

The Satisfaction of Patients on Maintenance Hemodialysis Concerning the Provided Nursing Care in Hemodialysis Units

Zalfa Hamed Door¹, Dr. Hayat Fadlalla Mukhtar¹

¹Department. of Nursing/ Collage of Applied Medical Sciences in AL-Dawadmi/ Shaqra
University/KSA

¹Associate Prof. Department of Medical-Surgical Nursing Sciences / Faculty of Nursing and Technology of
Health Sciences/ Khartoum, Sudan

Corresponding Author: Zalfa Hamed Door

Abstract:

Background: Hemodialysis is a lifesaving treatment that can offer significant advantages for certain patients. Patients may remain for several years suffering from End-Stage Renal Disease (ESRD), on maintenance hemodialysis dialysis (MHD) in dialysis settings in contact with dialysis personnel. The increasing number of patients with end-stage renal disease (ESRD) worldwide specifically in the low and moderate-income countries abruptly increases the likely number of premature deaths, besides its effect on the burden of the disease (Newell S, Jordan Z., Teshome Habte Wurjine¹) as estimated by the Global Burden of Disease (GBD) in the year 2015 that 1.2 million deaths, 19 million disability-adjusted life-years (DALYs) and 18 million years of life lost from cardiovascular diseases were directly attributable to reduced glomerular filtration rates.

Aim: To assess the patients' satisfaction with care at a selected dialysis unit in Khartoum, Sudan.

Methods: The study was conducted in the capital state of Sudan, Khartoum at selected four governmental tertiary hospitals and centers provide Hemodialysis.

Study design: facility-based cross-sectional descriptive study design was employed on ESRD patients undergoing maintenance hemodialysis care. The data was collected using an equation method applied for a quantitative approach to determine sample size in the period from March 2016 to August 2017. A total of 237 patients treated in the hemodialysis units participated. The sampling method used was non-probability convenience sampling. The primary outcome was patients' satisfaction with the overall hemodialysis care and secondary outcomes of the individual aspects of hemodialysis patient experiences.

Data collection and analysis procedure: Data was achieved through (1) Structured Patient Satisfaction Scale pre-tested questionnaire based on the 5- Likert's scale for in-depth direct interview of the patients. To assess the dimensions of satisfaction related to accessibility and convenience, direct nursing care and safe environment, communication, and health education. Data were analyzed according to the objectives using the SPSS program, a descriptive statistics analysis was undertaken. **Result:** A total of 233 participants were responded with a response rate of 100% from whom 59(24.9%) age group was (56-65) years and 158 (67%) were male. The overall satisfaction level was found to be (65.2%), Table (1). The majority of the respondents (86.9%) were rated high nurses willingness and flexibility in meeting their needs and nurses helping to understand and solve their problems rated low (52.7%). The analysis shows that residence, gender and occupation were red overall satisfaction scores ($p < 0.05$) and income ($p < 0.05$).

Conclusion and Recommendation:

(65.2%) of the participants were satisfied with the care provided in hemodialysis units. This reveals that the level of patients' satisfaction needs to be improved, and recommended healthcare settings should monitor the relationship between nursing care and experience to maintain quality care provision.

Keywords: End-stage renal disease (ESRD), Maintenance Hemodialysis (MHD), Satisfaction.

Date of Submission: 17-12-2019

Date of Acceptance: 31-12-2019

I. Introduction

End-stage renal disease is prevailing in many countries, with an estimation of over \$1 trillion spent globally on end-stage renal disease (ESRD) care. There is a strong clinical and economic justification for planning timely and suitable health system responses to limit advancement from CKD to ESRD; clinical care may give better results if early-stage (1-3) CKD with risk for progression towards ESRD is distinguished early. CKD may be reconceptualized as a part of primary care (1). patients who diagnosed with end-stage renal disease, expect terrible concerns, with severe global variations in the accessibility of kidney replacement treatment, as the cost is the main reason. In 2010, conventional estimations showed that more than half of all

publics needing dialysis treatment all over the world passed as a result of shortage of dialysis services or unavailable means to reach, predominantly middle and eastern Africa, have limited resources for management of end-stage renal disease is only less than 3% of individuals demanding to have access to it (2). Patients with end-stage renal disease (ESRD) experience high rates of morbidity and mortality. Incidence and prevalence counts of ESRD in the United States are expected to increase by 44% and 85%, respectively from 2000 to 2015(3). When HD was announced as an effective reasonable treatment in 1943, the viewpoint for patients with advancing kidney failure abruptly converted from the expectation of approaching death to indefinite continued existence. Since then, the implementation of dialysis has innovative from intensive bedside treatment to a more efficient treatment (4).

