

## Effect of Protocol of Care on Self Care Practice for Patients Post Kidney Transplantation Operation

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### Abstract

**Background:** Kidney transplantation is the best method of treatment for improvement of renal functions in patients with end-stage renal failure. The main aims of patient education following renal transplantation are to help patients acquire the knowledge, required activities and practices for daily living without problem and to help patients cope with physiological and psychosocial problems. **Aim:** evaluate the effect of protocol of care on self care practice of patients post renal transplantation operation. **Setting:** the study was carried out in out patient's clinics of nephrology center at Urology and Nephrology Center of EL Mansoura University. **Research design:** a quasi-experimental research design was utilized, **Subjects:** A Convenience sample of sixty (60) adult patients was divided into two equal control and study group .**Tools** Four tools was used, **Tool ( I):** Structure interview schedule. **Tool (II):** Patients' knowledge assessment. **Tool (III):** Self care activities of daily living tool (SCADLT). **Tool (IV):** Disease specific self-care practices tool (DSSCPT). **Percentage in result:** a highly statistical significant difference was observed in total knowledge, self- care activities and practices post protocol of care implementation. **Conclusion:** the educational program has remarkable significant improvements of total knowledge level, self care activities and practices post kidney transplantation operation. **Recommendation:** Continuous periodic health teaching program for patients undergoing kidney transplantation operation and replication of the study on a large probability sampling about knowledge, self care activities and practices in the nephrology patient's clinics.

**Keywords:** Kidney transplantation, Protocol of care, Self- care practices.

## Introduction

End-stage renal disease (ESRD), also known as chronic kidney disease (CKD stage five), is the final stage of a gradual decline in kidney function over months or years. It has an impact on how each person's physical and psychological requirements are met. When a patient reaches this stage, they all need renal replacement therapy to restore the original kidney's function, including hemodialysis, peritoneal dialysis, and renal transplantation. Different renal replacement therapies (RRT) have varying effects on patients' life, physical, emotional, and social health<sup>(1)</sup>.

For many ESRD patients, renal transplantation is the best initial treatment option. For some individuals, this treatment effectively saves their lives. With an increased quality of life, greater independence from machines, hydration and food restriction, restoration of sexual function, and fertility with prospective parenthood, it offers the chance to lead an active and longer life. Possessing the ability to consume without being unduly restricted in protein, water, sodium, and potassium is one of the main advantages of a successful kidney transplant. However, patients must continue to monitor their salt and calorie intake following transplantation to manage the negative effects of the high doses of corticosteroids required for immunosuppression. Additionally, the financial impact is significant, particularly after his first year<sup>(2,3)</sup>.

The kidney transplantation facilitates the patient's return to regular life and lessens the effects of dangers, health

issues, and difficulties caused by the disease. Achieving favorable conditions is the primary goal of transplantation. The characteristics and compatibility of the donor and recipient, the surgeon's skill, the type of immunosuppressive medication and supportive care, and the prompt and appropriate treatment of any potential complications are just a few of the factors that influence the success of a kidney transplant such as cardiovascular disease, cancerous tumors, viral disorders, etc.<sup>(4,5)</sup>.

Transplant patients are urged to understand their potential for personal growth and to assume greater responsibility for their health, physical well-being, and emotional well-being with an emphasis on restoring and fostering self-care. To facilitate the adaption process and life satisfaction, self-care techniques in transplant patients lead to an acceptable life to the patient<sup>(6,7)</sup>.

The main aims of treatment are to alleviate distressing symptoms, stop the spread of infection, and avoid consequences<sup>(8)</sup>. Nurses gather comprehensive information on patients' medical, surgical, and medication histories, gauge their understanding of the transplant, and make sure they are adhering to all recommended medical procedures, such as fluid and dietary restrictions, medication administration, and personal hygiene. Determine whether there is self-advocacy, communication, and transplant therapy adherence. Additionally, keep an eye on patients vital signs, pain, and any other potential issues, and go to the doctor if necessary<sup>(9,10)</sup>.

Professional nurses play a crucial role in leading, educating, and supporting patients throughout the transplant process. Patients who can comprehend the transplant procedure can therefore alter their quality of life.<sup>(11)</sup> The nurse has a crucial role in the teaching of self-care practices to ensure continuity of care because patients need to learn how to deal with new drugs and take them for the rest of their lives in addition to adhering to lifestyle changes, such as hygiene practices, infection prevention, monitoring of the new organ's functioning, body image changes, adaptation to mood and energy level swings, and professional issues, among others. The implementation of self-care education programs had favorable results<sup>(12,13)</sup>.

**Aim of the study:** To Evaluate the effect of protocol of care on Self-care practice of patients post renal transplantation.

**Research hypothesis:**

- Patients who exposed to a protocol of care exhibit improved knowledge mean scores related to daily activities, rest and sleep, medications, infection control measures and sexual relation.
- Patients who exposed to a protocol of care exhibit improve self-care practice mean scores related to measurement of daily urine output, daily fluids intake, daily body weight and follow up of prescribed medications.

