

Internship Training

at

**DCDC kidney care Pvt. Ltd.  
C/O  
ESIC Medical college and hospital**

**“Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis: a cross sectional study in DCDC kidney care C/o ESIC Medical college and hospital”**

by

**NITIKA**

PG/18/045

Under the guidance of

**Dr. BS Singh**

Post Graduate Diploma in Hospital and Health Management

2018-20



**International Institute of Health Management Research New  
Delhi**

## ACKNOWLEDGEMENTS

It is my esteemed pleasure to present this research project by thanking each and every one who helped me in this task.

I would like to thank my guide **Mr. ADITYA GARG**, Operations manager & **Mr. AJIT SINGH**, Regional Manager, DCDC Health Services Pvt. Ltd. who helped me immensely throughout the tenure of my dissertation internship. They rendered their valuable advice, precious time, knowledge and relevant information which enabled me to overcome every obstacle which came my way in the completion of this project.

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I would also like to acknowledge my mentor and teacher **Dr. BS Singh** for enriching this project with his advice and suggestions.

I would also like to thank **My Family and friends** who supported me throughout in developing this project.

**This certificate is awarded to**

**Ms. NITIKA**

**in recognition of having successfully completed her**

**Internship in the department of**

**operations**

**&**

**has successfully completed her Project on**

**Adherence of treatment and perception in end stage renal disease patients on maintenance hemodialysis: a cross sectional study in DCDC kidney care C/o ESIC Medical College and Hospital**

**Date (1<sup>st</sup> Feb,2020 – 30<sup>th</sup> April,2020)**

**At**

**DCDC Kidney Care**

**c/o ESIC Medical College and Hospital, Faridabad**

**She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning.**

**We wish her all the best for future endeavors.**



**ADITYA GARG  
OPERATIONS MANAGER  
DCDC KIDNEY CARE, NEW DELHI**

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Ms. NITIKA** student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at **DCDC KIDNEY CARE PVT. LTD.** from 1<sup>st</sup> February'2020 to 30 April'2020.

The Candidate has successfully carried out the study designated to him during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements. I wish her all success in all his/her future endeavors.



**Dr Pradeep K Panda**

**Dean, Academics and Student Affairs  
IIHMR, New Delhi**

**Dr. BS Singh**

**Associate Professor & Associate Dean Research  
(Mentor) IIHMR, New Delhi**

## Certificate of Approval

The following dissertation titled **“Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis: a cross sectional study in DCDC kidney care C/o ESIC Medical college and hospital”** at **“DCDC KIDNEY CARE PVT. LTD.”** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name

Signature

**Dr. AJAY SOOD**

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**Dr. BS SINGH**



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### Certificate from Dissertation Advisory Committee

This is to certify that **Ms. NITIKA** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. She is submitting this dissertation titled "**Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis: a cross sectional study in DCDC kidney care C/o ESIC Medical college and hospital**" at "**DCDC KIDNEY CARE PVT. LTD.**" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.



**Institute Mentor – Dr. BS Singh**  
Dean Research, Associate Professor  
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**ADITYA GARG (Mentor)**  
Operations Manager  
DCDC Kidney Care, New Delhi

**INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,  
NEW DELHI**

**CERTIFICATE BY SCHOLAR**

This is to certify that the dissertation “Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis: a cross sectional study in DCDC kidney care C/o ESIC Medical college and hospital” at “DCDC KIDNEY CARE PVT. LTD. and submitted by **MS. NITIKA** Enrollment No. **PG/18/045** under the supervision of **Dr. BS SINGH** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 1<sup>st</sup> February to 30<sup>th</sup> April, 2020. embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.



Signature

NITIKA

## FEEDBACK FORM

**Name of the Student:** Ms. NITIKA

**Dissertation Organization:** DCDC HEALTH SERVICES PVT. LTD.

**Area of Dissertation:** Dialysis Unit Operations

**Attendance:** Regular

**Objectives achieved:** Yes

**Deliverables:** Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis and suggesting ways to improve adherence score.

**Strengths:** Interpersonal skills

**Suggestions for Improvement:** Need to work on her emotional aspects in profession.

**Suggestions for Institute (course curriculum, industry interaction, placement, alumni):** Need to provide working knowledge of various data handling tools.



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Operations Manager  
DCDC Kidney care, New Delhi

**Date:** 23.06.2020

**Place:** NEW DELHI



## FEEDBACK FORM

**Name of the Student:** Ms. NITIKA

**Dissertation Organization:** DCDC KIDNEY CARE PVT. LTD

**Area of Dissertation:** Operations of dialysis unit

**Attendance:** REGULAR

**Objectives achieved:** YES

**Deliverables:** Adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis and suggesting ways to improve adherence score.

**Strengths:** Hardworking, sincere, able to handle work pressure, interpersonal skills

**Suggestions for Improvement:** NA

**Suggestions for Institute (course curriculum, industry interaction, placement, alumni):** NA



**Signature**

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**Date: 23.06.2020**

**Place: NEW DELHI**

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Karam Sh. Naalweh, Mohammad A. Barakat, Moutaz W. Sweileh, Samah W. Al-Jabi, Waleed M. Sweileh, Sa'ed H. Zyoud. "Treatment adherence and perception in patients on maintenance hemodialysis: a cross – sectional study from Palestine", BMC Nephrology, 2017

Publication

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2

Marie Claire Mukakarangwa, Geldine Chironda, Busisiwe Bhengu, Godfrey Katende. "Adherence to Hemodialysis and Associated Factors among End Stage Renal Disease Patients at Selected Nephrology Units in Rwanda: A Descriptive Cross-Sectional Study", Nursing Research and Practice, 2018

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# Section 1

## Organizational Profile



## **1.1. ORGANIZATION PROFILE**

### **1.1.1. About DCDC Kidney care:**

DCDC is one of the most trusted institutions in Dialysis care delivery in Delhi / NCR and rapidly expanding to establish wide network in all formats.

As an epitome of trust and compassionate care, the chain of Dialysis care always strives to excel with world class technology and expertise and aspires to bring to the community largest network of state of the art. Haemodialysis facilities, dialysis centres sans comparison in India, under the banner of DCDC.

With standardized dialysis protocol, well trained renal professionals and backend technology procedures, 'DCDC' brings reliable, safe and effective dialysis with meticulously designed services.

Teamed with state-of-the-art equipment, RO system and support on life style management, up-keeping the tradition of patient centricity and care, it provides quality treatment in shorter time without any compromises. Add to this a hygienic, homelike environment to make it the best in renal care.

Along with Dialysis, DCDC also endeavours to bring forward special services to support patients in organizing their lives better.

DCDC is the first dialysis institute in the country to offer home hemodialysis to patients at an affordable cost and with no initial investment Evidence from well-planned research studies clearly proves that home hemodialysis patients live longer than patients treated in a dialysis centre. There is also good evidence that the quality of life of these patients is much better.

### **1.1.2. About ESIC Medical college and Hospital:**

ESIC Medical College & Hospital, Faridabad is one of the premier Medical Institutions under Ministry of Labour & Employment, Govt. of India.

ESIC Medical College & Hospital, Faridabad is established with a divine mission of bringing Medicare of International Standards to the door steps of the poor workers i.e. insured persons (IPs) and to roll out medical graduates of modern scientific medicine capable of functioning independently in both urban and rural environment.