Hemodialysis (HD) can be an alternative to renal function either permanently or as a waiting step to renal transplantation, however, it is a lifelong treatment that significantly and sometimes adversely affects patients' physical and mental abilities, with depression, anxiety and fatigue being common issues'' According to (5). While interventions in hemodialysis trials and healthcare regulations have largely focused on biomarker endpoints and quantitative outcomes (mortality and cardiovascular events) to evaluate care, dialysis patients value normalization of their lives, economic efficiency in healthcare and how their personal preferences are met, including reducing dietary and travel restrictions (6).

Although Hemodialysis can offer significant advantages for certain patients, it can have severe hazards if the patients and their caregivers didn't track and understand the concept of its safety, which is the condition of being sheltered against physical, social, spiritual, financial, political, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered non-desirable (7). care should not only be delivered by doctors but nurses, allied and community health workers, care coordinators and managers all play important roles in delivering high-quality care in the 21st century. It is possible to achieve high quality by delivering their skills throughout the chain of health production. In providing high-quality care, technical knowledge needs to be augmented by the ability to communicate and work in collaboration with other professionals. Support and quality of care through the services offered with great importance to nursing management is needed to meet patients' needs (8, 9, 10). Determining patients' level of satisfaction with health care professionals provides useful information on the quality of services and how to improve those jeopardized patients' (11). Well-being, functional status, and satisfaction of Patients along with treatment costs also determine the effectiveness of care, subsequently, in patients for who cure is not a realistic goal such as ESRD patients, the primary objectives of care should be focused on maximizing functioning and well-being (12). The first effort to assess patients' satisfaction with healthcare services initiated in 1956. (13) The World Health Organization (WHO) defines patient satisfaction as a core indicator out of nine significant indicators used to measure the quality of healthcare services delivery(14) Recently, the healthcare regulators shifted towards a market-driven tactic of turning patient satisfaction surveys into a quality enhancement tool for overall organizational representation,(15).Patient satisfaction is an important strategy that makes the decision clear and concise about the practices of care providers. Patient satisfaction with nursing care remains an important factor in explaining patients' perceptions of service quality. International healthcare settings should systematically monitor the relationship between nursing care and experience to support quality care provision. (16)

II. Methodology

The study was conducted at Khartoum State (capital of Sudan). The participants were patients with end-stage renal disease on maintenance hemodialysis. The sample size enrolled in the study was 237 patients. The respondents' satisfaction with nursing care provided at the hemodialysis units in selected hospitals in Khartoum State was assessed using a structured questionnaire based on the Likert scale. The sampling method used was non-probability convenience sampling.

III. Result

A descriptive study involved 237 participants among ESRD patients undergoing hemodialysis services; at four HD unites in Khartoum State. The result showed the distribution of sample study according to demographic data.

The result depicts that, 59(24.9%), of the patients, were in the age group (56-65) years, Figure (1).

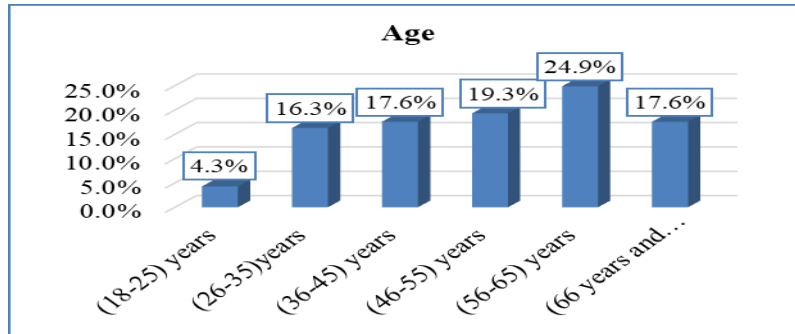


Figure (1): Distribution of sample study according to (Age)

Nearly half of the participants 103 (43.3%) were residing in Omdurman city, Figure (2).

