3. METHODOLOGY

3.1 RESEARCH DESIGN

The research design chosen for this study was longitudinal design. (Descriptive approach). The researcher collected and documented the data to understand the physical and psychosocial problems of patient undergoing hemodialysis. The investigator also gathered the data to identify the coping strategies adopted by the patients to overcome stress. As it was longitudinal study the data were collected four times at periodical intervals of three months.

3.2 SETTING OF THE STUDY

The study was conducted at Sri Ramachandra Medical College and Research Institute (Deemed University) which is situated at Porur and this hospital has bed strength of 1640 with various specialties like Cardiology, Neurology, Nephrology, Orthopedics etc. The Nephrology department, where the study was conducted, has various units, like hemodialysis, peritoneal dialysis and Renal Transplantation. There are eighteen hemodialysis machines which function round the clock for the patients. On an average, 45-50 patients undergo hemodialysis in this centre.

3.3 POPULATION

Patients undergoing hemodialysis at Tamilnadu are the target population and those undergoing hemodialysis at dialysis unit (C2) of Sri Ramachandra Hospital are the accessible population. The patients fulfilled the criteria that were included in the study.
3.4 SAMPLE

It refers to a subset of a population to be participated in the research study. Patients who fulfilled the inclusion criteria subjected to hemodialysis within the period of study were selected for data collection.

3.5 CRITERIA FOR SELECTION OF SAMPLES

3.5.1 INCLUSION CRITERIA

1. ESRD Patients subjected to hemodialysis at Nephrology Department of Sri Ramachandra Hospital, Porur, and Chennai-116.
2. The clients who were able to understand and speak Tamil / English.
3. Patient’s age between 21-65 years.
4. Physically and psychologically fit patients.

3.5.2 EXCLUSION CRITERIA

1. Patients subjected to hemodialysis other than End stage renal disease.
2. Unconscious patients.
4. Chronic ambulatory peritoneal dialyses (CAPD).

3.6 SAMPLING TECHNIQUE

The investigator selected a portion of the accessible population to represent the entire population. A convenient sampling technique of non–probability type was adopted and the patients who meets inclusion criteria were selected for the study.
3.7 SAMPLE SIZE

A total of one hundred and fifty (150) patients who underwent hemodialysis in Sri Ramachandra Hospital, Porur, Chennai-116 were selected for this study.

3.8 TOOL AND SCORING

The tool used was a structured questionnaire with interview schedule. Data collection instrument has three parts.

3.8.1 Part-I

This encompasses:

Demographic variables;

Biological variables and

Habit variables of patients.

3.8.2 Part- II Stress scale

This is the Stress scale for patients subjected to hemodialysis developed by Kathleen Smith Baldree, Suzanne Pelletier, Murphy, and Marjorie J. Powers (1981). It had been specifically developed for measuring the stressors experienced by the patients subjected to hemodialysis. It contains 29 items and it had been divided into two group’s i.e. physical and psycho - social stressor. Each of the statement has five columns for response of patients i.e. not stressful, very mild, mild, moderate and severe with the score of 1,2,3,4 & 5 respectively.
A rating scale was constructed to evaluate the incidence and severity of physiological and psychosocial stressors associated with hemodialysis treatment as perceived by the patient. The scale was developed in the following manner. The literature on stressors commonly encountered by dialysis patients was surveyed (Abraham, 1968; Friedman, Goodwin and czackes, 1968; levy, 1974). The review yielded 21 stressors.

Content validity for the stressors scale was empirically supported, since the stressor items were acceptable based on a critical review of studies noted by the authorities on dialysis. As further measure to establish content validity of this instrument, six nurse experts in the care of hemodialysis patients were asked where they agreed or disagreed that 21 items were stressors encountered by dialysis patients. Results showed that there was 100 percent agreement on 20 of the 21 items, limited to styles of clothing, received 66 percent agreement. The nurse experts added eight additional items; the final scale comprised 29 items. A likert type format with a 5-point scale was constructed so that patients could rate each stressor according to severity. The end points of the scale were represented by “not at all” to “severe”.

A pilot study was conducted with the final 29- item scale using three volunteer dialysis patients who were asked to judge whether these items were stressful for hemodialysis of them. Result showed 100 percent agreement on 28 of 29 items. One item (ability to have children) was not deemed particularly stressful. It may be speculated that this result was, in part, due to the fact that all of the volunteers had children prior to the illness. The decision was made to include this item in the
final scale because it was cited in the literature as a source of stress for some patients.

Patients in the pilot study were asked if the instructions in the scale were clear and understandable. They found the instructions easy to follow and were able to complete the scale without difficulty. Kerlinger (1964) pointed out “clear and standard instructions tend to reduce errors of measurements”. Ambiguous instructions and items tend to increase error variance and subsequently, diminish reliability. More formal determination of reliability of the stressor scale was based upon the test-retest method. Spearmen’s ratings indicated that the instrument was reliable (r=0.71, p<0.01).

Based upon the distinction made by Monat and Lazarus (1997) that physiological stress is “concerned primarily with the disturbances of tissue systems” and psychosocial stress has to do with “cognitive factors leading to the evaluation of threat and disruption of a social unit or system”. The six nurses who judged the validity of the stress items were also asked to characterise each item as either a physiological stressor.

