



Research Article

# Knowledge and Expressed Practices of Dietary Regulation among Chronic Renal Failure Patients Undergoing Haemodialysis

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## I N F O

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## A B S T R A C T

**Introduction:** A descriptive study to assess the knowledge and expressed practices of dietary regulation and dissemination of informational booklet among chronic renal failure patients undergoing haemodialysis in selected hospitals of Delhi.

**Objectives:** The aim of the study was to assess the knowledge and expressed dietary practice and dissemination of information booklet among chronic renal failure patients undergoing hemodialysis in selected hospital of Delhi.

**Methods:** The conceptual framework adopted for the present study was based on Dorothea Orem's Self Care Deficit Theory. Quantitative descriptive research approach was adopted for the study. The sample for the present study comprised of 50 chronic renal failure patients undergoing hemodialysis. Purposive sampling technique was used. A structured knowledge questionnaire and an expressed practice checklist were used to collect the data.

**Results:** It showed that the knowledge score of majorities of patients i.e. 43 (86%) with chronic renal failure undergoing haemodialysis had inadequate knowledge about dietary regulation whereas only 7 (14%) of patients with chronic renal failure undergoing haemodialysis had adequate knowledge about dietary regulation. The expressed practice score revealed that nearly two third of patients with chronic renal failure undergoing haemodialysis had average dietary practice i.e. 30 (60%), 18 (36%) had poor dietary practice and only 2 (4%) patients with chronic renal failure undergoing haemodialysis had good dietary practice. The co-efficient of correlation between knowledge and expressed practice score of dietary regulation (-0.083), was not found to be significant at 0.05 level for the degree of freedom 48. This shows that knowledge of chronic renal failure patients undergoing haemodialysis about dietary regulation was inversely but non-significantly correlated with their dietary practices.

**Keywords:** Chronic Renal Failure, Hemodialysis, Dietary Regulation, Knowledge, Expressed Practice



## Introduction

Dialysis is removing of waste products and excess fluid from the body. Dialysis is necessary when the kidneys are not able to filter the blood adequately.<sup>1</sup> There are over 250,000 people currently afflicted with Chronic Renal Failure (CRF), and the number is rising at about 7% every year. The disease affects all ages, but the majority of patients are between the ages of 20 and 64. It is slightly more common in males than females and has the highest prevalence in Blacks followed by Native Americans, Asian Pacific Islanders, and Whites. The most common causes of renal failure are diabetes and hypertension. The treatment of choice for many patients with End Stage Renal Disease (ESRD) is kidney transplant. Unfortunately, the scarcity of viable organs as well as comorbid conditions place transplant surgery beyond the reach of most patients. Haemodialysis is the most common treatment modality used for end-stage renal disease.<sup>2</sup> Although some dialysis patients live longer than 5 to 10 years and are able to work and contribute to the society in which they live, others fare poorly and die within 2 to 3 years. Many times, dialysis patients die due to lack of knowledge and practice in their dietary regulations along with other factors.<sup>3</sup>

Current medical knowledge and experience have made it clear that we can prolong the lives of those people experiencing end-stage renal disease. The haemodialysis treatment actually is able to remove many of the toxins present in the blood of the ESRD patient, but unfortunately it is unable to remove all of the toxins. The ESRD patients therefore remain in a constant state of uraemia and are never able to regain health.<sup>3</sup>

Diet therapy is the critical component for the treatment of Chronic Renal Failure Patients (CRF) undergoing Haemodialysis (HD). The dietary restriction is also vital to maintain optimal health for the CRF patients, because certain substances present in the foods and drinks, when taken in excess, damaged kidney may not be able to remove the waste, which are harmful to the body. So, the foods and drinks containing those substances, which are harmful to the body, must be regulated. Dietary protein restriction represents an important new development in treatment of chronic renal disease for the last 10 years (Ther Umsch, 1998).<sup>5</sup> The modification of food cannot directly improve the working of the kidney, but it reduces the excess load on functioning of the kidney and improves the quality of the life of CRF patients undergoing haemodialysis. Hence, assessment of knowledge and practices of dietary regulation in CRF patients undergoing haemodialysis is essential.<sup>3</sup>

## Statement of the Problem

A descriptive study to assess the knowledge and expressed practices of dietary regulation and dissemination of

informational booklet among chronic renal failure patients undergoing haemodialysis in selected hospitals of Delhi.