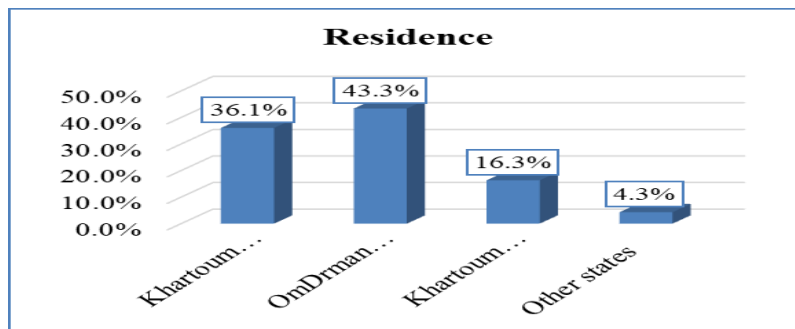


Figure (2): Distribution of sample study according to (Residence)

About gender, the majority of the patients 159 (67%) were male with Mean± Std 30± 5.8, Figure (3).

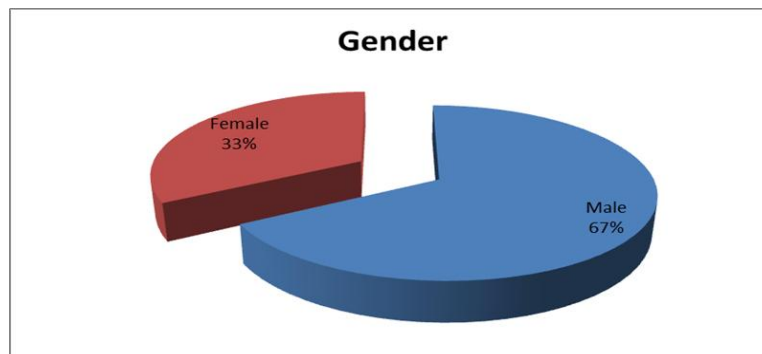


Figure (3): Distribution of sample study according to (Gender)

Concerning the educational status, 67 (28.3%), of the patients were educated up to the high secondary level, Figure (4).

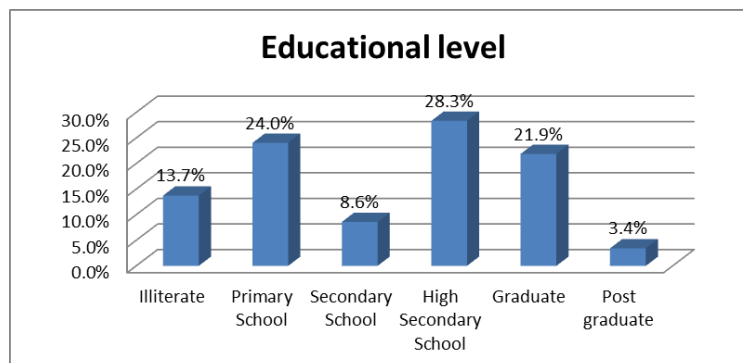


Figure (4): Distribution of sample study according to (Educational level)

More than half of the patients i.e. 121 (51.1%) were unemployed and housewives, Figure (5).

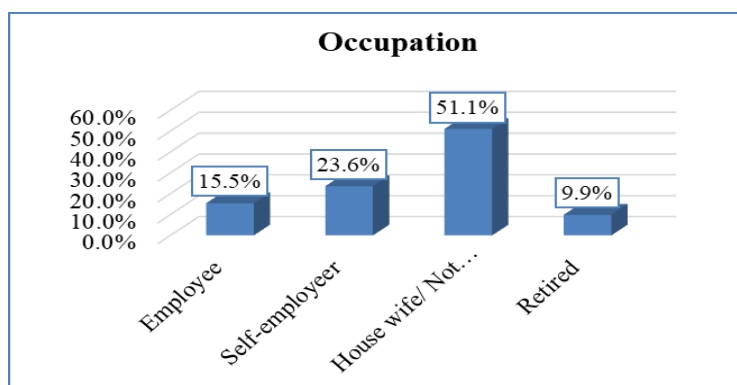


Figure (5): Distribution of sample study according to (Occupation)

