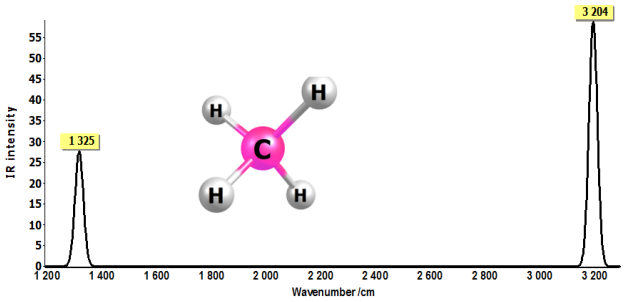
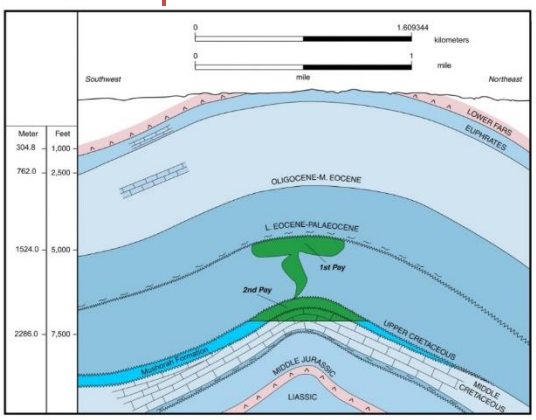
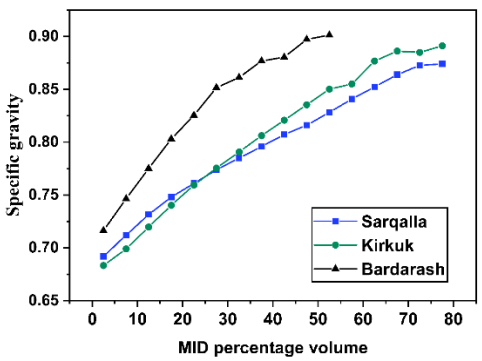
JOURNAL OF ZANKOY SULAIMANI

Part -A- (Pure and Applied Sciences)
VOLUME 25 ISSUE 1 June 2023
ISSN: 1812-4100
www.jzs.univsul.edu.iq

AUTHOR'S COPY







Journal homepage www.jzs.uos.edu.krd
Journal of Zankoi Sulaimani
Part-A- (Pure and Applied Sciences)

Self-care and Quality of Life in Patients with Chronic Renal Failure Undergoing Hemodialysis at Sulaimaniyah Province, Kurdistan Region of Iraq

Khalil Hamad Ibrahim[1,2]* and Niyan Hakim Ismael[1]

[1]*Department of Adult Nursing, College of Nursing, University of Sulaimani, Sulaimaniyah, Iraq*
[2]*Ranya General Hospital, Directorate of Health, Ministry of Health, Sulaimaniyah, Iraq*
**Corresponding author's Email: khalil.ibrahim@univsul.edu.iq*

Article info

Original: 11/09/2022
Revised: 05/10/2022
Accepted: 09/10/2022
Published online: 20/06/2023

Keywords:
Chronic renal failure, hemodialysis, self-care, quality of life, descriptive-analytical study

Abstract

Background: Chronic renal failure (CRF) is a significant and growing public health issue globally with a negative impact on self-care and quality of life (QoL). Self-care and QoL are essential aspects of controlling the adverse effects of the illness. **Objectives**: To assess self-care and QoL of patients with CRF who undergo hemodialysis (HD). **Patients and methods**: A descriptive-analytical design was carried out in Sulaimani Province Hemodialysis Centers/Unit from March to September 2022. About 150 patients with CRF undergoing hemodialysis consented to participate in the study. Non-probability convince sample technique was used to select the participants. The data were collected through a questionnaire by direct interview. **Results**: Most patients were ≥60 years, males, married, illiterate, lived in an urban area and had barely sufficient economic status with 4-6 family members. The study's findings revealed inadequate self-care in >50% of patients. A significant correlation between self-care and QoL in limitation of activities was found for CRF patients who underwent Hemodialysis with no correlation for general health, physical and emotional, and energy and emotion. Also, there was a significant difference between QoL and age (for the general health domain), gender, and level of education (for the limitations of the activities domain). Mean self-care measurement was significantly associated between previous occupation and duration of Hemodialysis. **Conclusions**: Most patients had inadequate self-care and poor QoL, which means that higher self-care performance was associated with better QoL in the limitation of activities only and no other QoL domains.