## Objectives of the Study

To assess the knowledge of dietary regulation in chronic renal failure patients undergoing haemodialysis, to find out the expressed practices regarding dietary regulations in chronic renal failure patients undergoing haemodialysis, to find out the association between knowledge and practice of dietary regulations in chronic renal failure patients undergoing haemodialysis and to disseminate informational booklet among chronic renal failure patients undergoing haemodialysis.

## Materials and Methods

A descriptive survey design was used for the present study. The setting for the study was Salokaya Dialysis Centre, Rithala. The sample comprised of 50 chronic renal failure patients undergoing hemodialysis and purposive sampling technique was used for the present study. After obtaining ethical permission from Institutional Ethics Committee of Jamia Hamdard, New Delhi, a formal permission was obtained from Salokaya Dialysis Center conduct the final study. A written informed consent was taken from each study subject. They were assured of anonymity and confidentiality of the information provided during the research.

Validity of the tools was done by 7 experts from the field of Nursing and Dietetics. Try out and pilot study was done on 10 chronic renal failure patients undergoing Haemodialysis to check the reliability of the tool. Reliability of structured knowledge questionnaire was calculated using KR-20 formula. The value was found to be 0.81. Thus, the tool was found to be reliable. The reliability of expressed practice checklist was established by using Cronbach Alpha. The reliability was found to be 0.83. Thus, the tool was found to be reliable.

This study was done over a period of one month. The inclusion criteria of this study were chronic renal failure patients undergoing Haemodialysis and the exclusion criteria included patients undergoing Peritoneal Dialysis. At the end of the study, an informational booklet regarding dietary pattern was disseminated to Chronic Renal Failure patients undergoing Haemodialysis.

There were 4 sections as below:

- It consisted of demographic characteristics and clinical profile of chronic renal failure patients undergoing haemodialysis in terms of their age, sex, religion, marital status, place of residence, education, occupation, monthly income, diet, duration of illness, duration of undergoing haemodialysis, number of dialysis sessions per week, presence of co-morbid diseases(s), laboratory

values and frequency of medical check-up.

- It consisted of analysis and interpretation of data collected to assess the knowledge regarding dietary regulation among chronic renal failure undergoing haemodialysis through structured knowledge questionnaire.
- It consisted of analysis and interpretation of data collected to assess the expressed practice regarding dietary regulation among chronic renal failure patients undergoing haemodialysis through expressed practice checklist.
- It consisted of correlation between knowledge and expressed practice of dietary regulation among chronic renal failure patients undergoing haemodialysis. The association between two variables was determined by Karl Pearson's co-efficient of co-relation.

## Results

### Description of Sample Characteristics

**Table 1. Frequency and percentage distribution of chronic renal failure patients undergoing haemodialysis by their demographic characteristics**  
(n=50)

S. No.	Sample characteristic	Frequency (f)	Percentage (%)
1.	<b>Age (in years)</b>		
	20-30	17	34
	31-40	23	46
	41-50	10	20
2.	<b>Gender</b>		
	Male	30	60
	Female	20	40
3.	<b>Religion</b>		
	Hindu	29	58
	Muslim	18	36
	Christian	1	2
	Sikh	2	4
4.	<b>Marital status</b>		
	Single	9	18
	Married	35	70
	Widow/ Widower	6	12
5.	<b>Place of Residence</b>		
	Urban area	32	64
	Rural area	17	34
	Semi-rural area	1	2
6.	<b>Education</b>		
	Primary	9	18

