



## EFFECTIVENESS OF PRE-HAEMODIALYSIS PREPARATORY PROGRAM ON COMPLIANCE TO THERAPEUTIC REGIMEN IN CHRONIC KIDNEY DISEASE PATIENTS

### Nursing

**Dr. Sonali**

Professor cum Principal, Ramaiah Institute of Nursing Education and Research MSRIT

**Tarachand Jadhav**

Post, MSR Nagara, Bangalore-560054

### ABSTRACT

The study used a quasi-experimental design (non-equivalent control group pre- test-post- test design). Population comprised 100 adult patients with stage 3 and stage 4 chronic kidney disease patients whose glomerular filtration rate (GFR) was deteriorating and required to undergo haemodialysis treatment. Compliance scale developed by researcher was used to assess patient compliance to therapeutic regimen. After the implementation of pre-haemodialysis preparatory program, highly significant improvement with moderate to large effect size was observed in patients' receiving pre-haemodialysis preparatory program with relation to overall compliance to therapeutic regimen ( $P=0.000$ ) as compared to those receiving standard care. After controlling for confounding socio-demographic variables (age ( $P=0.049$ ), education ( $P=0.036$ ), and annual income ( $P=0.015$ )) the intervention was found to be significantly effective in improving compliance to therapeutic regimen ( $P=0.000$ ).

### KEYWORDS

Compliance to therapeutic regimen, Chronic kidney disease, Pre-haemodialysis preparatory program

### INTRODUCTION:

Patient compliance to therapeutic regimen is a key to successful management of chronic disorders. Compliance is defined as —The extent to which a person's behaviour, in terms of taking medications, following diets or executing lifestyle changes, coincides with medical or health advice<sup>(1)</sup>. In an effort to improve nutritional status, reduce uremic toxicity and delay renal deterioration, chronic kidney disease patients are required to comply with a strict treatment plan. Dialysis and the complexity of the treatment plan include rigid diet and fluid restrictions, the need for vascular access, lifestyle modifications, and the need to develop close relationships with the health care team<sup>(2-4)</sup>. The amount of time invested into the treatment plan is also an important factor, as not only do these individuals commit to thrice a week haemodialysis treatment for approximately four hours per session, but they also spend considerable amount of time travelling back and forth to the dialysis unit<sup>(4)</sup>. Patients often find it difficult to adhere to the strict treatment regimen. Unfortunately the effectiveness of treatment is often compromised by noncompliance to this strict regimen. The present study assesses effectiveness of pre-haemodialysis preparatory program on compliance to therapeutic regimen among stage 3 and stage 4 chronic kidney disease patients.

### HYPOTHESIS

Hypothesis was tested at  $P<0.05$  level of significance

**H1:** Chronic kidney disease patients receiving pre-haemodialysis preparatory program have increased compliance to therapeutic regimen than those who receive standard care.

### MATERIALS AND METHODS:

#### Design and setting

The study used a quasi-experimental design (non-equivalent control group pre- test-post- test design). Population comprised of stage 3 and stage 4 chronic kidney disease patients who have selected haemodialysis as a treatment option. The study included 100 adult patients (20-60years), with Chronic kidney disease whose glomerular filtration rate (GFR) was deteriorating and required to undergo haemodialysis treatment. Sample size was computed based on power analysis, keeping the power of study at 80% ( $P<0.05$  two tailed). The study was carried out at a tertiary care hospital in Bangalore.

#### Intervention

The intervention consisted of a pre-haemodialysis preparatory program, which was prepared by researcher based on the findings of qualitative study. Transactional model of stress and coping which is based on psychological stress theory of Lazarus was used as guiding framework to develop the intervention. The program consisted of three sessions namely, 'chronic kidney disease and its conservative management', 'understanding haemodialysis as treatment option', and 'coping with disease and haemodialysis treatment'. Researcher had trained a nurse with postgraduate qualification, for delivering the pre-haemodialysis preparatory program in local language (Kannada). Researcher herself delivered the sessions to patients who spoke English language. Intervention implementation fidelity was ensured

by having a nephrologist observe both the interventionist implement the intervention and rate them on a predesigned criteria.

#### Instrument

Researcher developed a self-report tool comprising of 18 items to assess patient compliance to therapeutic regimen. The items on the scale assessed patient compliance to diet, fluid intake and compliance to medications and follow up visits. Respondents were asked to rate their compliance to various parts of their therapeutic regimen on a four point likert scale of 'Almost always', 'Most of the times', 'Sometimes' and 'Never'. For Positively worded items a score of 4 was given for 'Almost always', 3 for 'Most of the times', 2 for 'Sometimes' and 1 for 'Never'. Reverse scoring was done for negatively worded statements. A total score of  $\leq 30$  was interpreted as a 'poor compliance'; 31-50 as 'satisfactory compliance'; 51-60 as 'Good compliance' and;  $>60$  as 'very good compliance'. Tool was translated to local language (Kannada). Reliability for both English (Cronbach  $\alpha=0.70$ ) and translated version (Cronbach  $\alpha=0.75$ ) was computed. Scale content validity index was obtained (SCVI=1).

#### Data collection procedure

Permission to conduct study was obtained from hospital authority. Ethical clearance was obtained from hospital ethics committee. Hospital wards were randomly assigned as experimental and control wards at the beginning of the study. Patients who met inclusion criteria were recruited for the study using consecutive sampling technique. Informed consent was obtained from all the subjects. Patients admitted in the experimental wards received pre-haemodialysis preparatory program and those in the control wards received standard care. This helped in avoiding contamination of control group. Pre-assessment of compliance to therapeutic regimen was carried out for patients in both groups by administering Compliance scale by two nurses with Basic B.Sc. nursing qualification who were trained to administer the tools. The pre-haemodialysis preparatory program was delivered individually to each subject in three sessions each lasting for duration of 30-45minutes on three consecutive days. Power point presentation with simple pictures and illustrations was used as a teaching aid. Patients were encouraged to discuss specific issues encountered by them during the program. Patients were given an information booklet at the end of the program.