**Study design**

A quasi-experimental research design was utilized in this study.

**Setting**

The current study was conducted at the Nephrology Outpatient Clinic of the Center for Urology and Nephrology, Mansoura University, three days a week from 8:00 am to 2:00 pm, with patients from all over Egypt and abroad.

**Subjects**

Regardless of inclusion and exclusion criteria, a convenience sample of 60 adult patients of both sexes was used in the study. The Epi-Info software statistical tool version 2003 was used to calculate sample sizes based on power analyses.

**Tools:** The data of the study collected using four tools:

**Tool (I): Structured Interview**

**Schedule:** This tool was developed by the researcher after reviewing of the related literature<sup>(14)</sup> and it included two parts:

**Part (I): Patient's Socio-demographic data:** which included the patient's code, age, gender, occupation, marital status, level of education, residence, and employment status.

**Part (2): Patient's clinical data:** A series of questions were put in it to evaluate the patient's knowledge of their prior medical history. These questions covered renal failure, prior surgical operations, the reason for and length of any hospitalizations, Dialysis Questions about admission and transplant dates, donor type and relative grade, vital signs, and laboratory tests were also part of the current medical history.

**Tool (II): Patients' knowledge assessment questionnaire:**

It was developed by researchers to

evaluate patient knowledge about kidney transplantation after they reviewed recent relevant studies<sup>(15)</sup>. This covers sexual health, infection prevention techniques, food, exercise, rest and sleep plans, follow-up, personal hygiene, renal function, and the advantages of renal transplantation<sup>(16)</sup>. For each question, the patient must choose one of accurate responses.

#### **Scoring system**

The scoring system for knowledge was determined through the:

- Correct and complete answer was scored (2)
- Correct and incomplete answer was scored (1)
- Don't know and wrong was scored (0)

The total score of the patient's knowledge was calculated and classified as follows:

- Less than 65% are considered poor (low level of knowledge)
- Between 65% to 75% considered fair level of knowledge
- More than 75% considered high level of knowledge

#### **Tool III: Self-care activities of daily living tool (SCADLT):**

This tool was developed by the researcher it after studying the relevant articles<sup>(81)</sup>. Items were included and categorized into the following domains to gather information on patient-reported self-care activities to address daily physical and social needs: - personal hygiene (10 items), -outdoor activities (6 items), - nutrition (6 items), -Job duties (3 items), -family obligations (4items), and utilization of leisure time (7items).

#### **Tool IV: Disease-specific self-care practices tool (DSSCPT):-**

-It was developed by researchers to gather information about patients' reported self-care activities after reviewed the most recent pertinent literature<sup>(17)</sup>. This tool was assessed as a particular self-care technique used by patients to preserve their donated kidney and related to the illness process. It was made up of the following elements and areas:

- Measurement of daily fluids intake(2 items).
- Measurement of daily urine output (3 items).
- Daily body weight(2items).
- Following the prescribed medications (4 items).

#### **Scoring system:**

Each practice item was measured on a five-point Likert scale ranging from(1) never, (2) seldom or rarely, (3) sometimes, (4) often, and (5)always, The scores of the items were summed up and the total score was divided by the number of the items, giving a mean score for each part.

**These scores were converted into a percent score.**

#### **The practice was considered:**

- Unsatisfactory if the score were less than or equal to 60% of the total score.
- Satisfactory if the score were more than 60% of the total score.

**Methods:** The study was accomplished through the following steps:

#### **Administrative process:**

**1-** Formal approval to conduct the study was obtained from Medical –Surgical Nursing department, Faculty of Nursing, Tanta University.

-Approval to conduct the study was obtained from the relevant authorities at the study site after the purpose of the

study was explained.

## **2. Ethical consideration:**

-Each patient enrolled in the study was allowed to provide written informed consent for participation after being told of its goal and the confidentiality of the information gathered.

-Code numbers rather than names are used to protect privacy and autonomy.

Researchers stress that subjects' involvement in the study is entirely voluntary and that they are free to stop collecting data at any time.

-The privacy and confidentiality of the test subjects were respected.

Prior to conducting the study, received ethical permission from the faculty ethics committee.

## **3- Development of tools**

The four tools for this study were developed after thorough reviews of pertinent literature, researchers created the tools (I, II, and III), which were then adopted and translated into Arabic, & backward translation into English.

## **4. Validity of the tools**

Five specialists from Tanta University's faculty of nursing in the fields of medical-surgical nursing and intensive care, as well as two experts from medical staff they were asked to evaluate the data-gathering tool's efficacy. It was finished. The university's medical and nephrology center is at El-Mansoura. Experts from diverse fields evaluated the questions for applicability, clarity, relevancy, and comprehensiveness (professor and assistant professor). They believed that just small adjustments and needed modifications were done to create the final shape.

