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Research Article

**ASSESSMENT OF COMPLICATIONS IN KIDNEY FAILURE  
PATIENTS AND THOSE UNDERGOING HEMODIALYSIS****T. Pavithra<sup>1</sup>, S.K. Godasu<sup>2</sup>, D. Varun<sup>3</sup>**<sup>1</sup> Assistant Professor, Department of Pharmacy Practice, Sri indu institute of Pharmacy,  
Hyderabad, Telangana, India<sup>2</sup> Assistant Professor, Department of Natural products, Sri indu institute of Pharmacy,  
Hyderabad, Telangana, India<sup>3</sup> Professor, Department of Pharmaceutics, Sri indu institute of Pharmacy, Hyderabad, Telangana,  
India**Article Received:** June 2022**Accepted:** June 2022**Published:** July 2022**Abstract:**

*Chronic kidney disease is a significant public health problem more than 20 million of people worldwide and claims thousands of lives. A prospective observational study was carried out to assess the complications in patients with chronic renal failure undergoing Haemodialysis. The CKD questionnaires was used to collect the data. The sample consists of 200 patients. Data was collected for a period of 6 months September 2018 – February 2019 in Mahaveer Dialysis Centre, Mehdiapatnam, Hyderabad. Results were documented, various socio demographic and clinical aspects have been analysed in our studies and frequency and duration of dialysis, comorbidities and complications. From our study it is concluded that complications during haemodialysis can be affected by socio-demographic and clinical aspects.*

**Keywords:** - CKD Questionnaires, Haemodialysis, Complications.

**Corresponding author:****Dr. T. Pavithra,**

Sri indu institute of pharmacy

Sheriguda, Ranga Reddy, 501510

Telangana, India

Email: [pavi.reddy99@gmail.com](mailto:pavi.reddy99@gmail.com)

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**INTRODUCTION:**

The rising worldwide pestilence of persistent kidney infection and resultant End-Stage Renal Disease (ESRD) keeps on being quite difficult for the vast majority emerging nations [1]. ESRD adversely influences the personal satisfaction of patients by acting adversely on their social, monetary and mental health. The illness can likewise harm the self-perception and general QoL of patients notwithstanding physical, practical, metabolic, social and psychological circumstances [2, 3]. Hemodialysis (HD) and peritoneal dialysis (PD) are the two normal types of dialysis treatment for ESRD. The topic of the ideal decision of dialysis methodology, PD or HD, stays a question of discussion. It is accepted that the wellbeing related personal satisfaction of dialysis patients is normally more awful than that of the age-matched subjects from everyone, in view of the regularly high weight of comorbidity and entanglements of ESRD [4]. This was likewise affirmed by a review led by Drennan and Cleary, which showed that the patients with ESRD have a more regrettable personal satisfaction than the overall solid populace [5, 6], because of the rudeness of the treatment that is required [7]; then again, patients with misery and social-related low quality of life present a 1.7-crease risk for having a diminished glomerular filtration rate [8]. Patients with ESRD who get upkeep dialysis treatment have a fundamentally higher death rate contrasted with the sound populace (around 20% each year in the United States and 10 - 15% in Europe), essentially because of cardiovascular illness [9]. The mortality of ESRD patients who are treated with the two modalities has been explored in various observational examinations, however which dialysis methodology performs better in delaying life of ESRD patients isn't clear. A few investigations showed the unrivaled results of HD, though others exhibited that PD was identical to HD or stunningly better for specific subgroups [10, 11]. The situation is made much more intricate by the presence of complexities explicitly connected with HD and PD [12-14]. In light of an expansion in endurance rates for patients with ESRD, HRQOL has become progressively significant as a result measure in the assessment of dialysis medicines [15]. QoL has turned into a key result measure in the therapy of ongoing sickness, like persistent kidney illness (CKD), where the objective isn't the end of infection, yet rather the change of patients to actual constraints, changes in way of life, and clinical therapies [16]. Further developed QoL and self-viability have been related with beneficial outcomes in patients getting dialysis, for example, upgrades in key research facility values, mental and close to home working, mortality and hospitalization rates, and further developed adherence to treatment [16]. Past examinations concerning HRQOL and ESRD, have recognized that methodology of treatment is a component impacting personal satisfaction in ESRD [17].

