

### Effect of Educational Guidelines on Self Care for Patients Post Kidney Transplantation Zeinab Hussein Bakr

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#### Abstract

Self-care for patient post kidney transplantation is very important to avoid late rejection episode, maintain patients' compliance with therapeutic management and improve quality of life. **Aim:** This study aimed to evaluate the effect of educational guidelines on self-care for patients with post kidney transplantation through the following: - 1- Assess the self-care for patients with post kidney transplantation. 2- Develop and implementing self-care guidelines for patients based on need assessment. 3- Evaluate the effect of the educational guidelines on self-care for patients with post kidney transplantation. **Design:** A quasi experimental design was used to utilize this study. **Setting:** The study was conducted at Kidney transplantation unit and nephrology and urology outpatient clinic at Nasser Institute hospital. **Sample:** Purposive sample composed of 60 clients from the previous mentioned setting divided into two groups. **Tools:** Two tools are used for data collection; *first tool*, an interviewing questionnaire designed by the researcher to assess a) socio-demographic data, b) medical history past, present. *Second tool*, Self Care questionnaire consisted of A) knowledge, b) practice. **Results:** There was satisfactory level of total knowledge and practice related to self care in the study group post implementation of the educational guidelines, **Conclusion:** There is highly statistically significant relation between knowledge, practice and self care after kidney transplantation. **Recommendations:** Establishing a special educational program to provide patients with adequate knowledge and training to overcome patients' problems.

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**Key Words:** Quality of life –Hip Joint Replacement.

improve quality of life of patient that lead to normal social, psychological and emotional profiles with a greater degree of satisfaction with life and more often able to work. It also eliminates the dependence on dialysis and accompanying symptoms (Claudia, 2015).

There were increased risk of transplant rejection with minimum diversion from the prescribed regimen, shortage of organ donors, long duration of remaining on the transplant waiting list, and the economic costs of dialysis render the need to follow the medical recommendations imperative. Therefore, patients are trained before being discharged from the hospital regarding the new lifestyle, including follow-up visits, prevention of infection, diet, use of immunosuppressive therapy, physical activity, recording self-monitoring, and

#### Introduction

Progressive and irreversible impairment in the end-stage renal disease (ESRD) is regarded as one of the main health problems worldwide. In this condition, the body's ability to sustain metabolism and maintain the balance between fluids and electrolytes fails. The prevalence of chronic renal failure is 242 cases per million people worldwide and approximately 8% is added to this rate yearly. The population suffering from the chronic ESRD is annually increasing by 6% (Hinkle & Cheever 2016).

Kidney transplantation is preferred treatment compared with dialysis for verity of reasons which include the reversible of many of the pathological changes associated with renal failure as the normal kidney function is restored, improvement of self-care guidance to

the opportunity to improve their QoL. Self-care guidelines regarding symptoms after kidney transplantation are very important to prevent many serious problems as infection, graft-versus-host disease (GVHD), nutritional issues, nausea, fatigue, family role shifting, family distress, work and coping with new health status (McDonald & Russ., 2013).

Patient should follow certain life style changes after kidney transplant to ensure the long term success of the transplantation organ. Life style is a way of living including behaviors that protect good health and longevity. Life style pattern can effect on health positivity or negatively (Chapman 2014). Patient should follow self-care instruction for adhere to the recommended lifestyle. Patient should adhere to Self-care guidelines to change behavior and follow medical team recommendations (Wilkinson, & Whitehead, 2009).

#### **Significance of the study:**

International incidence rates of ESRD indicate progressive increase in ESRD. ESRD is twice the number of people with diabetes (422 million) and more than 20 times the number of people with cancer (42 million) End stage renal disease affect 10% of men and more than 12% of women worldwide 2 million of the make kidney transplantation, and up to 10.5 million people require dialysis or kidney transplant, but many do not receive these life-saving treatments because cost or lack of resources (National Kidney Foundation, 2015).

In Egypt according to Annual Report of the Egyptian society of nephrology which revealed that number of patient with end stage renal disease about 2 million and 600 thousand cases and about 30% of patient with kidney failure die annually, while the proportion does not exceed 7%. About 60 thousand patient in Egypt has dialysis while 3000 done

sun protection items (Lewis, Bucher, & Heitkemper, 2016).

Moreover, transplantation outcomes are largely determined by the capacity of transplant recipients to adhere to a complex and ongoing self-management regimen to minimize the risks for transplant loss and future comorbid conditions. However, according to the same authors, patient perspectives on self-management, which might explain adherence and other self-management decisions and behaviors, are less well understood (Cerpent, 2016).