## **5. Reliability of the tools.**

The reliability of the tools was tested using the Cronbach Alpha Coefficient test.

- Cronbach's Alpha for Tool 1 is 0.912 applied on 6 patients.

- Cronbach's Alpha for Tool 2 is 0.873 applied on 6 patients.

- Cronbach's Alpha for Tool 3 is 0.894 applied on 6 patients.

- Cronbach's Alpha for Tool 4 is 0.914 applied on 6 patients.

## **6. A pilot study:-**

Prior to the actual study, a test of the feasibility, clarity, and applicability of the various components of the tools was conducted on 10% of the study's kidney transplant participants. Therefore, before the main investigation, the researchers made the required adjustments, paraphrased certain sentences, and included some new terms in order to identify potential difficulties during the data collection phase. The actual study did not incorporate the data from this pilot study, which was based on the experiences of these individuals.

## **The present study was conducted at 3 phases as the following:-**

### **I- Assessment phase**

-patients' knowledge related to kidney transplantation operation will be assessed two times pre and post the educational program by using Tool (I) and (II)

### **II-Planning phase:**

This phase was formulated based on data from the assessment phase, literature review priorities, goals, determined needs, baseline measures, researches and expected outcomes

criteria were taken into consideration when planning patients care.

### III- Implementation Phase:

Educational method for patients post kidney transplantation operation was developed and implemented by the researcher based on determining needs, baseline measures, relevant literature, researches and expected outcomes.

#### Educational methods and aids:

Teaching methods and aids was used during the session It included: Group discussions, demonstration and re-demonstration.

**Media used:** Arabic language booklet, Handout, Data show presentation, lab top and posters. The booklets distributed to the studied patients at the end of sessions.

#### Statistical analysis:

-Statistical presentation and analysis of the present study was conducted, using the mean, and Linear Correlation Coefficient (r) tests by SPSS V20.

### Results

**Table (1) illustrates the percentage distribution according to socio-demographic characteristics of the studied patients.** It reveals that more than half (60%) of the study group of patients, and about (63.3%) of the control group were in the age group of < 30 years with Mean SD (31.7 ±10.4, 30.1 ±8.4) respectively. the majority of patients in the control group and the study group (76.7%) (respectively) were males. also, concerning educational level, less than half (43.3%) of the control, (36.7%) of the study were at secondary school, the majority of the control group and the study group of patients ( 83.3%,66.7% ) were at the

urban residence, concerning marital status, the majority of the patients of the control group and the patients of the study group (56.7%,60.0%) were single, and concerning employment The majority of the control group of patients (50.0%) were not working and the study group (56.7%) had free work..

**Table 2: Distribution of total mean score of both studied groups according to their knowledge level during periods of study.** This table clears at post-protocol of care that there was a statistically significant difference between the mean score of the control group and study group regarding medications and infection control measures, patient's nutrition status, Follow-up system, Bathing, personal hygiene, and Kidney transplantation surgery Mean ±SD(7.9 ±1.6, 6.9 ±1.0, 6.6 ±1. , 6.3 ±2.2. , 6.3 ±1.1) at the study group.

**Figure (1): Showed the Levels scores of total patients' knowledge about kidney transplantation operation after implementation the program (n=60).** This figure illustrates that there was a good knowledge level(90%) regarding kidney transplantation surgery post-implementation of the protocol of care for the study group of patients. It was found that there was a highly statistically significant difference as P value= 0.0001.

**Figure 2: Showed the total scores Levels of both studied groups according to their Self-care activities after the program implementing (n=60).**

It was shows that more than half of the study group had a satisfactory level of Self-care activities after educational

program implementation. There was a highly statistically significant difference between total self-care activities mean scores through the periods of the study.

**Figure 3: Showed the total Levels scores of both studied groups about specific Self-care practices after the program (n=60).** It was notices that (73.3%) of the study group had a satisfactory level of Self-care practices after the program implementation.

**Table (3): Total mean score of both studied groups according to their specific self-care practices during periods of study.** this table illustrates that there was a statistically significant difference between the mean score of patients, the control group and the study group at taking medications described mean score  $\pm$ SD(18.3  $\pm$ 2.1, 19.5  $\pm$ 1.2), a measurement of the urine output mean score  $\pm$ SD(8.3  $\pm$ 3.4, 9.5  $\pm$ 0.7), measuring fluid quantity mean score  $\pm$ SD(7.1  $\pm$ 1.1, 8.3  $\pm$ 1.7), and at weight man score  $\pm$ SD(6.9  $\pm$ 1.2, 8.2  $\pm$ 1.8) respectively post educational program.

**Table 4:Correlation between total knowledge level and Self-care activities of both studied groups during periods of study.** It was found that there was a significant positive correlation between the total knowledge level and total self-care activities level scores among both studied groups of patients before and after program intervention.

