6. SUMMARY

A descriptive longitudinal study was conducted in the Nephrology Department (C2) of Sri Ramachandra Hospital. A total number of 150 patients were selected conveniently. A study model was developed which was the amalgamation of Sister Callista Roy’s Adaptation model, Betty Neumann’s system model and Imogene King’s Goal attainment theory. A standardized questionnaire was developed to assess the stress and coping ability among hemodialysis patients for the study.

The structured questionnaire consists of:

**Part I:**

A. Demographic variables
B. Habit variables
C. Biological variables
D. Hemoglobin values

**Part II:**

Stress Scale encompasses two parts namely;

A. Physical stressors
B. Psycho-social stressors.
Part-III:

Tool to assess the coping abilities which comprises of two coping methods such as;

A. Problem oriented method

B. Affective oriented method

The investigator collected the data by interview method, after obtaining consent from each patient. As it is a longitudinal approach, data were collected at periodic intervals for 4 times (every third month).

6.1 The significant findings of the study were:-

1. All the patients experienced “Moderate stress”, in most of the aspects of stress and “Severe stress” in some aspects like limited fluid intake, length of treatment; cost of hemodialysis and transport to and from the unit.

2. The sub-scale of the stress infers “Physical stressors” were more troublesome when compared to “Psychosocial stressors”.

3. Majority of the patients “Very rarely” adopted appropriate coping strategies to diversify the level of stress.

4. Certain components of coping have “Never” been used certain coping abilities like “looking at the problem objectively, breaking the problem into smaller pieces; setting specified goals to overcome stress and tried actively to change the situation to minimize stress.
5. Among the two methods of coping patients predominantly adopted “Affective oriented method” of coping when compared with “Problem oriented method” of coping.

6. Pearson correlation co-efficient value was having “High Negative correlation” which indicates statistically significant relationship at P<0.001 level. This demonstrates as the coping ability of the patient increases the level of stress declines.

7. Significant association between occupation and overall stress but there was no significant association was observed between age; sex; religion; level of education; income; marital status and size of family.

8. No significant association was elicited between overall stress and habit variables of hemodialysis patients.

9. Significant association was identified between stress and frequency of dialysis, diabetes mellitus and duration of hypertension at P<0.01 and P<0.05 level respectively.

10. No significant association was elicited between overall stress and hemoglobin value of the patient.

11. No significant association was established between coping abilities with demographic variables and habit variables.

12. The significant relationship was obtained between overall coping and presence of diabetes mellitus at P<0.05 level and there was no significant relationship with rest of the biological variables.
13. Multiple statistical comparison between different times of hemodialysis for physical stressors evoked the significant relationship between 1\textsuperscript{st} and 2\textsuperscript{nd}; 1\textsuperscript{st} and 3\textsuperscript{rd}; 2\textsuperscript{nd} and 3\textsuperscript{rd}; 2\textsuperscript{nd} and 4\textsuperscript{th} at P<0.001 level. This infers as the patient continues with the hemodialysis the physical stressor increases.

**Multiple statistical comparisons between different times of hemodialysis patients;**

14. Psycho-social stressor depicts as the duration of dialysis increases patients develop many psycho-social problems in relation to hemodialysis and is statistically significant at P<0.001 level.

15. Overall stress invoked that as the patient continues on hemodialysis, the level of stress also increases.

16. Problem oriented method of coping revealed as the patient continues with the hemodialysis; the ability to overcome the stress also increases.

17. Affective oriented method of coping demonstrated that as the patient continues with the hemodialysis develop better coping ability with their experience of hemodialysis in due course of time at P<0.001 level.

18. Overall coping illustrated that as the duration of hemodialysis increases, they adopt better coping abilities.
Regression analysis of hemodialysis patients;

19. Overall stress implicates the negative relation between overall stress with income of the family at P<0.05 level.

20. Physical stressor with residence shows that patients from rural residence experience high level of stress and there is a positive relationship elicited with size of family.

21.Enumerates positive relationship between psychosocial stressors with residence, education and negative relationship with income at P<0.05 level.