Transplantation confers a survival and quality-of-life advantage and is more cost effective than dialysis. Non-adherence to immunosuppressant has been found to be related to age, employment, income, and transplant vintage as well as psychological factors. In addition, factors such as emotional distress/depression, stress and feelings of indebtedness, perceived side-effects and symptom burden, attitudes and medication beliefs. Non adherence is a major risk factor for long-term allograft failure in kidney transplant recipients (Hinkle & Cheever, 2016).

Increased risk of transplant rejection with minimum diversion from the prescribed regimen, shortage of organ donors, long duration of remaining on the transplant waiting list, and the economic costs of dialysis. Patients are trained before being discharged from the hospital regarding all aspect of self-care to can deal with the new lifestyle, including follow-up visits, prevention of infection, diet, use of immunosuppressive therapy, physical activity, recording self-monitoring, and sun protection items (Chinn & Kramer, 2015).

Self-care guidelines refers to activities that enable people to deal with the impact of a long term conditions on their daily lives, dealing with the physical and psychosocial changes to give people

The study was conducted at kidney transplantation unit and urology and nephrology outpatient clinic at Nasser Institute hospital.

### **Subject**

Purposive samples of 60 patients after kidney transplantation follow in the previous mentioned setting at the time of data collection were recruited in this study it will be divided into study and control group. The sample size was determined statistically by power analysis considering the total number of patients was 280 who had kidney transplantation at Nasser Institute Hospital.

Type I error with significant level  $\alpha=99\%$ , Type II error by power test  $\beta=95\%$

### **Inclusion Criteria:**

The study sample was selected according to the following criteria:

- Adult patients (age  $\geq 18$  years).
- From both sexes.
- Having different educational levels.
- Free from other chronic diseases.
- Able to comprehend instructions.
- Agree to participate in the study.

### **Exclusion criteria:**

- Patients with mental or psychiatric disorders.
- Patients who were exposed previously to any educational programs or guidelines about kidney transplantation and its associated therapeutic regimen.

Tools of data collection:

### **I- Patient's socio-demographic characteristics and clinical data sheet:**

It was designed by the researcher and written in simple Arabic language. It was composed of two parts:

**Part 1:** It is concerned with assessment of

kidney transplantation (**Egyptian Society of Nephrology, 2013**).

Poor management and follow up after kidney transplantation can cause physical, social, psychological and financial problems so implementing self-care guidelines for those patients will lead to improve their adherence and QoL. Nurses play an important role in the assessment of patients' needs and teach them to have better outcomes, living better and enjoy a high QoL.

### **Aim of the Study:**

This study aimed to evaluate the effect of educational guidelines on self-care for patients with post kidney transplantation through the following:-

- 1- Assess the level of knowledge and practice regarding to self-care for patients with post kidney transplantation.
- 2- Develop and implementing self-care guidelines for patients based on need assessment.
- 3- Evaluate the effect of the educational guidelines on self-care for patients with post kidney transplantation.

### **Research Hypothesis**

The current study hypothesized that:

The educational guidelines will affect positively on self-care for patients post kidney transplantation.

### **Operational definition:**

**Self-care:** improve patient's knowledge and practice to word self-care aspect regarding physical self-care aspect, psychological self-care aspect, social, family and functional self-care aspect and spiritual self-care aspect.

### **Research design:**

Quasi experimental design was followed to a chive the aim of this study.

### **Setting:**

questions with two responses of yes or no.

**Immunosuppressant** complications including short and long term problems resulting from transplantation process were composed of (9) questions {(3) multiple choice questions and (6) questions with two responses of yes or no}.

**D:** It was concerned with **assessment of patients' knowledge regarding self-care aspect** including physical, psychological, social, functional and spiritual self-care aspects. It was composed of (103) items; the response for each item was yes or no. The items were distributed as the following: Physical self-care aspect (79) items, psychological self-care aspect (11) items, social, family and functional self-care aspect (9) items and spiritual self-care aspect (4) items.

#### Scoring system

The score for correct answer for each statement was (1) and incorrect answer was (0). The total score of patients' learning needs assessment were (128) grades, distributed as the following:

Knowledge regarding kidney transplantation (5) grades, regarding kidney transplantation description (7) grades, regarding complications (13) grades and regarding total score of patients' self-care was (103) grades, distributed as the following: Physical self-care aspect (79) grades, psychological self-care aspect (11) grades, social, family and functional self-care aspect (9) grades and spiritual self-care aspect (4) grades.