ESIC Medical College & Hospital, Faridabad is located in healthy environment in Faridabad. It is around 2 km from the nearest Metro station and 2 km from old Faridabad railway station. It is 40 Km from IGI Airport and around 30 Km from H. Nizamuddin Railway station. ESIC Medical College & Hospital, Faridabad are built on a sprawling 30 acres picturesque locale. The departments, class rooms, library, laboratories and Hospital buildings are housed in centrally air-conditioned buildings. The interspersing lush green lawns and beautiful gardens provide pleasant, fragrant heavenly atmosphere. The clean, healthy, serene and tranquil surroundings provide ideal foil for excellent academic activity to the students and healthy healing for the patients. The college is equipped with state of art medical equipments, audio visual aids and library. Regular CMEs, conference, workshops, symposium, seminars and guest lectures by eminent professors drawn from all over the world that form vibrant learning activities are held all through the year. ESIC Medical College & Hospital, Faridabad is a more than 500 bedded multi-specialty hospital attached to the College. It was started in 2013 became operational in 2014 with the noble objectives of providing world class healthcare facilities to the poor workers (IPs). ESIC Medical College & Hospital, Faridabad is on the verge of creating strategic collaborations with reputed central

Govt. universities, DST, DBT, ICMR, THSTI and health care centers under Govt. of India improve its patient care delivery and education objectives.

#### **1.1.3. About the Dialysis Unit:**

Dialysis unit at ESIC Hospital is outsourced to DCDC kidney care Pvt. LTD. The unit is equipped with 20 hemodialysis machines. The unit runs four shifts a day, six days a week. Along with daily OPD dialysis, the unit also caters to IPD and emergency dialysis.

#### **1.1.4. Key Roles and Responsibilities:**

As the Centre Manager of the dialysis unit at ESIC hospital, the responsibility of optimum functioning of the unit was bestowed upon me.

Following were my key roles and responsibilities:

1. To manage stock and carry out inventory planning
2. To manage the staff and their roster
3. To keep a track of the dialysis patients and prepare their treatment schedule
4. To keep track of the billing process and maintain the dialysis numbers
5. To ensure satisfaction of the staff as well as the patients
6. To upkeep the unit in terms of maintenance of the facility, the machines and the RO plant
7. To participate and plan expansion of the unit
8. To collaborate with the hospital in order to align the goals of DCDC and ESIC Hospital
9. Maintaining registers and complete documentation
10. To maintain and improve the quality of operations
11. Resolve day to day issues hampering the functioning of the unit



12. Keeping record of staff overtime and approve the same for salary process

**1.1.5. Conclusive Learning:**

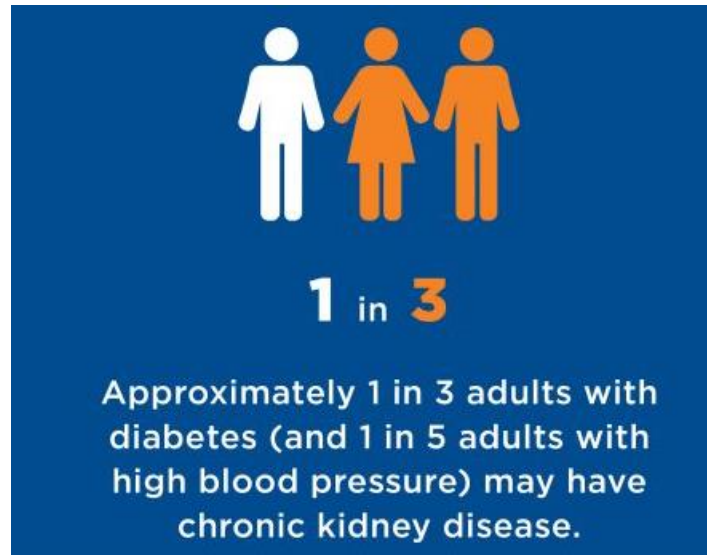
1. The internship gave me a chance to learn about the overall management of the hospital
2. It gave me the opportunity to handle all the aspects of management i.e. operations, quality and HR.

## **SECTION 2**

# **DISSERTATION REPORT**

## **2.1. INTRODUCTION**

Chronic kidney disease (CKD) is a devastating disease leading to intense physical morbidity associated with financial, social and emotional stress on the individual. CKD is defined as the incidence of kidney damage (i.e., albuminuria) or decreased kidney function (i.e., glomerular filtration rate  $<60$  mL/min/  $1.73$  m<sup>2</sup>) for 3 months or more. CKD when treated with either dialysis or transplantation, is generally referred to as “end- stage renal disease” (ESRD). An alarmingly high burden of chronic kidney disease has been reported by community-based studies in India. Approximately, 15% to 20% of persons 40 years of age or older have a reduced estimated glomerular filtration rate. There is consistent increase in the incidence of newly-diagnosed individuals with end-stage renal disease (ESRD) which requires renal replacement therapy each year, fueled by the expansion of the aged population as well as the rapid emergence of diabetic nephropathy. Successful hemodialysis is highly dependent on the lifetime commitment of patients to four aspects of regimens, namely dietary guidelines, fluid restriction, medication and dialysis. Nonadherence to hemodialysis continues to impact on the care of ESRD patients, causing high increase in morbidity and mortality. Adherence to diet recommendations, fluid restriction, prescribed medications, and attendance at hemodialysis (HD) sessions are essential for optimal and effective treatment of patients with end-stage renal disease. Therefore, this study was carried out to assess adherence to diet, fluid restriction, medications, and HD sessions.



*Figure 2.1.1:* <https://nccd.cdc.gov/ckd/default.aspx>

## **2.2. GENERAL OBJECTIVE**

Determine adherence of treatment and perception in end stage renal disorder patients on maintenance hemodialysis

## **2.3. SPECIFIC OBJECTIVES**

- To study the demographic characteristics of ESRD participants
- To study degree of adherence to hemodialysis among ESRD participants
- To determine perception of the patients on necessity of Adherence to treatment modalities like diet, fluid, medications
- To determine compliance w.r.t to Fluid restriction, medications and diet regimen.

