dietary and fluid restriction, addition the present study finding agreed with study done in Egypt recently by *Basiony (2014)* who reported that the majority of his study sample lack of knowledge about diet.

Also in agreement with previous studies, as conduct by *Mustafa et al., (2004)* who studies "The effect of teaching program on nutritional practices for hemodialysis patients" who reported that the effect of dietary teaching program for hemodialysis clients. However, *Smeltzer and Bare (2011)* highlighted that noncompliance with dietary and fluid restriction, this finding may be due to client low socioeconomic status or due to that these clients feel often stigmatized in social situations because there may be few food selections available for their diet.

The present study finding disagree with the study done by *Cupisti et al., (2012)* who studies about "Nutritional knowledge in hemodialysis patients and nurses focus on phosphorus" suggests that nutritional knowledge of hemodialysis patients, although higher than the general population, it is lower for phosphorus with respect to the other nutrients, such as protein, sodium, and potassium. This occurs even in patients with hyperphosphatemia or those taking phosphate binder medications.

As regards fluid management, the results of the study a similar studies, done in Egypt by *Mohammed (2007)* who studies about" Nursing role in managing complication of patients on hemodialysis" reported that found most of clients come to dialysis session with increased body weight

gain, less than two fifths of them have heart disease and more than two fifths have elevated blood pressure, found dyspnea and fluid over load nearly all subjects, this finding is because most of client did not follow nursing and medical instructions related to fluid and salt restrictions.

Contradicting with the present study done in China by, *Lee and Molassiotis (2002)* who studies " Dietary and fluid compliance in Chinese hemodialysis patients" reported that the lowest mean score of knowledge was related to the general and basic knowledge about CKD and dietary management, about 20.8% of subjects had scores 60% and three quarters of subjects had scores between 60% and 90% and the least percentage 3.2% had scores over 90%. The mean scores were also found in relation to the identification of restricted/non-restricted food, with somewhat higher scores in relation to instructions on fluid restriction, and reasons for compliance and possible consequences of noncompliance.

The clients total knowledge regarding to vascular access and medication for client HD. As indicated from table (3) there was highly statistical significant (P<0.001) improvement in hemodialysis clients' knowledge at post-program compared to pre-program regarding to benefits of vascular access, symptoms of contamination fistulas, treatment client CRF, protective methods vascular access and types of vascular access. Therapeutic prescription drugs for client RF, knowledge about all medications are taking, types of medication prescribed, and reasons for not compliance treatment compared with pre-program.

These findings agreed with that of the study done in Cairo by *Raffat (2013)* conducted studies "Assessment of hemodialysis performance" who reported that more than three quarters of his study sample had average knowledge related to arterio-venous fistula (AVF) care. In this same line study done in Chicago by *Gudex*

(2009) a studies" Health related quality of life in end stage renal failure "reported that recommended regular checking of a working vascular access together with observation for signs of infection before dialysis.

Also the study done in Birmingham by *Deborah & Parker (2012)* who studies "Determinations of type and timing of initial permanent hemodialysis vascular access " which reported that the health care team can help patients to maintain their vascular access, the type of vascular access selected for patients. The health care team provides the information and support for patients and families on how to preserve and protect their vascular access.

In the same line the study done in Iran by *Wells (2011)* conduct studies "Hemodialysis knowledge and medical adherence in African Americans diagnosed with end stage renal disease" reported that there was a significant increase in hemodialysis knowledge after the educational intervention, but no significant increase in perceived medical adherence. This is in contradiction with the result of the current study as the increased client's knowledge play a role in increased patient adherence to therapeutic regimen.

In the researcher opinion, continuous education by health care team in providing the clients and their families knowledge about dealing with diseases, diet, fluid, medication and activity of daily living, evaluation and presence of posters in different hemodialysis units it is very important to increase the knowledge and understanding of the client's about chronic kidney disease and hemodialysis (an important component of a client's care). The opinion of the investigator agree with the finding of the study done by *Fissell et al., (2011)* who studies "Development of continuous implantable renal replacement: past and future " which reported, the importance of health care team in providing the clients and their families with

information about how to protect and preserve their vascular access.