Total score was considered as the following:

- $\geq 80\%$  ( $\geq 103$  grades) was satisfactory.
- $< 80\%$  ( $< 103$  grades) was unsatisfactory.

#### Part 2: Patients' self-care practice

socio- demographic characteristics of the patients under study such as patients' age, gender, marital status, level of education, occupation, health insurance, income, number of family members and home condition as patient's room, room painting, home ventilation, sanitation and healthy drinking water.

#### Part 2: Patient's clinical data sheet:

It was designed by the researcher and written in English language. It is concerned with assessment of patients' clinical data such as present medical diagnosis, past medical/ surgical history, maintenance drugs, present complain.

#### II- Kidney transplantation interview questionnaire sheet:

It was designed by the researcher and written in simple Arabic language after reviewing the related literatures (**Black & Hawk, 2010; Meg & Judith, 2011; Judith & Joan, 2013; Morton & Fontaine, 2013; Albrecht, 2014; Perry, Potter & Ostendorf, 2014**) to assess patients' learning needs regarding disease description, kidney transplantation description and its types, complications and patients' self-care.

#### This tool was divided into four sections as the following:

- A- It was concerned with assessment of patients' knowledge regarding kidney transplantation such as definition, causes, manifestations and complications. It is composed of (5) multiple choice questions.
- B: It was concerned with assessment of patients' knowledge regarding kidney transplantation patients' preparations, advantage and disadvantage. It was composed of (7) multiple choice questions.
- C: It was concerned with assessment of patients' knowledge regarding **Immunosuppressant** and its complications. It was composed of (4)

Self-care guidelines were designed by the researcher and written in simple Arabic language using illustrated pictures based on related recent literatures (**Black & Hawk, 2010; Meg & Judith, 2011; Judith & Joan, 2013; Morton & Fontaine, 2013; Albrecht, 2014; Perry, Potter & Ostendorf, 2014**) and included two parts as the following:

**Part I- Theoretical part;** it covered the following items;

- Anatomy and physiology of blood.
- Kidney transplantation description as definition, causes, clinical manifestation, etc.....
- Kidney transplantation as definition, types, process of operation and complication.
- Self-care guidelines following kidney transplantation; it was divided into:
  - Physical self-care guidelines were included prevention of complications, medications and follow up.
  - Psychological self-care guidelines.
  - Social and functional self-care guidelines.
  - Spiritual self-care guidelines.

**Part II- Practical part;** it concerned with self-care practices such as hand washing, oral care, temperature, pulse, respiration measurement measure urine output, physical exercises, breathing exercises and relaxation exercise.

Self-care guidelines were revised by a group of five experts in medical surgical nursing and two experts in medicine at Nasser Institute Hospital for content validity. Based on the opinion of experts some modifications were done, and then the final form was developed.

### **Administrative Design:**

A letter was issued from the Faculty of

### **observational checklist:**

It was developed by researcher and written in simple English language after reviewing related literatures (**Judith & Joan 2013; Morton & Fontaine, 2013; Perry, Potter & Ostendorf, 2014**). The aim is to assess patients' ability to perform skills related to self-care which were important to prevent and detect complications. The response of each procedure was divided into (done correctly, done incorrectly and not done). The observational checklist was composed of eight self-care skills including (hand washing, oral care, temperature measurement, pulse measurement, respiration measurement, measure urine output, performing breathing exercises, physical exercises and relaxation exercise).

### **Scoring system:**

The total grade of patients' self-care practice observational checklists was (60) grades, one grade was given to the step which, was done correctly and zero to the step which was not done or done incorrectly. It was distributed to eight procedures, the grades were distributed as the following: hand washing (7) grades, oral care (7) grades, temperature measurement (7) grades, pulse measurement (5) grades, respiration measurement (4) grades, measure urine output (4) grades, breathing exercises (8) grades, physical exercises (11) grades, relaxation exercise (7) grades.

### **Total score was considered as the following:**

- $\geq 80\%$  ( $\geq 48$  grades) was considered satisfactory level of self-care practice.
- $< 80\%$  ( $< 48$  grades) was considered unsatisfactory level of self-care practice.

### **Self-Care Guidelines for patients after kidney transplantation**

professors, four assistant professors and one lecturer. The aim was to determine relevance, clarity, completeness, simplicity and applicability of the study tools, experts responses were either agreed or disagreed or agreed with modifications for the face validity and for content reliability. About 85% or more of the experts were in agreement with the proposed tool. Required modifications were done. The modifications were focused on some self-care statements of kidney transplantation interview questionnaire. Testing reliability of the proposed tools was done statistically by Alpha Cronbach test 0.89 & p.91.

