Adherence of Hemodialysis Patients toward their Therapeutic Regimen in Al-Hilla Teaching Hospitals

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Abstract
Background: Adherence to dietary guidelines, fluid restriction, prescription medicines, and hemodialysis (HD) sessions is essential for optimal and successful therapy. Nonadherence is linked to a variety of unfavorable clinical outcomes and decreases the quality of life of patients. Objective: The study aimed to assess the adherence of hemodialysis patients toward their therapeutic regimen. Methodology: A descriptive study (cross-sectional) was started from the 19th of September, 2021, to the 6th of July, 2022. The study was carried out in two artificial kidney centers at Al-Hilla teaching hospitals. The non-probability purposive sample consisted of 100 patients with ESRD who received hemodialysis treatment. The data was collected by using a modified questionnaire used to assess the adherence of hemodialysis patients toward their therapeutic regimen. Then this data was electronically analyzed using SPSS Version 26. Results: The results revealed that the greatest percent of the study sample (36%) were aged 60 years and older, more than half (58%) were males, and the majority of the sample (74%) were married. 40% had only hypertension as a chronic disease. 72% of them received two hemodialysis sessions per week, and 46% had a hemodialysis duration of 6–12 months. The overall findings of hemodialysis patients' adherence demonstrated that 90% of them expressed a moderate level of adherence to the therapeutic regimen. Conclusion: The study concluded that the adherence of hemodialysis patients toward their therapeutic regimen was moderate.
Keywords: Adherence, hemodialysis, patients, therapeutic regimen

1. Introduction

Chronic renal disease is an irreversible and gradual disorder that refers to a three-month or longer decrease in glomerular filtration rate (GFR) or nephritic damage. The National Kidney Foundation (NKF) has classified it into five stages, from stage one (glomerular filtration rate greater than 90 milliliters per minute/1.73 m2) to stage five (GFR fewer than 15 milliliters per minute/1.73 m2), which is called End Stage Renal Disease (ESRD) (Baqer et al., 2018).

Patients with severe kidney disorders who require days to weeks of dialysis (a short time) and those who have dialysis end-stage kidney disease who need permanent renal alternative treatment. Dialysis does not compensate for the loss of metabolic and endocrine activity in the kidneys. More than 90% of patients who need long-term dialysis receive it on a continuous basis. Most dialysis patients receive treatment three times a week in outpatient clinics for an average of three to four hours. Dialysis sessions can be scheduled at home and performed by the patient himself or by home caregivers. They should be adjusted related to time and frequency to match the needs of the patient's ideal healthcare (Shyaa & Ahmed, 2017).

Nevertheless, hemodialysis alleviates patients' suffering but cannot totally restore or cure renal function. Additionally, it has an effect on patients' quality of life and may result in significant alterations to their physiology, which may result in impairment. Patients must self-manage their illness and modify their behavior and lifestyle in order to adhere to the hemodialysis treatment regimen, all of which are dependent on compliance with HD sessions, medication, fluid restriction, and dietary restriction. Along with these four components, physical exercise is another critical feature that patients must adhere to. The National Kidney Foundation (NKF) suggested that patients engage in moderate physical exercise for 30 minutes on most days while following a therapy regimen centered on recovery or maintenance of their quality of life (Sulistyaningsih et al., 2020).

In ESRD patients, non-adherence practices result in noteworthy illness consequences such as heart failure, hypertension, pulmonary edema, trouble breathing, and hypotensive episodes. Additionally, it results in uremic/anemic consequences, disturbances in fluid and electrolyte and acid-base imbalances, recurrent infection episodes, and increased catabolism as a result of poor nutritional adherence. These errors in adherence among ESRD patients receiving hemodialysis have resulted in an increase in the rate of morbidity and death (Toroitich et al., 2020).

2. Methodology

The descriptive (cross-sectional) study design was conducted to explore the adherence of hemodialysis patients toward their therapeutic regimen in Al-Hilla Teaching Hospitals (Al-Imam Al-Sadiq Teaching

doi.org/10.31838/hiv22.02.808 Received: 17.07.21, Revised: 03.08.21, Accepted: 05.09.21

Hospital /artificial kidney unit and Marjan Medical City/artificial kidney center) from the 19th of September, 2021, to the 6th of July, 2022. Non-probability (purposive sample) consisted of (100) patients with ESRD who received hemodialysis treatment. The questionnaire was modified based on a comprehensive review of the relevant literature in order to collect data for the purposes of the current study. The questionnaire format, comprising three parts as below:

Part one: socio-demographic characteristics are composed of seven items.

