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Dietary beliefs and food enjoyment among patient undergoing hemodialysis: Correlational study

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Abstract
Background: Diet plays a crucial role in the management of hemodialysis patients. Hemodialysis patients need to adhere to a specific dietary regimen to maintain their overall health and prevent complications related to kidney failure.
Aim: to assess of food enjoyment among hemodialysis patients, to assess of dietary beliefs among hemodialysis patients and to find out an association between food enjoyment and dietary beliefs among hemodialysis patients**.**
Methods: A quantitative descriptive study was carried out at the dialysis center at Al-Sadder Medical City in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate. Non-probability (purposive) samples of thirty-eight (38) patients with kidney failure who are admitted to the dialysis care ward are involved in the study. The study began from October 21st, 2022, to May 10th, 2023. Data were collected through a structured interview technique using a questionnaire that was adopted and developed and involved of two parts: the first part concerned socio-demographic characteristics, and the second part concerned dietary beliefs which include (26) items and food enjoyments which include (10) items. The validity of the study instrument was conducted by a panel of professionals with more than 10 years of experience in the nursing field. Data were analyzed using descriptive and inferential statistics.
Results: The results showed that most patients passed the assessment regarding dietary beliefs and food enjoyment with mean of score (1.69), (2.28).
Conclusion: A study concluded that a majority of patients are passing in related to the both dietary belief and food enjoyment. The study also showed that male is the predominant gender among the sample.

Keywords: Dietary beliefs, food enjoyment, kidney failure, hemodialysis

Introduction
Hemodialysis is a medical treatment for patients with kidney failure where a machine filters waste products and excess fluids from the blood. Hemodialysis can affect a patient's ability to taste and enjoy food due to various factors such as changes in appetite, dietary restrictions, and the side effects of medications. (Ahola, A., *et al.*, 2021) [4].
Some hemodialysis patients may experience a loss of appetite or feel full quickly, which can impact their enjoyment of food. Additionally, many hemodialysis patients have dietary restrictions, such as limits on potassium, phosphorus, and sodium intake, which can limit their food choices and make it difficult to find enjoyable meals. Furthermore, some medications used in hemodialysis treatment can affect the taste of food or cause nausea and vomiting, further reducing food enjoyment. (Rucker, D. *et al.*, 2020).
Hemodialysis patients need to adhere to a specific dietary regimen to maintain their overall health and prevent complications related to kidney failure. Diet plays a crucial role in the management of hemodialysis patients (Stojanovic, M. *et al.*, 2021) [11]. Dialysis patients face several nutritional problems, including Protein- Energy Wasting (PEW) a condition characterized by the loss of muscle and fat mass, which can lead to malnutrition and an increased risk of death. It is a common problem among dialysis patients, and it can be caused by a range of factors, including inflammation, decreased appetite, and metabolic abnormalities (Kalantar-Zadeh, K. *et al.* 2020) [6]. Also, patients can experience imbalances in electrolytes such as potassium, sodium, and calcium. These imbalances can lead to a range of problems, including muscle weakness, an irregular heartbeat, and bone disease. (Mandayam, S. *et al.*, 2020) [9].

In addition, patients are at risk of developing deficiencies in vitamins and minerals such as vitamin D, iron, and folic acid. These deficiencies can lead to a range of health problems, including anemia, bone disease, and neurological problems. (Thijssen, S., *et al*., 2021) [12]. Patients with dialysis often have to limit their fluid intake to prevent fluid overload, which can lead to high blood pressure, heart failure, and other health problems. (Lee, M. Y., *et al*., 2021) [8]. So, it is necessary to avoid fluids are important for keeping the body hydrated and maintaining blood pressure. Dialysis patients should work with a registered dietitian to determine their individual fluid needs and create a balanced meal plan that includes some fluid intake (Oliveira, L.S. F., *et al*. 2020 and Gheissari A. *et al*., 2020) [10, 5].

Poor adherence to dietary restrictions can lead to complications and hospitalizations, which can increase healthcare costs. By better understanding patients' dietary beliefs and food enjoyment, adherence can improve patient's health status (physical and psychological) and reduce healthcare costs associated with complications and hospitalizations. (Wang AY, Fan, *et al*., 2021 and Hung AM, *et al*., 2021) [13]. This research, therefore aims to assess the dietary belief and food enjoyment for patient undergoing hemodialysis.

