A Study to Evaluate the Effectiveness of Structured Teaching Programme Regarding Therapeutic Interventions on Chronic Renal Failure in Terms of Knowledge and Practice Among Patients Undergoing Hemodialysis in a Selected Settings

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Abstract: **Chronic renal failure is a major public health problem with an increasing incidence and prevalence of poor outcome and high cost. It is necessary to provide education to extend their life span. Hence the present study was aimed at evaluating the effectiveness of structured teaching programme regarding therapeutic interventions on chronic renal failure in terms of knowledge and practice among patients undergoing hemodialysis in selected hospital at Coimbatore. The Conceptual framework used was "Wiedenbachs helping art of clinical nursing theory". This study followed pre experimental one group pretest posttest Research design and purposive sampling technique. Education was given using laptop for 45 minutes. Data were collected by using structured interview schedule. The mean pre and post test level of knowledge and practice were 6.8, 5.1 and 20.9, 11.4 respectively. The 't'value was 23.37 and 13.76. There was positive correlation (r=0.9) between posttest knowledge and practice scores. It was also observed that there is no association between the selected demographic variables and pretest knowledge and practice score. The findings revealed that the intervention was effective in promoting the knowledge and practice regarding therapeutic interventions of chronic renal failure patients undergoing hemodialysis.**

Keywords: **Education, renal failure, knowledge, practice**

1. Introduction

'The natural force within each of us is the greatest healer of all' –Hippocrates.

India is a developing country. Most of the population is at the poverty line. Renal disease remains a major, though largely unrecognized public health issue in India as estimated one lakh people develop ESRD every year. A person with ESRD requires renal replacement therapy in the form of either dialysis on a continuing basis or a renal transplant. Further, treatment for renal disease is still largely in the Private health care sector, where the costs are high. A Large number of ESRD patients belong to rural areas and small towns where treatment is not available and those who cannot afford the costs even where treatment is available [1], Sankaranarayanan, G., (2005).

End stage renal failure may be caused by systemic diseases such as diabetes mellitus, hypertension, chronic glomerulonephritis, pyelonepheritis, obstruction of the urinary tract, hereditary lesions-as in polycystic kidney diseases, vascular disorders, infection, medications or toxic agent's, also self-medications causing nephrotoxicity. Diabetes and hypertension are highly risk factors for ESRD. One of the risk factor for diabetes and hypertension is stressful life style changes. The complications results due to renal failure are hyperkalemia, pericarditis, pericardial effusion, pericardial tamponade, anemia, bone disease and metastasis calcification. Lewis, et. al. [2] (2007).

Sara L. et. al. [3] (2008) in WHO bulletin said that in India, north Africa and several Middle Eastern countries, environmental pollution, pesticides and other chemicals, analgesic abuse, herbal medicines and unregulated food additives have been attributed as causes of chronic kidney disease infact, 90 percent of ESRD patients never see nephrologists. A mere 9,000 are started on hemodialysis every year, about 60% do not come for dialysis because of economical situation and 20% die because of complications or inadequate dialysis. Only small set of patients continues on maintenance dialysis. Some 20% of the patients who consult a nephrologist opt for transplantation. There are difficulties in getting donors.

Most parts of India now have hospitals that have facilities to do dialysis and kidney transplantation and these procedures are carried out with very good results. Unfortunately, the cost is extremely high. Dialysis cost Rs.15000-20000 a month and will have to be continued as long as the patient lives. Renal transplantation costs Rs.3-3.5 lakhs and require medicines worth anywhere between Rs.10000 to Rs.100000 a year to prevent rejection of the transplant and to sustain life. The life

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expectancy after these treatments would be maximum 10 to 15 years. Sankaranarayanan, G., [4] (2005).

ESRD is a major health problem causing decreased quality of life and reduces the life expectancy. Over the age of 40 yrs everyone should be screened annually for chronic diseases like diabetes mellitus, hypertension, cardio vascular diseases and renal diseases. To maintain the life duration along with dialysis, diet and drug recommended should be followed for which health education is necessary. Agarwal, K.K. and Tiwari, S.C., [5] (2004).