Patients going through hemodialysis typically go to dialysis focuses a few times each week for three/four hours for every meeting, which might impact both their expert and individual lives. In actuality, peritoneal dialysis might be performed freely or with the assistance of a parental figure, at home, working or in some other clean places. This treatment can be played out a few times each day each 4-5 hours and with a more noteworthy respite period around evening time (utilizing the CAPD manual strategy), or consistently during the evening, through a machine that makes trades for 8-10 back to back hours (with the APD mechanized technique)., The focal speculation places that getting a home dialysis methodology, for

example, peritoneal dialysis, prompts preferable QoL and self-viability over does a customary in-focus treatment [16].

The present of aim of study is to assess the complications in chronic kidney failure patients undergoing Haemodialysis. The objective of study is to assess the complications in chronic kidney disease patients, to analyse the symptoms of patients undergoing Haemodialysis, to study the side effects of the patient's undergoing haemodialysis, Assessment of ADR's and complications undergoing haemodialysis.

**METHODOLOGY:****STUDY SITE:**

The study on "Assessment of complications in patients with CKD undergoing Haemodialysis1" was carried out in MAHAVEER DIALYSIS CENTRE located in Hyderabad. This hospital is unique and well known for its services to the people of Telangana and Andhra pradesh.

**DEPARTMENT SELECTED:** The department selected for this study was Nephrology.

**PERIOD OF DATA COLLECTION:** September 2018 to February 2019.

**TYPE OF THE STUDY:** Prospective observational study

**STUDY POPULATION:** 200 Patients.

**PHASE 1:** CONSENT FROM HOSPITAL AUTHORITY

**PHASE 2:**

**DATA COLLECTION:**

Inclusion criteria:

Patients: Department of Nephrology

- 30-80 years of patients who are undergoing treatment for CKD undergoing haemodialysis regularly.

- **Patients** with end stage renal disease.

- **Subjectives** are willing and able to comply with all protocol requirements.

**Exclusion criteria:**

- Patients with HIV disorders are excluded.

- Patients with acute renal failure.

- Patients preparing for kidney transplantation.

- Patients who voluntary withdrawn from the analysis.

**WARD ROUND PARTICIPATION:**

A regular ward round in both inpatient and outpatient was carried out. The medical charts of the patient were screened for appropriateness in all possible ways. Patient demographic like age, weight, comorbidities, social status, educational status, frequency and duration of dialysis were entered into the specially designed data entry form. The data regarding complications was collected by asking patients CKD questionnaires.

**PHASE 3:**

**DATA COLLECTION CONTINUED**

- The data collection was continued in this phase also

#### DATA ANALYSIS

The obtained data were analyzed for the complications based on the socio demographic and clinical aspects of the Haemodialysis. The CKD questionnaires were analyzed by observing and comparing the values to measure the complications in selected population. It was a custom that every project work carried out in the hospital by the PharmD has to be approved by the Head of the hospital and should be informed to all the physicians, surgeons and other Health Care Professionals of hospital. So, a protocol of the study which includes the objectives, methodology etc., was submitted to the head of the hospital.

The study was conducted with the expert guidance of senior and junior nephrologists of the department for the study in the hospital. The author was permitted to

utilize the hospital facilities to make a follow up prescription, in the nephrology department. All the health care professionals were well informed through Dean's official circular.

**DATA ENTRY FORM:** A separate data entry form is designed. The format contains the details such as name, age, gender, height, weight, IP/OP number, date of admission, reason for admission, patient past medical history and medication history, vital signs, laboratory tests and drug chart.