	Secondary	17	34
	Higher secondary	14	28
	Graduation	9	18
	Post-graduation	1	2
7.	<b>Occupation</b>		
	Unemployed	17	34
	Unskilled	12	24
	Skilled	12	24
	Professional	4	8
	Business	5	10
8.	<b>Monthly income (in rupees)</b>		
	5000 and below	25	50
	5001-15000	5	10
	15001-25000	13	26
	Above 25000	7	14
9.	<b>Diet</b>		
	Lacto-ovo vegetarians	14	28
	Lacto-vegetarians	23	46
	Ovo-vegetarians	4	8
	Non-vegetarians	9	18

Data presented in the table 1, shows:

Out of 50 samples, 17 (34%) belonged to the age group between 20-30 years, 23 (46%) belonged to the age group between 31-40, and 10 (20%) belonged to the age group between 41-50.

Nearly 30 (60%) of samples were male and 20 (40%) were female.

With regard to religion of samples, 29 (58%) were Hindu, 18 (36%) were Muslim, 1 (2%) were Christian and 2 (4%) were Sikh.

35 (70%) of samples were married, 9 (18%) were single, and 6 (12%) were widow/ widower.

32 (64%) of samples belonged to the urban area, 17 (34%) belonged to rural area and 1 (2%) belonged to semi rural area.

Educational status varied with 9 (18%) of samples having primary education, 17 (34%) having secondary education, 14 (28%) having higher secondary education, 9 (18%) being graduates and 1 (2%) being post graduates.

Little more than one third of samples ie; 17 (34%) were unemployed, 12 (24%) were unskilled, 12 (24%) were skilled, 4 (8%) were professional, 5 (10%) had business.

Monthly income of 25 (50%) of samples was below Rs.5000, 5 (10%) had monthly income between Rs. 5001- Rs. 15000,

13 (26%) had monthly income between Rs. 15001- Rs. 25000, and only 7 (14%) had monthly income above Rs. 25000.

Dietary pattern of samples varied as 14 (28%) were lacto-ovo vegetarians, 23 (46%) were lacto- vegetarians, 4 (8%) were ovo- vegetarians, and 9 (18%) were non- vegetarians.

### Findings Related to Sample Clinical Profile of Chronic Renal Failure Patients Undergoing Haemodialysis

**Table 2. Frequency and percentage distribution of chronic renal failure patients undergoing haemodialysis by their clinical profile**

(n=50)

S. No.	Clinical profile	Frequency (f)	Percentage (%)
1.	<b>Duration of illness (in months or years)</b>		
	1-5 years	33	66
	6-10 years	16	32
	More than 10 years	1	2
2.	<b>Duration of undergoing haemodialysis</b>		
	1 year	4	8
	2-5 years	33	66
	6-10 years	16	32
	More than 10 years	1	2
3.	<b>Number of dialysis sessions per week</b>		
	Once a week	9	18
	Twice a week	15	30
	Thrice a week	25	50
	More than three times a week	1	2
4.	<b>Presence of any co-morbid disease (s)</b>		
	Hypertension	34	68
	Diabetes	11	22
	Anaemia	5	10
5.	<b>I. Physiological values: Weight (in kg)</b>		
	40-50	4	8
	51-60	11	22
	61-70	27	54
	71-80	8	16
	<b>B.P (mm of hg)</b>		
	121/80-130/90	11	22
	131/90- 140/90)	27	54
	More than 140/90	12	24
	<b>II. Laboratory values: Sodium (mEq/L)</b>		
	Less than 130	1	2

	131-140	17	34
	141-150	32	64
	<b>Potassium (mEq/L)</b>		
	Less than 3.5	1	2
	3.6-4.5	36	72
	4.6-5.5	13	26
	<b>Calcium (mg/dL)</b>		
	Less than 8.5	2	4
	8.6-9.1	36	72
	9.2-10.5	12	24
	<b>Blood urea (mmol/L)</b>		
	Less than 7	2	4
	7-10	3	6
	11-13	24	48
	14-16	18	36
	17-19	3	6
	<b>Creatinine (mg/dL)</b>		
	Less than 0.6	5	10
	0.6-1.2	34	68
	More than 1.2	11	22
	<b>Haemoglobin (g/dl)</b>		
	Less than 12	22	44
	13-15	28	56
6.	<b>How frequently do you go for medical check-up?</b>		
	Only on getting sick	9	18
	Do not go until my next haemodialysis session is due	22	44
	Regularly	18	36