Part two: clinical data, this part is composed of five (5) items.

Part three: Adherence of Hemodialysis Patients toward their therapeutic regimen: this part is composed of (34) items, (13) items for adherence to dietary restrictions, (9) items for adherence to fluid consumption, (5) items for adherence to hemodialysis sessions, (7) items for adherence to prescribed medications.

Thirteen experts reviewed the validity of the questionnaire in order to estimate its clarity and relevancy. the questionnaire's determination of reliability was based on the manner of "internal consistency/Alpha Cronbach". Reliability is calculated by using (SPSS) version 26 of reliability analysis which recorded (0.88). the method of data collection was by interviewing each patient included in the study. Each interview takes approximately 15–20 minutes. The descriptive statistical data analysis method is used to characterize the research variables: frequencies and percentages; the mean of score; and the degree of standard deviation.

3. Results

Table 1: Descriptive Statistic of Socio-Demographic Variables (SDVs)

SDVs	Classification	Freq.	%
Age/years	20-29	5	5.0
	30-39	17	17.0
	40-49	21	21.0
	50-59	21	21.0
	≥60 years	**36**	**36.0**
Gender	**Male**	**58**	**58.0**
	Female	42	42.0
Education level	Illiterate	32	32.0
	Read and write	14	14.0
	Primary school	**32**	**32.0**
	Secondary school	14	14.0
	Diploma and above	8	8.0
Marital status	Single	14	14.0
	Married	**74**	**74.0**
	Widow	12	12.0
Occupation	Employee	8	8.0
	Free work	16	16.0
	Retired	**42**	**42.0**
	jobless	36	36.0
Residents	Rural	45	45.0
	Urban	**55**	**55.0**
Economic status	Enough	13	13.0
	Enough to certain limit	38	38.0
	Not enough	**49**	**49.0**

Finding show participants' demographic information, the age ≥ 60 years old was recorded at the highest percentage (36%). Regarding gender, more than half of the study sample were male (58%) as compared with those who were female (42%). Regarding the education level, one-third of participants were primary school graduates (32%). Marital status related findings: two-thirds of respondents were married (74%). It is obvious from the findings that the retired predominated (42%). In terms of residents, most of the study participants were urban residents (55%) as compared with those who were rural (45%). In regard to economic status, the present study revealed that for half of them, their economic status was not enough.

Table 2: Descriptive Statistic of Clinical Data

Factors	Classification	Freq.	%
Chronic Diseases	No	32	32.0
	Hypertension	**40**	**40.0**
	DM	4	4.0
	Hypertension & DM	24	24.0
Duration of Hemodialysis	**6-12 months**	**46**	**46.0**
	1-4 years	40	40.0
	>4 years	14	14.0
Sessions/week	**Two times**	**72**	**72.0**
	Three times	28	28.0
Smoking status	**Non-smoker**	**76**	**76.0**
	Smoker	10	10.0
	Ex-smoker	14	14.0
BMI	Underweight (<18.5 kg/m^2)	16	16.0
	Normal (18.5-24.9 kg/m^2)	**42**	**42.0**
	Overweight (25-29.9 kg/m^2)	24	24.0
	Obese (30-34.9 kg/m^2)	14	14.0
	Extremely Obese (≥35 kg/m^2)	4	4.0

The results are presented in the form of frequencies and percentages. Out of 100 respondents, hypertension was expressed as a chronic disease associated with their hemodialysis. Forty-six percent

showed 6-12 months as the duration of hemodialysis. Seventy-two percent had hemodialysis sessions two times per week. Seventy-six percent were non-smokers as compared with those who were smokers and ex-smokers. Forty-two percent were of normal weight as compared with those who were underweight and obese.

Table 3: Overall Adherence toward Therapeutic Regimen among Hemodialysis Patients			
Overall Adherence	Freq.	%	M ± SD
Poor (M=34-56)	8	8.0	69.65 ± 8.48
Moderate (M=57-79)	90	90.0	
Good (M=80-102)	2	2.0	
Total	100	100.0	
M: Mean for total score, SD=Standard Deviation for total score			

Findings demonstrated that the majority (90%) of hemodialysis patients exhibited a moderate adherence to therapeutic regimen as described by moderate mean of scores *69.65* (*±8.48*).