• **Pilot Study:**

Testing for the selected tools was carried out before starting the data collection. It was done on a group of 10% (10 patients) of the total subjects to test the applicability of the tools. The patients included in the pilot study were included in the sample. No modifications were done to the tools.

**Field Work:**

Field work included two phases: implementation phase and evaluation phase.

**I- Implementation phase**

Data collection from patients for this study took about, started from beginning of August 2016 to end of May 2017. Data was collected first from the control group. Data were collected three days/week. For both groups, first, the researcher greeted the patients, introduced herself and explained the aim of the study. The researcher took the patients' telephone number at the first contact (During hospitalization) to determine the second and third appointments in order to complete data collection process. Specific infection control precautions were considered as hand washing and wearing gown, mask and over head by the researcher during every visit for

Nursing Ain Shams University to the Director of the Nasser Institute Hospital to conduct the study, explaining the purpose of the study and requesting the permission for data collection from the studied and control groups.

**Ethical Considerations:**

The ethical research considerations in this study included the following:

- The researcher clarified the objective and aim of the study to the patients included in the study.
- The researcher assured maintaining anonymity and confidentiality of the subject's data.
- Patients were informed that they are allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time without giving any reasons.

**Operational Design:**

The operational design included preparatory phase, pilot study and field work.

• **Preparatory phase:**

It included reviewing of current and past, national and international related literature and theoretical knowledge of various aspects of the study using books, articles, periodicals, magazines and internet to develop tools for data collection and self-care guidelines.

**Tools validity and reliability:**

To achieve the criteria of trustworthiness of the tools of data collection in this study, the tools were tested and evaluated for their face and content validity by seven experts from faculty members in the Medical Surgical Nursing field from Faculty of Nursing, Ain Shams University. They were from different academic levels, i.e., two

## **Effect of Educational Guidelines on Self Care for Patients Post Kidney Transplantation**

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the available hospital equipment as watch, thermometer and urinal.

### **Evaluation phase:**

This phase included evaluation of the effect educational guidelines on self-care for patients' post kidney transplantation by comparing the results pre, post and follow up of the self-care guidelines implementation by using the same data collection tools which were done to the control and study groups after one months from pre test and 3 months from pre test of kidney transplantation which was done at nephrology and urology outpatient Clinic at Nasser Institute Hospital.

### **Statistical Design:**

The collected data were organized, analyzed using appropriate statistical significant tests. The data were analyzed with the program using the statistical package for social science (SPSS) under windows version 11.0.1.

The tests were used to summarize data were range, mean, standard deviation, t- test and z-test were used to compare scores for numerical data. Also, Alpha Cronbach was used to test reliability of tools and factor analysis to test its validity. Also test of significance was used and regarding significance of the results, the observed differences and associations were considered as follows:

Non significant (NS)  $P > 0.05$

Significant (SP)  $p < 0.05$

Highly Significant (HS)  $P < 0.01$

hospitalized patients. Data was collected as soon as patients felt well enough (the average days 10-15 days after kidney transplantation) to participate and respond to the questionnaire, choices answers were recorded by the researcher.

For the control group, the pre assessment was done immediately post kidney transplantation at kidney transplantation Unit. Pre assessment involved assessment of socio-demographic characteristics, clinical data, knowledge & practice regarding self-care of patients after kidney transplantation. Filling the tools took about (70-80) minutes distributed as the following: patient's socio-demographic characteristics sheet took about (5) minutes, patient's clinical data sheet took about (5) minutes, kidney transplantation interview questionnaire took about (40) minutes.

Regarding study group, the pre assessment was done also as control group and took approximately same time for all data collection tools, after that self-care guidelines were implemented for each patient separately according to patients' learning needs.

Self-care guidelines were explained to the patients by the researcher individually. Number of sessions based on patients' needs which ranged between 6-8 sessions. Each session lasted approximately 30-40 minutes after explanation of the objectives of each session. The researcher demonstrated the practical part of self-care guidelines using