## **2.4. REVIEW OF LITERATURE**

Chronic kidney disease (CKD) is a staggering illness prompting exceptional physical dreariness related with money related, social and emotional stress on the individual. CKD is characterized as the occurrence of kidney harm (i.e., albuminuria) or diminished kidney work for 3 months or more. CKD when rewarded with either dialysis or transplantation, is by and large alluded to as "end-stage renal infection" (ESRD). Chronic kidney illness (CKD) is a dynamic irreversible auxiliary harm to kidney work. There are total 5 classes of chronic kidney disease in which last state is ESRD i.e. most critical stage. In patients with ESRD, renal substitution treatment or kidney transplant is the best option to sustain for a long time. In ESRD patient's kidney transplant is the best option for sustenance. Be that as it may, the constrained accessibility of organ contributors made hemodialysis (HD) strategy as generally effective technique for the patients with ESRD. Patients who are on hemodialysis are considered the most responsible for achievements of good health by controlling these factors. An alarmingly high weight of interminable kidney infection has been accounted for by network-based investigations in India. There is a diminished assessed glomerular filtration rate in around 15-20% of people who are 40 years old. There is predictable increment in the occurrence of recently determined people to have end-stage renal sickness (ESRD) which requires renal substitution treatment every year, filled by the extension of the matured populace just as the quick rise of condition called diabetic nephropathy. Effective hemodialysis is profoundly subject to the lifetime responsibility of patients to four parts of regimens, specifically dietary rules, liquid limitation, medicine and dialysis. Disappointment of not following dialysis regimens in HD patients can prompt increment dreariness, mortality, cost, and weight on human services framework. Complexities like arrhythmia and osteodystrophy may occur if the

patients on hemodialysis does not maintain their potassium and phosphorous level within the normal range . Besides, they are likewise required to keep up a restricted measure of liquid admission to stay away from edema and cardiovascular difficulties. Evaluating adherence among HD patients will permit medicinal services suppliers to execute interventional techniques to limit wellbeing and financial outcomes of nonadherence. The point of this investigation was to evaluate degree of adherence to various treatment modalities among ESRD patients. The patients attending hemodialysis sessions at dialysis center at ESI medical college and hospital were considered in the study. In specific, the current study deals with demographic profile of patients and assess adherence to liquid, diet recommendations, medications, and Hemodialysis schedule.

High commonness of diabetes and hypertension, which are two of its driving causes are the main reasons for ESRD.

## **METHODOLOGY**

2.4.1. **Study design:** Cross sectional study

2.4.2. **Study area:** DCDC Dialysis unit, ESIC Medical college and Hospital

2.4.3. **Study Time Period:** 3 months (1 Feb 2018- 30 April 2018)

2.4.4. **Study Population:** Patients on regular hemodialysis for at least three months or more; at DCDC Dialysis unit, ESIC Medical college and Hospital

2.4.5. **Inclusion Criteria:** following were the inclusion criterion:

2.4.5.1. ESRD patients who aged 18 years and above of either sex;

2.4.5.2. Patients who were able to read/speak, Hindi, or English

2.4.5.3. Patients who gave verbal consent to carry out the study

2.4.6. **Ethical Considerations:** Permission was obtained from DCDC Kidney care as well as the DMO at ESIC Medical college and hospital. Consent was obtained verbally from each respondent and confidentiality of their information was assured to them. The data was maintained and used for research purposes only.

2.4.7. **Sampling Technique:** Convenience sampling was done to choose subjects for the study

2.4.8. **Sample Size:** a sample size of 80 patients was chosen from the complete list of patients on hemodialysis for the study.

2.4.9. **Mode of Data Collection:** Primary data was collected from the patients on hemodialysis via questionnaire and daily dialysis assessment sheets and medical reports. The questionnaire was self-administered to the patients who were literate in English. For the other patients, data was collected by an interviewer.

### **Questionnaire:**

In this study questionnaire was used which to know the adherence score, mindset or perception and counselling of patients towards hemodialysis regimens.

Total of 46 questions were disseminated in different classifications.

- There were five segments and the principal area contained general and history related data while the staying four areas estimates adherence to HD meetings, adherence to prescriptions, adherence to fluid limitation, and adherence to diet regimens.
- There were questions in these areas which managed treatment modalities and scoring was done and adherence conduct score was determined, high scores mean better adherence.
- For the clinical assessment the clinical pointers were used as pre dialytic serum potassium level and pre dialytic phosphate and inter dialytic weight.

- Pre-HD serum phosphorus and potassium were utilized as a proportion of clinical results, pre-HD serum potassium level shows diet adherence and pre-HD serum phosphate level demonstrates prescription adherence.
- The information was acquired from clinical reports of patients and mean of last three estimations was considered in most recent three months. Besides, inter dialytic weight was determined by differencing the post-HD weight and the pre-HD weight which speaks to liquid utilization starting with one dialysis meeting then onto the next. Mean of last three IDW was thought of and information was acquired from day by day Hemodialysis evaluation sheets.

## **2.6 RESULTS**

### **2.6.1 General information:**

83 patients met the eligibility criteria and considered for this study. 3 patients died in the study and hence sample size was reduced to 80 i.e. 96.38% of total patients were eligible patients at the time of study.  $50.22785 \pm 11.91378$  years was the mean age of the population with a range of 18–65 years. All of the studied patients (80,100%) were under 65 yrs. age.

The majority of studied sample were males (46,57.5%). In the study population (55,68.75%) were married. (12,15%) of studied patients had diabetes mellitus, (16,20%) had hypertension and (8,10%) patients had diabetes mellitus (DM) and hypertension both. (0%) had previous kidney transplant. Public transport was used Approximately by two thirds (10,12.5%) of the patients to reach the dialysis center especially due to unavailability of public transport due to covid-19 situation and the majority (57,71.25%) attended the dialysis sessions with a company. The majority



i.e. (13,16.25%) of studied patients said that their dialysis schedule convenient. The mean number of months patients were undergoing dialysis was 38.45 months with a range of 3-120 months.

<b>SOCIO DEMOGRAPHIC &amp; CLINICAL CHARACTERISTICS OF SAMPLE</b>	
<b>VARIABLE</b>	<b>MEAN</b>
AGE	50.3 RANGE(39-61)
GENDER	
MALE	57.5%
FEMALE	42.5%
MARITAL STATUS	
MARRIED	68.75%
SINGLE/WIDOWED/DIVORCE	31.25%
DURATION OF DIALYSIS(MONTHS)	38.45
DIABETES MELLITUS	15%
HYPERTENTION	20%
BOTH DIABETES AND HYPERTENTION	10%
KIDNEY TRANSPLANT	0%
MODE OF TRANSPORT	
PUBLIC	12.5%
PRIVATE	87.5%
ACCOMPANIED BY ANYONE	
YES	71.25%
NO	28.75%