Although recognition was made of the fact that some stressors could be viewed as both physiological and psychosocial, judges were instructed to select the predominant characteristic. Six stressors were identified as physiological and 15 as psychosocial. Average percent of agreement on the physiological stressors. Based on the same dichotomy, the additional eight stressors supplied by the experts were similarly classified.
The total possible score for 29 items was 145:

The scores were interpreted as follows:

Not stressful = 29
Very mild stress = 30-58
Mild stress = 59-87
Moderate stress = 88-116
Severe stress = 117 and above

3.8.3 Part-III. Coping scale

Coping styles were assessed by the use of a coping scale developed by Jalowiec and Powers (1981). This instrument lists 40 different coping behaviours, both affective oriented and problem oriented methods which a person may use in response to stress. According to this research, problem oriented coping methods are those that primarily aimed at solving a problem or handling a stressful situation, whereas affective – oriented methods are strategies used to manage the emotions accompanying a stressful situation. The coping scale uses a likert type format with a 5- point scale that ranges from “Never” to “Always”. Subjects were asked to rate each method according to degree of use. The tool has been used with hypertensive and emergency room patients.

In the development of the coping scale, coping strategies were selected on the basis of a critical and extensive review of works by noted
authorities in the field of coping and adaptation. Therefore, the content validity is still to be determined. The investigators established reliability used in the test – retest method. Report of the spearman rank ordering of the data indicated that the instrument was reliable \( r = 0.79, p<0.0001 \)

Coping scale for patients was developed by Jalowiec and Powers. It contains 40 items and had been classified into two major categories i.e. Problem – oriented (15 items) and affective – oriented methods (25 items). Each statement had five columns for response of the patient. Never, very rarely, some times, always with score of 1, 2, 3, 4 & 5 respectively. For negative statements reverse scoring was given.

The scores were interpreted as follows:

<table>
<thead>
<tr>
<th>Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>40</td>
</tr>
<tr>
<td>Very rarely</td>
<td>41-80</td>
</tr>
<tr>
<td>Rarely</td>
<td>81-120</td>
</tr>
<tr>
<td>Some times</td>
<td>121-160</td>
</tr>
<tr>
<td>Always</td>
<td>161 &amp; above</td>
</tr>
</tbody>
</table>

Interview was conducted using the standardized scale and the response was marked in the appropriate column in front of each statement. The score was added up and percentage was calculated according to the total score obtained. The English version of the tool was translated to Tamil and from Tamil again to English to maintain the reliability of the tool.
3.9 Method of data collection

The data was collected for a period of twenty four months; the investigator framed the sample list and selected the sample who fulfilled the inclusion criteria. During the sampling frame, consent was obtained from the patients who were included in the study and rapport was established. The patients were given prior information and explanation of the procedure and Interview was conducted in the dialysis unit of nephrology department to collect the response from the patients. It took around 45 minutes to administer the tool to each patients.

As it was a longitudinal study, data were collected for four times from the sample in the fixed interval of time (every three months). The responses were converted into numerical form for analysis using statistical coding methods.

Pilot study

Pilot study was conducted in the dialysis unit of nephrology department (C2) of Sri Ramachandra Hospital. Fifteen (15) patients subjected to hemodialysis and who fulfilled the inclusion criteria were recruited for pilot study to test the feasibility of the research tool. The result revealed that majority of the patients experience “moderate to severe stress” and two third of the subjects “very rarely” used coping methods to overcome stress during hemodialysis. This demonstrated the feasibility of the tool for the main study.
3.10 Statistical analysis

The data analysis was done in the computer using the program SPSS 11.01 of Windows version. “Descriptive Statistics” was applied to describe and synthesise the data. “Averages, percentile, mean and standard deviation” were calculated to describe the independent variables such as demographic variables; personal habits, biological variables and hemoglobin levels and the same was utilized to assess the level of stress and coping the dependent variables. Thus the descriptive statistics were employed for summarizing the empirical information.

Karl Pearson’s correlation co-efficient (r) was adopted to establish the relationship between the stress and coping abilities at different intervals of hemodialysis. This had helped to understand “To the extent or degree the overall stress and coping abilities were related” and thus symbol “r” summarizes the magnitude and direction of the relationship between two dependent variables.

The ranking method was planned with the calculated mean scores to identify and prioritize the common stressors and coping strategies adopted by the patients subjected to hemodialysis.

The inferential statistical analysis, a non-parametric test of statistical significance “chi-square” was used to analyze the association between the demographic variables; habit variables and biological variables with the level of stress and coping abilities.

“Analysis of variance (ANOVA)”, a statistical procedure for testing mean difference among three or more groups by comparing the variability between groups with the variability within groups. This
statistical technique was utilized to analyze the multiple relationships of statistical comparisons between different intervals of dialysis such as first & second measure, first & third, first & fourth, second & third, second & fourth and third & fourth respectively for stress and coping.

The statistical method “Regression” was calculated to predict the values of a dependent variable based on the values of one or more independent variables. This is represented as “R”, this symbol denotes the multiple correlation coefficient, summarizes the magnitude of the relationship between the dependent variables and multiple independent variables together.

In this study the “Multiple Regression Analysis” was employed to predict the factors influencing stress and coping. Here the strength of relationship between the dependent variables scores, i.e. stress, coping abilities and the predictor variables i.e. demographic, habits, biologic were estimated by calculating the coefficient of multiple correlations (“R”).

Thus the inferential statistical analysis improves to judge or generalize to a large class of individuals based on information from a limited number of subjects.