Original Research

Assessment of Psychological Health and Drug Use Pattern among the Patients Undergoing Hemodialysis

Drug Use Pattern among the Patients Undergoing Hemodialysis

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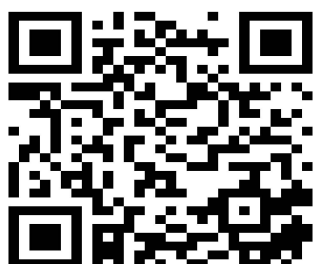
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Abstract:

Introduction: Hemodialysis (HD) plays a significant role in the treatment of chronic renal disease and in determining the Quality of life (QOL) of patients undergoing hemodialysis . Kidney failure affects a patient's physical and emotional health in many ways. [2]

Objective: The study goal was to assess the psychological health of the patients and to quantify drug use pattern.

Methods: The instrument used to measure the QOL was Health related Quality of life (HRQOL) SF-12 Ortho Toolkit.

Result: A total of 120 patients took part in the research and 3 dropped out and study was carried out among 117 patients. Because of the difference in pre-and post-dialysis weight, the maximum amount of weight loss was 5.9kg. And the average weight loss was discovered to be 2.88kg. Blood pressure (BP) was measured where 39 patients (P=0.0017) had systolic BP ranging from 0 to 10 mmHg and diastolic BP ranging from 0 to 10mmHg in a total of 72 patients (P=0.4636). When the Physical Component Score (PCS) was assessed, 61 patients (52.13%) exhibited a difference (-20 to -11)(P<0.0001). In the instance of the Mental Component Score (MCS), 42 patients (35.89%) had a difference 1 to 10 (P=0.0311). Physical health was more impacted .

Conclusion: Physical health was the most affected aspect among the patients. Patient's job status revealed that the hemodialysis procedure degrades and has an impact on physical health, as many patients ceased working after starting treatment. After monitoring the patient's BP, it was discovered that the SBP had increased, resulting in interdialytic hypertension.

Keywords: Blood pressure, HRQOL ,patient counselling, QOL.

Introduction:

Dialysis: It is the process of removing the waste products and the excess fluid being removed [5,11]. Hemodialysis (HD) is a medical process that remove the fluid and waste products from the bloodstream while also correcting electrolyte imbalances [7].Dr. Willem Kolff was the first to build a functioning dialyzer in 1943. Hemodialysis patients have a variety of comorbid diseases that necessitate the use of many drugs to treat. [10]As the number of prescribed medications grows, they must be monitored and dosed more frequently. As a result, hemodialysis patients must assess their drug using patterns.[1]

1. *Intradialytic weight(IDW):* The biggest issue in individuals undergoing maintenance HD is intradialytic weight gain. IDW is primarily caused by consuming too much salt and water in the time between two HD sessions. Dyspnea, widespread edema, heart failure, pulmonary edema, and weight gain are all symptoms of excessive fluid and salt consumption. [3,12]

2. *Blood Pressure***:** Controlling blood pressure in persons with HD is a difficult effort. It raises the risk of heart failure and other cardiovascular problems [8,6]. Because BP would vary uniquely during HD sessions, BP measurements during the process are a crucial technique of volume assessment and safety.[22]

3. *Impact on Psychological health*: The most common psychosocial problem in hemodialysis patients is depression. Lack of sleep, dietary restrictions, fluid intake limitations, anxiety and sleep disorders, difficulties completing job, medication noncompliance, and a lower quality of life are all possible consequences.[4]

Purpose of the study:

- To investigate the psychological impact of dialysis on the quality of life of patients.

- To estimate Pre-Post Blood Pressure and Interdialytic Weight of patients undergoing Hemodialysis.

- To develop a wider perception through patient counseling and improving their understanding which can lead to better quality of life?

Materials and Methods:

Patient Population: Based on the average number of patient visits, it was estimated using the Raosoft online software. [9]

Study site: Parul Sevashram Hospital, Vadodara, Gujarat.

Source of data: The data about the patients was collected by visiting in Hemodialysis ward in tertiary care teaching hospital in a specially designed data collection form.