Data presented in table 2, shows that:

Out of 50 samples, the duration of illness of samples between 1-5 years was 33 (66%), between 6-10 years was 16 (32%), and more than 10 years was 1 (2%).

Duration of undergoing haemodialysis of samples between 2-5 years was 33 (66%), 16 (32%) were between 6-10 years, 4 (8%) were undergoing haemodialysis since 1 year and 1 (2%) of samples were undergoing haemodialysis for more than 10 years.

Half of the samples ie; 25 (50%) had dialysis sessions thrice a week, 15 (30%) had dialysis sessions twice a week, 9 (18%) had dialysis session once a week and 1 (2%) had dialysis session more than 3 times a week.

34 (68%) out of 50 samples had hypertension, 11 (22%) patients had diabetes mellitus and 5 (10%) had anaemia.

Parameters like weight, blood pressure, serum sodium level, serum potassium level, serum calcium level, blood urea, serum creatinine and haemoglobin of patients with chronic renal failure undergoing haemodialysis were checked and it was found that:

4 (8%) samples had their weight between 40-50 kg, 11 (22%) samples were between 51-60kg was, 27 (54%) were between 61-70kg, and 8 (16%) were between 71-80kg.

Samples with blood pressure between 131/90-140/90 mm of hg were 27 (54%), between 121/80-130/90 mm of hg were 11 (22%), and more than 140/90 mm of hg were 12 (24%).

Samples with less than 130 mEq/L of serum sodium level were 1 (2%), between 131-140 mEq/L were 17 (34%), and between 141-150 mEq/L were 32 (64%).

More than half of the samples ie; 36 (72%) had serum potassium level between 3.6-4.5 mEq/L were, 13 (26%) were between 4.6-5.5 mEq/L, and 1 (2%) had less than 3.5 mEq/L.

Samples with serum calcium level between 8.6-9.7 mg/dL were 36 (72%), between 9.2-10.5 mg/dL were 12 (24%), and 2 (4%) had less than 8.5 mg/dL.

Blood urea level showed that 2 (4%) had blood urea less than 7 mmol/L, 3 (6%) had between 7-10 mmol/L, 24 (48%) had between 11-13 mmol/L, 18 (36%) had between 14-16 mmol/L, and 3 (6%) had between 17-19 mmol/L.

Serum creatinine level showed that 34 (68%) of samples had creatinine level between 0.6-1.2 mg/dL, 11 (22%) had creatinine level more than 1.2 mg/dL and 5 (10%) had less than 0.6 mg/dL.

More than half of the samples ie; 28 (56%) had haemoglobin

level between 12-14 g/dl and 22 (44%) had haemoglobin level less than 12 g/dl.

22 (44%) samples did not go regularly for medical check up, 18 (36%) went regularly for medical check up and 9 (18%) went for check up only on getting sick.

### Findings Related to Knowledge Scores of Chronic Renal Failure Patients Undergoing Haemodialysis Regarding Dietary Regulation

Data presented in the Table 3, shows that the mean knowledge score of patients with chronic renal failure undergoing haemodialysis about dietary regulation was (19), median was (18) and standard deviation was (2.7). Majority of patients i.e. 43 (86%) with chronic renal failure undergoing haemodialysis had inadequate knowledge about dietary regulation whereas only 7 (14%) of patients with chronic renal failure undergoing haemodialysis had adequate knowledge about dietary regulation.