Two third of the study population i.e. 159(66.9%), were from low-income class Figure (6)

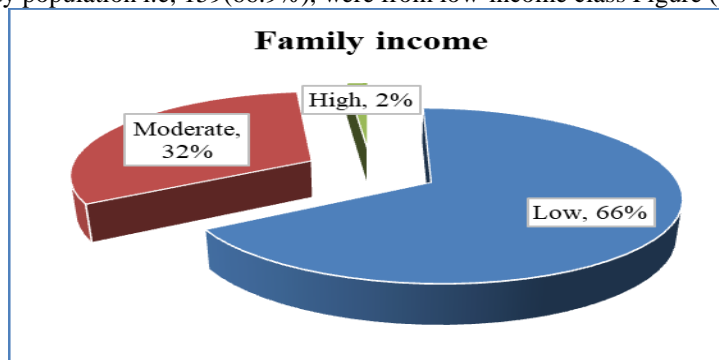


Figure (6): Distribution of sample study according to (Family income)

Concerning patients' satisfaction, the result reveals the overall satisfaction with care 65.2%, (Table1).

Table (1): Distribution of sample study according to the overall satisfaction

Element	Overall satisfaction	Interpretation
Accessibility and convenience	40.1%	Not Satisfied
Communication	80.1%	High Satisfied
Health Education	65.1%	Low Satisfied
Direct Nursing Care	75.8%	Moderate Satisfied
The physical environment of the unit	51.6%	Neutral
The overall satisfaction	65.2%	Low satisfaction

Patients' satisfaction was neutral for (Accessibility and Convenience) in sense of (access to the dialysis center) 153 (64.4%), dialysis schedule 151 (63.9%), and waiting time 109 (45.9%), with p-value 0 (0.00%), (Table 2).

Furthermore, patients were satisfied with communication concerning (patient reception 187 (79%), relation with nursing staff 202 (85.4%), explanation of treatment regimen 209 (88%), nurses response and respect 186 (78.5%), (Table 3). Regarding the provided nursing care, 210 (88.4%) were satisfied, while they responded neutrally for help to cope with health condition 127 (53.6%) with p-value (0.00). However for health education in all aspects, 154 (64.8%) were satisfied, and for dialysis and potential complications 170 (71.7%) were satisfied, protection and care for dialysis access 221 (93.6%) were satisfied, and dietary and fluids restriction 193 (81.5%) were satisfied with p-value (0.00). also, the result showed that clinical care was satisfactory in all phases. 181(76.4%) were satisfied regarding monitoring during dialysis sessions, respond to problems occurring during dialysis and management was 162 (68.2%) and, helping the patient to understand problems and share in solving was 194 (82%), concerning comfort about the nursing care 183 (77.3%) were satisfied, and for willing to advise other clients to seek care in the center 214 (90.1%) were satisfied with p-value (0.00) and low satisfaction shown for the unit environment (Table2).