**Results**

**Table (1): Comparison between study and control groups regarding their socio-demographic characteristics:**

Items	Groups				X <sup>2</sup>	P value
	Study(n=30)		Control (n=30)			
	No	%	No	%		
<b>Age</b>						
• 18<30	7	23.3%	8	26.7%	0.32	<b>0.85</b>
• 30<40	8	26.7%	9	30.0%		
• ≥40	15	50.0%	13	43.3%		
<b>Mean± SD</b>	<b>51.6±8.8</b>		<b>48.1±9.4</b>		<b>t=0.2</b>	<b>0.84</b>
<b>Sex</b>						
• Male	15	50.0%	20	66.7%	0.07	<b>0.79</b>
• Female	15	50.0%	10	33.3%		
<b>Education</b>						
• Illiterate	0	0.0%	2	6.7%	5.23	<b>0.16</b>
• Read and write	8	26.7%	15	50.0%		
• Secondary education level	17	56.7%	11	36.6%		
• High educational level	5	16.7%	2	6.7%		
<b>Marital status</b>						
• Single	8	26.7%	9	30.0%	4.77	<b>0.09</b>
• Married	22	73.3%	18	60.0%		
<b>Residence</b>						
• Urban	15	50.0%	10	33.3%	0.32	<b>0.57</b>
• Rural	15	50.0%	20	66.7%		
<b>Jop</b>						
• Working	17	56.7%	20	66.7%	3.24	<b>0.20</b>
• Not working	13	43.3%	10	33.3%		
<b>Health insurance</b>	22	73.3%	23	76.7%	0.09	<b>0.77</b>
<b>Enough family income for treatment</b>	27	90.0%	23	76.7%	1.92	<b>0.17</b>

Regarding socio-demographic characteristics of the study and control groups, table (1) shows that mean age of the study group was **51.6±8.8**, while the mean age of control group was **48.1±9.4**. Regarding patients' gender, it was found that, about 50% of patients of the study and 66.7% control groups were males. As regards their educational level, 56.7% of the study group and 36.6% of control group were having secondary level of education.

In relation to marital status, it was found that 73.3% of patients in the study group and 60.0% of control group were married. In relation to residence, 50% of study and 66.7% of the control groups resided in rural areas. As well, more than 56.7% of patients in the study group, and (66.7%) of the control group was working. Regarding health insurance, this table showed 73.3% of the study and 76.7% of the control groups had health insurance. In relation to family income, 90.0% of the study group and 76.7% of control group had enough income for treatment with non-significant difference between two groups regarding all socio-demographic characteristics ( $p>0.05$ ).



## Effect of Educational Guidelines on Self Care for Patients Post Kidney Transplantation

**Table (2): Comparison between study and control groups regarding their home characteristics.**

Items	Groups				Z	P value
	Study (n=30)		Control (n=30)			
	No	%	No	%		
Special patient's room	14	46.7%	14	46.7%	0.00	1.00
Oil painting room	14	46.7%	17	56.7%	0.78	0.43
Home ventilation	22	73.3%	19	63.3%	0.83	0.41
Sanitation	12	40.0%	13	43.3%	0.26	0.79
Healthy drinking water	8	26.7%	9	30.0%	0.29	0.77

Non significant  $P>0.05$

Concerning home characteristics of the study and control groups, table (2) shows that 46.7% of patients in the study and control groups had special room, as well, 46.7% of study group and 56.7% of control group had oil painting room. Regarding presence of ventilation, sanitation and healthy drinking water 73.3% of the study and 63.3% control groups had home ventilation, 40% of the study group and 43.3% of the control group had home sanitation and 26.7% of the study group and 30.0% of the control group had healthy drinking water with non-significant difference between the two groups regarding all their home characteristics ( $P>0.05$ ).

**Table (3): Comparison between study and control groups regarding their clinical data:**

Items	Groups				Z	P-value
	Study (n=30)		Control (n=30)			
	No.	%	No.	%		
<b>Symptoms of rejection</b>						
• Yes	12	40.0%	20	66.7%	0.56	0.57
• No	18	60.0%	10	33.3%	0.47	0.64
<b>If yes the Symptoms of rejection like</b>						
• Fever	10	33.3%	20	66.7%	1.01	0.31
• Pain in the operation site	12	40%	15	50.0%	0.81	0.31
• Oliguria	10	33.3%	10	33.3%	0.00	1
• Edema	4	13.3%	4	13.3%	0.00	1
• Weight gain 1-2kg per 24hr	2	6.7%	5	16.7%	1.21	0.23
<b>Disease after transplantation</b>						
• No	21	70.0%	15	50.0%	1.21	0.23
• Yes	9	30.0%	15	50.0%		
<b>If yes this disease was</b>						
• MI	6	20.0%	8	26.7%	1.21	0.34
• Arteriosclerosis	0	0.0%	7	23.3%	0.59	0.87
• Viral hepatitis	2	6.7%	6	20.0%	1.21	0.23

Non significant  $P>0.05$

Concerning clinical data of the study and control groups, table (3) showed that 40% of patients in the study and 66.7% of the control groups had symptoms of rejection, as the following, 33.3% of the study group and 66.7% of the control group have fever, also, 40% of the study group and 50% of the control group have pain in the surgical site and 33.3% of both the study and control group have oliguria. While 30% of the study group and 50% of the control group have disease after surgery. As following 20% of the study group and 26.7% of the control group have MI with non-significant difference between the two groups regarding all of their clinical data ( $P>0.05$ ).