**Table-1**

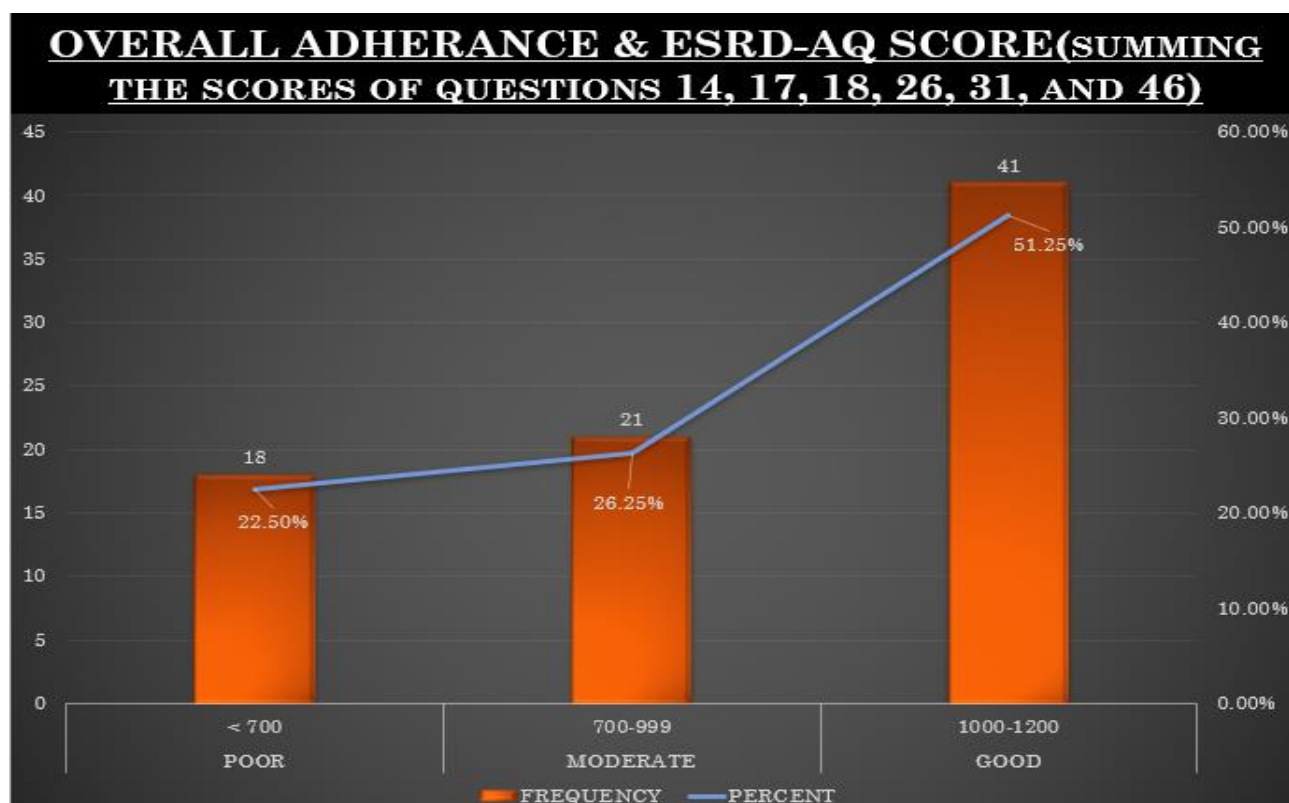
### 2.6.2 Specific and overall adherence

Table mentioned below shows the specific as well as overall adherence pattern of patients.

<b><u>MEAN ADHERANCE SCORE OF VARIOUS TREATMENT MODALITIES</u></b>			
<b>QUESTION IN ESRD-AQ</b>	<b>ADHERANCE</b>	<b>RANGE OF SCORE</b>	<b>MEAN SCORE</b>
14	HD ATTENDANCE	0-300	225
17	EPISODE OF SHORTENING OF HD	0-200	170.5128
18	DURATION OF SHORTENING OF DIALYSIS	0-100	86.875
26	ADHERANCE TO MEDICATION	0-200	160.3896
31	ADHERANCE TO FLUID RESTRICTION	0-200	132.911
46	ADHERANCE TO DIET RECOMMENDATION	0-200	116.455

### 2.6.3 Overall adherence

Total score of 6 questions were summed to assess the behavior of each patient as mentioned in the graph. Graph below shows the overall adherence. It was obtained by summing the scores of individual questions.



#### 2.6.4 Clinical outcomes

Clinical outcomes were estimated using the assessments and medical reports. Means are mentioned in the table below.

Pre- HD serum potassium level	3.83 ±1.72 meq
Interdialytic weight	2.98 ±0.99
Pre-HD phosphate level	3.58 ±1.02.

**Correlation of various treatment regimens are mentioned in the table below:**

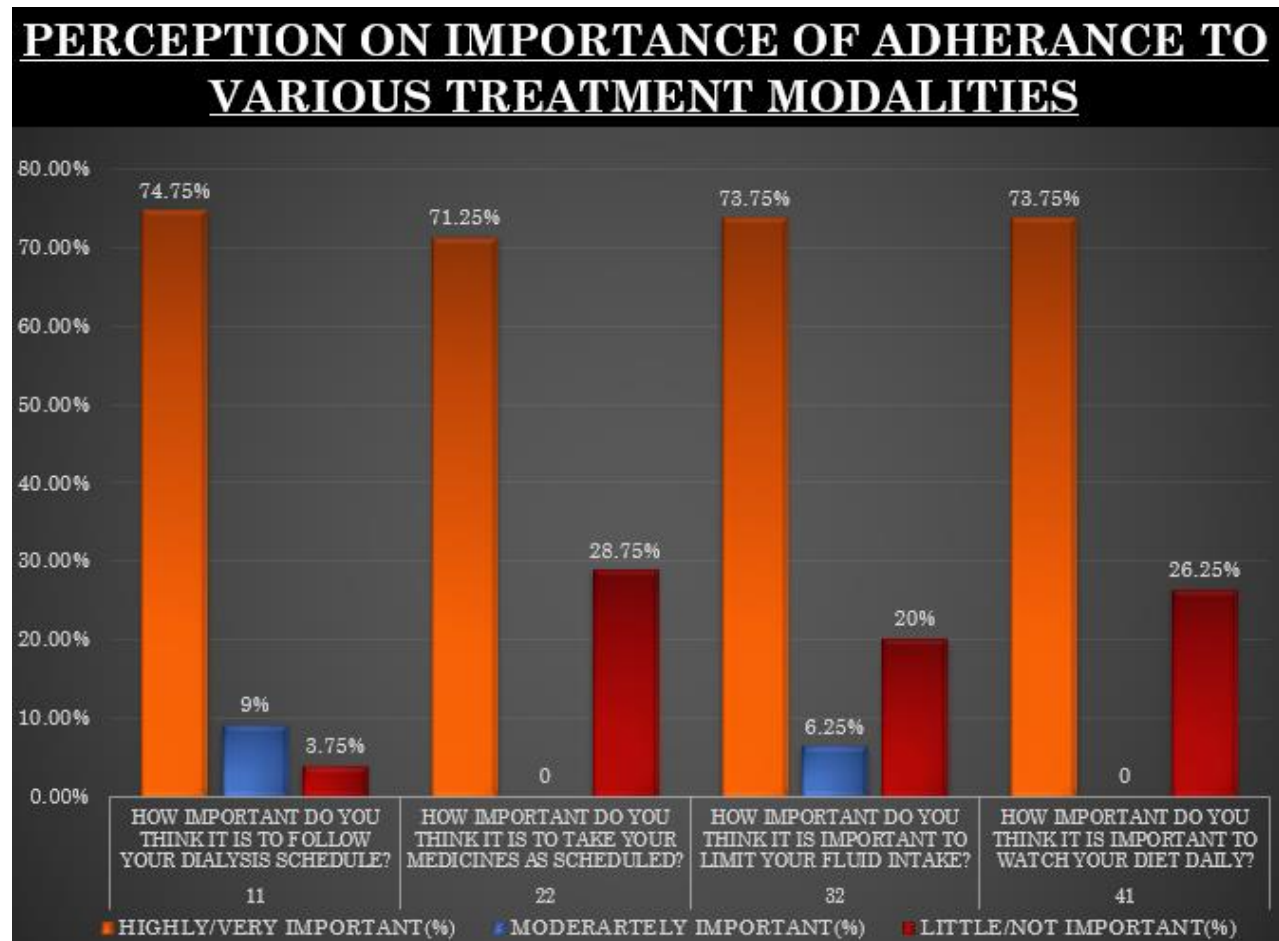
Pre dialytic serum potassium level and diet adherence score	No significant correlation ( $r = 0.08$ )
IDW and adherence to fluid restriction	Negative correlation ( $r = -0.1442$ )
Medication adherence and pd phosphorous level	No significant correlation ( $r = 0.0329$ )
Phosphate value and total adherence behavior	weak positive correlation. ( $r = 0.20$ )
Pre dialytic serum potassium level and total adherence behavior	weak positive correlation ( $r = 0.18$ )
IDW and adherence behavior	weak positive correlation ( $r = 0.19$ )

There was a negative correlation between IDW and adherence to fluid restriction ( $r = -0.1442$ ) which signifies that IDW decreases when People follow full fluid restriction regimen. The levels of serum phosphate are within high normal level indicative of de nutrition.