Introduction

End-stage renal disease (ESRD) in patients with advanced chronic renal failure (CRF) is not a curable and life-threatening condition caused by a decline in kidney performance. It leads to the highest global health disaster. The incidence of ESRD is increasing by 7% annually (1), however; the patient's health condition can be improved either by hemodialysis (HD), peritoneal dialysis, kidney transplantation, and anemia treatment using erythropoietin (EPO) (2).

In 2020, the number of patients with ESRD was estimated to be increased by 60% compared to the number of patients in 2005 (3). About 850 million persons have kidney disease worldwide, with ESRD accounting for 843.6 million, with the highest prevalence in Japan, Taiwan, and the USA (4).

ESRD is characterized by fluid retention, anemia, instabilities of bone/mineral metabolism, hyperlipidemia, and protein-energy malnutrition (5).

Further, it is characterized by a low glomerular filtration rate of fewer than sixty milliliters per minute, mainly caused by diabetes and hypertension, especially in high-income and middle-income countries, including Iraq. However, age, ethnicity, medication history, genetic diseases, and lifestyle also should be considered (6-8).

Hemodialysis is an invasive and stressful technique that leads to several social and psychological complications with physical/mental disorders in patients with ESRD (9). In addition, HD completely changes the patient's life as they must join recurring sessions, utilize prescribed medications and follow the suggested foods and drinks recommended by their specialist (10).

The correct actions for evaluating the quality of life (QoL) in patients with CRF are not well understood. The domains of QoL for patients are physical functioning, psychological feature, and social/interpersonal relationships. In contrast, QoL domains for ESRD patients were evaluations of functional condition, health status, well-being, and patient satisfaction (11).

Self-care deficiency affects the patient's capability to carry out daily activities such as aspects of physical needs, which consist of nutrition management, fluid intake regulation, treatment therapy regimen, rest/sleep activity, and exercise (12). Thus, aimed to find the correlations between self-care and QoL of patients with CRF who underwent HD and to determine the factors affecting them, such as socio-demographical data and clinical characteristics of the patients.

Materials and Methods

Study design and location

A descriptive-analytical study was conducted on patients referred to Qrga and Ranya Dialysis Centers with Dialysis Unit at Shar Teaching Hospital in Sulaimaniyah Province from March to September 2022.

Patients

A total of 150 patients (67 from Qrga and 33 from Ranya Dialysis Centers, and 50 from the Dialysis Unit at Shar Teaching Hospital) from Sulaimaniyah Province, Iraq, who underwent HD were selected using a non-probability, convenience sample technique, proportional sampling technique.

Inclusion criteria

Patients aged >18 years with ESRD who had undergone HD were involved in the study.

Exclusion criteria

Patients with acute renal failure, viral diseases, and severe physical and mental impairments were excluded from the study.

Questionnaire

A well-designed, self-prepared questionnaire was used for collecting the patient's socio-demographic data (age, gender, marital status, educational/economic level, occupation, residency, and several family members) and clinical characteristics (smoking habit, body mass index, comorbidities, and HD history, duration and number).

Self-Care Scale

Shintani originally developed this scale in 2007 (13) to evaluate the grade of universal self-care requisites. Its global score ranges from 20-80, and its reliability and validity were confirmed previously. A higher score

represented higher self-care. In this study, the self-care scale was composed of 20 items covering questions about dialysis, blood pressure investigation care, skin care, fluid restriction, health care, dietary care, and care of vascular access. Each item was rated from 1-4, in which one never means, two means once in a while, three means often, and 4 means all time.

Kidney Disease Quality of Life–Short Form (KDQOL-SF)

KDQOL-SF has typically been utilized in the ESRD that was established by Ware, 1992 and McHorney et al., 1994 (14, 15). It comprises a general section and a section specific to kidney disease. It involves questions about the health issues of patients with kidney disease or ESRD who receive kidney replacement therapy. The survey includes six questions on general health (score range from 6-30), 3 questions on physical and emotional health (answered by Yes or NO), 5 questions on limitation of activities (score range from 5-15), and 6 questions on energy and emotion (score range from 6-36). The scoring rate was based on the Likert system, which is available on the KDQOL website, and a higher score reflects the QoL associated with worse health.