**Table (4):** Comparison between patients total knowledge of patients with kidney transplantation in study and control group pre, post and follow up of implementation of educational guidelines for self-care (no=35)

Items	Pre				Post				Follow up				X <sup>2</sup>	P value
	Control		Study		control		Study		Control		Study			
	No	%	No	%	No	%	No	%	No	%	No	%		
Definition & Causes	17	56.7	18	60.0	18	60.0	25	83.3	15	50.0	28	93.3	7.4	0.041
Symptoms	17	56.7	16	53.3	14	46.7	27	90.0	11	36.7	23	76.7	4.8	0.012
complications	15	50.0	11	36.7	8	26.7	23	76.7	12	40.0	26	86.7	6.4	0.031
Investigations	14	46.7	13	43.3	10	33.3	22	73.3	13	43.3	28	93.3	5.9	0.053
Prevention of complication	5	16.7	12	40.0	8	26.7	24	80.0	8	26.7	25	83.3	12.5	0.000
smoking	9	30.0	10	33.3	7	23.3	26	86.7	11	36.7	23	76.7	10.7	0.000
Medication	10	33.3	12	40.0	10	33.3	25	83.3	6	20.0	21	70.0	13.2	0.000
Diet	2	6.7	2	6.7	2	6.7	4	13.3	8	26.7	3	10.0	18.0	0.000
exercises	4	13.3	11	36.7	8	26.7	26	86.7	9	30.0	24	80.0	26.7	0.000
<b>Total knowledge</b>	0	0.0	18	60.0	7	23.3	27	90.0	9	30.0	25	83.3	36.2	0.000

Table (4) showed that, there were highly statistically significant differences among pre- post and follow up -implementation of educational guidelines regarding total level of knowledge between study and control group.

## Effect of Educational Guidelines on Self Care for Patients Post Kidney Transplantation

**Table (5):** Comparison between mean and standard deviation of patients' knowledge about all self-care aspects and total self-care in study and control groups' pre, post and follow up implementation of self-care guidelines. (n=30 patients for each group)

Items	Pre						Post						Follow up					
	Study		Control		T	P-	Study		Control		T	P-	Study		Control		T	P-
	Mean	S.D	Mean	S.D	test	value	Mean	S.D	Mean	S.D	test	value	Mean	S.D	Mean	S.D	test	value
Physical self-care	22.80	12.99	18.87	12.70	1.33	<b>0.19</b>	53.20	5.33	26.13	8.83	14.87	<b>0.001*</b>	46.00	2.74	21.53	8.00	17.64	<b>0.001*</b>
Psychological self-care	2.86	1.94	2.53	1.87	0.66	<b>0.52</b>	10.03	1.50	5.07	2.20	10.28	<b>0.001*</b>	9.00	1.62	4.07	2.10	9.64	<b>0.001*</b>
Social self-Care	2.30	2.15	2.33	2.38	0.05	<b>0.96</b>	8.40	0.89	4.50	1.87	9.37	<b>0.001*</b>	7.20	0.96	3.87	1.74	8.23	<b>0.001*</b>
Spiritual self-care	1.17	0.87	1.17	0.87	0.00	<b>1.00</b>	3.80	0.55	2.13	0.82	10.33	<b>0.001*</b>	3.20	0.71	1.87	0.94	5.64	<b>0.001*</b>
<b>Total self-care</b>	<b>29.13</b>	<b>16.09</b>	<b>24.90</b>	<b>16.62</b>	<b>1.05</b>	<b>0.30</b>	<b>75.43</b>	<b>7.78</b>	<b>37.83</b>	<b>10.63</b>	<b>15.70</b>	<b>0.001*</b>	<b>65.40</b>	<b>3.69</b>	<b>31.33</b>	<b>9.64</b>	<b>19.48</b>	<b>0.001*</b>

Table (5) showed that, there were highly statistically significant differences among pre- post and follow up -implementation of educational guidelines regarding total level of knowledge related to self- care aspect and total self-care between study and control group.