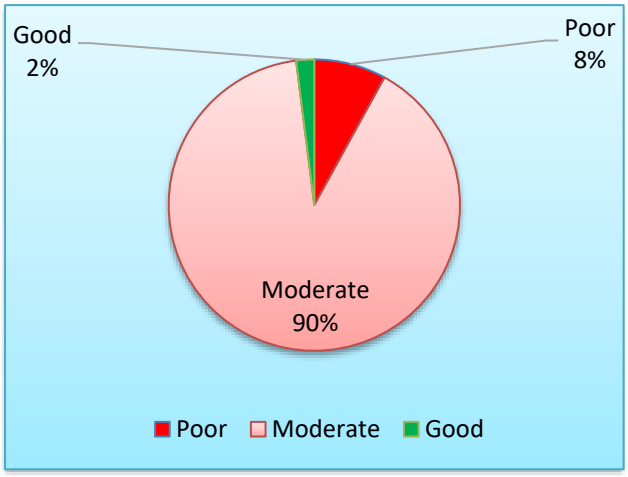

Figure 1: Adherence of Therapeutic Regimen among Hemodialysis Patients

4. Discussion

According to the current study's findings, the highest percentage of hemodialysis patients (36%) their aged 60 years and more. This result was expected because most of the chronic diseases, such as hypertension, diabetes mellitus, and prostatic enlargement, occur mostly at advanced age, and these diseases increase the risk of ESRD. This result agreed with the finding of (Hameed. & Al-Brzanji, 2014), which revealed that the highest percentage (31.9%) of age groups was between 60 years and older. In regards to gender, the current study results revealed that more than half of the research sample (58%) were male, as compared with those who were female (42%). This increased frequency of CRF in men may be attributable to their smoking and alcohol drinking behaviors. Diet, kidney size, changes in glomerular hemodynamics, and the direct effects of sex hormones may all play a role in this gap between men and women (AL-Shamaa. & Salih, 2015). this finding is comparable to that of (Naser & Mohammed, 2016), who revealed that the research sample included (80) hemodialysis patients. More than two thirds (65%) of them were male, and the remaining were female.

Regarding education level, the results showed that one-third of participants were primary school graduates (32%). This might be due to most hemodialysis patients' age in our study being above 60 years old, and in the past, education was poor because of a shortage of schools and most Iraqi families were below the poverty line. Even in young patients, the disease's effects made the patients difficult to continue in their study. These findings were consistent with the research conducted by (Suganthi et al., 2020). This was carried out on patients receiving hemodialysis. The results declared that 33% of the sample had a low educational level (primary school). Concerning marital status, current study findings revealed that the majority of respondents (74%) were married compared with those who were single and widowed. Based on cultural issues, being married is the more socially acceptable option in our culture, and also, due to their advanced age, the researcher found that most of the participants were married. This result conformed with a study carried out by (Al-Khattabi, 2019), who reported that the majority of the participants (62.3%) were married.

In relation to occupation, results declared that the majority (42%) of the research sample consisted of retirees. This result may be attributable to the effects of ESRD on the physical state of patients, the time required for hemodialysis, and the challenges of being employed after the initiation of treatment. This outcome was consistent with a study that was carried out by (Alikari et al., 2017) on 107 patients undergoing hemodialysis in Athens (Greece), who found (57%) of the sample were retired. In terms of resident, most of the study participants were urban residents (55%) as compared with those who were rural (45%). The higher prevalence of non-communicable diseases such as obesity, diabetes, hypertension, and dyslipidemia in urban people than in rural ones makes chronic renal failure more common in urban people than in rural ones. This result is congruent with that found by (Asgari et al., 2017), who revealed that 91.7% (n = 55) resided in urban regions.According to economic status, the half of the study sample (49%) recorded insufficient economic status. Poor economic status due to the burden of hemodialysis treatment, which requires specific dietary requirements and a lot of medications, as well as sometimes patients have to buy the necessary hemodialysis equipment. Furthermore, most hemodialysis patients leave their jobs due to the disease's effects. These findings were similar to the findings conducted by (Deif et al.,

2015), in which they revealed that most patients (95%) had insufficient monthly income.

Concerning chronic disease, results indicated that 40% of patients had hypertension, 24% had hypertension with diabetes, and 4% had diabetes. This study is supported by a study done by (Beerendrakumar et al., 2018) who reported that 72% of hemodialysis patients had hypertension. This may be due to the fact that the prevalence of hypertension is higher and its control more difficult, and this may cause renal failure, which may lead to a rise in the number of patients with kidney failure.