Table (2): Distribution of sample study according to statements of domains

		Satisfied	Neutral	Not Satisfied	Mean	P-value
Accessibility and convenience	1. I have easy access to the dialysis center	78(32.9%)	100(42.9%)	59(23.6%)	2	0.000
	2. The dialysis schedule is suitable for my health condition.	100 (42.1%)	39(15.0%)	98(42.1%)	2	0.000
	3. Waiting time is suitable for my health condition.	107 (45.1%)	22 (8.6%)	108(45.5%)	2	0.000
	Total	40.1%	22.6%	37.3%		
Communication	1. The nurses receive me by courtesy and humanity.	195(82.3%)	20(8.4%)	22(9.3%)	1	0.000
	2. The relationship with nursing staff is excellent	190(80.2%)	19(8.00%)	28(11.8%)	1	0.000
	3. Dialysis procedure and treatment regimen are explained well.	190(80.2%)	15 (6.3%)	32(13.5%)	1	0.000
	4. Nurses are quick response to and respect my questions.	173(73.0%)	20 (8.4%)	44(18.6%)	1	0.000
	5. Nurses keep the medical information trustfully and privately.	195(82.3%)	42(17.7%)	0(0.00%)	1	0.000
	6. Nursestreat me with respect and dignity.	195(82.3%)	32(13.5%)	10(4.2%)	2	0.000
	Total	80.1%	10.4%	9.5%		
Health Education	1. Information I received about the disease and complications that may occur are understandable and sufficient	121 (51.1%)	50(21.1%)	66 (27.8%)	1	0.000
	2. Information I received about dialysis and the complications are understandable & sufficient.	145 (61.2%)	37 (15.6%)	55 (23.2%)	1	0.000
	3. Information I receive about protection and care for dialysis access is understandable and useful.	180(76.0%)	38 (16.0%)	19(8.00%)	1	0.000
	4. The information I receive about dietary and fluids restriction are adequate and useful.	160 (67.5%)	30(12.7%)	47 (19.8%)	1	0.000
	5. I am given good advice on how to cope with my health problem.					
	Total	64.0%	16.4%	19.7%		
Nursing Care	1. All things are done well, like giving medicine, handling IVs, and monitoring during dialysis sessions by the nursing staff.	178 (75.1%)	26 (11.0%)	33(13.9%)	1	0.000
	2. Nurses respond to problems occurring during dialysis carefully and satisfactory.	159 (67.1%)	40 (16.9%)	38(16.0)	1	0.000
	3. Willingness of the nurses to be flexible in meeting your needs.	206 (86.9%)	19(8.0%)	12(5.1%)	1	0.000
	4. Nurses help to understand your problems and share you in solving them.	125 (52.7%)	0(0.00%)	112(47.3%)	2	0.000
	5. Nurses keep the environment quiet and comfort	180 (76.0%)	33 (13.9%)	24(10.1%)	1	0.000
	6. I could advice other clients to seek care in this center	210 (88.6%)	0(0.00%)	27(11.4%)	1	0.000
	Total	74.4%	8.3%	17.3%		
Physical environment of the unit	1. Nurses maintain a clean environment.	135(57.0%)	0(00.0%)	102(43.0%)	1	0.000
	2. Nurses maintain organized place all through the session.	169 (71.3%)	40(16.9%)	38(16.0)	1	0.000
	3. The waiting place is clean and comfortable.	87(36.7%)	19(8.0%)	131(55.3%)	1	0.000
	4. Safety measure are maintained all the time.	125 (52.7%)	0(0.00%)	112(47.3%)	2	0.000
	5. Suitable temperature and light are maintained.	95(40.1%)	31(13.1%)	111(46.8%)	1	0.000
	Total	51.6%	7.6%	40.8%		

On Association between demographic data and domains, there was a significant relationship between patients' satisfaction concerning (residence and family income) with accessibility and convenience p-value (0.001), (0.051) respectively, (Table 3).

Table (3): Cross-tabulation between (demographic data) and (Accessibility and convenience)

Demographic Information		Accessibility and convenience			P-value
		Satisfied	Neutral	Not Satisfied	
Age	(18-25) years	5(45.5%)	6 (55.5%)	0(0.0%)	0.400
	(26-35)years	10(25.6%)	24 (61.5%)	5 (12.8%)	
	(36-45) years	12 (29.2%)	25 (61.0%)	4 (9.8%)	