### 2.6.5 Perception of patients toward various HD treatment modalities

Perceptions of patients with respect to various hemodialysis treatment modalities was assessed and graph related to same is shown below.

As per the graph lowest percentage was seen in adherence to medications i.e. 71.25%.



## 2.6.6 Counselling

Graph below shows the response of patients with respect to counselling and the most negative answer was Never.

PERCENTAGE OF PATIENTS WHO WERE NEVER COUNSELLED REGARDING DIFFERENT TREATMENT MODALITIES		
QUESTION ON ESRD-AQ	QUESTIONS	NEVER/RARELY
9	WHEN WAS THE LAST TIME A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN, OR OTHER MEDICAL STAFF) TALKED TO YOU ABOUT THE IMPORTANCE OF NOT MISSING YOUR DIALYSIS TREATMENT?	12.5%
10	HOW OFTEN DOES A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN, OR OTHER MEDICAL STAFF) TALK TO YOU ABOUT THE IMPORTANCE OF STAYING FOR THE ENTIRE DIALYSIS TIME DURING YOUR DIALYSIS TREATMENT?	11.25%
20	WHEN WAS THE LAST TIME A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN OR OTHER MEDICAL STAFF) SPOKE TO YOU ABOUT YOUR MEDICINES?	23.75%
21	HOW OFTEN DOES A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN OR OTHER MEDICAL STAFF) TALK TO YOU ABOUT THE IMPORTANCE OF TAKING MEDICINES AS ORDERED?	26.25%
39	WHEN WAS LAST TIME A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN, OR OTHER MEDICAL STAFF) TALKED TO YOU ABOUT YOUR DIET?	18.75%
40	HOW OFTEN DOES A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN OR OTHER MEDICAL STAFF) TALK TO YOU ABOUT THE IMPORTANCE OF FOLLOWING A PROPER DIET?	38.75%
29	WHEN WAS THE LAST TIME A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE OR DIETICIAN OR OTHER MEDICAL STAFF) SPOKE TO YOU ABOUT YOUR FLUID RESTRICTIONS?	28.75% 11
30	HOW OFTEN DOES A MEDICAL PROFESSIONAL (YOUR DOCTOR, NURSE, DIETICIAN OR OTHER MEDICAL STAFF) TALK TO YOU ABOUT THE IMPORTANCE OF FLUID RESTRICTION?	27.5%

## 2.7 DISCUSSION:

In the current study which was conducted, adherence behaviors among patients who are on HD were researched and investigated. The results of the study showed that adherence to HD treatment modalities or regimens were not exactly ideal with around 22.5% of patients had a general moderate or less adherence. Population that missed their dialysis sessions at least once were

43.75%. It can't be exaggerated that non adherence has huge unforeseen weakness results and thusly patients with ESRD and experiencing hemodialysis ought to be urged to finish their dialysis meetings as recommended. It is likewise noticed that the shortening dialysis sessions was seen among 27.5% of the members. This might be identified with the specialized issues looked by the dialysis machines, since they need consistent adjusting. Some of the issues were UF goal alarm, connectivity issues, blood pump errors etc. The outcomes are to be expected as note that people at this phase of life are starting to have a noteworthy effect of their lives; some of them have families and adherence is vital to have the option to help their families. Likewise, in developing nations, ESRD influences the number of people in less than 50 years who are monetarily beneficial. The majority of ESRD participants were males rather than females.

Moreover, patients some of the time neglect to hold fast to drugs basically on the grounds that they neglect to take prescriptions and now and then medicines are not accessible. In this way, regardless of the way that a patient may see himself/herself as completely disciple, he/she probably won't be taking their medicines on the grounds that the prescriptions were not apportioned because of absence of medicines. In our examination, it was seen that adherence to abstain from food proposal, essentially shortening of HD meetings, was generally low. Patients were poorly counselled with respect to diet regimens as 38.75% people reported that they were never counselled about their diets. In this study, counselling with respect to significance of drugs and liquid limitation were not high which thusly made moderately lower recognition toward different treatment perspectives among considered patients. Moreover patients' education and counselling are extremely important in giving patient recognition which thus can altogether influence patients' adherence.

## **2.8 CONCLUSION:**

Non adherence to hemodialysis is causing a major obstacle and increasing the burden of kidney disease at faster pace hence it is desired to control this and increase the compliance patterns with respect to treatment regimens. Nephrologist, nurse, doctors and dialysis technicians remain with patients for long hours during dialysis session and hence need to advocate patients with ESRD with respect to various treatment regimens which patients need to follow strictly.

## **2.9 LIMITATIONS**

Our study had a few limitations that are inherent to the nature of the study design and the self-reported approach of the tool used in the study. Reports indicated that there is a disagreement between self-reported adherence and actual/observed adherence. A second limitation of our study is the lack of validation ESRD-AQ scale. A third limitation is the absence of a universally accepted cutoff value for each biological marker to be a valid point for identification of adherent versus non-adherent patients. Therefore, the validity of these biological markers to assess adherence in ESRD patients might be questionable although these markers may be more effective or reliable measures of clinical outcomes but not necessarily be adequate for measuring non-adherence.

## **2.10 RECOMMENDATIONS**

There has to be weekly counselling of patient with respect to diet regimens, fluid restrictions, hemodialysis treatment and medications. Dialysis technicians, Nurse, Nephrologist and Dietician play a vital role in imparting education to patients' family and hence record of the same has to be maintained in the form of quality format as an indicator of quality.



Apart from that monthly training of staff needs to be conducted so that they understand the value of these parameters and value of adherence in hemodialysis.

## 2.11 ANNEXURE

### End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ)

This survey asks for your opinion about how well you follow your dialysis treatment schedule and about medical recommendations related to medication, diet, and fluid intake. This information will help us to understand if you have difficulty following your dialysis treatment, medication regimen, fluid restriction, and recommended diet. Please answer every question by marking the appropriate box. If you are unsure about how to answer, please choose one best answer that applies to you.

Note: Numbers in parentheses are the response codes.