**Table (5) Correlation between levels of total knowledge, and specific Self-care practices of both studied groups during periods of study.** It was found that there was a significant positive correlation between the total knowledge

level and total specific self-care practices level scores among both studied groups of patients before and after implementing the program.

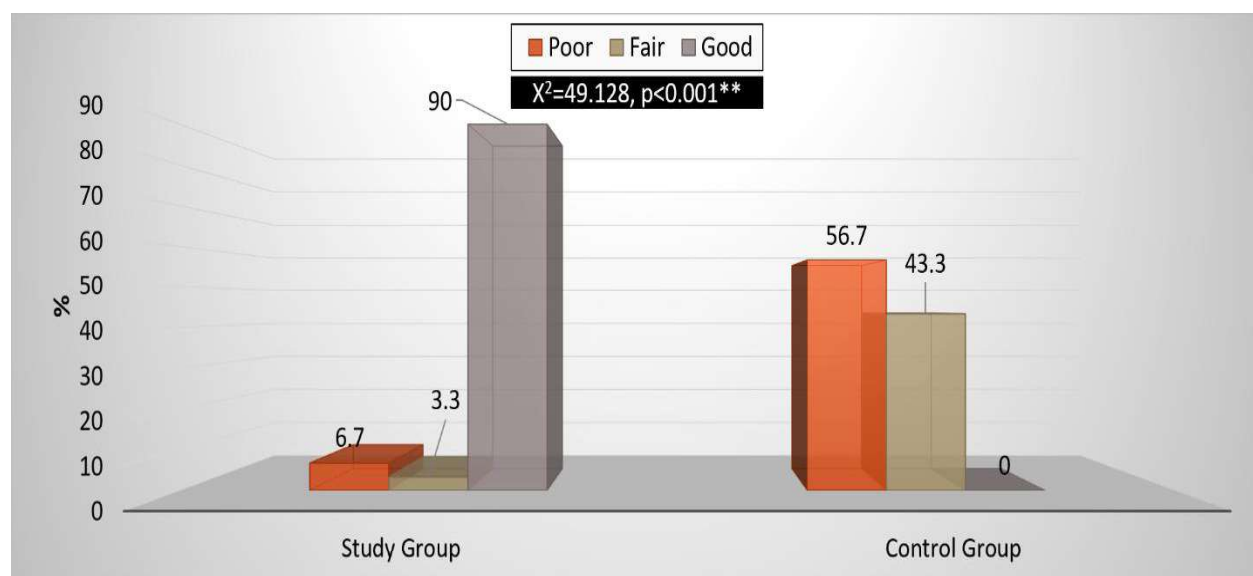
**Table (1): Percentage distribution of the studied patients according to their socio-demographic data.**

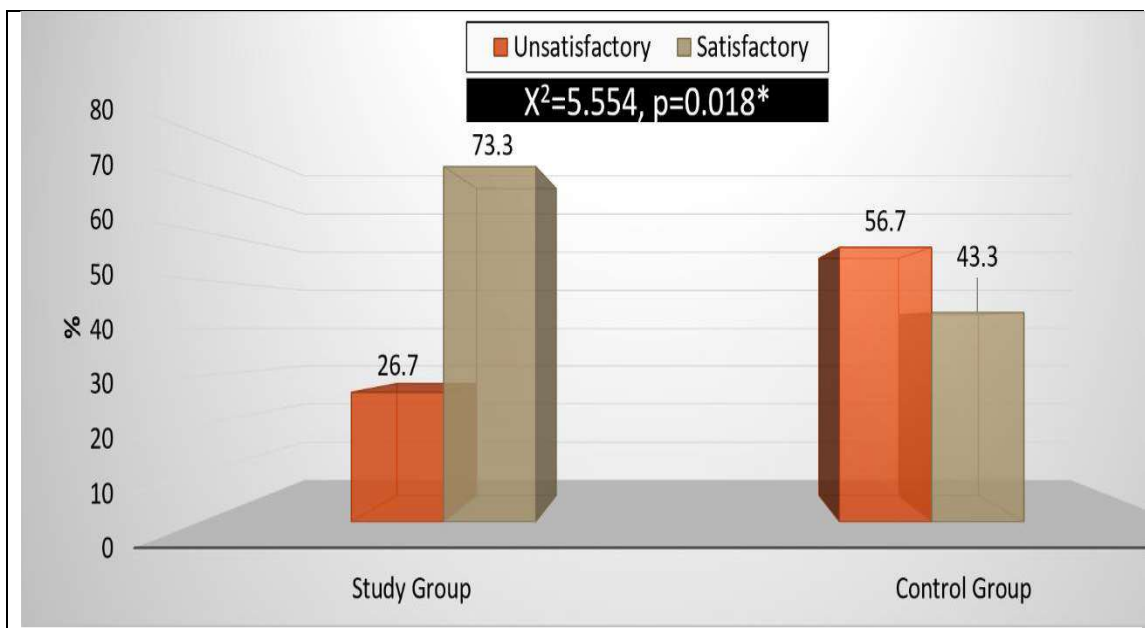
Items	Study (n=30)		Control (n=30)		Chi-Square	
	n	%	n	%	X <sup>2</sup>	P
<b>Age (years)</b>						
< 30	18	60.0	19	63.3	<b>0.104</b>	<b>0.949</b>
30 – 40	5	16.7	5	16.7		
> 40	7	23.3	6	20.0		
Mean ±SD	<b>31.7 ±10.4</b>		<b>30.1 ±8.4</b>		<b>0.640</b>	<b>0.525</b>
<b>Gender</b>						
Male	23	76.7	21	70.0	<b>0.341</b>	<b>0.559</b>
Female	7	23.3	9	30.0		
<b>Educational level</b>						
Illiterate	2	6.7	2	6.7	<b>1.210</b>	<b>0.751</b>
Reads and writes	6	20.0	3	10.0		
Secondary school	11	36.7	13	43.3		
University graduate	11	36.7	12	40.0		
<b>Residence</b>						
Urban	20	66.7	25	83.3	<b>2.222</b>	<b>0.136</b>
Rural	10	33.3	5	16.7		
<b>Marital Status</b>						
Single	18	60.0	17	56.7	<b>0.069</b>	<b>0.793</b>
Married	12	40.0	13	43.3		
<b>Employment</b>						
Not working	8	26.7	15	50.0	<b>4.421</b>	<b>0.219</b>
Housewife	1	3.3	2	6.7		
Employee	4	13.3	3	10.0		
Free work	17	56.7	10	33.3		
<b>Income</b>						
Insufficient	14	46.7	20	66.7	<b>2.443</b>	<b>0.118</b>
Sufficient	16	53.3	10	33.3		
<b>Number of family members</b>						
< 4	10	33.3	17	56.7	<b>3.348</b>	<b>0.187</b>
4 – 7	18	60.0	12	40.0		
>7	2	6.7	1	3.3		