Methodology

Study Design

A quantitative descriptive design was determined to study dietary beliefs and food enjoyment. Study was started from October 21st, 2022, to May 10th, 2023.

Setting of the Study

The study is being carried out in the dialysis center at Al-Sadder Medical City in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate, Iraq. This center is located in Al-Sadr Medical City in Najaf Working hours at the center are 24 hours and all days.

The percentage of visitors is 40% from Najaf and 60% from other cities**.** There are various specialties of advanced health staff present in these units, which include specialized doctors and nursing staff such as university nurses, technical nurses, and pharmacists.

Study Sample

Non-probability (purposive) samples thirty-eight (38) patients with kidney failure who are admitted to the dialysis center are involved in the study.

- Inclusion Criteria: 1. The age of the all participants is 15 - 75 years old. 2. All participants are from Arabic Nationality. 3. Alert patients, free from any change in the level of consciousness. 5. Free from cancer or undergoing chemotherapy. 6. Free from psychiatric disorders.

Study Instrument

The final version of the research tool consisted of two main parts for assesses the dietary belief and food enjoyment a tool was adopted for this purpose as follows**:**

Part One: Demographic characteristics

The first part of the questionnaire is concerned with collecting demographic data, which includes (gender, age, level of education, housing, the number of dialysis times per week, the duration of the dialysis, the duration of the disease, and chronic disease).

Part Two: Dietary beliefs and Food enjoyment Scale

The second part of the questionnaire was comprised of (2) scale. Scale to investigate dietary beliefs (Dietary Knowledge and behaviors assessment in hemodialysis patients) and other scale for food enjoyment. The second part consists from 36 items (26 dietary beliefs, 10 food enjoyments).

Data Collection

The data were collected from patients after obtaining approval from the dialysis center and the patients. Data were collected in an interview technique with the patients. Data were collected from the period of March 15th until April 5th. The duration of the answer to the questionnaire has been taken 10-15 minutes. Note that the confidentiality of patient information is maintained.

Validity of the Instrument

To determine a face validity of study instrument, a committee of experts with more than ten years of experience in the field of nursing was addresses.

Statistical Analysis

The data was analyzed through use Statistical Package for Social Science program version (26), included:

Descriptive Statistical

- Frequency (F)
- Percentage (%) as $Part\ Whole \times 100$
- Pass level

Inferential Statistical

- Means of score (M.S) as $Sum\ of\ scores$
- Overall assessment
- Chi- square
- Correlation Coefficient

Results

Table 1: Distribution of the observed frequencies and percentage of socio- demographic characteristics for the study sample.

No.	Variable	Category	Number	Percentage%
1	Age	15-30 years	10	26%
		31-45 years	7	18.5%
		46-60 years	11	29.5%
		61-75years	10	26%
Total			38	100%
2	Gender	Male	25	65.8%
		Female	13	34.2%
Total			38	100%
3	Education level	Illiterate	2	5.3%
		Literate	13	34.2%
		Primary S.	13	34.2%
		Secondary School	6	15.8%
		Bachelor's	2	5.3%
		Graduate	2	5.3%
Total			38	100%
4	Living	Rural	18	47.4%
		Urban	20	52.6%
Total			38	100%
5	The number of washing times per week	2	38	100%
Total			38	100%
6	The duration of the disease	1-20 Month	14	37%
		21-40 Month	15	39%
		40 Month or more	9	24%
Total			38	100%
7	The duration of the dialysis	2	1	3%
		3	10	26%
		4	27	71%
Total			38	100%
8	chronic disease	Yes	20	53%
		No	18	47%
Total			38	100%

Table 1: revealed that most of the study population (29.5%) was between (46-60) years old (65.8%) was male, while most of the study sample (34.2%) was from the primary stage and (34.2%) was able to read and write. The study sample showed that the lowest percentage of patients 20 (52.6%)) lived in the urban residential area. Likewise, all 38 patients (100%) used dialysis twice a week, while most of the study sample (39% of them) had a disease duration ranging from 21-40 months**.** Furthermore, most of the study sample, 27 (71%), the washing period lasts for four hours, in addition to that, most of the patients, 20 (53%), had chronic diseases.