Clients hemodialysis regarding self-care practices for fluid intake and diet at home in the present study, before the program finding the majority of the client had unsatisfactory regarding client practice about weight follow up at home, controlling of fluid intake, respected types of fluid, number of meals/day, follow methods during diet intake, follow at home after session and way of cooking foods containing potassium, while the most of them improved their practice after program.

The present study finding agree at with the study done in Egypt by *Ali et al., (2011)* a conducted " Impact of Teaching Guidelines on Quality of Life for Hemodialysis Patients " reported that all of the study sample had an unsatisfactory level of performance regard fluids, electrolytes and diet. Also the finding of the present study revealed that the study done by *Mostafa & EL-Fouly (2004)* who studies "The effect of teaching program on nutritional practices for hemodialysis patients" concluded that there was a positive impact of the teaching program on the improvement of the client's nutritional practice.

Also the finding of the same line with studies that was done in Chin by *Ash and Dorothea (2008) and Simmons (2009)* which found that patient education is a core component of nursing care, especially for end stage renal disease clients to promote self-care. As well as study that was done in Iran by *Ahrari, Moshki, and Bahrami (2014)* conduct studies " The relationship between social support and of dietary and fluid restrictions among hemodialysis patient in Iran" agreed that chronic renal failure involves the patients and their families due to the extensive lifestyle changes, as well as fluid and dietary restrictions.

In the study that was done in Indian by *Welch & Thomas – Hawkins (2005)* a studies " Psycho-educational strategies to prompt fluid adherence in adult hemodialysis patients" they found that patient education improved adherence in (48%) of the sample group after a 6-week verbal and written fluid balance education program conducted by nurses. In a similar study, patients' mean inter-dialytic weight gain (IDWG) decreased, and adherence to fluid restrictions increased following an education intervention by *(Barnett, Yoong, Pinikahana & Si-Yen, 2008)* a studies "Fluid compliance among patients having hemodialysis.

Also, in the same regards, the study by *Mohammad (2010)* studying dietary and fluid adherence in Iranian hemodialysis patients denoted that patients' weight gain ranged between 0.0 and 8 kg (mean, 2.96 kg; SD, 1.41 kg) between 2 consecutive dialysis sessions.

In congruent with the present result the study of Chan, by *Zalilah, (2012)* in studying determinants of adherence behaviors among patients undergoing hemodialysis in Malaysia determined that Inter-dialytic weight gain (IDWG), serum potassium and phosphorus which have been widely used in many studies were used as indicators of fluid and dietary;

Agarwal (2012) cited that patients undergoing hemodialysis must keep their potassium levels between 3.0 and 6.0 mmol/l. Excessive dietary potassium intake may lead to hyperkalaemia and fatal cardiac rhythm abnormalities.

Clients hemodialysis regarding to self-care practices for medication and vascular access at home (table 4) in the present study, before the program finding three quarters of their study sample clients unsatisfactory practice about taking prescribed medication doses others, follow doctor with occurs

complication at home, dealing with cramps occurs at home, dealing with itching to reduce and in case low blood pressure, daily check access, maintenance fistula and cleaning and avoid things with arm with fistulae in pre – program while improve in post- program, and statistical significances between pre & post program were highly significant (P<0.001).

The present study finding agreed with the study done in Egypt by *Taha (2011)* conduct studies " Health Guidance Effect for Patient Undergoing Hemodialysis on Health Problems, Stress and Daily Life Activities" who reported improvement of patients' independence level might have been related to the disease process, effect of treatment, care provided for ESRD patients, and furthermore could be attributed to the impact of the educational nursing intervention guideline, conducted study recently that was done in Egypt by *Abo Deif (2015)* found that (30.91%, 36.36%, 87.27%, and 76.36%) of the study sample reported a good level of adherence related to diet, fluid, medication and hemodialysis treatment respectively at six months post program implementation.