Ethical approval and patient consent

This study proposal was revised, corrected, and approved by the Scientific and Ethics Committee at the College of Medicine, University of Sulaimani, Sulaimaniyah, Iraq (No. 01/06/03/2022). Participants' written consent was obtained before starting the data collection, and all parts of the study were correctly explained to the participants. Additionally, patients were free to leave the study at any time they desired, while the patient data was kept confidential.

Statistical analysis

The obtained data were analyzed through the Social Package of Social Science SPSS (Chicago, USA, version 28.0) for the window. Descriptive statistics; frequency, percentage, mean, and standard deviation to find a profile of the participants' demographic/clinical characteristics. Inferential statistics (t-test and ANOVA) were used to assess the correlation between self-care scores and participants' characteristics. P-value is considered significant at the level of ≤ 0.05.

Results

The vast majority of participants were elderly (≥60 years old) with a mean age of 59±13.5, males (53.3%), married (90.7%), illiterate (44%), lived in an urban area (78%), housewives (38%), and had barely sufficient economic status (70.7%) with 4-6 family members (55.3%) (Table 1).

Table 1. Descriptive statistics for socio-demographic features of patients.

Variable		No.	Percentage
Age	20-39	16	10.7
	40–59	49	32.7
	≥60	85	56.7
	Mean ± SD	59 ± 13.59	
Gender	Male	80	53.3
	Female	70	46.7
Level of education	Illiterate	66	44.0
	Primary School	51	34.0
	Secondary School	25	16.7

	Institute/College	8	5.3
Previous occupation	Employee	16	10.7
	Un employee	29	19.3
	Retired	48	32.0
	Housewife	57	38.0
Residence	Urban	117	78.0
	Suburban	33	22.0
Marital status	Married	136	90.7
	Unmarried	14	9.3
Economic status	Insufficient	44	29.3
	Barely sufficient	106	70.7
Number of family members	1–3	50	33.3
	4–6	83	55.3
	≥7	17	11.3
	Mean ± SD	5.0 ± 1.8	

In regards to the patient's clinical characteristics, the majority were nonsmokers (65.3%), had normal BMI (46.7%), and had hypertension (39%) as a chronic disease (92%). Additionally, most of the participants had a fistula (72%) and practiced HD for 1-3 years (39.3%); 2 times a week (51.3%) for 3 hours (68%) (Table 2).

Table 2. Descriptive statistics for patients' clinical characteristics.

Clinical characteristic		**No.**	**Percentage**
Smoking status	Smoker	12	8.0
	Nonsmoker	98	65.3
	Ex-smoker	40	26.7
BMI (kg/m^2)	Normal	70	46.7
	Underweight	23	15.3
	Overweight	57	38.0
Chronic disease	Yes	138	92.0
	No	12	8.0
Specify	Diabetic	8.0	5.0
	Hypertension	58	39
	Heart disease	10	7.0
	Thyroid	0.0	0.0
	Diabetic and hypertension	30	20
	Diabetic and heart disease	3.0	2.0
	Diabetic and thyroid	1.0	1.0
	Hypertension and heart disease	14	9.0
	Hypertension and thyroid	5.0	3.0
	Diabetic, hypertension, and heart disease	6.0	4.0
	Hypertension, heart disease, and thyroid	3.0	2.0
	None	12	8.0
Vascular type	Fistula	108	72.0
	Graft	8.0	5.3
	Catheter	34	22.7
Hemodialysis (Year)	< 1	48	32.0
	1 - 3	59	39.3
	4 - 7	43	28.7
Number of hemodialyses	One a week	4.0	2.7
	Twice a week	77	51.3
	Thrice a week	69	46.0
Duration of hemodialysis	<3 hours	22	14.7
	3 hours	102	68.0
	>3 hours	26	17.3

Descriptive statistics for self-care levels showed that most patients (70.7%) are once in a while, followed by often (26%) and all times (3.3%), which means that the majority of patients had inadequate self-care (Figure 1).