Duration of study: Six Months

Study design: A Cross-sectional Study

ParulUniversityInstitutionalEthicsCommitteeforHumanResearch-PUIECHR/PIMSR/00/0 approved the study procedure.

Inclusion Criteria: Patients on dialysis who have previously been diagnosed with renal disease, either male or female, between the ages of 18 and 65, and have a good degree of cooperation and perceptive capacity.

Exclusion Criteria: Pregnant and lactating women, people with mental illnesses, people with significant eyesight or hearing impairments, people with other diseases, and anyone who don't want to participate in the study were all excluded.

Statistical Analysis: The data was analysed and represented by using graphical method using Non

parametric paired T-test by GraphPad Prism 8.0.1 software.

A total of 120 individuals were enrolled in this study, out of which 3 dropped out and study was carried out with total number of 117 patients

Table: 1 Age and Weight Distribution

1.1: Age Distribution		
Age (years)	**No. of Patients(n=117)**	**Percentage(%)**
18-20	1	0.85
20-29	14	11.96
30-39	29	24.78
40-49	32	27.35
50-59	29	24.78
60-65	12	10.28
Total	**117**	**100.00**
Mean = 19.5 ± 18.5		
1.2: Weight Distribution		
Weight (in Kg)	**No. of Patients(n=117)**	**Percentage(%)**
1.0-1.9	19	16.23
2.0-2.9	44	37.60
3.0-3.9	36	30.76
4.0-4.9	15	12.85
5.0-5.9	3	02.56
Total	**117**	**100**
Mean = 23.5 ± 20.6		

The above table shows the number of patients undergoing hemodialysis in various age groups and with various weight variations, with the greatest number of patients in the age group of 40-49years (32 patients, 27.35percent) and the greatest number of patients with a weight variation of 2.0-2.9 kg (44 patients, 37.60percent) with significant ($P<0.0001$).

Table: 2 Work Status, Gender and Frequency Wise Distribution

1.3: Work status Distribution		
Work Status	**No. of patients(n=117)**	**Percentage(%)**
Working	20	17.09
Not Working	18	15.38
Stopped Working After Dialysis	79	67.53
Total	**117**	**100.00**
Mean=39 ± 40		

1.4: Gender Distribution		
Gender	**No. of Patients(n=117)**	**Percentage(%)**
Male	74	63.00
Female	43	37.00
Total	**117**	**100.00**
Mean= 58.5 ± 15.5		
1.5: Frequency Distribution		
Frequency of Dialysis	**No. of patients**	**Percentage**
Once a week	5	4.27
Twice a week	21	17.96
Thrice a week	91	77.77
Total	**117**	**100.00**
Mean= 39 ± 52		