	(46-55) years	16 (34.8%)	15 (32.6%)	15 (32.6%)	
	(56-65) years	13 (22.0%)	26 (44.1%)	20 (33.9%)	
	≥ 66 years	10 (24.4%)	17 (41.5%)	14(34.1%)	
Residence	Khartoum city	14(16.7%)	66 (78.6%)	6(4.8%)	0.001 *
	Omdurman city	44(43.6%)	53 (51.5%)	5(5.0%)	
	Khartoum Bahary city	8 (18.4%)	28 (73.7%)	3(7.9%)	
	Other states	0(0.0%)	9 (90.0%)	1 (10.0%)	
Gender	Male	45(28.3%)	103 (64.8%)	11 (6.9%)	0.843
	Female	20(25.6%)	52 (66.7%)	6(7.7%)	
Educational level	Illiterate	13 (39.4%)	16 (48.5%)	4 (12.1%)	0.199
	Primary School	19(33.3%)	34 (59.6%)	4(7.0%)	
	Intermediate School	5 (25.0%)	15 (75.0%)	0(0.0%)	
	High Secondary School	19(28.4%)	45 (67.1%)	3(4.5%)	
	Graduate	11(21.2%)	38 (73.1%)	3 (5.7%)	
	Post graduate	0(0.0%)	8 (100.0%)	0(0.0%)	
Social status	Single	20(29.4%)	46 (67.6%)	2(2.9%)	0.457
	Married	43(27.7%)	102 (65.8%)	10 (6.5%)	
	Widow	3 (42.9%)	3 (42.9%)	1 (14.2%)	
	Divorced	2(28.6%)	4 (57.1%)	1 (14.2%)	
Employment	Employee	15(41.7%)	19 (52.8%)	2(5.6%)	0.106
	Self-employer	16(28.6%)	34 (61.7%)	6 (10.7%)	
	House wife/ Not work	29(24.0%)	87 (71.9%)	5(4.1%)	
	Retired	8(34.8%)	15 (65.2%)	0(0.0%)	
Family income	Low	46(29.5%)	11(7.0%)	99 (63.5%)	0.0517*
	Moderate	19(25.0%)	3(3.9%)	54 (71.1%)	
	High	2(40.0%)	3 (60.0%)	0(0.0%)	

*There is an association between (Residence and family income) and (Accessibility and convenience)
 There was a significant relationship between gender and communication, p-value (0.044) (Table4).

Table (4): Cross-tabulation between (demographic data) and (Communication)

Demographic data		Communication			P-value
		Satisfied	Neutral	Not Satisfied	
Age	(18-25) years	9(81.8%)	2 (18.2%)	0(0.0%)	0.438
	(26-35)years	29(74.4%)	10(25.6%)	0(0.0%)	
	(36-45) years	23(56.1%)	17(41.5%)	1(4.3%)	
	(46-55) years	34(73.9%)	10(21.7%)	2(2.2%)	
	(56-65) years	44(74.6%)	15(25.4%)	0(0.0%)	
	(66 years and more)	30(73.2%)	11(26.8%)	0(0.0%)	
Residence	Khartoum localities	54(62.8%)	32(37.2%)	0(0.0%)	0.192
	Omdurman localities	79(77.5%)	21 (20.6%)	2(1.9%)	
	Khartoum Bahary localities	26(66.7%)	13 (33.3%)	0(0.0%)	
	Other states	8(80.0%)	2 (20.0%)	0(0.0%)	
Gender	Male	104(65.4%)	50 (31.4%)	5(3.1%)	0.044*
	Female	63(80.8%)	15 (19.2%)	0(0.0%)	
Educational level	Illiterate	24(72.7%)	9 (27.3%)	0(0.0%)	0.727
	Primary School	43(75.4%)	12 (21.1%)	2(3.5%)	
	Secondary School	12(60.0%)	8 (40.0%)	0(0.0%)	
	High Secondary School	49(73.1%)	18 (26.9%)	0 (0.0%)	
	Graduate	36(69.2%)	12 (23.1%)	4(7.7%)	

	Post graduate	4(50.0%)	4 (50.0%)	0(0.0%)	
Social status	Single	47(69.1%)	21 (30.9%)	0(0.0%)	0.896
	Married	110(71.0%)	40 (25.8%)	5(3.2%)	
	Widow	6(85.7%)	1 (14.3%)	0(0.0%)	
	Divorced	5(71.4%)	2 (28.6%)	0(0.0%)	
Employment	Employee	27(75.0%)	8 (22.2%)	1(2.8%)	0.567
	Self-employer	43 (76.8%)	13 (23.2%)	0(0.0%)	
	House wife/ Not work	80(66.1%)	38 (31.4%)	3(2.5%)	
	Retired	17 (73.9%)	6 (26.1%)	0(0.0%)	
Family income	Low	110 (70.5%)	43 (27.6%)	3(1.9%)	0.901
	Moderate	54(71.1%)	22 (28.9%)	0(0.0%)	
	High	3(60.0%)	2 (40.0%)	0(0.0%)	

*There is association between (Gender) and (Communication)

Table (5): Cross-tabulation between (demographic data) and (Nursing Competence)