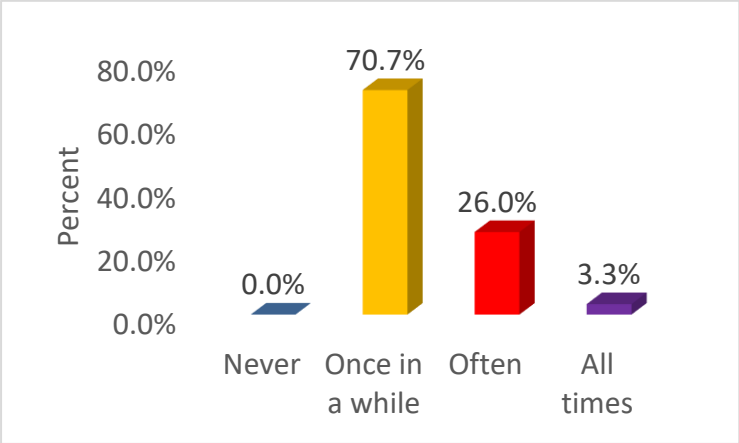


Figure 1. Percentage of Self-care levels among patients.

Regarding the correlation between self-care and various aspects of QoL, there was a significant difference between self-care and QoL in limitation of activities (p=0.003). At the same time, there was no significant correlation for general health (p=0.664), physical and emotional (p=0.239), and energy and emotion (p=0.102) (Table 3).

Table 3. Correlation between patient's QoL aspects and self-care.

QoL Aspect	Self-care	
	Correlation	P-value
General Health	0.036	0.664
Physical and emotional	0.097	0.239
Limitation of activities	0.241	0.003*
Energy and emotion	0.134	0.102

*: Significant difference

Table 4 shows a significant correlation between the mean of self-care measurements and previous occupation (p=0.002) and duration of HD (p=0.004). At the same time, there is no significant relationship between the mean of self-care measurements and age group (p=0.823), level of education (p=0.057), number of family members (p=0.749), and number of dialysis/sessions (p=0.058).

Table 5 shows a significant correlation between gender and the mean of limitation of activities (p=0.017), in which the mean of male's limitation of activities (1.553±0.492) is higher than the female's (1.380±0.359). However, there is no significant relationship between gender and the means of general health and energy/emotion (p=0.061 and 0.157, respectively).

Table 4. Comparison between the mean of some variables and patient's self-care measurements.

Variable		No.	Mean	Standard Deviation	Frequency	P-value
Age (Year)	20- 39	16	53.000	7.257	0.195	0.823
	40 - 59	49	53.592	5.160		
	≥60	85	52.447	4.797		
	Total	150	52.880	5.208		
Level of education	Illiterate	66	52.364	5.031	2.566	0.057
	Primary School	51	53.000	5.831		
	Secondary School	25	52.480	3.928		
	Institute/College	8.0	57.625	4.207		
	Total	150	52.880	5.208		
Previous occupation	Employee	16	57.500	4.336	5.305	0.002*
	Unemployed	29	52.724	4.956		
	Retired	48	52.542	4.424		
	Housewife	57	51.947	5.598		
	Total	150	52.880	5.208		
Number of family members	1 - 3	50	52.420	4.305	0.291	0.749
	4 - 6	83	53.096	5.429		
	≥7	17	53.176	6.617		
	Total	150	52.880	5.208		
Number of hemodialysis sessions	One a week	4.0	50.750	0.957	2.898	0.058
	Twice a week	77	50.390	5.959		
	Thrice a week	69	52.739	6.009		
	Total	150	51.480	5.997		
Duration of hemodialysis	<3 hours	22	51.364	5.645	5.651	0.004*
	3 hours	102	52.373	6.003		
	>3 hours	26	48.077	5.169		
	Total	150	51.480	5.997		

*: Significant difference

Table 5. The correlation between patient's gender and QoL aspects.

QoL Aspect	Gender	No.	Mean±SD	T-test	P-value
General Health	Male	80	3.646±0.374	1.894	0.061
	Female	70	3.755±0.324		
Limitation of activities	Male	80	1.553±0.492	2.422	0.017*
	Female	70	1.380±0.359		
Energy and emotion	Male	80	3.610±0.344	1.424	0.157
	Female	70	3.533±0.315		

*: Significant difference

Table 6 shows a significant association between the mean of general health measures and age group (p=0.019) with no significant difference between the mean of both limitations of activities and energy/emotion measurements with age groups (p=0.125 and 0.625, respectively).

