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## **A study to determine the effectiveness of Computer assisted instruction on knowledge of caregivers of post renal transplantation patients**

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### **Abstract**

**Background:** Kidney transplantation has become the treatment of choice for most patients with end-stage renal disease. During the past 40 years, more than 380,000 kidney transplantations have been performed worldwide, and more than 174,000 have been performed in the United States. This number includes over 10,000 kidney-pancreas transplantations. In January 2017 there were almost 54,000 persons on the waiting list for kidney. Patients choose kidney transplantation for various reasons, such as the desire to avoid dialysis or to improve their sense of well-being and the wish to lead a A growing number of patients with chronic kidney disease rely on non professional healthcare providers, such as family and friends, to manage their long term condition throughout the trajectory of chronic kidney disease. These informal caregivers can experience stress, depression, lack of confidence and poor quality of life. Yet, the needs of caregivers are often neglected and under-prioritized. The objective of this review is to evaluate the effectiveness of interventions aimed at providing support to caregivers of people with chronic kidney disease

**Objectives:** 1. to assess the existing knowledge and attitude of caregivers of renal disorder patients on renal transplantation. 2. To assess the effectiveness of computer assisted instruction on knowledge and attitude of caregivers of renal disorder patients on renal transplantation. 3. To correlate the knowledge and attitude of caregivers of renal disorder patients on renal transplantation. 4. To find the association between knowledge scores of caregivers of renal disorder patients on renal transplantation with selected demographic variables.

**Design:** One group pre-test post-test Quasi-experimental design was selected for the study.

**Subjects:** The participants were 40 caregivers from Narayana medical college hospital, Nellore.

**Method:** A purposive sampling technique was used to select the samples for study.

**Data collection tool:** A structured questionnaire was used to collect data from the subjects.

**Data analysis:** The obtained data was analysed using descriptive and inferential statistics and interpreted in terms of objectives and hypothesis of the study.

**Results:** The focus of this study was to evaluate the effectiveness of computer assisted instruction on knowledge and attitude of caregiver's renal disorder patients regarding renal transplantation.

**Conclusion:** In the pre-test 87.5% of the respondents had moderate knowledge where as in the post-test all the subjects (100%) had improved their knowledge. The study findings indicated that structured teaching programme was effective in enhancing the knowledge of caregivers regarding first human-to-human kidney transplantation.

**Keywords:** Kidney transplantation, caregivers, renal transplantation, computer assisted instruction

### **1. Introduction**

Human-to-human transplantation of organs has been accepted by doctors worldwide as the best line of treatment and often the only one for a wide range of fatal diseases such as End Stage Renal Disease (kidney failure). Organ transplantation has been one of the greatest advances of modern science that has resulted in many patients getting a renewed lease of life. A living person can donate organs, after natural death or after 'brain death'. After natural death only a few tissues can be donated (like cornea, bone, skin and blood vessels) whereas after brain death almost 37 different organs and tissues can be donated including critical organs such as kidneys, heart, liver and lungs Kidney transplantation has become the treatment of choice for most patients with end-stage renal disease. During the past 40 years, more than 380,000 kidney transplantations have been performed worldwide, and more than 174,000 have been performed in the United States. This number includes over 10,000

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kidney-pancreas transplantations. In January 2003 there were almost 54,000 persons on the waiting list for kidney. Patients choose kidney transplantation for various reasons, such as the desire to avoid dialysis or to improve their sense of well-being and the wish to lead a more normal life. Additionally, the cost of maintaining a successful transplantation is one-third the cost of treating a dialysis patients.

In India the first ever human kidney transplant performed in India was done at the King Edward Memorial Hospital at Bombay in May 1965, using a cadaver donor in a non-renal failure patient who had hyper-nephroma. The second kidney transplant in April 1966 - a cadaver donor once again - was carried out by the same team in a case of chronic renal failure. The first patient, mentioned above, died, on the 11th post-operative day following acute myocardial infarction, with a functioning graft. The second patient died on the 3rd post-operative day due to bilateral pneumonic consolidation 6.

A systematic review of studies conducted to evaluate the intervention for informal caregivers of chronic renal disease patients. The results shown that three studies were identified that evaluated an intervention for care givers of chronic renal disease patients. All three assessed the effect of educational material on caregivers' knowledge. Two evaluated information provided to caregivers of dialysis patient using a pre and post-test study design. The other study used participatory action research methods to develop and evaluate an information handbook for transplant patients and their caregivers. Studies consistently found that the provision of information improved caregivers' knowledge.

Kidney transplantation should be strongly considered for all patients who are medically suitable with chronic and end-stage renal disease (ESRD). A successful kidney transplant offers enhanced quality and duration of life and is more effective (medically and economically) than chronic dialysis therapy. Transplantation is the renal replacement modality of choice for patients with diabetic nephropathy and paediatric patients.

A growing number of patients with chronic kidney disease rely on non-professional healthcare providers, such as family and friends, to manage their long-term condition throughout the trajectory of chronic kidney disease. These informal caregivers can experience stress, depression, lack of confidence and poor quality of life. Yet, the needs of caregivers are often neglected and under-prioritized. The objective of this review is to evaluate the effectiveness of interventions aimed at providing support to caregivers of people with chronic kidney disease.