Post-assessment of dependent variables was carried out for patients in both the groups after two weeks period. A consort table depicting enrolment, allocation and follow up of the patients during the study is presented in figure-1

#### RESULTS:

SPSS Statistics (Version 20) was used for data analysis. Majority of the subjects from both the groups (68% in experimental and 70% in control group) were male. Mean age of subjects' was 50.08 years in the experimental and 45.26years in the control group. Most subjects had stopped working due to their illness (16% in experimental and 24% in control group) Majority of the subjects (34% in experimental and 36% in control group) had pre-existing diabetes mellitus and

hypertension. The mean annual income was INR 2 lakhs for subjects in both the groups. More than half the subjects from both groups did not have medical insurance (54% in experimental and 66% in control group). There was no significant difference in the socio-demographic variables of subjects in experimental and control group except for their age (0.049) education (P=0.036) and annual income (P=0.015).

Subjects in intervention group and those receiving standard care did not differ significantly with regards to their compliance to therapeutic regimen (P=0.975), prior to implementation of pre-haemodialysis preparatory program. After the implementation of pre-haemodialysis preparatory program, highly significant improvement with moderate to large effect size was observed in patients' receiving pre-haemodialysis preparatory program with relation to overall compliance to therapeutic regimen (P=.000) as compared to those receiving standard care. After controlling for confounding socio-demographic variables (age (P=0.049) education (P= 0.036), and annual income (P=0.015)) the intervention was found to be significantly effective in improving compliance to therapeutic regimen (P = 0.000). Statistically significant improvement with large effect size (Cohen's d) was observed in intervention group with regards to diet adherence (P=0.000,d= 0.82) ,fluid adherence (P=0.000,d= 0.88) and medication and follow-up compliance(P=0.000,d=0.76) as compared to those receiving standard care after the implementation of pre-haemodialysis preparatory program.

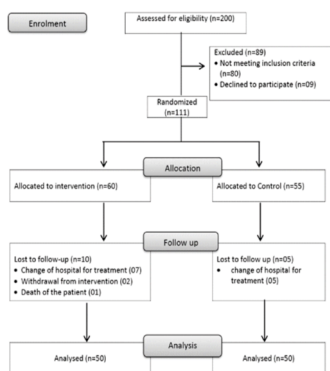
Compliance to therapeutic regimen was found to have significant but weak positive correlation with years of education (r=0.202, P=0.05). Compliance was also found to be significantly associated with recent initiation of haemodialysis treatment (P=0.040) and availability of medical insurance (P=0.014).

**DISCUSSION:**

The present study used a self-report tool to assess compliance to therapeutic regimen. Overall compliance to therapeutic regimen was found satisfactory for 59% patients, good for 36% and excellent for only 3% patients. It is also interesting to know that only 2% subjects reported poor compliance. Findings of this study are similar to that of Lin et al. who reported the average overall rate of compliance with therapeutic regimen as 76.4% by patient self-report and 69.2% by nurse assessment<sup>(5)</sup>. However noncompliance rates of 50% or higher for varying aspects of haemodialysis (HD) treatment regimen have been reported in the literature<sup>(6)</sup>. Varied prevalence of noncompliance reported in literature can be attributed to various methods/tools used for assessment of compliance.

Statistically significant improvement with large effect size (Cohen's d) was observed in intervention group with regards to diet adherence (P=0.000, d= 0.82), fluid adherence (P=0.000, d= 0.88) and medication and follow-up compliance (P=0.000, d=0.76) as compared to those receiving standard care. A study conducted by Barnett et.al. also reveals that chronic kidney disease patient's mean interdialytic weight gain decreased following the educational intervention and adherence to fluid restrictions increased from 47% to 71%<sup>(7)</sup>. We observed that many patients did not have adequate information and understanding regarding dietary restrictions to be followed. Treating nephrologist was the only source of dietary advice to majority patients. Nurses can be the key professionals to counsel and support patients on on-going basis for compliance to dietary restrictions.

**Figure-1: Consort Table**



**REFERENCES :**

1. Loghman-Adham M. Medication noncompliance in patients with chronic disease: issues in dialysis and renal transplantation. American Journal of Managed Care 2003 Feb;9(2):155-71.
2. Devins GM, Dion R, Pelletier LG, Shapiro CM, Abbey S, Raiz LR, et al. Structure of lifestyle disruptions in chronic disease: a confirmatory factor analysis of the Illness Intrusiveness Ratings Scale. Medical Care 2001 Oct;39(10):1097-104.
3. Hailey BJ, Moss SB. Compliance behaviour in patients undergoing haemodialysis: a review of the literature. Psychology, Health & Medicine 2000 Nov;5(4):395-406.
4. Welch JL, Austin JK. Factors associated with treatment-related stressors in hemodialysis patients. ANNA J 1999 Jun;26(3):318-25.
5. Lin CC, Liang CC. The relationship between health locus of control and compliance of hemodialysis patients. Kaohsiung J Med Sci 1997 Apr;13(4):243-54.
6. Sagduyu A, Senturk VH, Sezer S, Emiroglu R, Ozel S. [Psychiatric problems, life quality and compliance in patients treated with haemodialysis and renal transplantation]. Turk Psikiyatri Derg 2006;17(1):22-31.
7. Barnett T, Li Yoong T, Pinikahana J, Si-Yen T. Fluid compliance among patients having haemodialysis: can an educational programme make a difference? Journal of Advanced Nursing 2008 Feb;61(3):300-6.