In the same line the study that was done in Egypt by *Gouda et al., (2011)* a studies " Egypt information, prevention, and treatment of chronic kidney disease (EGIPT-CKD) program me: Prevalence and risk factors for micro albuminuria among the relatives of patients with CKD in Egypt" cited that adherence rates of dietary, fluid, medication and dialysis were (27.7%, 24.5%, 66.5% and 91.0%) respectively.

On the other hand the study that was done in New York by *Aggarwal, Pender, et al., (2015)* reported that more than half of patients reported non-adherence to their medications and the most common barriers to adherence identified in both quantitative and qualitative approaches were forgetting to take their medications due to distractions in daily life, being away from home, having

more than one medication to take, and feeling well enough not to take it.

Conduct study recently done in Egypt by *Abo Deif (2015)* who reported about the physical problems included hypotension (50%), cramps (23.08%), and fatigue (19.23%), and clots in access site (33.33%). In this regard; *Welch & Hawkins (2005)* who studies "Psycho-educational strategies to prompt fluid adherence in adult hemodialysis patients" reported that in studying dialysis attending adherence agreed that nausea, vomiting, diarrhea before or on treatment, high or low blood pressure, itching, hunger, cramping.

Also, the study that was done in India by *Shanilendranath, Ushadevi and Kedlaya (2014)* conduct studies "Knowledge, Attitude and Behavior among Maintenance Hemodialysis Patients for Adherence to Dietary Regimen" found a different results as the 60% of study patients found difficulty in adhering to fluid restrictions as indicated by their inter-dialytic weight gain. In this regard, *Smith et al., (2010)* a studies "Patient Perspectives on Fluid Management in Chronic Hemodialysis" commented that high IDWG has been associated with complications such as hypertension, congestive heart failure, and even death. Additionally, removal of this excess fluid during traditional hemodialysis is difficult and may result in hypotensive episodes and patient symptoms such as muscle cramps, nausea, and headache.

These finding disagreed with the study that was done in Egypt by *Bassiony (2014)* who found that, his study sample had the highest mean score in the care of chest pain and lowest mean score in care of muscle cramps.

The present study results shows, there is improvement of the HD done their practices regarding to daily living activities at home after post program according to, the one third of them done their practices as

hygiene/personal, bathing, dressing, undressing, elimination, doing light house work (laundry/ preparing of food), eating and drinking, attending social events with family and friends, using a telephone, slightly less than one third of them were shopping, buying needs by self, going to the bathroom, also two thirds of them were transporting in and out of bed or chair, taking medication, going to the hospital for hemodialysis session while after the program the majority of them improved their practices regarding to daily living activities at home.

The finding of the present study agreed with the study done in Egypt by *Mohamed (2007)* who carried out a study about "Effect of balance disorders on activities of daily " who found in her study that about two-thirds of the studied group required moderate assistance in bathing, toileting and dressing. Also finding of the present study revealed that the study done in Egypt by *Abo Elmaty (2009)* who found that more than one-third of elderly client required some help in self-bathing going to bathroom and wearing clothes but that slightly more than two thirds elderly client was dependent in cooking and preparing meals (food preparation).

These finding agreed with the study carried out on elderly 'assessment of function health status" in Cairo by *Soliman (2007)* who reported that, the majority of studied group was independent in ascending stairs and home maintenance but dependent in less than half in ability to food preparation. Also agreed with the study done by *Barak et al., (2008)* who found in their study that three quarters of the studied group were better at performing the activities of daily living tasks, while one, quarter were poor at perfuming the activities of daily living tasks.

Regarding to checklist for client's hemodialysis for safe home environment in the present in table (7) results revealed that high statistically significant differences

(P<0.001) regarding all items of save home environment. Most of these items were suitable for client's hemodialysis ranging from 61.3% - 95%.