22. Overall coping, problem oriented method and affective oriented method with demographic variables brought no significant relationship.

23. Overall stress, physical stressor and psycho-social stressor with habit variable have no significant relationship.

24. Overall coping problem oriented methods, coping and affective oriented methods of coping with habit variables depict no significant relationship.

25. Overall stress with duration of illness, hypertension and duration of hypertension of biological variables incurred positive relationship at P<0.001 level.

26. Physical stressor with frequency of dialysis, hypertensions and duration of hypertension demonstrated positive relationship at P<0.001 level.
27. Psychosocial stressor with duration of illness of biological variable illustrated positive relationship at P<0.001 level.

28. Overall coping with duration of illness, a part of biological variable evoked negative relationship at P<0.05 level.

29. Problem-oriented method, affective oriented method of coping with duration of illness, a part of biological variable depicted negative relationship at P<0.05 level.

30. Overall stress and psycho-social stressor with hemoglobin exhibits negative relationship at pre-dialytic stage and positive relationship during the dialysis at P<0.001 level.

31. Physical stressor with hemoglobin of biological variable represents a positive relationship at pre-dialytic stage at P<0.05 level and negative relationship during the dialysis, and is not statistically significant.

32. Overall coping, problem-oriented method, affective oriented method, with hemoglobin of biological variable narrates positive relationship at pre-dialysis stage and elicited negative relationship during the dialysis and both are statistically significant.
6.3 IMPLICATIONS FOR NURSING

6.3.1 INTRODUCTION

Today the health care services metamorphosed to health care industry, created awareness among the health care consumers to opt for quality services. This paved the way for the nurses to accomplish evidence-based practice to fulfill their demands which will help to achieve quality care. Quality nursing care can be attained successfully by conducting clinical nursing research and developing theories which can be included in the curriculum of nursing education, thus the nursing practice is strengthened.

The implication for this research had been explained by using a framework which encompasses three circles, each of the circles is assumed as nursing practice, nursing research and education respectively, where the patient is considered as core. The nursing practice is a base or foundation where the education and research develops. It is the area where the nurses identify certain problems and issues related to care of patients. This query ultimately enables the nurse researcher to explore and explain the phenomena which paves the way to develop theory.

6.3.2 NURSING PRACTICE

Nurses and health care providers serving the dialysis patient should acknowledge the demands that may arise in the peri-dialysis period.
Multi-disciplinary team approaches are required in caring End Stage Renal Disease Patients as they approach dialysis. The goals of this approach should include:

a) Establishing and maintaining a trustful therapeutic relationship

b) Identify certain discomfort and implement appropriate interventions.

c) Assisting patient in preparation for hemodialysis.

d) Educating patients about ESRD and renal replacement options.

e) Reinforcing information provided by nephrologists.

f) Providing support and counseling during the stressful situation.

If they identify certain discomfort of the patient, nurses should employ appropriate nursing interventions. There should be a printed self instructional module available in different languages which provide the patients with the necessary information about ESRD; hemodialysis related problems and various coping strategies that help the patient to overcome the difficulties and maintain emotional equilibrium.

As physical and psychological problems are unique, the patients should never be compared with each other and should respond to their needs appropriately without ignoring the emotions. The psychosocial interventions and support must be instituted at the time of initiating renal replacement therapy. When ESRD is diagnosed, the focus must be on the maintenance of the health rather than rehabilitation of the patients physical functioning.
The information obtained from this study implicates that all the nurses in health care setting should be provoked to provide health information for patients and family with history of hypertension, and diabetes mellitus towards the prevention of its life threatening complications like ESRD; stroke and cardiac problems.

6.3.3 NURSING EDUCATION

In the field of nursing education, the curriculum should be designed to educate the student nurses to care for the hemodialysis patients on the psychosocial aspect too. Short term courses should be conducted for nurses working in the dialysis unit since this area was not focused adequately. Even all the nurses working in the hospital must be trained to care for the patient in the dialysis unit, so that in case of shortage of staff and high turnover, their services could be availed.