Table 7 shows a significant association between the mean of limitation of activities and level of education (p=0.015) with no significant correlation between the mean of both general health and energy/emotion measurements with the level of education (p=0.245 and 0.885, respectively).

Table 6. Comparison between the mean of QoL aspects and age group.

QoL Aspect	Age group (Year)	No.	Mean	Standard Deviation	Frequency	P-value
General Health	20- 39	16	3.542	0.352	4.047	0.019*
	40 - 59	49	3.799	0.317		
	≥60	85	3.667	0.363		
	Total	150	3.697	0.355		
Limitation of activities	20- 39	16	1.600	0.506	2.111	0.125
	40 - 59	49	1.539	0.372		
	≥60	85	1.409	0.461		
	Total	150	1.472	0.442		
Energy and emotion	20- 39	16	3.625	0.282	0.471	0.625
	40 - 59	49	3.541	0.273		
	≥60	85	3.584	0.371		
	Total	150	3.574	0.332		

*: Significant difference

Table 7. Comparison between patient's QoL aspect and level of education.

QoL Aspect	Level of education	No.	Mean	Standard Deviation	Frequency	p-value
General Health	Illiterate	66	3.753	0.357	1.401	0.245
	Primary school	51	3.680	0.345		
	Secondary school	25	3.587	0.385		
	Institute/College	8.0	3.688	0.243		
	Total	150	3.697	0.355		
Limitation of activities	Illiterate	66	1.397	0.446	3.55	0.015*
	Primary school	51	1.439	0.427		
	Secondary school	25	1.720	0.408		
	Institute/College	8.0	1.525	0.399		
	Total	150	1.472	0.442		
Energy and emotion	Illiterate	66	3.556	0.338	0.216	0.885
	Primary school	51	3.601	0.325		
	Secondary school	25	3.560	0.366		
	Institute/College	8.0	3.604	0.251		
	Total	150	3.574	0.332		

*: Significant difference

Discussion

Analysis of the socio-demographic variables revealed that most CRF patients who underwent HD were males, old age, married, illiterate, housewives, lived in urban areas, had barely sufficient income, and had 4-6 family members. Regarding the clinical characteristics, most patients were nonsmokers, had normal BMI, had high blood pressure as a common chronic disease, and had a fistula as a vascular type with a duration of HD for 1-3 years, twice a week, and 3 hour's duration.

In the present study, we revealed a positive relation between self-care and QoL, which supports the findings of Shah and Pokharel, 2013 that reported a moderate positive relationship between knowledge scores of self-care and QoL (analyzed by Karl Pearson's coefficient of correlation) of CRF patients undergoing HD, which means that the QoL of patients was affected by their level of knowledge (16). Similarly, these results corroborate to findings of Arsa, 2015 who showed a significant correlation between self-care and QoL (17).

Our findings show no significant difference between self-care scores and each age, level of education, number of family members, and number of HD sessions. These outcomes are supported by the findings of Aydin, 2017

(18), who observed that patients' mean total score from the self-care agency scale did not correlate with age, number of children, and frequency of HD. Simultaneously, Atashpeikar et al., 2012 reported a significant association between self-care measurements and age, gender, marital status, and occupation status (19). Furthermore, Rahimi et al., 2016 showed no significant difference in intervention and control groups regarding age, education, and the need for self-care education (20). However, the duration of HD and previous occupation in our study significantly correlated to self-care measurements, which is consistent with the findings of Kim and Cho, 2021 (21), who showed that self-care behavior significantly differed according to HD duration, while it is not consistent with results of Atashpeikar et al., 2012 (19). In this regard, Jeon and You, 2021 showed that self-care behavior significantly differed according to occupation (22).

The results of this study discovered a significant correlation between male and female with limitation of activities, in which male patient's limitations of activities was higher than the female. At the same time, there were no significant differences with other domains. These results corroborate the outcomes of Zyoud et al., 2016 who showed that age and gender significantly correlated to QoL in patients with HD (23). However, these outcomes are inconsistent with Saad et al., 2015 and Gemmell et al., 2016 who stated that gender does not affect the QoL of patients with HD (24,25).