#### I. General Information

---

1. When did you begin or restart your hemodialysis treatment?

Beginning Date:

\_\_\_\_\_/\_\_\_\_\_  
Month/Year

(Restarting date if you restarted hemodialysis:

\_\_\_\_\_/\_\_\_\_\_  
Month/Year

)

---

2. Have you ever had chronic peritoneal dialysis treatment? No (1)

Yes (2) (Please answer below)

I had peritoneal dialysis from

      /      /       to       /      /        
Month/Year Month/Year

---

3. Have you had a kidney transplant? No (1)

Yes (2) (Please answer below)

I had a kidney transplant once from

      /      /       to       /      /        
Month/Year Month/Year

Or

I had kidney transplants twice from

      /      /       to       /      /        
Month/Year Month/Year

and from

      /      /       to       /      /        
Month/Year Month/Year

If you have had transplants more than twice,  
please write the dates in the spaces above for the  
last two transplants.

- 
4. What type of transportation do you use to go to the dialysis center?
- ☐ Personal transportation (1)
- ☐ Bus (2)
- ☐ Taxi (3)
- ☐ Medical transportation van (4)
- ☐ Other (Specify) (5): \_\_\_\_\_

---

5. Who accompanies you to the dialysis center?

☐ Myself (1)

☐ Parent (2)

☐ Spouse (Husband or wife) (3)

☐ Child (4)

☐ Friend (5)

☐ Other (Specify the person) (6):

\_\_\_\_\_

---

## II. Hemodialysis Treatment

---

6. How many days a week do you receive hemodialysis treatment?
- ☐ 2 days or less (1)
  - ☐ 3 days (2)
  - ☐ 4 days (3)
  - ☐ More than 4 days (4)
  - ☐ More than 5 days (5)
- 

7. How many hours are you treated for each hemodialysis?
- ☐ Less than 3 hours (1)
  - ☐ 3 hours (2)
  - ☐ 3 hours and 15 minutes (3)
  - ☐ 3 hours and 30 minutes (4)
  - ☐ 3 hours and 45 minutes (5)

☐ 4 hours (6)

☐ More than 4 hours (7)

☐ Other (Specify the hours) (8): \_\_\_\_\_

---

8. Is your dialysis schedule convenient for you? (Please choose one best answer that applies to you.)

☐ Yes (1)

☐ No, because I have to come to the dialysis center too early (2)

☐ No, because I have to come to the dialysis center too late (3)

☐ No, because of my work schedule (4)

☐ No, because it is my meal time and I get hungry during dialysis treatment (5)

☐ No, because it is my medication time and I have to take medicines/insulin (6)

☐ No, because of (Other) (7): \_\_\_\_\_

---

9. When was the last time a medical professional (your doctor, nurse, dietician, or other medical staff) talked to you about the importance of not missing your dialysis treatment?

☐ This week (1)

☐ Last week (2)

☐ One month ago (3)

☐ More than a month ago (4)

☐ When I first began dialysis treatment (5)

☐ Never (6)

☐ Other (Specify) (7): \_\_\_\_\_

- 
10. How often does a medical professional (your doctor, nurse, dietician, or other medical staff) talk to you about the importance of staying for the entire dialysis time during your dialysis treatment?
- ☐ Every dialysis treatment (1)
  - ☐ Every week (2)
  - ☐ Every month (3)
  - ☐ Every 2 to 3 months (4)
  - ☐ Every 4 to 6 months (5)
  - ☐ When I have abnormal blood or other test results (6)
  - ☐ Rarely (7)
  - ☐ Irregularly (8)
  - ☐ Never (9)



☐ Other (Specify) (10): \_\_\_\_\_

---

11. How important do you think it is to follow your dialysis schedule?

☐ Highly important (1)

☐ Very important (2)

☐ Moderately important (3)

☐ A little important (4)

☐ Not important (5)

---

12. Why do you think it is important to follow your dialysis schedule? (Please choose one best answer that applies to you.)

☐ Because I fully understand that my kidney condition requires dialysis as scheduled (1)

☐ Because following the dialysis schedule is important to keep my body healthy (2)

- ☐ Because medical professional (my doctor, nurse, or dietitian) told me to do so (3)
  - ☐ Because I had an experience that I was sick after I missed dialysis (4)
  - ☐ Because I had an experience that I was hospitalized after I missed dialysis (5)
  - ☐ I don't think following the dialysis schedule is very important to me (6)
  - ☐ Other (Specify) (7): \_\_\_\_\_
- 

13. How much difficulty have you had staying for your entire dialysis treatment as ordered by your doctor?

- ☐ No difficulty (1)
- ☐ A little difficulty (2)
- ☐ Moderate difficulty (3)

☐ A lot of difficulty (4)

☐ Extreme difficulty (5)

---

14. During the last month, how many dialysis treatments did you miss completely?

☐ None (I did not miss any treatments) (1)

☐ Missed one dialysis treatment (2)

☐ Missed two dialysis treatments (3)

☐ Missed three dialysis treatments (4)

☐ Missed four or more dialysis treatments (5)

---

15. What was the main reason you missed your dialysis treatment last month?

☐ Not applicable: I did not miss any treatment (1)

- ☐ Transportation problems (2)
- ☐ I had other things to do (Please explain) (3):
- ☐ Hemodialysis access (graft, fistula, or catheter) clotted (4)
- ☐ Physician (medical or surgical) appointment (5)
- ☐ I had to go to the emergency room (6)
- ☐ I was hospitalized (7)
- ☐ Forgot (8)
- ☐ "Didn't want to go" or "Couldn't go" (Go to the next question: Question #16) (9)
- ☐ Other (Please specify) (10): \_\_\_\_\_

---

16. (Answer this question when you marked the above question as “Didn't want to go Couldn't go.”)

Why didn't you want to go to the dialysis center? (Please choose one best answer that applies to you)

- ☐ Because dialysis treatment makes me anxious (1)
- ☐ Because I had vomiting/diarrhea (2)
- ☐ Because I had cramping (3)
- ☐ Because I often get hungry during dialysis treatment (4)
- ☐ Because I was physically uncomfortable (Specify the condition) (5)
- ☐ Because I was sick due to other conditions (Specify the conditions) (6)
- ☐ Because I was emotionally depressed (7)
- ☐ Other (8): \_\_\_\_\_

---

17. During the last month, how many times have you shortened your dialysis time?
- ☐ Not applicable: I have not shortened my dialysis time (1)
  - ☐ Once (2)
  - ☐ Twice (3)
  - ☐ Three times (4)
  - ☐ Four to five times (5)
  - ☐ Other (Specify frequency) (6):  
\_\_\_\_\_
- 

18. During the last month, when your dialysis treatment was shortened, what was the average number of minutes?
- ☐ Not applicable: I have not shortened my dialysis time (1)
  - ☐ Less than 10 minutes or 10 minutes (2)
  - ☐ 11 to 20 minutes (3)

☐ 21 to 30 minutes (4)

☐ More than 31 minutes (5)

☐ Other (Specify) (6)

(If you need to write two or more different time because you shortened dialysis more than once, please use this space):

---

---

19. What was the main reason you have shortened your dialysis treatment?

☐ Not applicable: I have not shortened my dialysis time (1)

☐ Cramping (2)

☐ Bathroom use (3)

☐ Restlessness (4)

☐ Low blood pressure (5)

☐ Access (graft, fistula, or catheter) clotted (6)

☐ Physician (medical or surgical) appointment (7)

☐ Personal business or emergency (8)

☐ Work schedule (9)

☐ Transportation problems (10)

☐ Staff decision (Why? Please explain: For example, poor blood flow, clotting dialyzer, machine malfunction, etc.) (11):

\_\_\_\_\_

☐ Did not feel like staying (12)

☐ Other (Please specify) (13): \_\_\_\_\_

\_\_\_\_\_



### III. Medication

---

20. When was the last time a medical professional (your doctor, nurse, dietician or other medical staff) spoke to you about your medicines?
- ☐ This week (1)
  - ☐ Last week (2)
  - ☐ One month ago (3)
  - ☐ More than a month ago (4)
  - ☐ When I first began dialysis treatment (5)
  - ☐ Never (6)
  - ☐ Other (Specify) (7): \_\_\_\_\_
- 

21. ☐ Every dialysis treatment (1)

☐ Every week (2)

☐ Every month (3)

☐ Every 2 to 3 months (4)

☐ Every 4 to 6 months (5)

How often does a medical professional  
(your doctor, nurse, dietician or other  
medical staff) talk to you about the  
importance of taking medicines as  
ordered?