This manuscript deals with the analysis and the interpretation of data obtained from 40 caregivers of renal disorder patients with the help of structured interview to assess effectiveness of computer assisted instructions on knowledge and attitude of caregivers on renal transplantation

## 2. Objectives

1. To assess the existing knowledge and attitude of caregivers of renal disorder patients on renal transplantation.
2. To assess the effectiveness of computer assisted instruction on knowledge and attitude of caregivers of renal disorder patients on renal transplantation.

3. To correlate the knowledge and attitude of caregivers of renal disorder patients on renal transplantation.
4. To find the association between knowledge scores of caregivers of renal disorder patients on renal transplantation with selected demographic variables.

## 3. Detailed Research Plan

The following plan was developed for data analysis.

- a) Descriptive statistics such as frequency and percentage to describe the demographic characteristics of the participants; mean, mean percentage and standard deviation will be used to describe the knowledge and attitude of caregivers of renal disorder patients regarding renal transplantation.
- b) Inferential statistical methods like Paired t" test will be used to compare the knowledge level and attitude of caregivers of renal disorder patients
- c) Karl Pearson correlation co-efficient formula to determine the Correlation between the knowledge and attitude of caregivers of renal disorder patients.
- d) Chi-square ( $\chi^2$ ) test will be used to find out the association between selected demographic variables and knowledge and attitude of caregivers of renal disorder patients.

**3.1 Research Setting:** Based on the feasibility, the investigator selected caregivers of renal disorder patients in narayana medical college hospital, Nellore.

**3.2 Sampling Technique:** Purposive sampling technique

**3.3 Sample Size:** Sample size of the present study consists of 40 caregivers of renal disorder patients in Narayana medical college hospital, Nellore.

## 4. Results and discussion

### 4.1 Pre-Testing of the Tool

#### 4.1.1 Content Validity

Content validity of the tool was established by 11 experts, comprising of 7 nursing experts from department of Medical surgical nursing, one from department of Statistics, one was telugu expert and two were nephrologist. The prepared instruments along with scoring key and criteria checklist for validation were submitted to experts and were requested to give their opinions and suggestions regarding the relevance of the tool for further modification to improve the clarity and content of the items. For the content validity a criteria checklist was prepared each criteria consists of 1- 4 response columns for rating such as very relevant, relevant, needs modification, not relevant. The suggestions were incorporated in the tool and recommendations were considered accordingly.

The findings revealed that post-test knowledge mean score (16.20) and post-test attitude mean score (21.10) was higher than the pre-test knowledge mean score (9.1) and pre-test attitude mean score (6.80) the computed paired "t" value of knowledge (13.49) and attitude (28.85), showed that there is significant difference between pre and post-test mean knowledge score and mean attitude score.

### 4.2 Data Collection Procedure

The data collection was done for 4 weeks in Narayana medical college hospital, Nellore. A formal written permission was obtained from the Medical superintendent and data collected within a given period from 40 caregivers

of renal disorder patients who fulfilled the inclusion and exclusion criteria.

The results were represented as

**Section I:** Description of demographic characteristics of caregivers of renal disorder patients.

**Section II:** Overall and area-wise, pre-test and post-test knowledge and attitude scores of the caregivers of renal disorder patients regarding the renal transplantation.

**Section III:** Comparison of the pre-test and post-test knowledge and attitude scores of caregivers of renal disorder patients.

**Section IV:** Correlation between the knowledge and attitude score of caregivers of renal disorder patients.

**Section V:** Association between knowledge and attitude scores with their selected demographic variables.

Descriptive and inferential statistics were used to analyze the data that was collected.

**Table 1:** Overall pre-test and post-test knowledge scores of the care givers of renal disorder patients N = 40

Knowledge level	Pre-test		Post-test	
	Frequency	%	Frequency	%
a Inadequate knowledge	21	52.5	5	12.5
b Moderate knowledge	18	45.0	14	35.0
c Adequate knowledge	1			52.5
Total	40	100	40	100

Table 1 depicts that majority 52.5% of the care givers of renal disorder patients had inadequate knowledge and 45% had moderate knowledge and 2.5% had adequate knowledge in the pre-test. After administration of computer assisted instruction 52.5% of the subjects had adequate knowledge, 35% had moderate knowledge and only 12.5% had inadequate knowledge regarding renal transplantation in the post-test.

**Table 2:** Analysis of pre-test and post-test attitude scores of care givers of renal disorder patients

Attitude	No. of Items	Max Score	Mean	Mean%	Median	SD
Pretest	15	30	12.55	41.93	13.5	3.226
Post-test	15	30		79.06	23	3.637

Table 2 reveals that the care givers of renal disorder patients found to have unfavourable attitude in the pre-test with the mean percentage 41.93 and standard deviation 3.226. After administration of computer assisted instruction, care givers of renal disorder patients found to have favourable attitude with the mean percentage of 79.06 and standard deviation 3.637.

## 5. Conclusion

The focus of this study was to evaluate the effectiveness of computer assisted instruction on knowledge and attitude of caregivers of renal disorder patients regarding renal transplantation at Narayana medical college hospital, Nellore.

A quasi-experimental design and evaluative approach was used in the study. The data was collected from 40 samples through purposive sampling technique. The data collected was subjected to analysis using descriptive statistics in terms of frequencies, percentage and inferential statistics like t test and chi square test to find the association.

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