2. Need for the study

The world health organization (WHO) has predicted that if the current trend continues India will become the "diabetes capital of the world" by 2025 with over 57 million affected people. A diabetic is 24 times more prone to heart disease and 30 times more susceptible to renal problems than a non-diabetic. 30-40% of the cases of "chronic renal failure" requiring dialysis are due to diabetes mellitus and 15% of the cases are due to hypertension. Sankaranarayanan, G., [6] (2005).

Sankaranarayanan, G., [7] (2005) said that, the global incidence of chronic renal failure in Children is five per million children who are under the age of 12. The incidence and prevalence of end stage renal disease varies from country to country and sometimes from region to region inside a country. A recent report gains some summary statistics from ESRD incidence rates from 1992, in patients per million populations (PMP) as follows; Australia 61 PMP, Canada-98 PMP, USA-180 PMP. Prevalence rates were Australia 403 PMP, Canada 518 PMP, and France-401 PMP. Gooneratne, I.K et. al. [8] (2005)

The Global and Regional Overview of ESRD Patients at Year end 2001 represents that, total population of European union is about 380 million population, among them 2,98,000 patients have ESRD and 1,96,000 were on dialysis, total population of Middle east is about 271 million population among them, total ESRD patients were 40,000 and 29,000 patients were on dialysis, North America total population is about 311 million among them, total ESRD patients were 4,36,000, dialysis patients were 3,04,000. In Africa total population is about 833 million among them, total ESRD patients were 46,000 population, total dialysis patients were 43,000, in Asia total population is about 3,316 million, total ESRD patients were about 1,77,000, total dialysis patients were 1,46,000, Globally total ESRD patients were about 14,79,000, total patients on dialysis were 11,41,000.

According to a report from The Hindu (2009) Government of Tamilnadu is running a project "varummunkappoom" through primary health centers to diagnose the contributory diseases like diabetes, hypertension which lead to chronic renal failure and they were referred to district hospitals for further management. Every district headquarters' government hospitals has dialysis unit where hemodialysis is done.

Tamilnadu kidney research foundation (TANKER) provide subsidized dialysis through seven subsidized dialysis units having of 105 dialysis station situated in various parts of Tamilnadu.

Rebecca, et. al., [10] (2007) conducted a study to know the effectiveness of structured quality improvement program (Right start) on early intervention improves mortality and hospitalization rates in hemodialysis patients in US. A total of 918 chronic renal disease patients were prospectively enrolled in a Multicenter Right Start programme and compared with a time – concurrent group of 1020 control patients from non-right start clinics. It is concluded that a structured program of prompt medical and educational strategies in chronic renal disease patients results in improved morbidity and mortality that last up to 1 yr.

Hoffort, N., [11] (2009) said that nurses incorporate family support, interpersonal communication, and patient teaching as essential components in order to assist patients and their families in coping with the stresses of receiving treatments. So this implies that nurse's plays important role in providing education to the chronic renal failure patients.

The researcher during her clinical experience witnessed many people affected with chronic renal failure. Most of them are illiterate and does not know the importance of dialysis. They skip dialysis, when condition become severe they come for treatment. So it made researcher an interest to educate the patients regarding the therapeutic interventions (Diet, Drug, and dialysis).

3. Statement of the problem

A study to evaluate the effectiveness of structured teaching programme regarding therapeutic interventions on chronic renal failure in terms of knowledge and practice among patients undergoing hemodialysis in St. Mary's hospital at Coimbatore.

4. Objectives

1. To assess the pretest knowledge and practice regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
2. To assess the posttest knowledge and practice regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
3. To compare the pretest and posttest knowledge scores regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
4. To compare the pretest and posttest practice scores regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis
5. To correlate the posttest knowledge score and posttest practice score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
6. To find out the association between the posttest knowledge

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score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis with their selected demographic variables.

7. To find out the association between the pretest practice score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis with their selected demographic variables.

5. Hypotheses

- H_1: The mean posttest knowledge score is significantly higher than the mean pretest knowledge score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
- H_2: The mean posttest practice score is significantly higher than the mean pretest practice score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
- H_3: There will be a significant correlation between posttest knowledge score and posttest practice score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis.
- H_4: There will be a significant association between the pretest knowledge score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis with their selected demographic variables.
- H_5: There will be a significant association between the pretest Practice score regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis with their selected demographic variables.