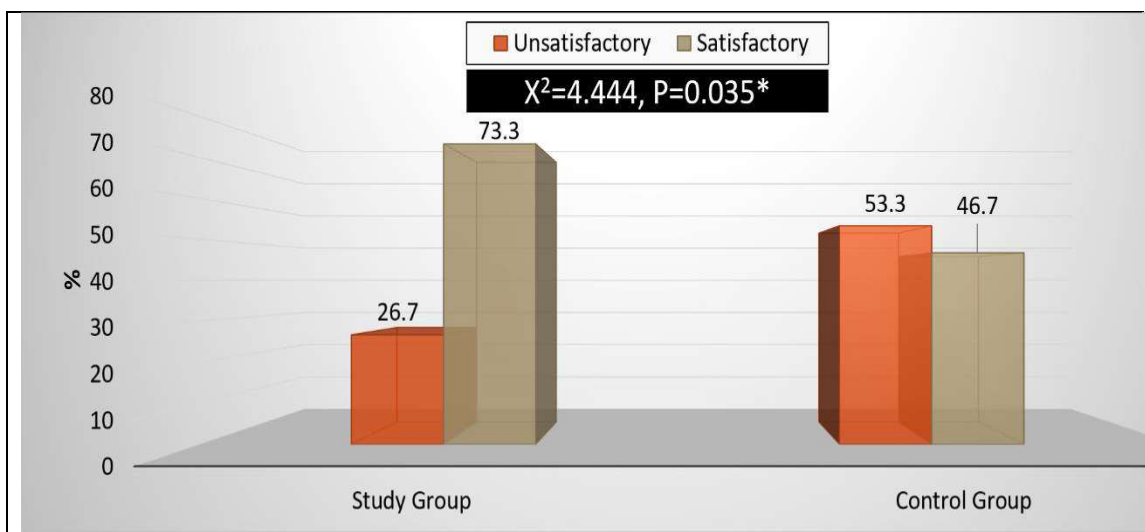
**Table 2: Distribution of total mean score of both studied groups according to their knowledge level during periods of study.**