**Table (6):** Comparison between study and control groups regarding their satisfactory level of self-care practices pre, post and follow up of self-care guidelines implementation. (n=30)

Items	Pre				Post				Z	P- value	Follow up				Z	P- value
	Study		Control		Study		Control				Study		Control			
	No	%	No	%	No	%	No	%			No	%	No	%		
Hand washing	1	3.3	0	0.0	26	86.7	3	10.0	5.94	<b>0.00*</b>	15	50.0	0	0.0	4.47	<b>0.00*</b>
Mouth care	0	0.0	0	0.0	27	90.0	0	0.0	7.01	<b>0.00*</b>	16	53.3	0	0.0	4.67	<b>0.00*</b>
Temperature	1	3.3	0	0.0	26	86.7	3	10.0	5.94	<b>0.00*</b>	18	60.0	0	0.0	5.07	<b>0.00*</b>
Pulse	5	16.7	3	10.0	26	86.7	7	23.3	6.43	<b>0.00*</b>	21	70.0	3	10.0	4.74	<b>0.00*</b>
Respiration	5	16.7	3	10.0	26	86.7	4	13.3	5.68	<b>0.00*</b>	13	43.3	2	6.7	3.28	<b>0.001*</b>
Urine output	1	3.3	0	0.0	26	86.7	3	10.0	5.94	<b>0.00*</b>	18	60.0	0	0.0	5.07	<b>0.00*</b>
Breathing exercise	4	13.3	3	10.0	27	90.0	4	13.3	5.94	<b>0.00*</b>	11	36.7	1	3.3	3.23	<b>0.001*</b>
Physical Exercise	2	6.7	1	3.3	27	90.0	3	10.0	6.20	<b>0.00*</b>	17	56.7	1	3.3	4.51	<b>0.00*</b>
Relaxation exercise	0	0.0	0	0.0	27	90.0	0	0.0	7.01	<b>0.00*</b>	11	36.7	0	0.0	3.67	<b>0.00*</b>

Table (6) showed that, there were highly statistically significant differences among pre- post and follow up -implementation of educational guidelines regarding satisfactory level of self- care practice between study and control group.

**Table (7):** Correlation between patients' total knowledge and practice in the study and control groups pre, post and follow up implementation of self-care guidelines.

Items	Total Practice											
	Study group						Control group					
	pre		Post		Follow up		Pre		Post		Follow up	
	r	P- value	R	P- value	R	P- value	R	p-value	r	P- value	r	p-value
<b>Total Knowledge</b>	0.236	<b>0.73</b>	0.594	<b>0.00*</b>	0.722	<b>0.00*</b>	0.277	<b>0.89</b>	0.266	<b>0.84</b>	0.292	<b>0.81</b>

Table (7) showed that, there were statistically significant positive correlations regarding total knowledge and practice between study and control group pre, post and follow up of the self-care guidelines implementation (P<0.001).

**Table (8):** Correlation between patients' total self-care and total knowledge and practice in the study and control groups pre, post and follow up implementation of self-care guidelines.

Items	Total self-care											
	Study group						Control group					
	pre		Post		Follow up		Pre		Post		Follow up	
	R	p-value	R	p-value	R	p-value	R	p-value	r	p-value	R	p-value
<b>Total Knowledge</b>	0.283	<b>0.66</b>	0.772	<b>0.00</b>	0.793	<b>0.00</b>	0.292	<b>0.63</b>	-0.230	<b>0.88</b>	0.251	<b>0.79</b>
<b>Total practice</b>	0.181	<b>0.67</b>	0.336	<b>0.00</b>	0.358	<b>0.00</b>	0.188	<b>0.65</b>	-0.223	<b>0.24</b>	0.158	<b>0.45</b>

Non significant P>0.05

Table (8) showed that, there were statistically significant positive correlations regarding total self-care and total knowledge and practice between study and control group pre, post and follow up of the self-care guidelines implementation (P<0.001).

### Discussion

The current study revealed that the mean age was **51.6±8.8** of the study group and **48.1±9.4** of the control group. This result was inconsistent with study made **Leporini, De Sarro and Russo (2014)** who found that more than one third of the study subject were aged 20-40 years.

As regards gender the result clarified that half of the control group and more than two third of the control group were males. This result was in accordance with study by **Williams (2015)**, who reported that the majority of the patient were males.

Regarding to marital status the current study result showed that less than three quarter of the study group and two third of the control group were married. This finding goes in the line with **Garcia, (2015)** who found that the majority of their study subject was married.

Concerning patient educational level this study revealed that more than half of the study group and more the one third of the control group secondary education level. This result was inconstant with study by **Cukor, et al (2009)** who

mentioned that the majority of the study subject was illiterates.