☐ When I have abnormal blood or other (for  
example, blood pressure) test results (6)

☐ Rarely (7)

☐ Irregularly (8)

☐ Never (9)

☐ Other (Specify) (10): \_\_\_\_\_

---

22. How important do you think it is to take your medicines as scheduled?

- ☐ Highly important (1)
  - ☐ Very important (2)
  - ☐ Moderately important (3)
  - ☐ A little important (4)
  - ☐ Not important (5)
- 

23. Why do you think it is important to take your medicines as scheduled?  
(Please choose one best answer that applies to you.)

- ☐ Because I fully understand that my kidney condition requires to take medicines as scheduled (1)
- ☐ Because taking medicines is important to keep my body healthy (2)
- ☐ Because a medical professional (my doctor, nurse, dietician, or other medical staff) told me to do so (3)

☐ Because I had an experience that I was sick after I missed medicines (4)

☐ Because I had an experience that I was hospitalized after I missed medicines (5)

☐ I don't think taking medicines is very important to me (6)

☐ Other (Specify) (7): \_\_\_\_\_

---

24. Have you had any difficulty with taking your medicines?

☐ No (1)

☐ Yes (2)

---

25. How much difficulty have you had with taking your prescribed medicines?

☐ No difficulty (1)

☐ A little difficulty (2)

☐ Moderate difficulty (3)

☐ A lot of difficulty (4)

☐ Extreme difficulty (5)

---

26. During the past week, how often have you missed your prescribed medicines?

☐ None of the time: I did not miss my medicines (1)

☐ Very seldom (2)

☐ About half of the time (3)

☐ Most of the time (4)

☐ All of the time (5)

---

27. What was the main reason for not taking your prescribed medicines this past week?

- ☐ Not applicable: I did not miss medicines (1)
  - ☐ Forgot to take medicines (2)
  - ☐ Forgot to order medicines (3)
  - ☐ Medicine cost (4)
  - ☐ Inconvenience (5)
  - ☐ I was hospitalized (6)
  - ☐ Side effects (7) (Go to question #28)
  - ☐ Other (8): \_\_\_\_\_
- 

28. (Answer this question when you have marked the above question as “Side effects.”)

What kind of side effect(s) to the

- ☐ Loss of appetite (1)
- ☐ Nausea/vomiting/diarrhea/constipation (2)

medication(s) did you have? (Please  
choose one best answer that applies to  
you.)

☐ Stomach pain (3)

☐ Dizziness (4)

☐ Headache (5)

☐ Itching/skin problems (6)

☐ Other (Specify symptoms) (7):  
\_\_\_\_\_

---

#### IV. Fluid

---

29. When was the last time a medical  
professional (your doctor, nurse or

☐ This week (1)

☐ Last week (2)

dietician or other medical staff) spoke  
to you about your fluid restrictions?

- ☐ One month ago (3)
  - ☐ More than a month ago (4)
  - ☐ When I began dialysis treatment (5)
  - ☐ Never (6)
  - ☐ Other (Specify) (7): \_\_\_\_\_
- 

30. How often does a medical professional  
(your doctor, nurse, dietician or other  
medical staff) talk to you about the  
importance of fluid restriction?

- ☐ Every dialysis treatment (1)
- ☐ Every week (2)
- ☐ Every month (3)
- ☐ Every 2 to 3 months (4)
- ☐ Every 4 to 6 months (5)



☐ When I have abnormal blood or other (for example, blood pressure) test results (6)

☐ Rarely (7)

☐ Irregularly (8)

☐ Never (9)

☐ Other (Specify) (10): \_\_\_\_\_

---

31. During the past week, how often have you followed the fluid restriction recommendations?

☐ All of the time (1)

☐ Most of the time (2)

☐ About half of the time (3)

☐ Very seldom (4)

☐ None of the time (5)

---

32. How important do you think it is to limit your fluid intake?

☐ Highly important (1)

☐ Very important (2)

☐ Moderately important (3)

☐ A little important (4)

☐ Not important (5)

---

33. Why do you think it is important for you to limit your fluid intake? (Please choose one best answer that applies to you.)

☐ Because I fully understand that my kidney condition requires limiting fluid intake (1)

☐ Because limiting fluid intake is important to keep my body healthy (2)

- ☐ Because a medical professional (my doctor, nurse, dietician, or other medical staff) told me to do so (3)
  - ☐ Because I got sick after I drank lots of fluid (4)
  - ☐ Because I was hospitalized after I drank lots of fluid (5)
  - ☐ I don't think limiting fluid is very important to me (6)
  - ☐ Other (Specify) (7): \_\_\_\_\_
- 

34. Have you had any difficulty with limiting your fluid intake?

- ☐ No (1)
  - ☐ Yes (2)
-

35. How much difficulty have you had following your fluid restriction recommendations?

- ☐ No difficulty (1)
  - ☐ A little difficulty (2)
  - ☐ Moderate difficulty (3)
  - ☐ A lot of difficulty (4)
  - ☐ I was unable to follow any recommendations at all (5)
- 

36. If you had difficulty following your fluid restriction recommendations, what type of difficulty have you had?

- ☐ No difficulty (1)
- ☐ Not interested (2)
- ☐ I was unable to control fluid intake (3)
- ☐ I don't understand how to follow the fluid restriction (4)

☐ Other (5): \_\_\_\_\_

---

37. During the past week, how many times have you weighed yourself at home (outside dialysis center)?

☐ More than 3 times (1)

☐ 3 times (2)

☐ Twice (3)

☐ Once (4)

☐ None of the time (5)

☐ Other (6): \_\_\_\_\_

---

38. How important do you think it is to weigh yourself daily?

☐ Highly important (1)

☐ Very important (2)

☐ Moderately important (3)

☐ A little important (4)

☐ Not important (5)

---

## V. Diet

---

39. When was last time a medical professional (your doctor, nurse, dietician, or other medical staff) talked to you about your diet?

☐ This week (1)

☐ Last week (2)

☐ One month ago (3)

☐ More than a month ago (4)

☐ When I first began dialysis treatment (5)

☐ Never (6)

☐ Other (Specify) (7): \_\_\_\_\_

---

40. How often does a medical professional (your doctor, nurse, dietician or other medical staff) talk to you about the importance of following a proper diet?