Furthermore, we found a significant difference between the mean of general health measures and the age group in which patients >60 years had the worst report of QoL. In contrast, no significant difference was observed in other domains. These results are in agreement with the outcomes of Garib et al., 2015 who found a significant correlation between QoL and the age of the participants (26), while Alhajim, 2017 stated that age is significantly associated with all domains of QoL, including physical, psychological, social relationships, and environmental factors (27). Moreover, Mandoorah et al., 2014 concluded that old age, female gender, poor education, and comorbid conditions had a negative impact on the QoL of HD patients in Saudi Arabia (28).

Also, the study found a significant difference between the limitation of activity and level of education with no significant difference with other domains. These outcomes are linked to the Al Salmi et al., 2021 study, which showed a higher significance of the patient’s QoL in the physical education domain (29). Additionally, Msc and Babatsikou, 2014 found that socio-demographic factors such as age, sex, and educational level significantly affected the QoL of patients with renal failure (30).

Conclusions

The present study concluded that most patients with CRF who underwent HD were elderly married men with poor education who lived in urban areas. Additionally, most respondents had insufficient self-care and inadequate QoL. A direct correlation between self-care and QoL was only found in the limitation of activities and not for general health, physical/emotional, and energy/emotion. Better self-care leads to better QoL. Furthermore, Age, level of education, and the number of family members don’t affect self-care. Duration of hemodialysis and previous occupation affect self-care. At the same time, QoL with gender significantly correlates with the limitation of the activity domain. Also, QoL has a significant difference in the General Health Domain with age and between the limitation of activity domain and level of education. The results of

this research will be helpful for the development of nursing interventions that can promote/ improve self-care in this population, especially using the use of the self-care model in chronic renal failure to develop interventions. Educational actions using nursing consultations can and should be used to empower patients in symptom recognition and management.

Acknowledgments

The authors would like to thank the healthcare staff from all hemodialysis centers at different hospitals for their utmost help and support in this study.

References

1. Ho Y-W, Chau K-F, Choy B-Y, Fung K-S, Cheng Y-L, Kwan T-H, et al. Hong Kong renal registry report 2012. Hong Kong Journal of Nephrology. 2013;15(1):28-43.

2. Ibrahim S. Quality of care assessment and adherence to the international guidelines considering dialysis, water treatment, and protection against transmission of infections in university hospital-based dialysis units in Cairo, Egypt. Hemodialysis International. 2010;14(1):61-7.

3. Poveda V, Amado L, Filgueiras M, Teixeira L, Miranda V, Santos-Silva A, et al. End-stage renal disease adherence questionnaire: translation and validation to the Portuguese language. Renal failure. 2016;38(10):1633-8.

4. Jager KJ, Kovesdy C, Langham R, Rosenberg M, Jha V, Zoccali C. A single number for advocacy and communication—worldwide more than 850 million individuals have kidney diseases. Oxford University Press; 2019. p. 1803-5.

5. Kalantar-Zadeh K, Jafar TH, Nitsch D, Neuen BL, Perkovic V. Chronic kidney disease. The Lancet. 2021;398(10302):786-802.

6. Rini IS, Rahmayani T, Sari EK, Lestari R. Differences in the quality of life of chronic kidney disease patients undergoing hemodialysis and continuous ambulatory peritoneal dialysis. Journal of Public Health Research. 2021;10(2):jphr. 2021.209.

7. Webster AC, Nagler EV, Morton RL, Masson P. Chronic kidney disease. The lancet. 2017;389(10075):1238-52.

8. Hamza OF, Kotb SA, Hassanen RH, Elmaghawry AM. Self-Care BehaviorFor Hemodialysis Patients At Beni-Suef University Hospital. Assiut Scientific Nursing Journal. 2021;9(25.0):180-90.

9. Mogharab M, Hedayati H, Najafi R, Safari M, Amiri S, Adhami S. Prevalence of depression and life events in hemodialysis patients in Vali-Asr hospital in Birjand (2010). Modern Care Journal. 2011;8(3).

10. Kim Y, Evangelista LS. Relationship between illness perceptions, treatment adherence, and clinical outcomes in patients on maintenance hemodialysis. Nephrology nursing journal: journal of the American Nephrology Nurses' Association. 2010;37(3):271.

