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RESEARCH ARTICLE

ASSESSMENT OF DIETARY KNOWLEDGE, ATTITUDE, AND PRACTICES AMONG PATIENTS ON HAEMODIALYSIS IN A TERTIARY CARE CENTRE

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Abstract

Background: Dietary modifications are recommended in patient's undergoing haemodialysis to prevent complications. This study assessed the patient's knowledge, attitude and practices regarding the diet that needs to be followed by patients.

Methods: Cross-sectional study was conducted among 106 patients on haemodialysis admitted at Tertiary Care Centre from September to December 2022. A semi-structured questionnaire was used. Data analysis was done using SPSS by applying descriptive statistics and Chi-square test.

Results: Study showed 88% of patients had good knowledge regarding renal diet. Significant association was found between knowledge and attitude regarding reducing potassium in their diet ($p < 0.028$). 90.5% of patients reduced salt intake by adding less salt in diet. 72.6% of patients were counselled by doctors regarding diet chart.

Conclusion: Results of this study showed the importance of regular counselling by qualified doctors or dieticians which needs to be undertaken to include culturally and individually acceptable alternatives to food.

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Introduction:

Many serious problems are associated with kidney failure, and it is associated with patients lack awareness regarding their nutritional requirements and poor adherence to the knowledge due to negative attitude towards practicing the modified lifestyle. Hemodialysis is the commonest form of kidney replacement therapy in the world, accounting for 69% of all kidney replacement therapy. (1) Estimates of 2018 data shows the number of patients on chronic dialysis in India are about 175,000, giving a prevalence of 129 per million population. (2)

Patients undergoing hemodialysis are advised for specific fluid and dietary restrictions along with treatment regimen and hemodialysis sessions weekly or biweekly. (3) With the end stage renal disease treated with hemodialysis, problems of malnutrition and mineral disparities increase in patients. Limited nutritional knowledge is one of the

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most significant reasons for nutritional problems leading to improper practice causing severe complications.

According to recent study 60.3% of patient undergoing hemodialysis had excellent knowledge, 60% had excellent attitude, 40% had excellent practices regarding renal specific diet, the data shows how the percentage of people practicing the prescribed diet from those having knowledge about diet goes down.(4) Therefore, intensive nutritional counselling based on individualized plan of care should be targeted to maintain good nutritional status through adequate protein, calorie, vitamin and mineral intake.(5)

Dietary restrictions are to prescribe to minimize uremic symptoms and fluid and electrolyte imbalances, that occur because of chronic kidney disease. Patients with chronic kidney disease have increased risk of developing cardiac complications. To prevent increased rate of loss of performance of kidney and comorbidity arising due to declining function of kidney proper dietary intake and urine output monitoring is supportive in dialysis. Modification regarding minerals such as sodium, potassium, phosphorous is advised along with amount of fluid and water intake as those on dialysis pass little or no urine.(6)

Rationale

The purpose of this study was to examine the dietary knowledge, attitude, and practices in haemodialysis patients with respect to sodium, potassium, protein, water intake and urine output. This study assessed the association of knowledge of dietary recommendations with attitude and practices being followed among patients on haemodialysis. Role of counselling to improve knowledge regarding diet which further improves adherence to diet was also explored.

Objectives:

To assess the Knowledge, Attitude, and Practices of renal specific diet among patients on haemodialysis.

Methodology:

Study Area:

Lucknow District, Uttar Pradesh

Study Setting:

Dialysis Units of Tertiary Care Centre, King George's Medical University (KGMU)

Study Design:

Cross sectional study

Study Population:

Patients (both male and female) undergoing haemodialysis in Dialysis unit of KGMU

Inclusion criteria:

Patients attending haemodialysis unit of KGMU

Patients who gave consent

Exclusion criteria:

Patients who did not give consent

Study tool:

A semi-structured questionnaire was used to assess the sociodemographic profile; dietary knowledge, attitude, and practices among patients on dialysis. Before collecting the data, face validity was assessed by pilot study among 30 volunteers who were admitted in dialysis unit to assess whether questionnaire was easy and understandable. The content validity to evaluate the content of questionnaire was conducted by expert panel.

Dietary knowledge

Questionnaire regarding knowledge consisted of 5 questions, with options of Yes and No. Respondents who have opted Yes for all 5 questions as well as 4 questions out of 5 were indicated to have good knowledge, with 3 out of 5 questions having inadequate and 2 out of 5 questions having poor knowledge.

Dietary attitude

Questionnaire consisted of 7 questions with options on Likert Scale with “Agree”, “Neutral”, “Disagree”, “Don’t know”.

Dietary practice

Questionnaire consisted of 4 open ended questions.

Sample technique:

All the patients attending dialysis unit between September 2022 to December 2022 were taken as sample. Data collection was done from total of 106 patients on haemodialysis.