☐ Every dialysis treatment (1)

☐ Every week (2)

☐ Every month (3)

☐ Every 2 to 3 months (4)

☐ Every 4 to 6 months (5)

☐ When I have abnormal blood or other (for example, blood pressure) test results (6)

☐ Rarely (7)

☐ Irregularly (8)

☐ Never (9)

☐ Other (Specify) (10): \_\_\_\_\_

---

41. How important do you think it is to  
watch the types of food you eat each  
day?

☐ Highly important (1)

☐ Very important (2)

☐ Moderately important (3)

☐ A little important (4)

☐ Not important (5)

---



42. Why do you think it is important for you to watch your diet daily? (Please choose one best answer that applies to you.)

- ☐ Because I fully understand that my kidney condition requires to watch my diet (1)
  - ☐ Because watching my diet is important to keep my body healthy (2)
  - ☐ Because a medical professional (my doctor, nurse, or dietitian) told me to do so (3)
  - ☐ Because I got sick after eating certain food that I was not supposed to eat (4)
  - ☐ Because I was hospitalized after eating certain food that I was not supposed to eat (5)
  - ☐ I don't think watching my diet is important to me (6)
  - ☐ Other (Specify) (7): \_\_\_\_\_
-

43. Have you had any difficulty following your dietary recommendations?

☐ No (1)

☐ Yes (2)

---

44. How much difficulty have you had following your dietary recommendations?

☐ No difficulty (1)

☐ A little difficulty (2)

☐ Moderate difficulty (3)

☐ A lot of difficulty (4)

☐ I was unable to follow any recommendations at all (5)

---

45.

☐ Not applicable: No difficulty (1)

What type of difficulty have you had keeping your dietary recommendations?

- ☐ I was not willing to control what I want to eat (2)
  - ☐ I was unable to avoid certain unrecommended food (3)
  - ☐ I don't understand what type of diet to follow (4)
  - ☐ Other (Specify) (5): \_\_\_\_\_
- 

46. During the past week, how many times have you followed the diet recommendations?

- ☐ All of the time (1)
- ☐ Most of the time (2)
- ☐ About half of the time (3)
- ☐ Very seldom (4)
- ☐ None of the time (5)

Table 2

Scoring Individual Items of the End-Stage Renal Disease Adherence Questionnaire

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
Section 1: General Information (5 items)	1, 2, and 3	Fact related to previous RRT history	No value
	4 and 5	Fact related to transportation situation to get HD	No value
Section 2: HD Treatment (14 items)	6 and 7	Fact related to HD schedule	No value
	8	Perception of patients on HD schedule	No value

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
	9 and 10	Information about counseling on HD	No value
	11	Perception on importance of HD adherence	No value Analyze responses using descriptive statistics
	12	Understanding level on importance of HD	No value Analyze responses using descriptive statistics
	13	Perception of patients on HD	No value
	14	Frequency of missing HD during last month	Response category 1→300 Response category 2→200 Response category 3→100 Response category 4→50 Response category 5→0
	15	Reason for missing HD	No value (Note: If patients missed HD due to medical reasons (if the answer is 4, 6, or 7), adjust scores

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
			from question number 14 and give a full credit (300 points)
	16	Supplementary question for Question 15 (psychophysical symptoms)	No value
	17	Frequency of shortening HD during last month	Response category 1→200 Response category 2→150 Response category 3→100 Response category 4→50 Response category 5→0
	18	Duration of shortening HD during last month	Response category 1→100 Response category 2→75 Response category 3→50 Response category 4→25 Response category 5→0
	19	Reason for shortening HD treatment	No value (Note: If patients shortened HD due to medical reasons (if the answer is 2, 5, 6 or 11), adjust scores from question

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
			number 17 & 18 and give a full credit (200 and 100 points)
Section 3: Medication (9 items)	20 and 21	Information about counseling on medication	No value
	22	Perception on importance of medication adherence	No value Analyze responses using descriptive statistics
	23	Understanding level on importance of medication	No value. Analyze responses using descriptive statistics
	24 and 25	Fact related to difficulty with taking medicines	No value
	26	Frequency of missing medication during last month	Response category 1→200 Response category 2→150 Response category 3→100 Response category 4→50 Response category 5→0

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
	27	Reason for missing medication	No value (Note: If patients missed medication due to medical reasons (if the answer is 6 or 7) adjust scores from the question number 26 and give a full credit (200 points).
	28	Supplementary question for Question 27 (psychophysical symptoms)	No value
Section 4: Fluid Restriction (10 items)	29 and 30	Information about counseling on fluid restriction	No value
	31	Fluid restriction: Self-monitoring (Frequency)	Response category 1→200 Response category 2→150 Response category 3→100 Response category 4→50 Response category 5→0



Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
	32	Perception on importance of fluid restriction	No value Analyze responses using descriptive statistics
	33	Understanding level on importance of fluid restriction	No value Analyze responses using descriptive statistics
	34 and 35	Fact related difficulty with limiting fluid intake	No value
	36	Types of difficulty following fluid restriction (additional question to #35)	No value
	37 and 38	Information on weighing at home (not mandatory requirements for all ESRD patients)	No value

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
Section 5: Dietary Restriction (8 items)	39 and 40	Information about counseling on dietary recommendations	No value
	41	Perception on importance of dietary recommendations	No value Analyze responses using descriptive statistics
	42	Understanding level on importance of dietary recommendations	No value Analyze responses using descriptive statistics
	43 and 44	Fact related to difficulty with following dietary recommendations	No value
	45	Types of difficulty following fluid restriction (Additional question to #44)	No value

Section Name	Question Numbers	Targeted Area in the Item	To Recorded Value of (Points)
	46	Dietary restriction: Self-monitoring (Frequency)	Response category 1→200 Response category 2→150 Response category 3→100 Response category 4→50 Response category 5→0

## 2.12 BIBLIOGRAPHY

1. N. B. M. Yusuf, C. Y. Mun, Z. M. Shariff, and C. B. Heat, "Factors associated with quality of life among hemodialysis patients in Malaysia," Plops ONE, vol. 8, no. 12, Article ID e84152, 2013.
2. K. S. Naalweh, M. A. Barakat, M. W. Sweileh, S. W. Al-Jabi, W. M. Sweileh, and S. H. Zyoud, "Treatment adherence and perception in patients on maintenance hemodialysis: A cross - Sectional study from Palestine," BMC Nephrology, vol. 18, no. 1, article no. 178, 2017.
3. Y. Kim, L. S. Evangelista, L. R. Phillips, C. Pavlish, and J. D. Kopple, "The End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ): testing the psychometric properties in patients receiving in-center hemodialysis.," Nephrology nursing journal : journal of the American Nephrology Nurses' Association, vol. 37, no. 4, pp. 377–393, 2010.

4. C. G. Geldine, B. Bhengu, and A. Manwere, “Adherence of adult Chronic Kidney Disease patients with regard to their dialysis, medication, dietary and fluid restriction,” *Research Journal of Health Sciences*, vol. 5, no. 1, p. 3, 2017.
5. S. H. Zyoud, D. N. Daraghmeh, D. O. Mezyed et al., “Factors affecting quality of life in patients on haemodialysis: A cross-sectional study from Palestine,” *BMC Nephrology*, vol. 17, no. 1, article no. 257, 2016.