In service nursing education program should be conducted periodically, based on the performance of the staff in the dialysis unit and special focus should be on research process which will help them to understand the concept of evidence based nursing practice. Ongoing nursing education could be conducted, so that the student nurses and staff can equip themselves with adequate knowledge.

The dialysis unit should be considered as an intensive care unit but this concept was ignored and thus the students were not exposed adequately. While planning the clinical rotation, the nurse educators should keep in mind to expose the students in par with the other intensive care units which will provide an opportunity for the students to enhance their knowledge towards caring the patients with renal replacement therapy at different levels.
6.3.4 NURSING RESEARCH

Evidence based nursing practice could be achieved by conducting clinical nursing research. This study explored that the patient undergoing hemodialysis experienced high level of stress and inadequate coping. The outcome of the study implicates that the research is required on certain aspects of dialysis related problems such as loss of functional abilities, mobility ability, grief and burden on family members. It also suggested to assess the knowledge of health care providers serving in the dialysis unit and should conduct on-going long term projects towards psychosocial problems and quality of life, which will help us to maintain the standards of care.

Nurses serving in the dialysis unit should bring the problems identified by them to the patients and unpleasant experiences reported to them by the patients. The issues identified by the nurses and health care professionals should be brought to the notice of the nursing superiors which will help to focus the light towards those areas to explore the phenomena and prove it scientifically.

The research cell should be developed which should include all health care professionals working for the welfare of the patients, so that, simple issues can also be enlightened.

6.3.5 NURSING ADMINISTRATION

Nursing administrator must be concerned with quality of care rendered in the hemodialysis unit. The nurse administrator has to plan to maintain the nurse patient ratio in the dialysis unit as per the norms and to avoid high turnover which will help to enhance quality care. The policies,
protocols, procedures and standing orders should be revised when required as those are the indicators to maintain the standard of care. They should plan and conduct nursing conferences; seminars and workshops and also provide opportunity for the nurses to participate in the same.

The administrator should plan for dialysis anonymous like alcohol anonymous group formally, where the patients can interact with each other, their problems and ways to overcome in the health care setup. Health care agency should also provide information about the non-governmental organizations and other agencies which will financially support the patients to continue the course of treatment. The nurse administrator should allot adequate fund for conducting research in the unit while planning the annual budget. This will motivate the nurses to participate in the research activities.
6.4 SCOPE FOR FURTHER RESEARCH

Based on the major findings of this study, following suggestions were proposed.

1. Retrospective study can be conducted to understand the perceptions and experiences of hemodialysis patients.

2. Qualitative prospective study can be conducted to facilitate greater understanding and experiences of the patients with ESRD.

3. Experienced studies can be conducted to reduce the stress and enhance coping abilities of hemodialysis patients.
   a) Progressive muscle relaxation
   b) Music therapy
   c) Yoga/meditation/biofeedback
   d) Counseling

4. Experimental study can be conducted to determine the effectiveness.
   a) Self-instructional module
   b) Teaching module
   c) Structured teaching program.
   d) Selected Nursing interventions.
5. Descriptive studies can be conducted

   a) Quality of life of hemodialysis patients.
   b) Functional ability of hemodialysis
   c) Family burden of hemodialysis patient.
   d) Sexual dysfunction of hemodialysis patients.
   e) Coping among care giver of hemodialysis patients.

6. A comparative study can be conducted to assess the

   a) Stress and coping ability between hemodialysis and peritoneal patients.

   b) Stress and coping between hemodialysis and renal transplantation.

   c) Stress and quality of life.

   d) Coping and quality of life.

   e) Functional ability and renal transplantation.

   f) Family burden and renal transplantation
6.5 NURSING INTERVENTIONS

1. Adhere to the hemodialysis schedule to prevent accumulation of metabolic waste products.

2. Encourage compliance towards hemodialysis and associated care like fistula care; food and fluid restriction and exercises.