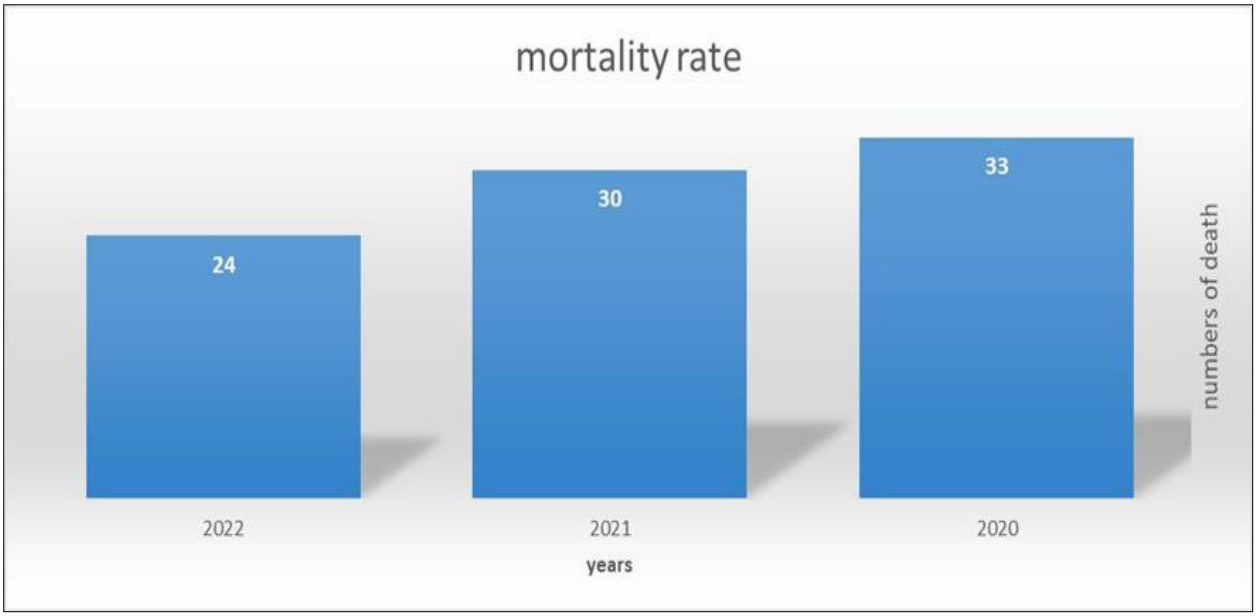

Fig 1: Mortality Rate for Patients Undergoing hemodialysis

Table 2: Dietary beliefs for patients undergoing dialysis:

No	Questions	Yes		Maybe		No		Total		Assessment
		freq	%	freq	%	freq	%	freq	%	
1.	Is protein important for hemodialysis patients?	12	32%	12	32%	14	37%	38	100%	PASS
2.	In protein foods, do you think high biological value foods are important?	21	55%	9	24%	8	21%	38	100%	PASS
3.	Are you allowed to take liberal amount of protein?	2	5%	8	21%	28	74%	38	100%	PASS
4.	Do you think food with potassium like potatoes beans bananas should be restricted for dialysis patients.	2	5%	17	45%	19	50%	38	100%	FAILD
5.	Are these food with sodium (Beans canned with salt added (Salted nuts Canned entrees and chili) restricted in your diet?	22	58%	5	13%	11	29%	38	100%	PASS
6.	Do you think patients on dialysis should avoid foods that contain high phosphorous like: (dairy foods, oatmeal, cola and other drink with phosphorous additives).	26	68%	8	21%	4	11%	38	100%	PASS
7.	Do you think malnutrition affects end stage renal disease?	29	76%	8	21%	1	3%	38	100%	PASS
8.	After dialysis are you advised to practice healthy eating habits?	32	84%	5	13%	1	3%	38	100%	PASS
9.	Protein-containing foods increase blood urea.	17	45%	18	47%	3	8%	38	100%	PASS
10	Legumes, meat, milk, and milk products contain high levels of protein.	31	82%	5	13%	2	5%	38	100%	PASS
11	A high protein intake causes increased levels of phosphorus.	11	29%	22	58%	5	13%	38	100%	PASS
12	The dietary amount of protein is determined based on weight.	10	26%	15	39%	13	34%	38	100%	FAILD
13	The increased blood urea causes nausea/vomiting and bad breath.	25	66%	9	24%	4	11%	38	100%	PASS
14	Foods such as pickles and canned products contain high levels of salt.	30	79%	7	18%	1	3%	38	100%	PASS
15	Foods such as potatoes, bananas, and dried nuts contain high levels of	15	39%	20	53%	3	8%	38	100%	PASS
16	A diet with low potassium will help protect the heart health.	26	68%	10	26%	2	5%	38	100%	FAILD
17	Increased levels of potassium cause weakness of muscles and heart-throb.	10	26%	19	50%	9	24%	38	100%	PASS
18	Offals such as the liver, spleen, and kidneys are rich in proteins and fat.	16	42%	13	34%	9	24%	38	100%	PASS
19	If the dietary amount of protein is not well adjusted, I will be undernourished.	32	84%	4	11%	2	5%	38	100%	PASS
20	If the protein intake is insufficient blood creatinine levels will increase.	17	45%	19	50%	2	5%	38	100%	FAILD
21	If the phosphorous amount increases in the body, the bones weaken and can be broken easily.	10	26%	21	55%	7	18%	38	100%	PASS
22	If I eat food with high levels of phosphorous, phosphorous- lowering medications are used.	22	58%	9	24%	7	18%	38	100%	PASS
23	If high amounts of milk and milk products are consumed, the phosphorous amount increases in the body.	19	50%	17	45%	2	5%	38	100%	PASS

The majority of the study sample has a pass level of dietary belief in the items (1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 18, 19, 21, 22, 23, 25, 26). While failing in their dietary beliefs related to the items (4, 12, 16, 20, 24).

Table 3: Overall assessment of dietary beliefs for patients undergoing dialysis:

Questions NO = 26	Mean of Score	Assessment
Total Score	1.69	Pass

MS 1-2.33 Pass 2.34-3 Fail.

This table shows the final assessment towards dietary beliefs was (pass) with mean of score 1.69 but most of the patients answer's was uncertain (maybe).

Table 4: Food enjoyment for patients undergoing dialysis:

NO	Questions	Never		From time to time		Many Times		Always		Total		Assessment
		Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	
1.	Food dose not taste the same to me.	19	50%	16	42%	2	5%	1	3%	38	100%	PASS
2.	Food dose not smell the same to me.	25	66%	7	18%	4	11%	2	5%	38	100%	PASS
3.	I like different foods than I used to.	3	8%	12	32%	11	29%	12	32%	38	100%	FAILD
4.	I am very thirsty.	6	16%	17	45%	8	21%	7	18%	38	100%	PASS
5.	I enjoy mealtimes.	4	11%	15	39%	10	26%	9	24%	38	100%	PASS
6.	I do not feel like eating.	17	45%	11	29%	8	21%	2	5%	38	100%	FAILD
7.	I have control over my food choices.	10	26%	8	21%	11	29%	9	24%	38	100%	FAILD
8.	I take my medications.	7	18%	1	3%	4	11%	26	68%	38	100%	PASS
9.	The number of pills I take interfere with my diet.	21	55%	10	26%	6	16%	1	3%	38	100%	PASS
10.	I have nausea and sometimes vomit.	8	21%	9	24%	17	45%	4	11%	38	100%	PASS

This table shows that most percent of the study sample has passed the level of food enjoyment in items (1, 2, 4, 8, 9 and 10), while failing the level in items (3, 6 and 7).

Table 5: Overall assessment of food enjoyment for patients undergoing dialysis:

Questions NO = 10	Mean of Score	Assessment
Total Score	2.28	Pass

MS 1-2.51 Pass 2.52-4 Fail

This table shows the final assessment towards food enjoyment was (pass) with mean of score 2.28 but most of the patients answers was uncertain (from time to time).