The above table shows the number of patients receiving hemodialysis of various genders, job status, and dialysis frequency, with the highest number of males in our study, 74 patients (63 percent), and the highest number of patients who stopped working after dialysis, 79 patients (67.53%) and the highest number of patients on thrice-week dialysis, with 91 patients (77.77%) undergoing HD.
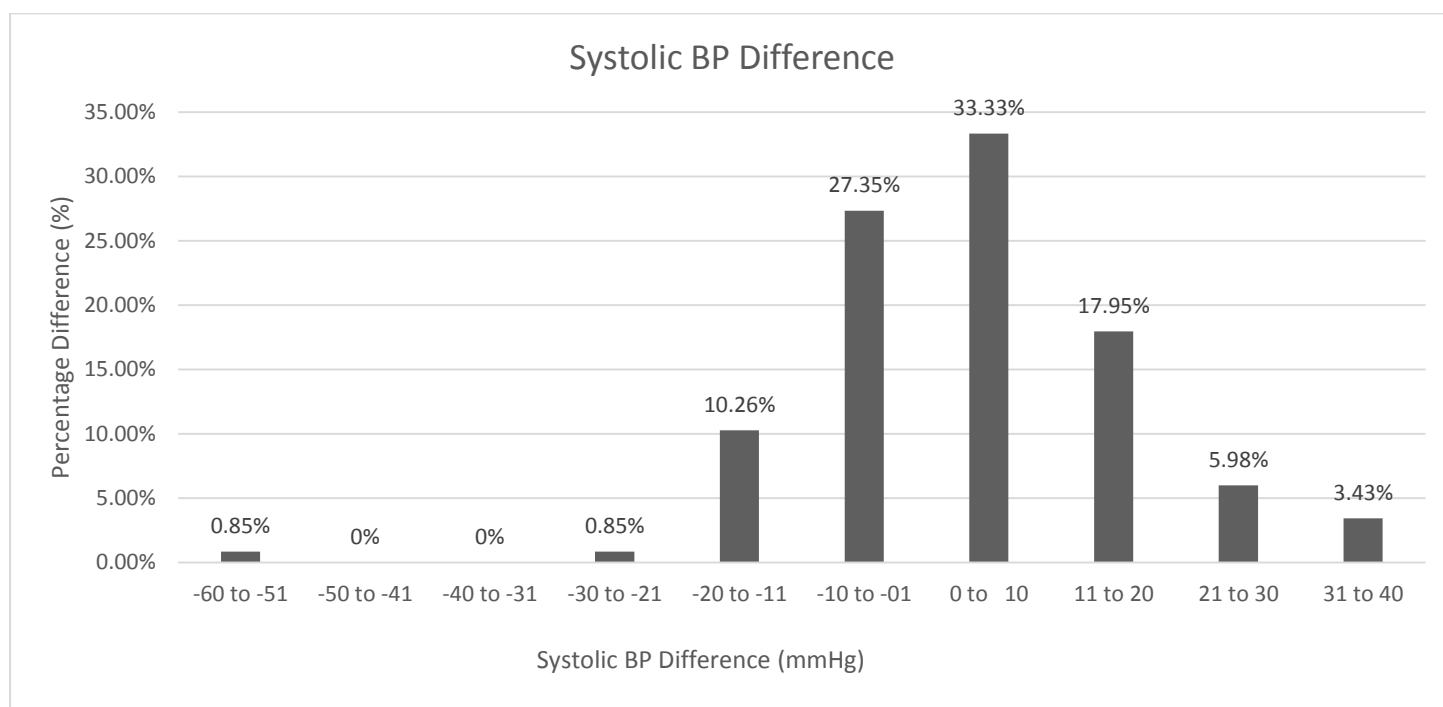
Figure 1: Difference In The Systolic Blood Pressure,Preand Postdialysis

Only one patient had a systolic blood pressure drop of (-60to-51mmHg),or 0.85%,whilethe largest number of 39 patients had a systolic blood pressure increase of (0 to 10 mmHg), or 33.33% with a significant (P=0.0017)
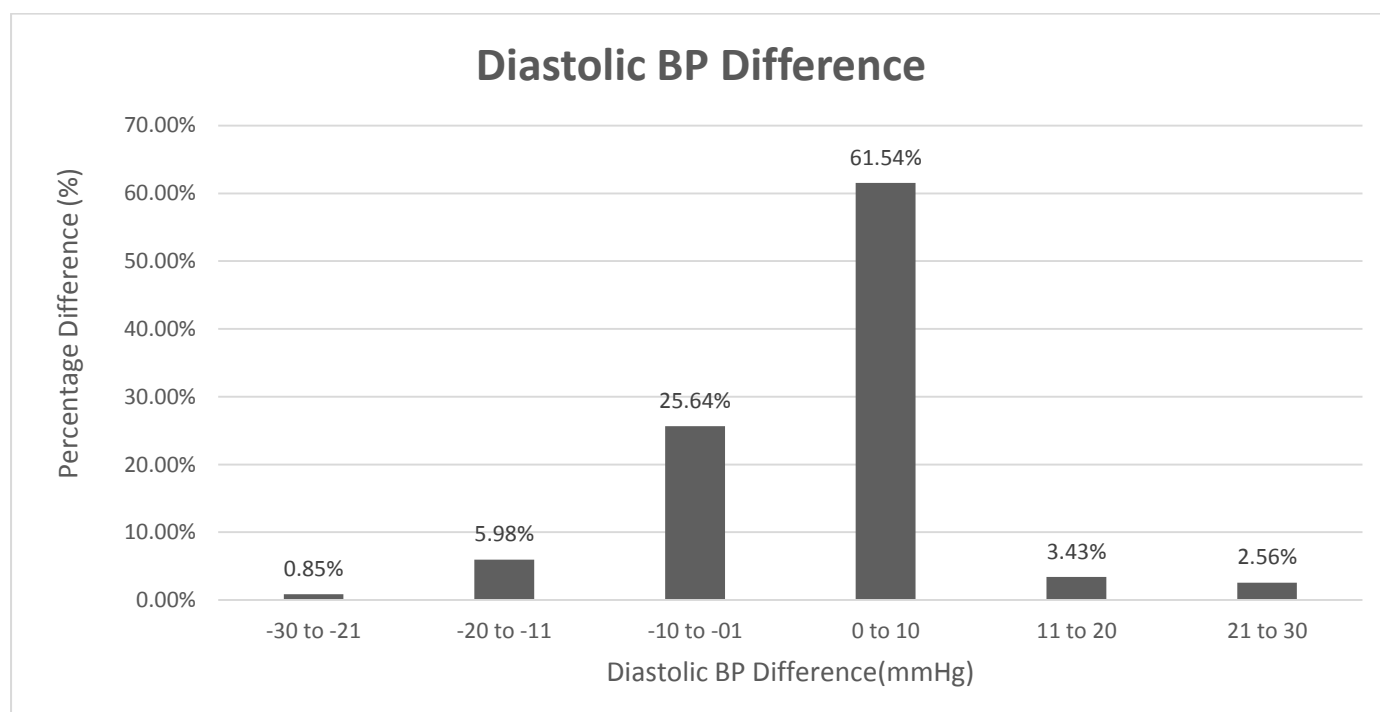