3. Plan the physical activity based on the functional ability of the patient.

4. Allow the patient to perform the regular exercises within limitations.

5. Avoid using the arm of fistula to prevent complications like bleeding, infection and occlusion.

6. Educate the patient to perform exercises in the fistula arm to maintain the patency.

7. Teach the patient to avoid heavy lifting in the fistula hand.

8. Care to the fistula site to prevent bleeding, infection and occlusion during hemodialysis.

9. Educate the patient to consume recommended fluid intake i.e. output + 500 ml/day.

10. Foods with fluids should be minimized to avoid fluid overload. Eg. Gelatin, fruits, popsicles, ice-cream, soups and vegetables – generally anything that melts to a liquid at room temperature is a source of hidden fluid.
11. Avoid preservative foods such as pickles, dry fish and other tinned foods.

12. Allow sodium intake 2 – 3 gms per day.

13. Avoid foods rich in sodium like corn bread, sausages, cakes, cookies, slated nuts, salted chips, salt biscuits, pappad etc.

14. Avoid salt substitutes, since most of them contain some form of potassium which, people with kidney disease need to control.

15. Restrict foods rich in potassium like banana, tender coconut, spinach, eat as snacks. Dried plums, raisins, potato, pumpkin, turnips, nuts, melons, tomato, orange and vegetable juices, dried fruits etc.

16. Avoid foods rich in phosphorous like dry maize, roasted Bengal gram, black gram, green gram, double beans etc.

17. Plan for the diet rich in iron to prevent anemia. Eg. Green leafy vegetables, dates, ragi, drumstick & leaves etc.

18. Plan and maintain the renal diet.

19. Plan for high biologic value protein like meat, fish, milk, soyabean, egg, beef, pork etc.

   Generally, protein rich foods naturally contain phosphorous thats why it is very essential to take phosphate binders whenever the patient consume protein rich foods if prescribed by nephrologists.

20. The fruits and vegetables are moderate (300-350 mgs) in potassium and are good choice to use in recipes and to eat as snacks.
Fruits- Apple, cherry, goose berry, grapes, pineapple, strawberry, etc. Vegetables- Beans, cabbage, carrot, cauliflower, cucumber, green beans, green peas, radish, etc.

21. Ensure meticulous skin care to prevent itching and breakdown by applying emollients.

22. Encourage the patients to cut short their nails and keep it trim to prevent skin breakdown.

23. Motivate the patients to wear short sleeve to avoid irritation at the fistula site thereby to prevent infection.

24. Avoid soaps that cause dryness of skin.

25. Generally avoid constrictive clothing’s at the fistula site.

26. Educate the patient about the relaxation techniques; meditation; yoga; music and biofeedback.

27. Emphasize the importance of adequate sleeping hours to prevent fatigue (6-8 hrs per day).

28. Encourage the patients to discuss their concerns openly with the nurses; nephrologists; medical social workers; clinical psychologists and dieticians in the dialysis unit.

29. Educate and provide psychological support to the patient and family to adapt to the in body image during the course of dialysis.

30. Organize counseling sessions for both patient and family to develop coping.

31. Encourage the patient to plan for the vacation with family and friends periodically.
32. Make sure that the patient carries necessary medications at the time of the long journey.

33. Motivate the patient to participate in social gathering and festivals.

34. Plan for vocational rehabilitation.

35. Encourage the patient to clarify the queries when required from the health care professionals.

36. Provide information about the funding sources for renal transplantation viz. Chief Minister’s fund; Prime Minister’s fund; Voluntary Organizations and Non Governmental organizations and also to avail the benefits from such sources.

37. Educate the patients about the signs and symptoms of complications of hemodialysis.

38. Help the patient to know about the emergency medical expenses and plan financially to attend such situations.

39. Inform the patient and family that the client may experience mood swings and depression as a result of uremia.

40. Organize the hemodialysis Anonymous Group that enhance the patients to share about their views and care related problems.

41. Plan special trip for these patients by the hospital as a part of recreation.

These nursing interventions were developed for the patients undergoing hemodialysis based on the findings of the study, which will help to overcome stress in various aspects and to improve the quality of life.