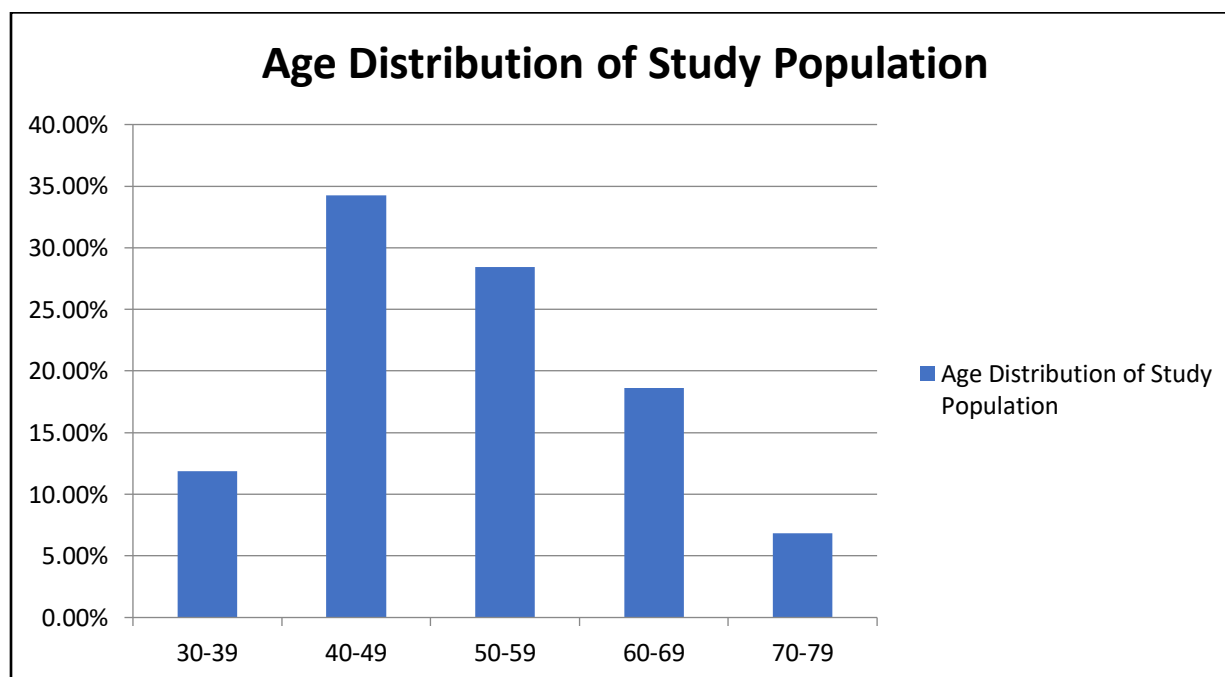
#### RESULTS:

##### AGE DISTRIBUTION

Age distribution for the study population was done and categorized accordingly. The records of 250 haemodialysis patients were evaluated prospectively. Totally, 200 patients were included into the study and among them 64.2% were old adult, 18.4% were old and 28.8% were young adult. The details are also given in the following **Table no: 1 and Graph No.1**

**Table no-1: Age Distribution of Study Population**

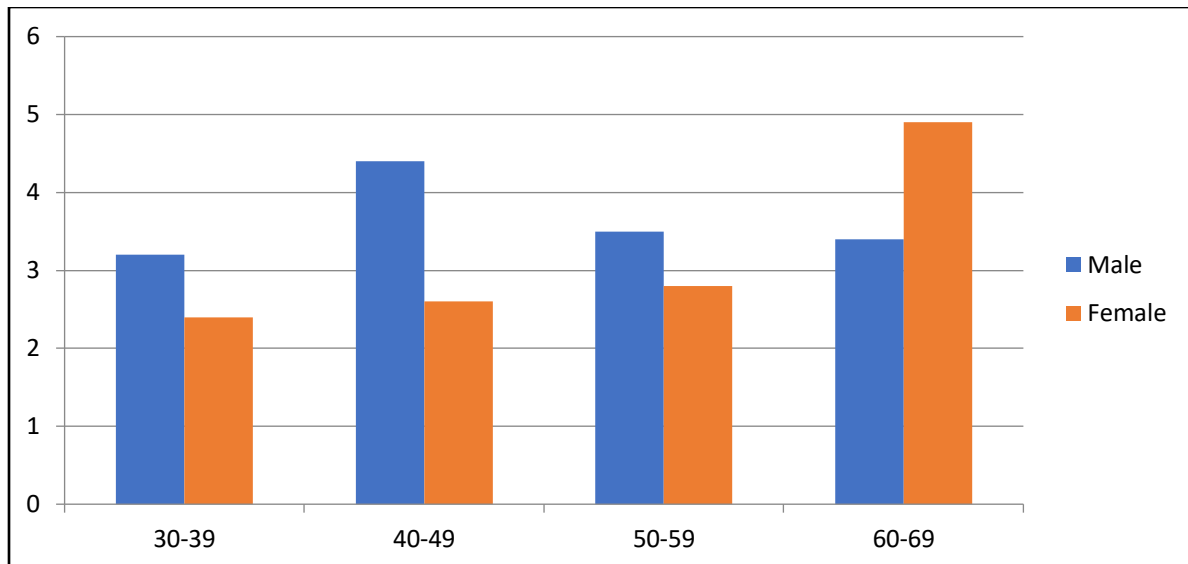
Age Group % (n)	Overall Population (n=200)
30-39	11.88% (24)
40-49	34.23% (68)
50-59	28.46% (57)
60-69	18.62% (37)
70-79	6.81% (14)