Items	Pre – Intervention		Post – Intervention		Follow – up	
	Study (n=30)	Control (n=30)	Study (n=30)	Control (n=30)	Study (n=30)	Control (n=30)
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
<b>Kidney transplantation surgery</b>	4.8 ±0.9	4.7 ±1.4	6.3 ±1.1	5.2 ±0.7	5.9 ±0.7	5.1 ±0.7
<b>Student's T-Test (T, P(</b>	0.528	0.600	4.530	<0.001**	4.117	<0.001**
<b>Patient's nutrition status</b>	4.8 ±1.0	4.7 ±1.2	6.9 ±1.0	4.8 ±0.7	5.8 ±1.1	4.7 ±0.8
<b>Student's T-Test (T, P(</b>	0.576	0.567	9.719	<0.001**	4.572	<0.001**
<b>Exercise</b>	4.0 ±1.6	3.7 ±1.8	5.6 ±1.5	3.3 ±1.5	5.0 ±2.0	3.1 ±1.5
<b>Student's T-Test (T, P(</b>	0.669	0.506	5.791	<0.001**	4.101	<0.001**
<b>Sleep and rest</b>	2.9 ±0.6	2.7 ±0.8	4.4 ±1.0	2.8 ±0.5	3.8 ±0.8	2.8 ±0.6
<b>Student's T-Test (T, P(</b>	1.082	0.284	7.917	<0.001**	5.374	<0.001**
<b>Follow-up system</b>	3.8 ±0.9	3.6 ±0.7	6.6 ±1.1	3.9 ±0.3	4.8 ±0.7	3.9 ±0.3
<b>Student's T-Test (T, P(</b>	0.652	0.517	12.608	<0.001**	6.743	<0.001**
<b>Medications and infection control measures</b>	5.6 ±1.3	5.4 ±1.4	7.9 ±1.6	6.0 ±0.3	7.2 ±1.3	5.9 ±0.4
<b>Student's T-Test (T, P(</b>	0.384	0.702	6.249	<0.001**	5.357	<0.001**
<b>Marital status and Prevention cancer</b>	1.0 ±0.3	0.9 ±0.3	1.2 ±0.5	1.0 ±0.2	1.1 ±0.3	1.0 ±0.2
<b>Student's T-Test (T, P(</b>	1.000	0.321	2.044	0.046*	0.584	0.561
<b>Bathing, personal hygiene</b>	5.2 ±1.6	4.6 ±2.2	6.3 ±2.2	4.2 ±1.4	5.1 ±1.7	4.1 ±1.5
<b>Student's T-Test (T, P(</b>	1.068	0.290	4.510	<0.001**	2.410	0.019*
<b>Total Knowledge Score</b>	32.1 ±7.5	30.4 ±9.1	45.3 ±5.2	31.1 ±2.1	38.7 ±4.1	30.6 ±2.1
<b>Student's T-Test (T, P(</b>	0.791	0.432	13.817	<0.001**	9.619	<0.001**

**Figure1: The patients' total knowledge level scores about kidney transplantation operation after educational program implementation (n=60).**



**Figure2: Total level scores of both studied groups according to their Self-care activities after educational program implementation (n=60).**



**Figure 3: The total level scores of both studied groups according to specific Self-care practices after the educational program implementation (n=60).**

**Table 3: Total mean score of both studied groups according to their specific self care practices during periods of study.**

	Pre – Intervention		Post – Intervention		Follow – up	
	Study (n=30)	Control (n=30)	Study (n=30)	Control (n=30)	Study (n=30)	Control (n=30)
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD
Taking medications described	18.2 ±1.6	17.7 ±1.4	19.5 ±1.2	18.3 ±2.1	18.5 ±1.4	18.0 ±2.1
<b>Student's T-Test (T, P(</b>	1.288	0.202	2.717	0.008*	1.085	0.282
Weight	5.8 ±1.1	5.6 ±1.2	8.2 ±1.8	6.9 ±1.2	7.9 ±1.7	6.7 ±1.3
<b>Student's T-Test (T, P(</b>	0.672	0.503	3.291	0.002*	3.071	0.003*
Measuring fluid quantity	6.1 ±1.2	5.6 ±1.4	8.3 ±1.7	7.1 ±1.1	7.2 ±1.6	6.4 ±1.0
<b>Student's T-Test (T, P(</b>	1.485	0.142	3.246	0.002*	2.256	0.027*
Measurement of the urine output	7.7 ±1.6	7.6 ±0.7	9.5 ±0.7	8.3 ±3.4	8.3 ±1.7	7.6 ±1.2
<b>Student's T-Test (T, P(</b>	0.313	0.754	1.893	0.063	2.079	0.042*
Total SSCP Score	37.8 ±3.5	36.6 ±3.4	42.5 ±3.4	40.6 ±3.5	41.9 ±3.7	39.6 ±3.8
<b>Student's T-Test (T, P(</b>	1.347	0.183	2.132	0.037*	2.375	0.020*

**Table 4: Correlation between total knowledge level and total Self-care activities level of both studied groups during periods of study.**