Figure2: Difference In The Diastolic Blood Pressure, Pre And Post Dialysis

Only one patient had a reduction in diastolic blood pressure from -30 to -21 mmHg, or 0.85%, while 72 patients had a rise in diastolic blood pressure from 0 to 10 mmHg, or 61.54% with non significant (P=0.4636)
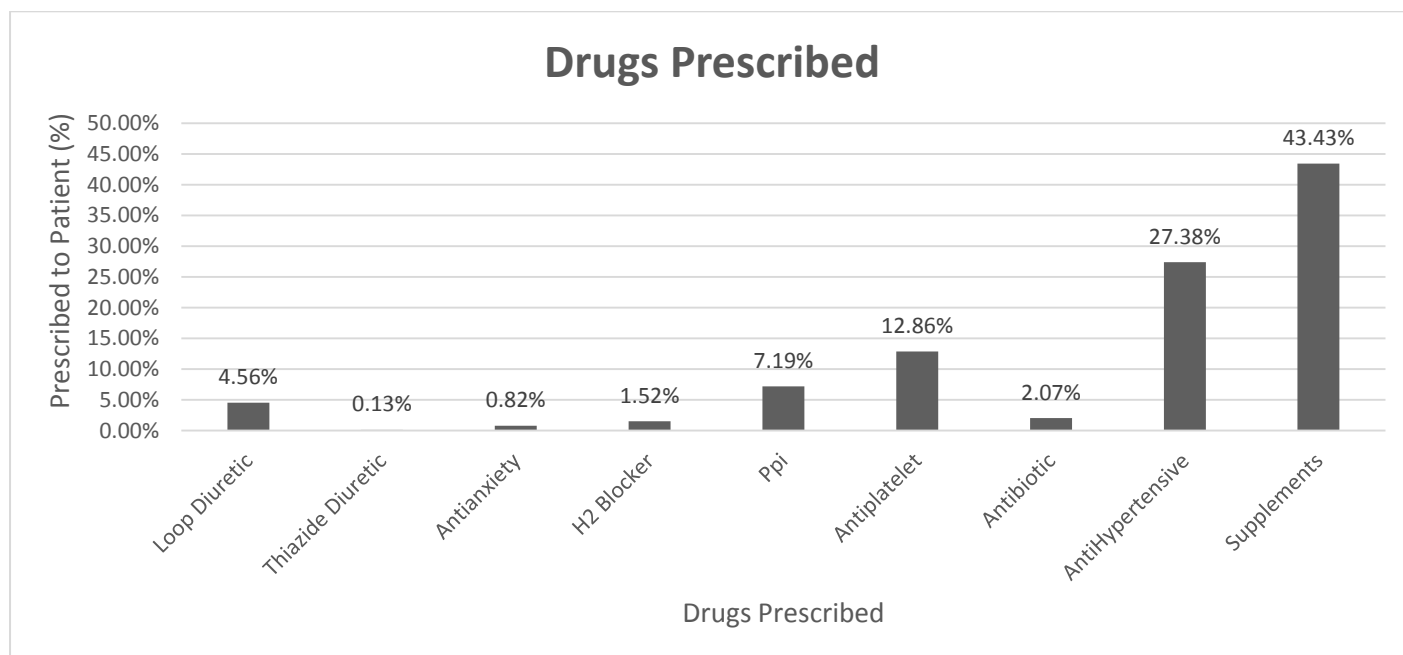
Figure 3: Drug Distribution