A. Assumptions

1. Chronic renal failure patients undergoing hemodialysis may have some knowledge and practice regarding therapeutic interventions.
2. Structured teaching programme may enhance the chronic renal failure patients to gain knowledge regarding therapeutic interventions and improve their practice.

B. Delimitations

- The data collection period is for 5 weeks.
- The sample size is 30.

6. Methodology

A. Research approach

The evaluative approach was used to evaluate the effectiveness of structured teaching programme regarding therapeutic interventions in terms of knowledge and practice among chronic renal failure patients undergoing hemodialysis.

B. Research design

The research design used in this study was pre experimental one group pretest posttest design.

Pretest	Intervention	Post test
O_1	X	O_2

C. Setting of the study

The study was conducted at St Mary's hospital, Coimbatore. The total bed capacity is 50. It has male and female surgical and medical wards, Intensive care units, dialysis unit, laboratories were available. The total number of patients for hemodialysis per month is about 30-40. The number of hemodialysis done per month is 100 – 150.

D. Population

The target population of the study is patients with chronic renal failure who are undergoing hemodialysis with in the age group of 25-55 years at St Mary's hospital, Coimbatore.

E. Sample

The sample consists of chronic renal failure patients who are undergoing hemodialysis at St Mary's hospital dialysis unit.

F. Sample size

The sample size included for the study consists of 30 chronic renal failure patients undergoing hemodialysis for the study.

G. Sampling technique

Purposive sampling was used to select the samples.

H. Criteria for sample selection

Inclusion Criteria
1. Patients age 25-55 years
2. Patients who can understand and speak Tamil
3. Patients who are willing to participate in the study
4. Both males and females undergoing hemodialysis for chronic renal failure.

Exclusion Criteria
1. Patients with hearing and visual problem.

I. Tool and method of data collection

1) Part – I

The demographic variables of chronic renal failure patients were age, sex, educational status, marital status, occupation, area of residence, duration of illness, and duration of hemodialysis.

2) Part – II

Structured interview schedule was used to assess the knowledge regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis in the aspects of Diet, Drug, and Dialysis. This consists of 25 multiple choice questions with four options.

3) Part – III

Check list was used to assess the practice regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis in the aspects of Diet, Drug and Dialysis. It has 15 dichotomous type of questions out of which 13 are positive statements and 2 are negative statements.

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7. Data collection

The main study was conducted at St. Mary's hospital Coimbatore. The permission was obtained from the administrator and medical superintendent of the hospital. Patients who satisfied the inclusion criteria were selected by using purposive sampling technique. The demographic variables were collected. The knowledge and practice regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis were assessed using structured interview schedule and checklist in pretest on the 1st day. Immediately after the pretest Structured teaching programme was given using compact disc and laptop individually for about 45 minutes. Total sample is about 30. Per day 2-3 samples were interviewed using structured interview schedule for knowledge and practice assessed using checklist. Post test was conducted on 7th day.

8. Data analysis

A. Distribution of Demographic Variables

Table 1
Frequency and percentage of demographic variables of chronic renal failure patients undergoing hemodialysis (n=30)

Demographic variables	Frequency	Percentage %
Age (Yrs)		
25-35years	16	53.3
36-45 years	10	33.3
46-55 years	4	13.4
Sex		
Male	26	86.7
Female	4	13.3
Education		
No Formal education	2	6.6
Elementary	8	26.7
High School	8	26.7
Higher secondary	10	33.3
Degree	2	6.6
Marital status		
Married	10	33.3
Unmarried	20	66.7
Occupation		
Self employed	1	3.3
Government employee	4	13.3
Unemployed	25	83.4
Area of Residence		
Urban	14	46.7
Rural	16	53.3
Duration of illness		
0-6 months	5	16.7
7 months – 2 years	15	50
3 years – 5 years	9	30
6 years and above	1	3.3
Duration of hemodialysis		
0-6 months	5	16.7
7 months – 2 years	15	50
3 years – 5 years	9	30
6 years and above	1	3.3

The data was analyzed by using both Descriptive and Inferential statistics. Frequency, Percentage was done to describe the demographic variables. Paired 't' test was used to evaluate the educational intervention. Chi-square was used to find out the association of selected demographic variables and Karl Pearson co-efficient was used to identify the relationship.