Demographic data		Clinical Nursing competence			P-value
		Satisfied	Neutral	Not Satisfied	
Age	(18-25) years	8(72.7%)	2(18.2%)	1(9.1%)	0.187
	(26-35)years	33(84.6%)	5(12.8%)	1(2.6%)	
	(36-45) years	25(61.0%)	13(31.7%)	3(7.3%)	
	(46-55) years	34(73.9%)	12(26.1%)	0(0.0%)	
	(56-65) years	48(81.3%)	9(15.3%)	2(3.4%)	
	(66 years≥)	30(73.2%)	11(26.8%)	0(0.0%)	
Residence	Khartoum city	63(73.3%)	21(24.4%)	2(2.3%)	0.789
	Omdurman city	79(75.2%)	23(21.9%)	3(2.9%)	
	Khartoum Bahary city	30(76.9%)	8(20.5%)	1(2.6%)	
	Other states	8(80.0%)	1(10.0%)	1 (10.0%)	
Gender	Male	108 (67.9%)	41(25.8%)	10 (6.3%)	0.013*
	Female	66(84.6%)	12(15.4%)	0(0.0%)	
Educational level	Illiterate	27(81.8%)	6(18.2%)	0(0.0%)	0.522
	Primary School	41(71.9%)	13(22.8%)	3 (5.3%)	
	Intermediate School	14(70.0%)	6(30.0%)	0(0.0%)	
	High Secondary School	55(82.1%)	11(16.4%)	1(1.5%)	
	Graduate	35(67.3%)	14(26.9%)	3 (5.8%)	
	Post graduate	5(62.5%)	2(25.0%)	1 (12.5%)	
Social status	Single	48(70.6%)	16(23.5%)	4 (5.9%)	0.716
	Married	119(76.8%)	33(21.3%)	3(1.9%)	
	Widow	6(85.7%)	1(14.3%)	0(0.0%)	
	Divorced	5(71.4%)	2(28.6%)	0(0.0%)	
Occupation	Employee	27(73.0%)	5(13.5%)	5(13.5%)	0.048*
	Self-employer	0(0.0%)	13(23.2%)	43(76.8%)	
	House wife/ Not work	6(5.0%)	25(20.7%)	90(74.4%)	
	Retired	18(78.3%)	4(17.4%)	1(4.3%)	
Family income	Low	122 (78.2%)	28(17.9%)	6(3.8%)	0.009*
	Moderate	51(68.9%)	22(29.7%)	1(1.4%)	
	High	2(40.0%)	2(40.0%)	1 (20.0%)	

*There is an association between (Gender, Employment, and Family income) and (Clinical Nursing performance)

IV. Discussion

Quality of health care services stated to the patient's judgment about a specific service. These services can be shown through the difference between the patient's anticipations and the services they received. Patient satisfaction is a crucial indicator and essential in assessing the quality of health care delivered; it indicates an excellency of health care. If the patients reported that the care is qualified, it indicates a better service quality. Moreover, it is briefly described how patients value and regard their care; it is a process as much as an attitude, so it must be, monitored continually, and frequently measured. The present study intended to measure patient satisfaction regarding nursing care provided in four selected hemodialysis units at Teaching Hospital in Khartoum State.

Concerning the socio-demographic characteristics of patients under study, the results revealed that most of the study samples (19.3%), and (24.9%), of the patients, were in the age group of (46-55), and (56-65) years, respectively Figure1. This result comes with a study done in Qatar, found that 44.6% were between 65-74 years of age and a study in Oman was The mean (SD) age was 50.1⁽¹⁷⁾, another study result revealed respondents were 61.0±15.5 years, years of age⁽¹⁸⁾, and Patients were in the age group of 55-72 years⁽¹³⁾. Whereas another result contradicted to this study were revealed that most of the study sample were within the age group of (18-35) years old and⁽¹⁰⁾, and 31(27.4%) of the clients were in the age group of 30-39 and 18-29 years respectively⁽¹⁹⁾. (51.37%) of the patients' age range from 35-75 years was found by⁽²⁰⁾. The disease is affecting the productive age group thus affecting the socioeconomic status and the quality of life as well. In respect to residence (43.3%) were from Om Durman city, which comes with a result done in India showed 49(70%) of patients were residing in urban areas⁽¹⁴⁾. Om Durman city is the least city in hemodialysis services, patients are facing difficulties thus being the factor that affects the satisfaction of patients who immigrate several hours two days weekly for dialysis services in Khartoum city. Regarding gender, the result shows that the majority of the respondents (67%) were male. This result is similar to a study carried by⁽¹⁵⁾, who found that the majority of the study sample (61.8%) were males, in addition to a study done in Egypt, in which the sample has slightly more males (59.5%). In turn, and (67.3%) were male as showed by (13,19) this is affecting the income putting more stress on all family members as most of the families depend on the males to run their daily requirements as well as health expenditure.