Items	Pre-Intervention						Post-Intervention						Follow-Up																							
	Study(n=30)			Control(n=30)			Study(n=30)			Control(n=30)			Study(n=30)			Control(n=30)																				
	Unsatisfactory (n=24)	Satisfactory (n=6)		Unsatisfactory (n=26)	Satisfactory (n=4)		Unsatisfactory (n=8)	Satisfactory (n=22)		Unsatisfactory (n=17)	Satisfactory (n=13)		Unsatisfactory (n=11)	Satisfactory (n=19)		Unsatisfactory (n=20)	Satisfactory (n=10)																			
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%																		
<b>Knowledge Level</b>																																				
Poor	9	37.5	1	16.7	10	38.5	3	75.0	2	25.0	0	0.0	13	76.5	4	30.8	2	18.2	2	10.5	14	70.0	5	50.0												
Fair	15	62.5	4	66.7	15	57.7	1	25.0	1	12.5	0	0.0	4	23.5	9	69.2	8	72.7	4	21.1	6	30.0	5	50.0												
Good	0	0.0	1	16.7	1	3.8	5	62.5	22	100	0	0.0	0	0.0	0	0.0	1	9.1	13	68.4	0	0.0	0	0.0												
<b>Chi-Square</b>	$X^2=4.638$			$P=0.098$			$X^2=1.917$			$P=0.383$			$X^2=6.136$			$P=0.010^*$			$X^2=6.266$			$P=0.012^*$			$X^2=10.212$			$P=0.006^*$			$X^2=1.148$			$P=0.284$		

**Table 5: Correlation between total knowledge level and total specific Self-care practices level of both studied groups during periods of study.**

Items	Pre-Intervention						Post-Intervention						Follow-Up											
	Study(n=30)			Control(n=30)			Study(n=30)			Control(n=30)			Study(n=30)			Control(n=30)								
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%						
<b>Specific self-care practices</b>																								
Unsatisfactory	19	79.2	5	83.3	21	80.8	2	50.0	5	62.5	3	13.6	12	70.6	4	30.8	8	72.7	4	21.1	17	85.0	3	30.0
Satisfactory	5	20.8	1	16.7	5	19.2	2	50.0	3	37.5	19	86.4	5	29.4	9	69.2	3	27.3	15	78.9	3	15.0	7	70.0
<b>Chi-Square</b>	X <sup>2</sup> =0.052		P=0.819		X <sup>2</sup> =1.835		P=0.176		X <sup>2</sup> =7.163		P=0.007*		X <sup>2</sup> =4.693		P=0.030*		X <sup>2</sup> =7.751		P=0.005*		X <sup>2</sup> =9.075		P=0.003*	

## Discussion

Enhancing the quality of life for people with end-stage renal illness is the aim of kidney transplantation. Although transplantation is not a cure, it is a dialysis substitute. The preferred course of action for the majority of individuals with chronic and end-stage renal illness is kidney transplantation (ESRD). A kidney transplant may be chosen by a patient for several reasons, such as avoiding dialysis or restoring their health to live a more normal life. Additionally, maintaining a successful transplant is one-third less expensive than receiving dialysis<sup>(18)</sup>.

**The finding of current study revealed that According to the results of the current study's socio demographic features**, more than half of the patients in the study group and the control group were between the ages of 30 and 40. These results are reliable and support according to **Won Kim H et al, (2019)**<sup>(19)</sup>. stated. The majority of respondents in this age range between, 30 - 40 years.

**The gender distribution of the patients in both groups** was revealed by the current study to be predominantly male. The fact that men have much higher transplant rates than women backs up the finding of **Jang A. et al. 2021**<sup>(20)</sup>, who reported that more than three of their four individuals were male, are likewise in line with this outcome. Less than half of the study group and over half of the relevant control group had secondary school educations, according to the study's findings on education levels. This finding contrasts with **Abdullah D. and Rasheed O. (2018)**<sup>(21)</sup> who found that the majority of subjects had

a high standard of education. This study differs from that reported by **Admass B, Endalew N, Tawuye H., and Mersha A. (2020)**<sup>(22)</sup> who reported that the majority of participants had a low educational level. The current investigation revealed that the vast majority of patients in both groups resided in cities concerning where they called home. more than half of respondents live in urban rather than rural settings. The tiny sample size could be to blame for this outcome. The bulk of the subjects was from rural areas, according to **Monalisa al. (2017)**<sup>(23)</sup>, who reported this outcome. Our investigation revealed that the majority of patients in both groups were single concerning marital status. This outcome is consistent with that reported by **Hassanine et al. (2018)**<sup>(24)</sup> who said that the majority of study participants were single. According to the most recent employment survey, the majority of the individuals had freelancing jobs, in contrast to the majority of the control group, who did not. Less than 50% of the test takers failed, according to the current study. This result is in line with **Zayed H. and et al.(2019)**<sup>(25)</sup>. Most of the participants were discovered to be dysfunctional. According to the patients who participated in the study, more than half of the individuals did not have a sufficient monthly income. This outcome might be brought on by most themes not functioning. **Salim N. et al. 2019**<sup>(26)</sup> also noted that the majority of individuals had inconsistent and insufficient monthly salaries. As for history, the current study showed that the subjects

examined suffered from inflammation of the kidneys. The findings reported that the most common top cause of kidney failure was chronic glomerulonephritis. **Schwaderer & Wolfe (2017)** <sup>(27)</sup>.