Table 2
Comparison between pre and posttest knowledge scores regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis (n=30)

Level of knowledge	Pre-test		Post-test	
	F	%	F	%
Adequate	-	-	25	83.3
Moderately Adequate	11	36.7	5	16.7
Inadequate	19	63.3	-	-
Total	30	100	30	100

Table 3
Mean, SD and 't' test value of chronic renal failure patients undergoing hemodialysis in pre and posttest knowledge scores

S. No.	Variable	Mean	D	't'value	Table value
1.	Pre test	6.8	2.75		
2.	Post test	20.9	2.7	23.37	1.699

Df=29, (P<0.05)

Table 4
Comparison between pre and posttest practice scores regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis (n=30)

Level of practice	Pre-test		Post-test	
	F	%	F	%
Adequate	-	-	22	73.3
Moderately Adequate	11	36.7	7	23.4
Inadequate	19	63.3	1	3.3
total	30	100	30	100

9. Results

Results shows that in pretest 19 (63.3%) had Inadequate knowledge, 11 (36.7%) had moderately adequate knowledge. In posttest 25(83.3%) had adequate knowledge, 5(16.7%) had moderately adequate knowledge,19 (63.3%) had Inadequate practice, 11 (36.7%) had moderately adequate practice and after teaching 22(73.3%) had adequate knowledge, 7(23.4%) had moderately knowledge. The findings were supported by a study done by Shanmuga priya (2005) conducted a study to evaluate the effectiveness of STP regarding Home care management for patients with CRF in nephrology department at Vijay Health center Vadapalani Chennai. 50 samples were included. The study concluded that the mean post test score on knowledge is 17.87 and practice score is 39.03 Prior to the structured teaching programme 19 (63.3%) had Inadequate,11 (36.7%) had moderately adequate practice after teaching 22(73.3%) had adequate practice, 7(23.4%) had moderately adequate practice and 1(3.3%) had inadequate practice dialysis. pretest and posttest knowledge regarding therapeutic interventions of chronic renal failure among patients undergoing hemodialysis were 6.8 (SD+2.75) and 20.9 (SD+2.7). The posttest mean scores were higher than pretest mean scores. The findings were supported by a study done by Shanmuga priya (2005) conducted a study to evaluate the effectiveness of STP regarding Home care management for patients with CRF in nephrology department at Vijay Health center Vadapalani Chennai. 50 samples were included. The study concluded that the mean posttest practice score is 39. 03 which were increased

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than the mean pretest practice score 18. The 't' value is 23.37 which was significant at 0.05 level. Table 5 shows that mean scores of pretest and posttest practice regarding therapeutic interventions of chronic renal failure among patients undergoing hemodialysis were 5.1(SD+2.3) and 11.4(SD+1.1) respectively. The posttest mean scores were higher than pretest mean scores. The 't' value is 13.76 which was significant at 0.05 levels. There was positive correlation (r=0.95) between posttest knowledge and practice scores regarding therapeutic interventions on chronic renal failure among patients undergoing hemodialysis. The findings were supported by a study done by Anuradha (2008), she conducted a study to assess the knowledge and practice of self-care among the patients with chronic renal failure in PSG hospital Dialysis unit Coimbatore. There was a positive correlation [(r=0.63) p<0.05] found between self-care knowledge and practice among chronic renal facture patients. There is no statistically significant association between the selected demographic variables with the pretest knowledge and practice. The findings were supported by a study done by Anuradha M. D. (2008), she conducted a study to assess the knowledge and practice of self-care among the patients with chronic renal failure in PSG hospital Dialysis unit at Coimbatore. She concluded that there was no significant association was found between knowledge scores with the demographic variables.

Findings showed that the structured teaching programme was effective in increasing the knowledge, and practice among patients undergoing hemodialysis regarding therapeutic interventions on chronic renal failure.

10. Conclusion

The study findings revealed that there was a significant improvement in the knowledge and practice of chronic renal failure patients undergoing hemodialysis after structured teaching programme. Based on the statistical findings it is evident that provision of such kind of structured teaching programme motivated the chronic renal failure patients and help them to acquire knowledge and practice and appropriate practice regarding therapeutic interventions on chronic renal failure.

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