**Graph No.1**

#### 2.GENDER:

Gender distribution at dialysis induction among patient with chronic renal failure was studied. In chronic glomerular nephritis males were most numerous in the 30-39 old groups, followed by 40-49 old groups. They decreased with age. Females showed the same frequencies among the 30-39, 40-49, 50-59, 60-69, 70-79-year-old groups. However, 50-59 had the most cases. Among cases of diabetic nephropathy males were more numerous in the 50-59 old year group and females in the 60-69 old group. Progression of the renal failure to be more rapid in males than females. The details are given in the following **Graph No-2**



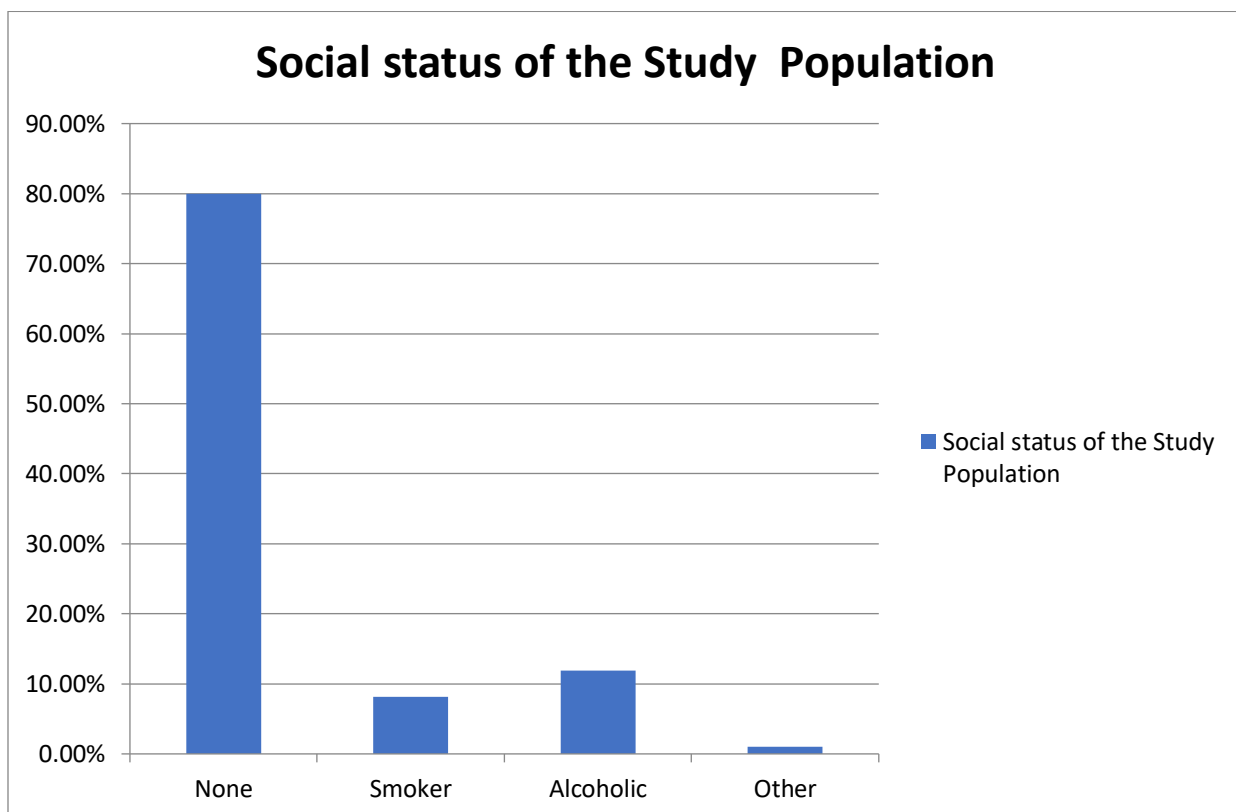
Graph no-2: Gender Distribution of Study Population

### 3. SOCIAL STATUS

We have added an attempt to understand the social status of the study population and under the prospective study it has revealed that 21.18% patients are consuming alcohol alone whereas as 5.88% Patients are consuming smoking alone. As in the study population 85.01% of patients having clean habits. All these results do not explicit the social habits and the influence of the disease status. The details are given in the following **Table no-2** and **Graph no-3**.