Supplements (Iron, Phosphate, Folic acid, Calcium, MVBC, Thiamine, and other) accounted for 43.43% of all drugs administered, while Antihypertensive accounted for 27.38%.

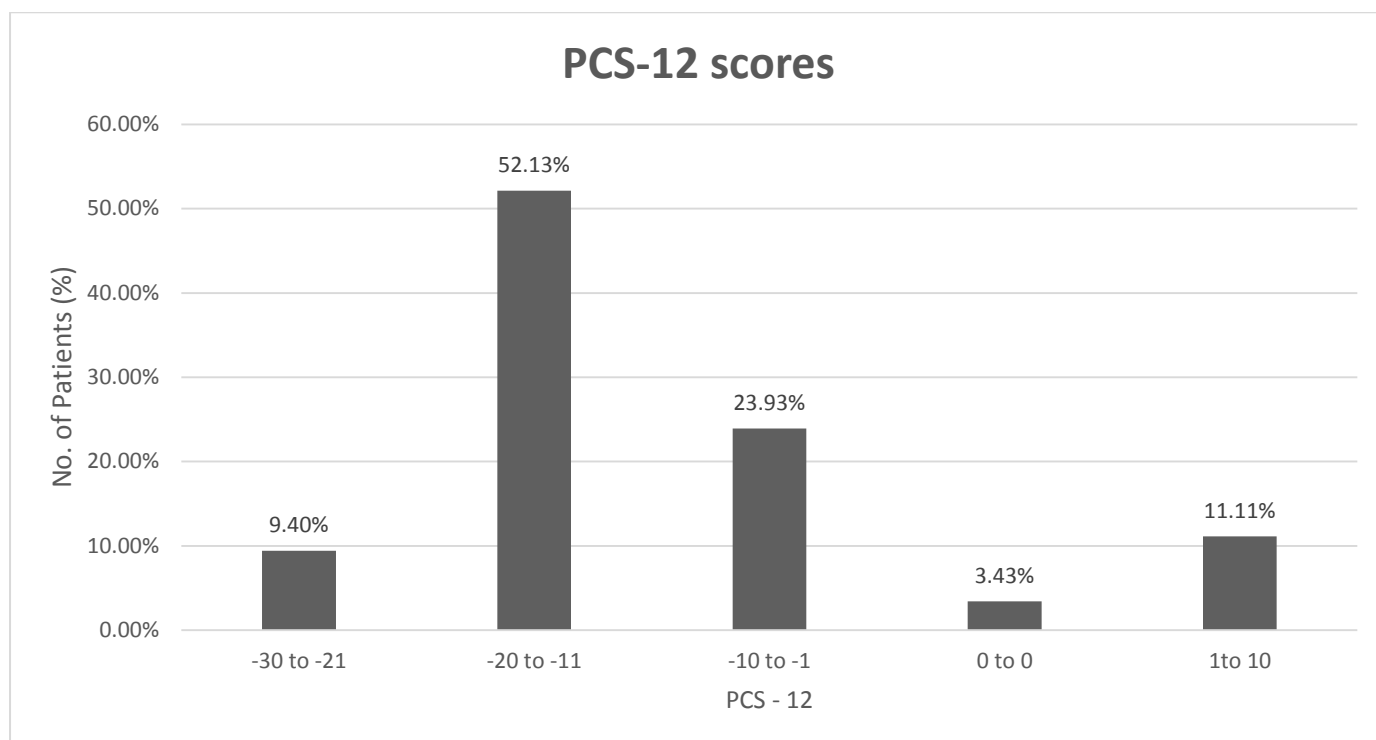### HRQOL OF PATIENT UNDERGOING HEMODIALYSIS

Figure 4: Physical Component Score (Pcs-12)