Concerning the duration of hemodialysis, most of the study sample (46%), had a 6-12-month period. This finding was consistent with results that were obtained by (Shyaa & Ahmed, 2017), which were conducted in Holy Karbala, Iraq, and which showed that fifty percent (50%) of hemodialysis patients had been getting hemodialysis treatment for less than one year.

The present study indicated that the majority of the sample (72%) received hemodialysis sessions two times per week. This result agreed with a study conducted by (Dhaidan, 2018) in Iraq's Baghdad Governorate, which found that 75% of patients took twice-weekly dialysis sessions. Concerning smoking status, results illustrated that (76%, 10%, and 14%) were not smokers, smokers, and ex-smokers, respectively. These results agreed with the study by (Khalil et al., 2012), in which they found that most participants (72.6%) were nonsmokers.

However, regarding the patients' body mass index, the biggest proportion (42%) was among those with a normal weight, followed by overweight (24%), followed by those underweight (16%), followed by obese (14%), and then those extremely obese (4%). These results were supported by the study (Kadhum & Mohammed, 2012) among 70 hemodialysis patients in Iraq at Al-Najaf Al-Ashraf governorate. The result showed that more than half of the study sample (51.4%) was of normal weight.

The overall adherence of the therapeutic regimen showed that the majority (90%) of hemodialysis patients exhibited moderate adherence to the therapeutic regimen. This might be because patient-related, psychological, disease-related, socioeconomic, therapy-related, and healthcare-related variables are the six types of factors that contribute to nonadherence in CKD patients (Chironda & Bhengu, 2016).

This result parallels the descriptive-analytic study in Iran which was carried out by (Rahdar et al., 2019), showing most patients (77%) had moderate compliance with the treatment regimen. (Rafiee et al., 2013) also supported the current, which revealed that the majority of patients adhered moderately to hemodialysis therapy across four dimensions of adherence: diet (78.9%), hemodialysis schedule (78.9%), fluid restriction (70.4%), and medication (56.3%).

5. Conclusion

A large proportion of the study sample was aged 60 years and older, with most of the participants were males. The majority of the sample were married, and one-third were primary school graduates. Most of them were retired and lived in urban areas. Furthermore, about half of participants their economic status was not enough.Most of the study participants had hypertension as a chronic disease, hemodialysis duration of 6–12 months, and the majority of the study sample received two hemodialysis sessions per week. Also, most of them were non-smokers and had a normal body weight. The majority of hemodialysis patients exhibited moderate adherence to the therapeutic regimen.

6. Recommendations

1- To promote adherence among hemodialysis patients, it is necessary to educate patients with family involvement about the significance of adherence to hemodialysis treatment attendance, medication adherence, and dietary and fluid restrictions.

2- Future studies on a large sample should focus on identifying the variables that influence hemodialysis patient adherence.

References

Alikari, V., Matziou, V., Tsironi, M., Kollia, N., Theofilou, P., Aroni, A., Fradelos, E., & Zyga, S. (2017). A modified version of the Greek Simplified Medication Adherence Questionnaire for hemodialysis patients. *Health Psychology Research*, *5*(1), 2–7. https://doi.org/10.4081/hpr.2017.6647

Al-Khattabi, G. H. (2019). Prevalence of Treatment Adherence among Attendance at Hemodialysis in Makkah. *Journal of Advanced Research Design*, *58*(1), 1–11. www.akademiabaru.com/ard.html

AL-Shamaa, Y. M., & Salih, A. H. M. (2015). The Effect of Postural Changes on the Blood Velocity, Blood Pressure and Hemoglobin during Hemodialysis. *IOSR Journal of Dental and Medical Sciences*, *14*(5), 69–73. https://doi.org/10.9790/0853-14516973

Asgari, M. R., Asghari, F., Ghods, A. A., Ghorbani, R., Motlagh, N. H., & Rahaei, F. (2017). Incidence and severity of nausea and vomiting in a group of maintenance hemodialysis patients. *Journal of Renal Injury Prevention*, *6*(1), 49–55. https://doi.org/10.15171/jrip.2017.09

Baqer, H. M., Jabur, F., & Kadhum, S. (2018). Impact of end stage renal disease upon physical activity for adult patients undergoing hemodialysis at AL-Najaf governorate hospitals. *Journal of Pharmaceutical Sciences and Research*, *10*(5), 1170–1174.