Table 6: Relationship between the participants' Dietary Beliefs and their food enjoyment:

Main studied domains		Beliefs	Enjoyment
Dietary Beliefs	Pearson Correlation	1	0.628
	Sig. (2-tailed)		S. 0.08
	N	38	38
Food Enjoyment	Pearson Correlation	0.628	1
	Sig. (2-tailed)	S. 0.08	
	N	38	38
*. Correlation is significant at the 0.05 level (2-tailed).			

This table shows the correlation found between dietary beliefs and food enjoyment.

Discussion of the Results

Part One: Discussion for Patients' Socio-Demographic Data: table (1).

Kidney failure is becoming a serious health issue in developing countries. It is a disorder that affects millions of individuals around the globe, and its incidence is influenced by patients' socio-demographic information.

The result of the present study show that the majority of the study sample is composed of 29.5% patients aged 46-60 years, 65.8% are male, 68.4% have an educational level of primary school and are literate, 52.6% live in urban areas, 39% have a duration of the disease of 21-40 months, and 53% have chronic diseases. Sangita, they found that comes along with study (Dietary Practice among the Patients with End-Stage Renal Disease Undergoing Maintenance Hemodialysis), the majority of the study sample was a high percentage of age 50 years and above (56.7%) and a high percentage of gender being male (66.67%). In addition, Hada R. *et al*. (2021) [3], they discovered that the majority of patients 67.8% male and 32.2% female), Saudi Arabia (64.5% male and 35.5% female), and Japan (54.4% male and 45.6% female). Also, found that the most of patients are from the city, in which there are many popular restaurants, fast food, and prepared foods, which negatively affect the work of the kidney, so they are more vulnerable to kidney failure. Furthermore, the results of study show that all patients are washing twice per week. This is because the protocol for treating kidney failure is dialysis twice a week, and the health system in Iraq also follows the instructions in advance. This does not prevent the presence of other patients who may be subjected to dialysis more than three times, depending on the health condition, the need for that, and the doctor's report, but no patient in the current study sample was subjected to kidney dialysis more than twice per week.

Part (II) Discussion the patient's dietary beliefs

The results of the study showed that the patients' assessment of their dietary belief was passable, with an average score of 1.69, these results appeared because patients had been infected with the disease for a long time and therefore had sufficient information regarding dietary beliefs**.** Lamichhane *et al*., (2018) [2], studied the "Dietary Practice among the Patients with End Stage Renal Disease undergoing Maintenance Haemodialysis" they reported that the e level of knowledge score found to be medium and practice score was even low. Seventy percent knew about renal diet but only 36 (60%) believed in it. After having kidney disease 42 (70%) had changed their dietary practice. Surprisingly, 38 (63.3%) said they ate the food what the other member in their family ate.

Part (III) Discussion the patient's Food enjoyment

The majority of kidney failure patients with final assessment towards food enjoyment was (pass) with mean of score 2.28 but most of the patients answer's was uncertain (from time to time)**.** Benner *et al*., (2016) [1], studied the "In-Center Nutrition Practices of Clinics within a Large Hemodialysis Provider in the United States" they found that 28.6% and 22.6% of hemodialysis clinics within the United States slightly restricted eating during treatment in 2011 and 2014, respectively, a rate more than double that found in an international cohort on which we previously published. However, practices and clinician opinions are shifting toward allowing patients to eat. Additional research is warranted to understand the effect that these practices have on patient outcomes and outline best practices**.**

Conclusion

The study concluded that most patients assessment toward dietary beliefs was (Pass), also, with food enjoyment, the final assessment was (Pass). People who live in urban area are more likely to suffer from kidney failure than people who live in rural areas. In addition to that, the majority of patient with kidney failure have a chronic disease this is due to kidney failure the process is reversed. Therefore, it is necessary to emphasize on supportive and the interventional program positively affects the patients' knowledge concerning nutritional behaviors and food enjoyment.

Ethical Consideration

Patient consent is one of the most important components of research explained the purpose of the study, and promised participant confidentiality. Additionally, since kidney failure is a highly unique and potentially sensitive medical condition, patient data needs to be strictly protected. Wherever feasible, data should be pseudonymized or made anonymous. Furthermore, patients are free to leave the study at any time if they experience any potential pain or harm, either psychological or physical, as long as they minimize it and notify other participants in a clear and straightforward manner.

Conflict of Interest

Not available

Financial Support

Not available

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