The finding of the present study agreed with the study done in Egypt by *Abo Elmaty (2009)* who found all of elderly clients homes safely in stairs and roads and sanitation, also supported by a study done in Egypt by *Abo Aisha (2009)* a studies "The effect of an educational program regarding prevention of accidents among older adults in a rural area" who found that elderly homes were considered moderate in toilet, stairs and safety in noise inside the home.

The present study results indicated showed that there were no significant relation observed between age and occupation with client's knowledge about renal failure (P > 0.005). On the other hand, significant relation was detected between client's knowledge and their education levels, knowledge about renal failure, knowledge related to diet regimen, fluid, vascular access and medication for client HD.

The present study agreed with the study done in Egypt by *Mohamed (2010)* who found that, there were statistically significant relation between client's education levels and knowledge related to renal failure, but disagree also with significant relation between age and knowledge.

Also in a similar study recently done in Egypt by *Abo Deif (2015)* who found there is a statistical significance relationship between total knowledge scores and serum potassium level in which the majority of the studied sample had knowledge related to food rich in potassium.

Contradicting with the previous study findings, *Mohamed (2010)* and *Ali (2013)* found that, there were statistically significant relation between their age, education levels

and knowledge, but there no statistically significant relation between their knowledge.

According to relation between demographic characteristics and client's practices about RF in the present study results indicated showed that there no significant relation were observed between age and self-care practices for fluid intake and diet, self-care practices for medication, self-care practices for vascular access and stress. In contrast, significant correlation was detected between age and self-care practices for exercise and safe home environment.

Regarding education levels, the results indicated that non-significant correlation were observed between education levels and patient's practices about renal failure with the exception of self-care practices for exercise and safe home environment.

Concerning occupation, results of this study revealed that a significant correlation was observed between occupation and patient's practices about renal failure except self-care practices for exercise and stress.

The present study agreed with the study done in Egypt by *Mohamed (2010)* who found that, there were no statistically significant relation between client's age and self-care practices management related to renal failure but there is significant relation between educational level and practices related to self-care practices management.

According to the research hypothesis: The program will improve self-car for client's with hemodialysis through their knowledge and practices towards health problems related to stress and activities of daily living finding of the present study it can be concluded that educational intervention has a positive impact on patient's adherence and it marks the role of health team members led patient education in the management of chronic ailments like CKD, there were improving client satisfactory their knowledge about disease, medication, diet, fluid, care

vascular access and activity of daily living for client between pre and post program and improving in their self-care practice at home pre and post program implementation.

Conclusion

Based on the findings of the present study, it can be concluded that, the age for more half of clients their age ranged from aged over 40-60 years while the HD clients aged more than 60 years recorded the lowest percentage, more than half were male, the majority were married also HD clients weren't smoking. There were significant correlation were observed between pre and post program with age and occupation related to client's knowledge about RF, between education levels and knowledge about RF, knowledge related to diet regimen, fluid, vascular access and medication for clients HD**.** There were no significant correlation were observed between pre and post program between age and self-care practices related to fluid intake and diet, self-care practices for medication, self-care practices for vascular access and stress, but there were significant correlation was between age and self-care practices related to exercise and safe home environment. Regarding education levels, our results indicated that non-significant correlation were observed between education levels and patient's practices about RF with the exception of self-care practices for exercise and safe home environment. There were significant correlation were observed between pre and post program between occupation and patient's practices about RF except self-care practices for exercise and stress.

Recommendation

Based on the findings of the current study, the following recommendations are suggested**:(1)** Ongoing education is highly needed for the hemodialysis clients, and their care givers, it should initiated during the pre-dialysis stage and continued after maintenance dialysis using a multitude of audiovisual materials that suite the needs

for each patient and achieve a satisfactory level of adherence**. (2)** Health educational program to improve clients self-care practice, 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. **(3)** Self-care guidelines consist of a clinical plan to produce better outcomes for HD clients. **(4)** Patients and their families should be educated and counseled about self-care activities regularly. (5) Simple modification of home environment to improve safe mobility and degree of independence of daily activities at home. **(6)** Conducting of screening program for early detection of CKD.

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