Data analysis:

Statistical package for social sciences, version-26 (SPSS-26, IBM, Chicago, USA) was used for data analysis by applying appropriate statistical test (Chi square test/ Fisher exact test, where p value less than 0.05 considered to be statistically significant).

Results:

Table 1: Sociodemographic characteristics of study participants (N=106).

Variable	(%)
Age group (years)	
18-30	18.9
31-45	41.5
46 & above	39.6
Gender	
Male	71.7
Female	28.3
Religion	
Hindu	78.3
Muslim	21.7
Education	
Professional/honors	9.4
Graduate	17
Intermediate/diploma	15.1
High school	24.5
Middle school	14.2
Primary school	6.6
Illiterate	13.2
Occupation	
Skilled	7.5
Semiskilled	30.2
Unskilled	57.5
Unemployed	4.7
Socio economic status	
Upper class	2.8
Upper middle	13.2
Middle	9.4
Lower middle	22.6
Lower	51.9
Family type	
Nuclear	68.9
Joint	31.1
Since when on dialysis	
< 1 year	31.1
1-2 year	35.8

>2 years	33
Frequency of dialysis	
Weekly	5.7
Biweekly	94.3
History of medical illness	
Diabetes mellitus	4.7
Hypertension	33
Tuberculosis	1.8
Diabetes +Hypertension	7.5
None	52.8
Dietary chart usage was guided by	
Doctor	72.6
Dietician	25.4
TV/ newspaper	1.9

A total of 106 patients were involved in the study which was conducted in dialysis unit of Tertiary Care Centre and has following sociodemographic characteristics. Among 106 patients, who participated in study 71.7% were males, and 28.3% were females. Mean age of the patients was 43.2±13.4, most of the participants were in age group 41.5%. 47.2% of the participants were unemployed and 51.9% belong to lower socio-economic status according to Modified B.G Prasad scale. 68.9% patients live in nuclear family as compared to 31.1% in joint family 35.8% of patients were on dialysis for 1-2 year compared to 31.1% were on dialysis for <1 year. 94.3% undergone biweekly dialysis among the sample studied. 33% of patients had hypertension as the leading cause for chronic kidney disease. 72.6% of patients got knowledge regarding diet chart that needs to be followed from doctor during counselling about diet. (Table 1)

Figure 1: Knowledge of patients undergoing hemodialysis.

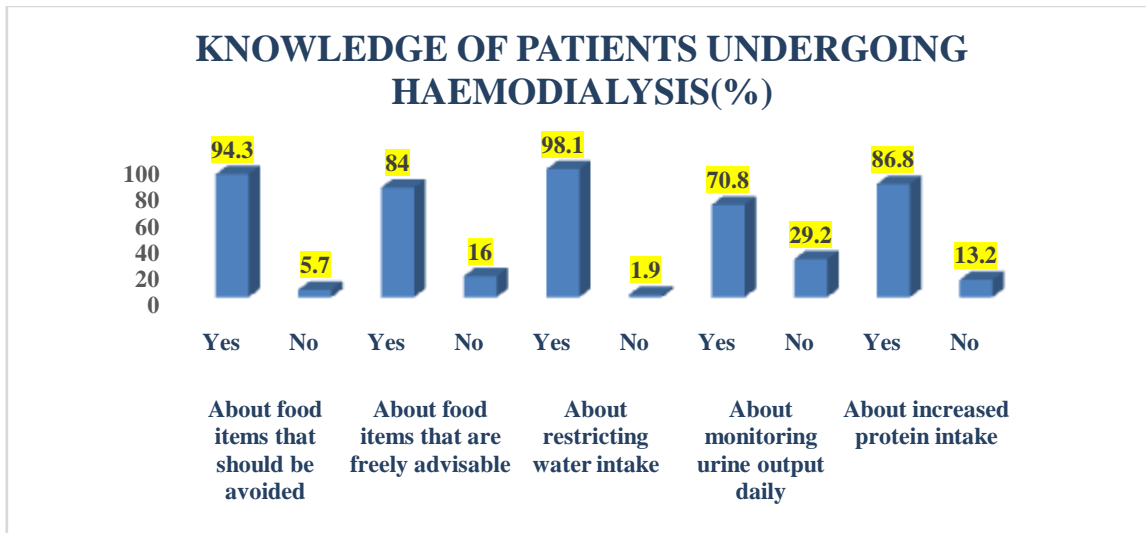


Figure 1: 84% of patients had knowledge about food items that need to be included in diet and 98.1% knew that restricting water intake is essential in patients on hemodialysis to maintain fluid-electrolyte balance.

Figure 2: Knowledge score.