As regards patient working status, the present study result indicated that more than half of the study group and more than two third of the control group was working. This result with agreement with study **Jackson et al (2016)** who mentioned that three quarter of the study subject, was working.

Regarding to residence the result of the present study showed that more than half of the study group and more than two third of the control group patient reside rural areas. This result was incongruent with a descriptive study made in Helwan University by **Seedek (2012)** who reported that more than one-half of the study patient reside rural area. This may be no different between rural areas and urban areas now days in Egypt.

Regarding health insurance, this result of the present study showed that less than three quarter of the study and more than three quarter of the control groups had health insurance. In relation to family income, almost of the study group and more than three quarter of control group had enough income for treatment This result was incongruent with a

descriptive study made in Helwan University by *Seedek (2012)*. Who reported that more than one-half of the study patient reside rural area. This may be didn't have health insurance and there income not enough for medical treatment.

Concerning home characteristics of the study and control groups, the result showed that less than half of patients in the study and control groups had special room. Regarding presence of ventilation, sanitation and healthy drinking water less than three quarter of the study and more than two third of the control groups had home ventilation, and more than one quarter of the study group and one third of the control group had healthy drinking water. This finding was in disagreement with a descriptive study on Alexandria University by *Ahmed (2014)* who found that more than two third of his group haven't good ventilation and didn't life in separate room but consistent with that half of patient drink unhealthy water.

Concerning clinical data of the study and control groups, the result of the present study showed that two fifth of patients in the study and more than two third of the control groups had symptoms of rejection, as the following, more than one third of the study group and more than two third of the control group have fever, also, two fifth of the study group and half of the control group have pain in the surgical site This result may consist with *De Geest, et al (2014)* who mentioned that half of the subject study have sing of rejection mainly fever as first signs of rejection.

Regarding to satisfactory level of total patient self-care knowledge this result showed that there were statically significant relation between study and control group pre, post and follow up implementation of self-care guidelines regarding patient self- care knowledge. This result in consistent with *Grijpma, et al (2016)* who mentioned majority of patient hadn't knowledge about kidney

transplantation and adherence element as diet, activity and medication.

Regarding to satisfactory level of knowledge regarding self-care aspect this result showed that there were statically significant relation between study and control group pre, post and follow up implementation of self-care guidelines regarding patient knowledge about self-care aspect. This was consistent with *Jamieson et al. (2016)* who reported that there is highly significant relation between study and control group knowledge about their self-care.

Regarding to satisfactory level of total patient self-care practice this result showed that there were statically significant relation between study and control group pre, post and follow up implementation of self-care guidelines regarding patient self- care practice. This result constant with *Gordon, Prohaska , Gallant , Siminoff (2009)* Who found that more than two third of study subject had satisfactory level of practice.

Regarding to relation between satisfactory patient self-care knowledge and satisfactory patient self-care practice this result showed that there were statically significant relation between study and control group pre, post and follow up implementation of self-care guidelines. This finding is in agreement with a descriptive study on Alexandria University by *Trappenburg, et al (2013)* who found there was statistically significant between total knowledge and practice.

Regarding to correlation between patient self-care and satisfactory patient self-care knowledge and satisfactory patient self-care practice this result showed that there were statically significant relation between study and control group pre, post and follow up implementation of self-care guidelines. This result may agree with the study done

by **Udlis (2011)** who found that majority of the study subject had significant relation of practice and self-care. Also, this result was in agreement with **Gordon, Prohaska, Gallant, Siminoff (2009)** who found that more than two third of study subject had satisfactory level of practice which improve their self-care.

The result of the present study showed that educational guidelines affect positively in self-care for patients post kidney transplantation through improve their self-care knowledge and self-care practice.

### Conclusion

The finding of the present study concluded that there were highly statistically significant relation between total knowledge and total practice as well as there were highly statistically significant relation between total knowledge and total practice and self-care post implementation of self-care guidelines.

### Recommendation

- Continues educational programs for kidney transplantation patient and their families about importance of self-care management.
- Provision of booklet for care of patient undergoing kidney transplant should available on out patient clinic and given to newly patients before kidney transplantation.
- Self-care assessment sheet should be added to the patients follow up fill in order to identify patient's health educational need, to tailor the instruction and motivations in accordance with the individual needs.
- Continuous evaluation for nurses' knowledge is essential to identify their educational needs during caring for patient post kidney transplantation.

- This study should be replicated on large probability sample in different hospital in order to generalize the result

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