Table No-2: Social status of study population

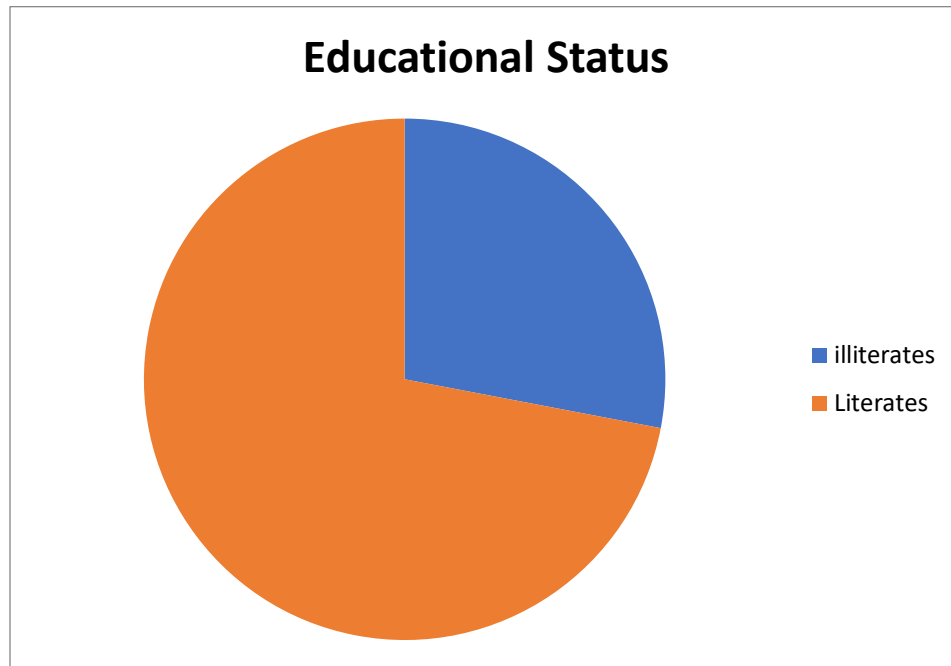
Social History	Overall population
None	85.01%
Smoker Alone	21.18%
Alcoholic alone	5.88%
Others	0.98%



Graph no- 3: Social status of study population

#### 4. EDUCATIONAL STATUS

The educational status of the study population was categorised as literate and illiterate. The category of people in the study include 28% literate which means only those people who can speak, read and write whereas 72% are illiterate which means those people cannot speak, read and write. The educational status of the study population was depicted in the following **Graph no-4**



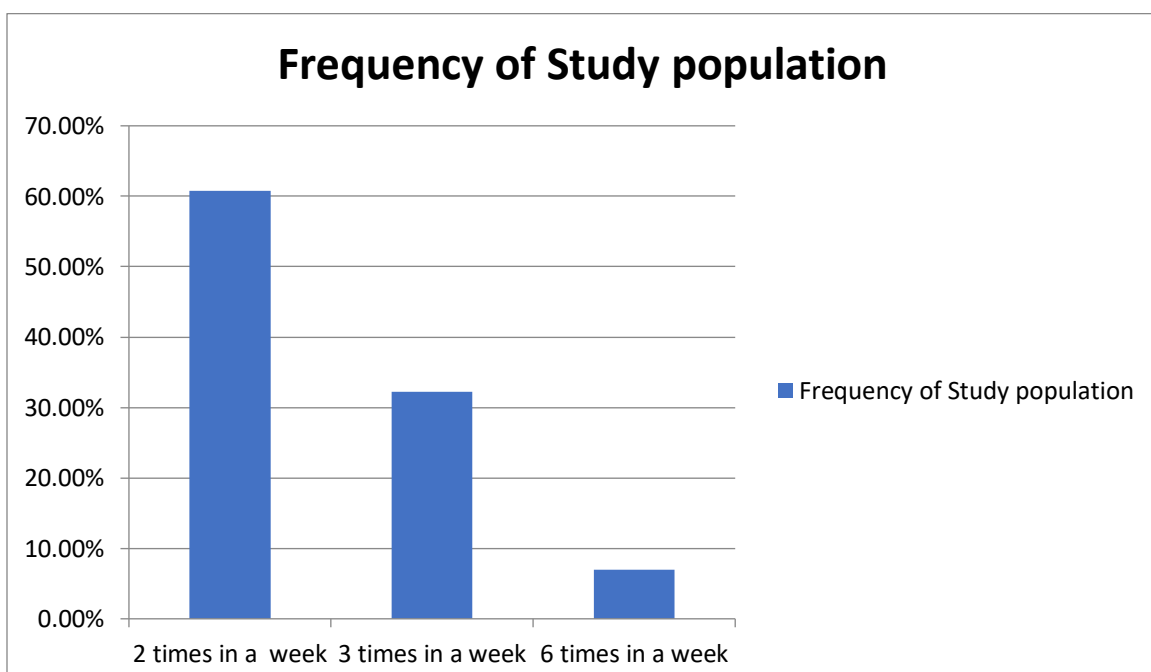
**Graph no-4: Educational status of study population**