### Findings Related to Expressed Dietary Practice Score of Chronic Renal Failure Patients Undergoing Haemodialysis Regarding Dietary Practice

Data presented in the Table 4, shows that the mean of expressed dietary practice scores of chronic renal failure patients undergoing haemodialysis about dietary practice was (18.84), median was (19) and standard deviation was (3.56). Regarding the expressed dietary practices, nearly two third of patients with chronic renal failure undergoing haemodialysis had average dietary practice i.e. 30 (60%), 18 (36%) had poor dietary practices and only 2 (4%) patients with chronic renal failure undergoing haemodialysis had good dietary practices.

**Table 3. Mean, median and standard deviation of knowledge scores and frequency and percentage of chronic renal failure patients undergoing haemodialysis by their dietary knowledge score**

(n=50)

S. No.	Dietary knowledge scores	Frequency (f)	Percentage (%)	Mean of dietary knowledge score	Median of dietary knowledge score	Standard deviation of dietary knowledge score
1.	Adequate knowledge (>75%)	7	14	19	18	2.7
2.	Inadequate knowledge (<75%)	43	86			

**Table 4. Mean, median and standard deviation of expressed practice score and frequency and percentage of chronic renal failure patients undergoing haemodialysis by their expressed dietary practice score**

(n=50)

S. No.	Expressed dietary practice scores	Frequency (f)	Percentage (%)	Mean of expressed dietary practice score	Median of expressed dietary practice score	Standard deviation of expressed dietary practice score
1.	Poor practice 0-10	18	36	18.84	19	3.56
2.	Average practice 11-20	30	60			
3.	Good practice 21-30	2	4			

## Finding Correlation between Knowledge and Expressed Practice of Dietary Regulation Among Chronic Renal Failure Patients Undergoing Haemodialysis

**Table 5. Co-efficient of correlation ('R') value for correlation of knowledge and expressed practice of dietary regulation among chronic renal failure patients undergoing haemodialysis**

(n=50)

Scores	Mean score	Standard deviation	'r' value
Dietary knowledge score	19	2.7	-0.083
Expressed dietary practice score	18.84	3.56	

'r' (48) = 0.354,  $p < 0.05$  level. Not significant at 0.05 level.

Data presented in Table 5, reveals that the coefficient of correlation between knowledge and expressed practice score of dietary regulation (-0.083), was not found to be significant at 0.05 level for the degree of freedom 48. This shows that knowledge of chronic renal failure patients undergoing haemodialysis about dietary regulation was inversely but non-significantly correlated with their dietary practices.

### Discussion

The present study aimed to assess the knowledge and expressed practices of dietary regulation and dissemination of informational booklet among chronic renal failure patients undergoing haemodialysis in selected hospitals of Delhi. The present study revealed that the chronic renal failure patients undergoing haemodialysis had inadequate level of knowledge about dietary regulation and had average dietary practice. In the present study, there was a negative but statistically insignificant relationship between knowledge and expressed practice. A similar study was done by Gangadhar S et al.<sup>4</sup> to assess the knowledge and attitude of patients undergoing haemodialysis regarding their dietary management in the district hospital at Karwar, Karnataka with the view to prepare dietary guide. It attempted to find out the association between knowledge & attitude scores with selected demographic variables. 30 patients undergoing haemodialysis were assessed for the level of knowledge and attitude regarding their dietary management by structured questionnaire. Result showed that 66.6% of haemodialysis patients had average knowledge and 53% of haemodialysis patients had good attitude regarding their dietary management. There was no significant association with selected demographical knowledge and attitude score. It was concluded that majority of patients had average level of knowledge and attitude regarding their dietary

management. Dietary guide may help to further upgrade their knowledge and attitude.

### Conclusion

Nutritional problems like PEM, anaemia is very common in haemodialysis patients and are closely related to morbidity and mortality. This study was carried out in the dialysis center of Salokaya Dialysis Center, Rithala, to assess the knowledge and expressed practice regarding dietary regulation among chronic renal failure patients undergoing haemodialysis and an informational booklet regarding dietary regulation was disseminated to them.

**Conflict of Interest:** None

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