Beerendrakumar, N., Ramamoorthy, L., & Haridasan, S. (2018). Dietary and Fluid Regime Adherence in Chronic Kidney Disease Patients. *Journal of Caring Sciences*, *7*(1), 17–20. https://doi.org/10.15171/jcs.2018.003

Chironda, G., & Bhengu, B. (2016). Contributing Factors to Non-Adherence among Chronic Kidney Disease (CKD) Patients: A Systematic Review of Literature. *Medical & Clinical Reviews*, *02*(04), 1–9. https://doi.org/10.21767/2471-299x.1000038

Deif, H. I. A., Elsawi, K., Selim, M., & NasrAllah, M. M. (2015). Effect of an Educational Program on Adherence to Therapeutic Regimen among Chronic Kidney Disease Stage 5 (CKD5) Patients under Maintenance Hemodialysis. *Journal of Education and Practice*, *6*(5), 21–34.

Dhaidan, F. A. (2018). Prevalence of end stage renal disease and associated conditions in hemodialysis Iraqi patients. *International Journal of Research in Medical Sciences*, *6*(5), 1515–1518. https://doi.org/10.18203/2320-6012.ijrms20181279

Hameed, R. Y., & Al-Brzanji, R. I. A. (2014). Quality Of Life for Hemodialysis Patients in Kirkuk Governorate/Iraq. *Kufa Journal for Nursing Sciences*, *3*(3), 1–8.

Kadhum, I. A., & Mohammed, W. K. (2012). Nutritional status of adult hemodialysis patients in Al-Najaf Al-Ashraf Governorate. *Iraqi National Journal of Nursing Specialties*, *25*(1), 64–78.

Khalil, A. A., Darawad, M., Al Gamal, E., Hamdan-Mansour, A. M., & Abed, M. A. (2012). Predictors of dietary and fluid non-adherence in Jordanian patients with end-stage renal disease receiving haemodialysis: A cross-sectional study. *Journal of Clinical Nursing*, *22*(1–2), 1–10. https://doi.org/10.1111/j.1365-2702.2012.04117.x

Naser, A. M., & Mohammed, W. K. (2016). Effectiveness of Instructional Health Educational Vascular Access on Hemodialysis Patients' Knowledge at Al-Hussein Teaching Hospital in AL-Nasiriyah City. *Iraqi National Journal of Nursing Specialties*, *29*(1), 86–95.

Rafiee, V. L., Parvin, N., Mahmoodi, S. G., Molaie, E., Shariati, A., & Hasheminia, S. (2013). Adherence to hemodialysis treatment and some related factors in hemodialysis patients admitted in Shahrekord Hajar Hospital. *Journal of Clinical Nursing and Midwifery*, *2*(4), 17-25.

Rahdar, Z., Jahantigh, H. M., Mansouri, A., Siasary, A., Alahyari, J., & Jahantigh, F. (2019). Probing the Relationship Between Treatment Regimen Compliance and the Quality of Life in Hemodialysis Patients: A Descriptive-Analytic Study. *Medical - Surgical Nursing Journal*, *8*(2), 1–5. https://doi.org/10.5812/msnj.95599

Shyaa, W. L., & Ahmed, S. A. (2017). Effectiveness of an Instructional Program on Knowledge of Patients Undergoing Hemodialysis Related to Fatigue at Habib Ibn Mudahir Al-Asadi Centre in Holy Karbala. *IOSR Journal of Nursing and Health Science*, *06*(01), 94–100. https://doi.org/10.9790/1959-06010494100

Suganthi, S., Porkodi, A., & Geetha, P. (2020). Assess the illness perception and treatment adherence among patients with end-stage renal disease. *Iranian Journal of Nursing and Midwifery Research*, *25*(1), 12–17. https://doi.org/10.4103/ijnmr.IJNMR_74_19

Sulistyaningsih, D. R., Nurachmah, E., Yetti, K., & Priyo Hastono, S. (2020). The experience of adherence among hemodialysis patients undergoing therapeutic regimen: a qualitative study. *F1000Research*, *9*(1485), 1–13. https://doi.org/10.12688/f1000research.27729.1

Toroitich, J. K., Oloo, A. J., & Arudo, J. (2020). Determinants of Diet and Fluid Adherence Among End Stage Renal Disease Patients Undergoing Haemodialysis At Moi Teaching and Referral Hospital, Uasin Gishu County, Kenya. *Journal of Health, Medicine and Nursing*, *5*(4), 14–27. https://doi.org/10.47604/jhmn.1144