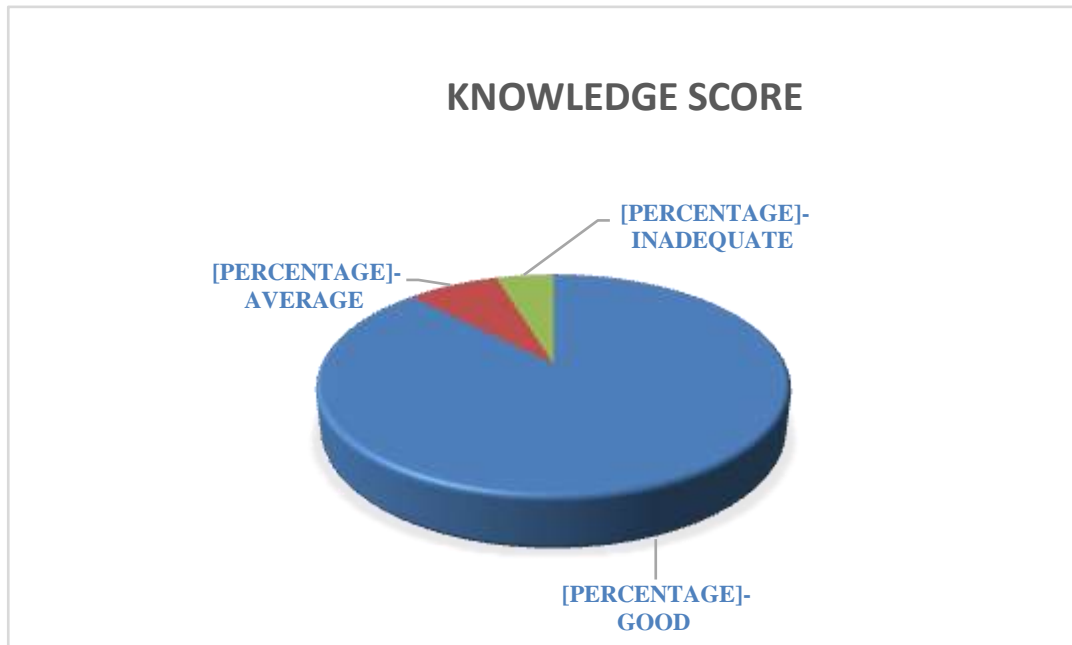


Figure 2: shows knowledge score of patients, among 106 study participants 88% had good knowledge regarding renal diet to be followed in hemodialysis patients.

Table 2: Attitude of patients undergoing hemodialysis (N=106).

Attitude		%
Q1) Dialysis patients should have zero sodium diet?	Agree	29.2
	Neutral	32.1
	Disagree	33
	Don't know	5.7
Q2) Dialysis patients should have reduced potassium diet?	Agree	67.9
	Neutral	15.1
	Disagree	13.2
	Don't know	3.8
Q3) Dialysis patients should monitor urine output daily?	Agree	69.8
	Neutral	19.8
	Disagree	7.5
	Don't know	2.8
Q4) Dialysis patient water intake based on urine output?	Agree	73.6
	Neutral	17
	Disagree	3.8
	Don't know	5.7
Q5) Dialysis patient should have increased protein intake?	Agree	87.7
	Neutral	9.4
	Disagree	0.9
	Don't know	1.9
Q6) Dialysis patient is allowed to drink as much water they want?	Agree	27.4
	Neutral	17.9
	Disagree	53.8
	Don't know	0.9
Q7) Not adding salt in diet means zero sodium diet	Agree	20.8
	Neutral	36.8
	Disagree	40.6

	Don't know	1.9
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67.9% of patient agreed that dialysis patient should reduce potassium in their diet and 69.8% patients agreed that urine output should be monitored daily. 73.6% agreed on the fact that water intake in dialysis patient should be based upon urine output and 53.8% accurately disagreed that dialysis patient is not allowed to drink as much as they want. Protein intake should be increased in dialysis patient according to 87.7% patients. (Table 2)

Table 3: Practices among patients undergoing hemodialysis (N=106).

Practice		%
Q1) How are you reducing salt intake in the diet?	Reduce salt in diet	90.5
	Sendha salt in diet	3.7
	Avoid pickle, fruits	5.6
Q2) How are you reducing potassium intake in the diet?	Avoid banana	39.6
	Avoid green leafy vegetables	28.3
	Both	32
Q3) Are you monitoring urine output?	Yes	9.4
	No	90.6
Q4) How are you increasing protein intake?	Protein powder	18.9
	Meat, egg, fish	81.1

96% of patients reduced salt intake by adding less salt in their cooked food and reduced potassium intake by avoiding bananas and green leafy vegetables. 90.6% patients were not monitoring urine output despite understanding its importance in amount of water intake. Protein intake was increased by addition of protein powder and meat, egg, and fish in their diet. (Table 3)

Table 4: Association between patient factors and knowledge score.