According to the given statistics, 61 patients had a maximum PCS score differential of (-20 to -11), or 52.13%. The smallest PCS score difference was between four patients, i.e., 0 (3.43%).This was statistically significant with ($P<0.0001$).
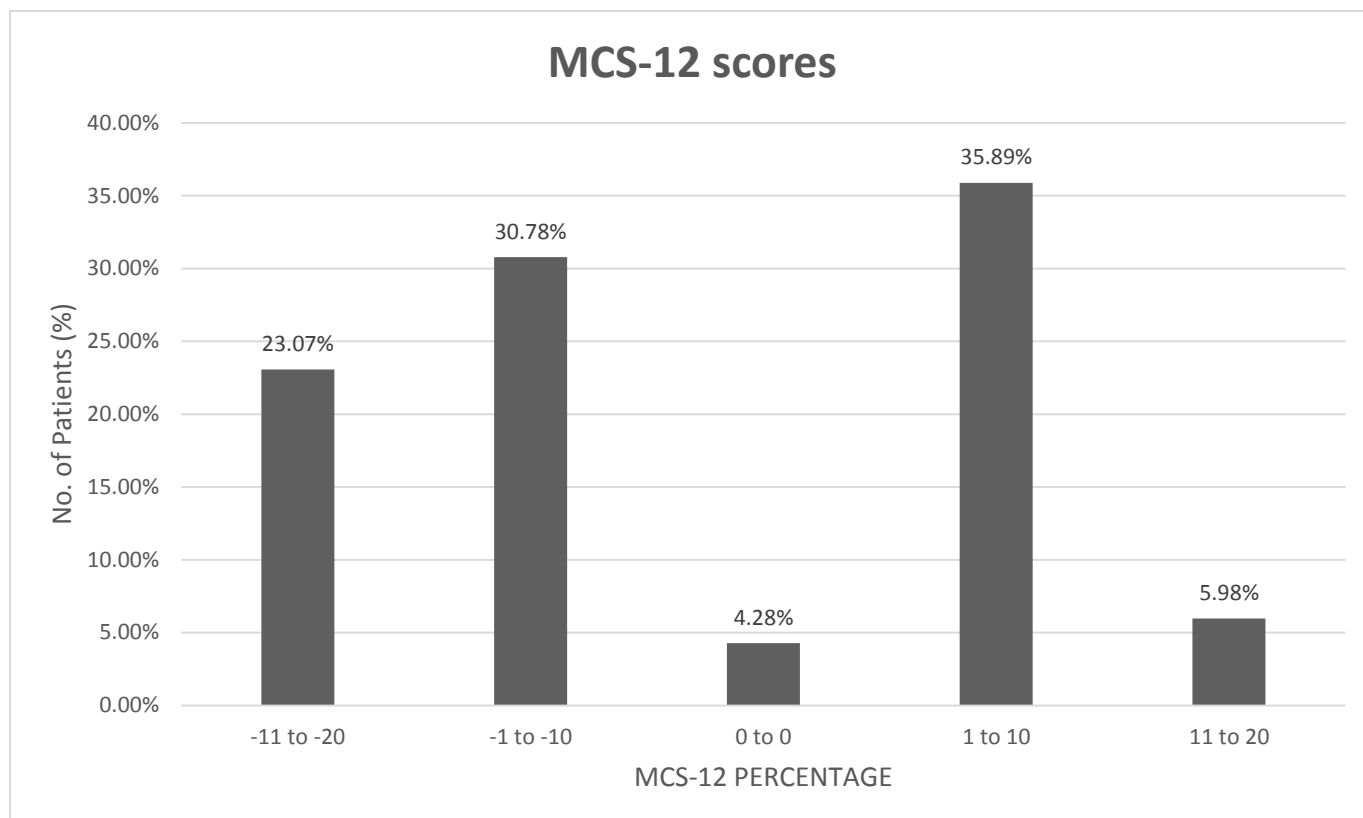
Figure5: Mental Component Score (Mcs-12)