The findings of the current investigation also revealed that hemodialysis was performed on the majority of the participants before transplantation. According to **Mineshima et al. (2019)** <sup>(28)</sup>, who observed the same findings, the majority of both groups underwent hemodialysis. The kidney transplant procedure is most successful when the donor is a living relative. The bulk of the participants were first-degree donors, according to the findings. This can be a result of the strong ties that exist among families.

This is consistent with the findings of **Arunachalam et al. (2017)** <sup>(29)</sup>, who reported that the majority of the subjects in their investigations were primary donors. **Abed-Aziz (2020)** <sup>(30)</sup> also reported similar findings. Prior to the start of the treatment procedure, the patients assessed in this study were supposed to have a sufficient degree of knowledge. All were discovered to be lacking in understanding of kidney transplant surgery. These results are in line with **Mohammed H. et al. (2019)** <sup>(31)</sup> More than half of patients, according to him, have an inadequate and generally available amount of understanding about kidney transplant operations.

This is consistent with **Navarro et al (2019)** <sup>(32)</sup>. finding that most renal transplant patients' knowledge is not at a good level and that additional information is required. As a result,

transplant centers need to locate enough material to enhance patient understanding. It suggested stepping up efforts to enhance understanding of patient requirements and regularly deliver high-quality education. The findings of this study showed that previous to the implementation of the self-care education program, the study participants' level of knowledge was insufficient. Lack of knowledge is to blame for this.

Our results are consistent with those of **Mangai et al. (2019)** <sup>(33)</sup>, who claimed that the majority of people had inadequate pre-educational knowledge. This is consistent with **Karadi (2019)** <sup>(34)</sup>, who reported that the highest knowledge scores were discovered and patient education considerably boosted the knowledge of renal recipients.

The majority of patients had a satisfactory level of awareness of the study group, as well as good knowledge of the patient's nutritional state, medications, and infection control measures, after the educational program's implementation. Additionally, Our results concur with those of **Nofal et al. (2020)** <sup>(35)</sup>, who claimed that the highest knowledge scores were discovered and patient education intervention greatly improved kidney recipients' understanding. The results of the present study showed that throughout the study periods following the implementation of the protocol of care a statistically significant difference was seen in total knowledge scores. This may be due to proper preoperative counseling on topics including renal function, kidney transplantation, nutrition, exercise, rest and sleep, and

infection control measures, which led to improved postoperative and cognitive adjustment to changes in lifestyle after surgery. **El Ghareeb (2018) and Nofal et al. (2020)** <sup>(36)</sup> indicated that there were substantial disparities in educational programs before and after graduation, which is consistent with this conclusion. during the post-implementation study period, the study discovered statistically significant changes in the total scores for self-care activities related to leisure time, outdoor activities, meals, and personal hygiene measures. Before educational programs, the majority of their research revealed that they had attained insufficient levels of self-sufficiency activity; nevertheless, improvements were noted during the post-implementation of the educational program. that agreed by **Abbas et al (2020)** <sup>(37)</sup>, who stated that the majority of their study was having inadequately level of self care activities score pre the educational program. ,and improvements demonstrated post the educational program implementation. The majority of the patients group assessed in the study reported being satisfied with the measurement of fluid volume, urine volume, intake of the drugs mentioned, and body weight during the training program. This demonstrates that the this outcome was in line with the findings of **Heydari et al. (2018)** <sup>(38)</sup>, who discovered that the majority of their studies had shown appropriate levels of self-care practices and improvement following the deployment of educational programs. Regarding the relation between the general level of self-care activities and the general knowledge levels of the

two research groups. In the two patient groups examined before and after the training program, there was a strong positive link between overall knowledge levels and self-care activity total scores, according to this study. After the training program, The study discovered a significant difference between the overall knowledge level and self-care activities total score of the investigated patients after the study **Hegazy (2017)**, <sup>(39)</sup> reported this finding statistically significant program for education. The study indicated that in two groups of patients who were questioned before and after an educational program, there was a strong positive link between overall knowledge levels and total scores for specific self-care activities following of the educational program, the study group of patients had the most satisfactory correlations for general knowledge and particular self-care habits. Our findings concur with those of **Abed-Aziz (2020)**, <sup>(40)</sup>. who also discovered a statistically significant relation between general knowledge and level of self-care in practices.

### Conclusion

#### **Based on the findings of the present study, it can be concluded that:**

Following the educational program, there were notable increases in general knowledge, self-care behaviors, and practices, as well as significant statistical differences between the two phases. When the majority of the study group's patients were found to have an acceptable level of general knowledge, self-care routines, and behaviors following the implementation of the educational program.



### Recommendations

**Based on the findings of the current study, the following recommendations are derived and suggested:**

- Ongoing health programs for kidney transplant recipients and their families that emphasize self-care techniques in outpatient clinics utilizing plain-language printed instructions in the form of brochures, or booklets. program for education. It should be done to keep the practice and information necessary for patients in need up to date. which is.
- Consistent evaluation and monitoring of kidney transplant recipients.
- To generalize the findings, additional research with a larger probability sample is advised.

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