#### 5. FREQUENCY OF DIALYSIS

A total of 200 patients (120 men, 80 women) were receiving chronic Haemodialysis, when the study began. 73.80% of these patients, dialysis was performed three times per week. 22.20% of these patients dialysis was performed two times in a week and 4% of these patients dialysis was performed six times per week. The details of frequency of dialysis were given in the following **Table no-3** and **Graph no-5**

**Table No-3: Frequency of Dialysis in study population**

Frequency of Dialysis	Study Population (n)
Two times in a week	60.80% (121)
Three times in a week	32.20% (65)
Six times in a week	7.00% (14)



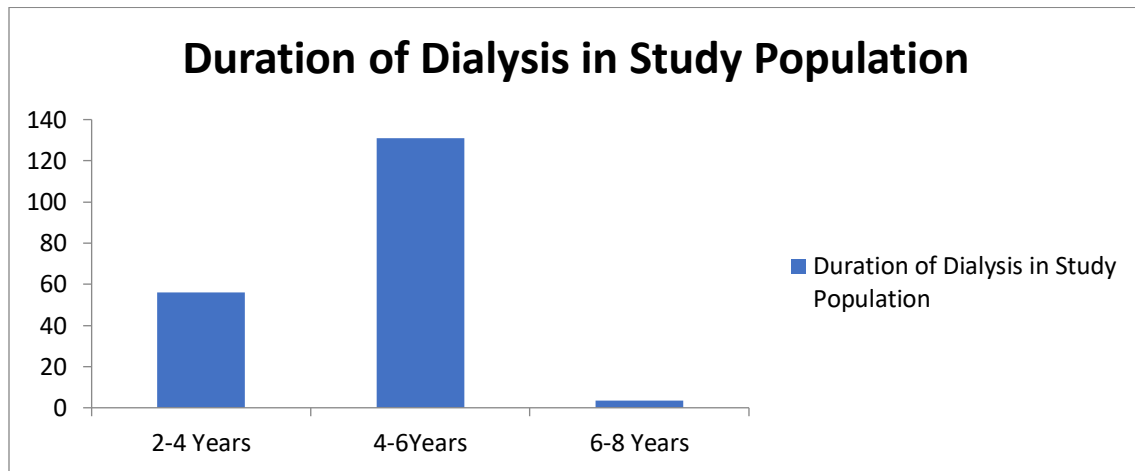
**Graph no-5: Frequency of Dialysis in study population.**

## 6. DURATION OF DIALYSIS

The duration of dialysis in the total study population ranging from 2-8 years. The duration was calculated from the date of the start of dialysis, the baseline demographics and the clinical characteristics are summarised according to the duration of dialysis. The details of the duration of dialysis in years and its distribution for the study population given in the following **Table no- 4** and **Graph no-6**

**Table no-4: Duration of Dialysis in study population**

Duration of Dialysis (years)	Study Population (n)
2-4	28% (56)
4-6	65% (131)