11. Wang V, Vilme H, Maciejewski ML, Boulware LE, editors. The economic burden of chronic kidney disease and end-stage renal disease. Seminars in Nephrology; 2016: Elsevier.

12. Alligood MR, Tomey A. Nursing theorists and their work. St. Louis, MO. Mosby Inc; 2014.

13. Shintani K. Association between the components of self-care and health locus of control among hemodialysis patients. Niigata journal of health and welfare. 2007;7(1):28-30.

14. Ware JE. The MOS 36-item short-form health survey (SF-36), part I: conceptual framework and item selection. Medical Care. 1992;30:473-83.

15. McHorney CA, Ware Jr JE, Lu JR, Sherbourne CD. The MOS 36-item Short-Form Health Survey (SF-36): III. Tests of data quality, scaling assumptions, and reliability across diverse patient groups. Medical Care. 1994:40-66.

16. Shah S, Pokharel N. Knowledge Regarding Self Care Measures and Quality of Life among Patients with Chronic Renal Failure undergoing Hemodialysis. Journal of Lumbini Medical College. 2013;1(1):39-42.

17. Arsa SA. The Correlation Of Personal Self-Care Ability And Quality Of Life In Patients Undergoing Chronic Kidney Disease In Hemodialysis Installations Of Rsud Mardi Waluyo Blitar. The Proceeding of International Joint Conference; 2015: STIKes Patria Husada Blitar.

18. Aydin E. Determination of self-care power of hemodialysis patients. New Trends and Issues Proceedings on Humanities and Social Sciences. 2017;4(2):292-300.

19. Atashpeikar S, Jalilazar T, Heidarzadeh M. Self-care ability in hemodialysis patients. Journal of caring sciences. 2012;1(1):31-5.

20. Rahimi F, Oskouie F, Naser O, Sanandji ME, Gharib A. The effect of self-care on patients undergoing Hemodialysis in the Sanandaj Hospitals affiliated to Kurdistan University of Medical Sciences in 2016. Bali Medical Journal. 2017;6(3):684-9.

21. Kim H, Cho M-K. Factors influencing self-care behavior and treatment adherence in hemodialysis patients. International Journal of Environmental Research and Public Health. 2021;18(24):12934.

22. Jeon HM, You HS. Factors influencing sick role behavior compliance in patients on hemodialysis. Journal of Korean Academy of Fundamentals of Nursing. 2019;26(1):23-31.

23. Zyoud SeH, Daraghmeh DN, Mezyed DO, Khdeir RL, Sawafta MN, Ayaseh NA, et al. Factors affecting quality of life in patients on haemodialysis: a cross-sectional study from Palestine. BMC nephrology. 2016;17(1):1-12.

24. Saad MM, El Douaihy Y, Boumitri C, Rondla C, Moussaly E, Daoud M, et al. Predictors of quality of life in patients with end-stage renal disease on hemodialysis. International journal of nephrology and renovascular disease. 2015;8:119.

25. Gemmell LA, Terhorst L, Jhamb M, Unruh M, Myaskovsky L, Kester L, et al. Gender and racial differences in stress, coping, and health-related quality of life in chronic kidney disease. Journal of pain and symptom management. 2016;52(6):806-12.

26. Garib A, Khosravi F, Eftekari R, Kavakeb J, Rahimi F. Quality of life of in patients undergoing hemodialysis in Sanandaj, Iran. Journal of Chemical and Pharmaceutical Sciences. 2016;9(2):693-5.

27. Alhajim SA. Assessment of the quality of life in patients on haemodialysis in Iraq. Eastern Mediterranean Health Journal. 2017;23(12):815-20.

28. Mandoorah QM, Shaheen FA, Mandoorah SM, Bawazir SA, Alshohaib SS. Impact of demographic and comorbid conditions on quality of life of hemodialysis patients: a cross-sectional study. Saudi Journal of Kidney Diseases and Transplantation. 2014;25(2):432.

29. Al Salmi I, Kamble P, Lazarus ER, D'Souza MS, Al Maimani Y, Hannawi S. Kidney disease-specific quality of life among patients on hemodialysis. International journal of nephrology. 2021;2021.

30. Msc R, Babatsikou FP. Social aspects of chronic renal failure in patients undergoing haemodialysis. International journal of caring sciences. 2014;7(3):740.