	Knowledge score			Chi-square	p-value
	Good	Average	Inadequate		
Educational qualification					
Professional	9(90%)	1(10%)	0	4.253	0.978
Graduate	16(88.9%)	1(5.6%)	1(5.6%)		
Intermediate	13(81.3%)	2(12.5%)	1(6.3%)		
High school	23(88.5%)	2(7.7%)	1(3.8%)		
Middle school	14(93.3%)	1(6.7%)	0		
Primary school	6(85.7%)	0	1(14.3%)		
Illiterate	12(85.7%)	1(7.1%)	1(7.1%)		
Dialysis started from					
<1 year	84.8%	9.1%	6.1%	1.096	0.895
1-2 year	92.1%	5.3%	2.6%		
>2 year	85.7%	8.6%	5.7%		
Heard about diet chart					
Doctor	85.7%	7.8%	6.5%	7.822	0.251
TV, news paper	50%	50%	0		
Dietician	96%	4%	0		
Nurse	100	0	0		
Attitude of patients regarding reducing potassium in diet					
Agree	93.1%	4.2%	2.8%	14.185	0.028
Neutral	81.3%	6.3%	12.5%		
Disagree	78.6%	21.4%	0		
Don't know	50%	25%	25%		

A significant association was found between knowledge and attitude regarding reducing potassium in their diet ($p < 0.028$). 85.7% patients who had been counselled about dietary chart from doctor had comparatively good knowledge about diet.

No significant association was found between education, years of dialysis, awareness about diet chart. This shows regular counselling sessions at each visit about renal diet should be encouraged to enhance patients' knowledge successively benefitting to change their attitude regarding renal diet. **(Table 4)**

Discussion:

The present study was undertaken to evaluate the dietary habits in dialysis patients as knowledge about dietary restrictions is of utmost importance which needs to be followed along with dialysis, and both needs to go hand in hand for successful treatment. Severe complications such as fluid and electrolyte imbalance, uremia occur due to inadequate knowledge of renal specific dietary practices. Goals of nutritional knowledge through diet chart and appropriate counselling both at the time when patient first visits with kidney disease and thereafter during admission in dialysis are required to prevent complications and to maintain good nutritional status.

In the present study, maximum number of patients undergoing dialysis had good dietary knowledge 87.7%, and this is directly associated with attitude and practice regarding potassium intake. Patient being counselled by doctor had comparatively good knowledge, which implies the importance of counselling for renal diet, which is further important for prolonging life. 85.7% who were counselled about dietary chart from doctor had good knowledge about dietary practices. As kidney function goes down monitoring of potassium levels is most important, and its intake should be reduced in diet therefore association between knowledge scores and attitude related to potassium intake was analysed. A significant association was found between knowledge and attitude regarding reducing potassium in their diet ($p < 0.028$). Around 70.8% of participants had knowledge about monitoring urine output but only 9.4% among them followed the same.

Kidney disease is now a problem that kills thousand individuals without seeing doctor. Modification in diet and its acceptance in dialysis patient is necessary for management of glomerular filtration rate.

Similar study done by **Peter RE, et al.**(5) found that maximum patients had average level of knowledge (52.86%), 47.14% had good level of knowledge, 80% had neutral attitude whereas 20% had positive attitude. A moderate positive correlation was found between knowledge and attitude.

Study done by **Kanagarajha S, et al.**(4) concluded that around 60.3% participants had excellent knowledge, about 60% had excellent attitude and only 40% had excellent practice of nutrition management during haemodialysis. The correlation coefficient of the attitude and practice of patients with knowledge was highly significant ($p < 0.01$).

Findings from a study done by **Spies HC, et al.**(7) reported that about half 54.7% of the participants had good knowledge of foods that needs to be restricted. Most of the participants 61.4% reported poor overall adherence to the renal diet. A quarter (25.3%) had good practices, and the rest reported average practices.

Limitations

The current study was conducted in Tertiary care centre which is well equipped with doctors and dieticians which resulted in good knowledge scores. Further research in this field is required to assess dietary knowledge in dialysis unit of other centres including private centres and to enhance their knowledge through well planned and appropriate strategies. Research can also be conducted on large population to increase generalizability of results.

Conclusion:

Most participants had good knowledge, attitude, and practices regarding several components of the renal diet. The results of this study showed the importance of regular counselling by qualified doctors or dieticians which needs to be undertaken to include culturally and individually acceptable alternatives to food. Focus should be drawn towards setting portion sizes and limiting the frequency rather than avoidance to further improve attitude and practices regarding renal diet. Providing and explaining the diet chart would be beneficial to develop positive attitude towards dietary management. This study also concluded hypertension as the major cause of patients landing into renal failure, which can be easily prevented by regular monitoring in conjunction with diet management and regular exercise.

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