We discovered that 42 patients had a maximum MCS Score difference of 1 to 10, 35.89%, based on the given data. The MCS score difference that was the smallest was 0 among 5 patients (4.28%). This was statistically significant with (P=0.0311).

Discussion:

From the total 117 patients 74 of them being male and 43 being female. Female patients had lower PCS and MCS-HRQOL scores than male patients, which was similar to the study done by *Lisa et al*[17,18]. In terms of employment status, patients who quit working following dialysis had a lower HRQOL than patients who were already unemployed or working, was similar to study done by *Ayman et al*[24].According to the BP distribution, both younger (48 years) and older (48years) patients exhibited interdialytic hypertension, with the highest increase in SBP and DBP following dialysis, attributable to an increase in stroke volume, vasoconstriction, or fluid level change, similar to study done by *Uptal et al*[23].HRQOL in patients is slightly lower than in the general population in the case of MCS, but the highest decline is seen in PCS, according to the QoL distribution, similar to study done by *Mukadder et al*[19]. In the study, total 723 drugs are prescribed, out of that198 drugs was Anti-hypertensive (27.38%), 314 (43.43%) drugs was supplements and remaining 211 (29.19%) drugs was other essential drugs. From that diuretics were most commonly prescribed cardiovascular drugs followed by beta blockers and CCBs. In anti- hypertensive drugs frequently used cardiovascular drugs were beta-blocker (33.83%) followed by CCBs (28.78%) and alpha-adrenergic agonist (27.27%) which was similar to study done by *sontakke SD et al*. From all drug supplements sodium bicarbonate (29.29%), iron (27.38%), calcium (28.34%) was highly prescribed. In other essential drugs most frequently prescribed drugs was PPi and antiplatelets. Out of all prescribed drugs 3.05% was phosphate binder from which calcium carbonate was the most highly prescribed PB followed by sevelamer which was similar to study done by *sontakke SD et al*[25].Physical health was the most affected aspect among the patients. Patient's job status revealed that

the hemodialysis procedure degrades and has an impact on physical health, as many patients ceased working after starting treatment. After monitoring the patient's BP, it was discovered that the SBP had increased, resulting in interdialytic hypertension. This study will help us to investigate the psychological health of patient who was going through the dialysis and help to develop the wider perception by patient counselling and improve the patient's understanding about their quality of life. The study's sample size was reduced due to the current covid 19 epidemic, and the study's exposure was single-centric.

Conclusion:

When compared to mental health, physical health was the most affected criterion among the patients in the study [20]. The work status of the patients was examined, and it was discovered that the hemodialysis procedure degrades and damages physical health, as many patients ceased working after starting hemodialysis therapy. After monitoring the patient's blood pressure, it was discovered that the systolic blood pressure had increased, resulting in interdialytic hypertension. A drop in weight was seen when the patients' weight was tracked. Male patients joined in the research in greater numbers than female patients, according to the findings. The majority of hemodialysis patients were between the ages of 40 and 50. The examination of PCS and MCS, including changes in interdialytic weight and blood pressure, drug use of the patient, as well as various other characteristics such as work status, gender, age, and dialysis frequency.

Conflicts of interest:

All authors have no conflicts of interest to declare this manuscript's publication.

Author Contribution: All authors were equally responsible for study design, collection of data, data analysis, data interpretation and writing the manuscript. All authors have read and approved the manuscript.

Limitations of the study:

The study's sample size was reduced due to the current covid 19 epidemic, and the study's exposure was single-centric.

Scope of the study:

This research can be expanded to look at the relationship between different age groups and the HRQOL status of hemodialysis patients as multi-centric study among large number of population.

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