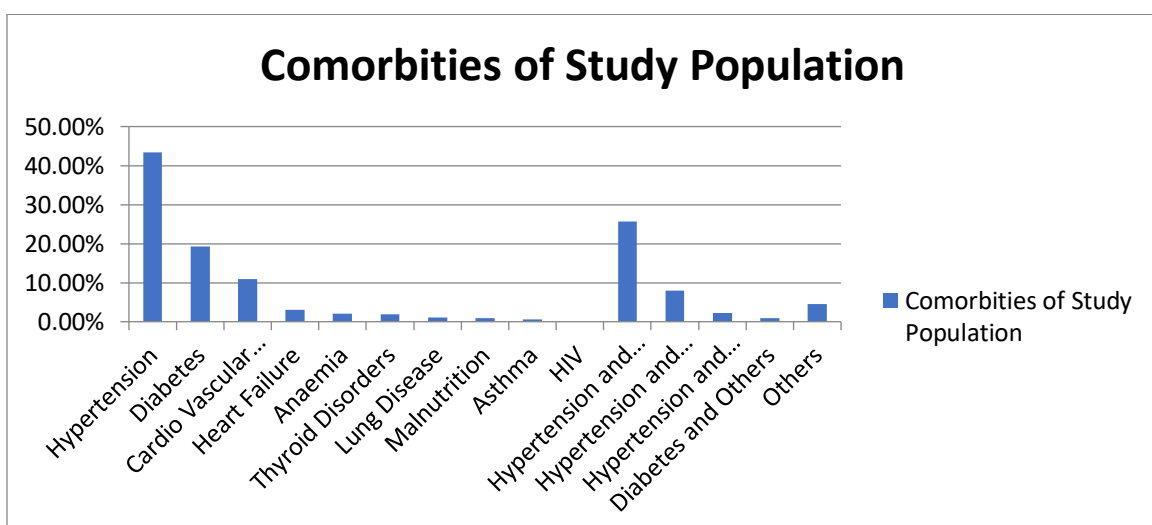
**Graph no-6: Duration of Dialysis in study population**

## 7. COMORBIDITIES

The study population was screened for the presence of various comorbidities. Overall 71.52% (142) patients have Hypertension, 53.33 (106) patients are suffering from Diabetes and 23% (46) patients are suffering from cardiovascular diseases. The details of the comorbidities are given in the following **Table no-5** and **Graph no-7**

**Table no-5: Comorbidities of study population**

Co-Morbidities	Overall Study Population
Hypertension	43.41 % (86)
Diabetes	19.25% (38)
Cardio Vascular Diseases	10.89% (20)
Heart Failure	2.98% (5)
Anaemia	1.99% (3)
Thyroid Disorders	1.89% (4)
Lung Disease	0.99% (2)
Malnutrition	0.87% (2)
Asthma	0.65% (1)
HIV	-
Hypertension and Diabetes	25.74% (50)
Hypertension and Thyroid	8.00% (16)
Hypertension and Others	2.25 % (5)
Diabetes and Others	0.98% (1)
Others	4.44% (8)



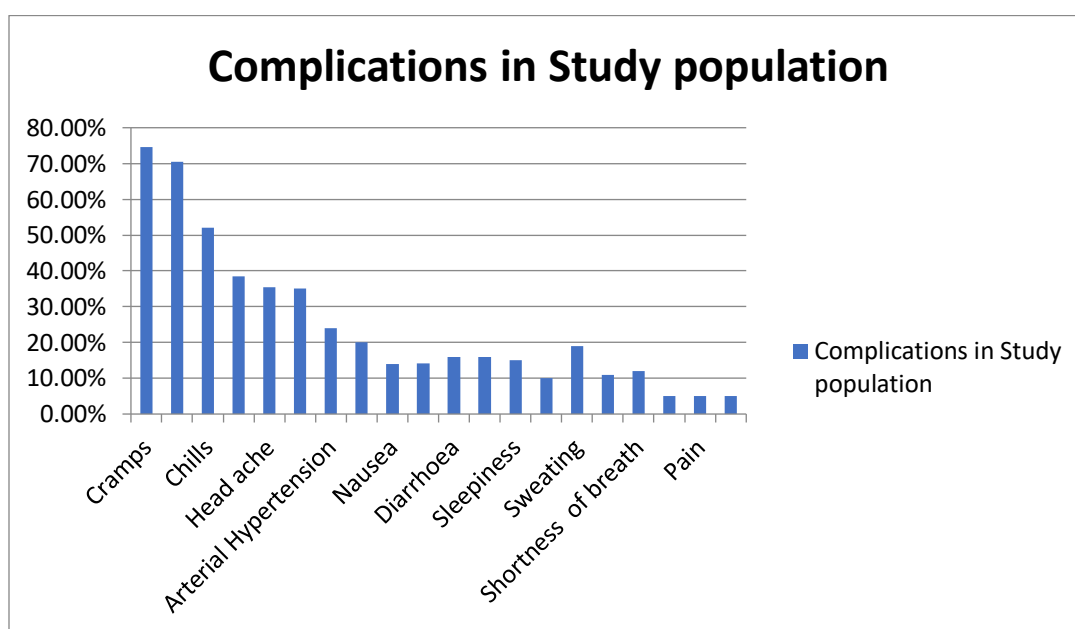
**Graph no-7: Comorbities of study population.**

## 8. COMPLICATIONS

The common complications of Chronic kidney disease include Anaemia, Bone Disease, cramps **74.05%** (149), Gout, Heart Disease, Hyperkalemia , Fluid build-up, Hypotension**70.5%** (141), Chills **52%** (101) , Vomiting **38.5%**(77), Headache **35.5%** (71), Dizziness 35%(70), Hypertension **24%** (48)and Arrhythmia **20%**(40). Complications such as Nausea, convulsions, Diarrhoea and abdominal pain were frequent in two patients (1% of the sample). Sleepiness, mental distress, Sweating, Weakness, Shortness of breath, Numbness, Body aches and tremors accounted for 0.5% of complications. The details of complications of the patients with chronic renal failure during Haemodialysis were given in the following **Table no-6** and **Graph no-8**.

**Table No -6: Complications in study populations**

Complications	Overall Study Population
Cramps	74.5%
Hypotension	70.5%
Chills	52%
Vomiting	38.5%
Head ache	35.5%
Dizziness	35%
Arterial Hypertension	24%
Arrhythmia	20%
Nausea	14%
Convulsions	14.1%
Diarrhoea	15.9%
Abdominal pain	15.9%
Sleepiness	15.0%
Mental Distress	10.0%
Sweating	19.0%
Weakness	11%
Shortness of breath	12%
Numbness	5%
Pain	5%
Tremors	5%



**Graph no-8 Complications in study populations**

## DISCUSSION:

Complications related to the Chronic kidney failure and Heamodialysis are important factors to be monitored and prevented, they can lead to serious consequences and reduce the quality of life of patients with CKD. Hypotension was the study sequence in the study population. This is a compensatory cardio vascular response during the analysis that occurs when ultra-filtration rate exceeds the refilling rate. This complication was associated with inter-dialytic weight gain in renal patints. Hypotension has one of the main acute complications during Haemodialysis patients

with an average age of 47 yrs and undergoing Haemodialysis. As for weight gain patients with excess fluid are more prone to lower blood pressure due to greater removal of fluid and electrolytes Chills are generally associated with vascular access infection related to pyrogenic reactions, disinfections of the Haemodialysis machines and water treatment. Chills are associated with muscular skeleton changes in patients submitted to Haemodialysis especially in women.Vomiting had a statistically significant association with gender dialysis site. Episodes of vomiting during Haemodialysis have multiple causes



such as increased dialysate sodium and calcium concentrations. Vomiting was more severe in women. Head ache was also cited as a complication observed during dialysis. It can be caused by stress faced by patients. Dizziness is related to episodes of hypotension caused by fluid intake restrictions during the procedure. Arrhythmia was another complication in patients, and showed association with age. Heart problems are common in patients in dialysis due to significant changes in electrolyte levels related to the cardiac activity. Diarrhoea in patients is seen with the length of the time over which the patient has been undergoing Haemodialysis. This complication will reflect the worsening of nutritional status, impairing the absorption of food. One limitation of this study was the fact that complications were identified only in patients undergoing Haemodialysis.

## CONCLUSION

The main objective of our study was Assessment of Complications in patients with Chronic Renal Failure undergoing Haemodialysis. According to the questionnaire's modules, it is concluded that complications experienced by the renal patients undergoing Haemodialysis influenced by the socio demographic and clinical aspects of the patients. The observational studies identified were hypotension with age, gender, chills, vomiting, head ache, dizziness, weight gain, arrhythmia, diarrhoea and length of the dialysis treatment, abdominal pain and inter dialytic weight gain. The findings of the present study contribute to the planning and execution of care to the patient on dialysis resulting in action based on social and clinical aspects experienced. The understanding of these aspects contributes to health actions able to overcome complications during the Haemodialysis procedure.

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