Concerning the educational status, 66 (28.3%), were educated up to the high secondary level this is not in agreement with a result studied by (17) in which education was mostly basic (read and write) (48.1%) or primary (26.6%). And (67.3%) in a study by⁽⁴⁾. Mansour, and also with a study from Ethiopia that revealed, Most of the study participants' educational level was college and above.

Concerning the study subjects' occupation, the result showed that most of the participants (51.1%) were jobless and housewives. Also, 62.4% of patients were retired, 11.7% were unemployed, 9.5% were part-time, and 9.1% were full-time while, 7.3% engaged in the household as showed by⁽²¹⁾. (50.0%) of the sample were not work, which donate patients low satisfaction response due to their less opportunity to work, this result is supported by, a study done by⁽⁴⁾, Chronic kidney disease is a major health problem due to the significant financial burden for the healthcare system and likewise for the patient who needs the treatment.

For the family income, the result presented that two-third of the study population 159 (66.9%), were from low-income class income and funding are important parameters affecting QOL of kidney patients

This result presented the overall satisfaction with care was (65.2%) equivalent to 3.21 on the Likert scale which was found to be higher than results that showed the overall proportion of participants satisfaction with the dialysis was (41.6%), another result conducted in Egypt showed findings 50% satisfied with the care provided in the dialysis unit, Monica also reported that 47(67.1%) of maintenance hemodialysis patients were satisfied with the care^(13,14,19). Another research identified three main themes of concern regarding nursing care among hemodialysis patients: physical care, psychological support, and patient education which comes in contrast with the present result⁽⁵⁾, it is incongruent with study similar findings lower than the present result showed with study conducted in Sauopolo, Brazil 53 % and a work done in conducted in Kenya at renal unit of Kenyatta National hospital with findings 50% satisfied with the care provided in dialysis unit as stated by⁽¹⁹⁾. the current finding is high compared to the other studies despite the scarcity of resources, which needs improvement as this result highlights the significance of patients' opinions and awareness as main acting factors of healthcare provision.

In regards to patients' satisfaction with accessibility and convenience, (59.0%) rated as 2.95 on the Likert scale, the respondents were not satisfied, (Table 3). this came with a study performed in the hemodialysis ward of Kowsar hospital in Semnan, in 2014, showed that that access to human resources and their abilities were among the factors facilitating care. However, the lack of qualified medical staff at each level of care delivery was one of the barriers to hemodialysis care. Hence, stated by⁽¹⁷⁾. Similarly (Teshome) mentioned that patients' satisfaction level with availability and accessibility of the service was (2.51, 0.745) (19). Moreover, it was stated that the three main areas for improvement were: 1) car-parking, 2) practical support (e.g. cooking meals, etc.) and 3) having accessible locations (away from large hospitals; easier access for transport and

parking)⁽¹¹⁾.

Access to resources is one of the essential elements of quality of services, inability to reach or inadequacy of resources for hemodialysis needed for the ideal required doses of dialysis three times per week is an experience that can greatly affect patients satisfaction.

Correlation between accessibility and convenience with the demographics data showed a significant relationship with residence and family income (p-value 0.001, 0.51) respectively (Table 3). Most of the respondents were of low-income class and they face difficulties in accessing dialysis settings because they had to pay for everything and this increase the burden of the disease, besides the other socioeconomic problems. Health authorities have to support those very ill clients by transportation means to alleviate their suffering.

On associating patients satisfaction regarding communication of nurses with patients, the results of the study discovered that the majority of study subjects (80.1%) were satisfied with nurses' communication by all items related to communication domains, also there was a significant association between demographic data and Communication (p-value 0.044)(Table 4). "communication is a significant factor in patient satisfaction and complaints about care and, plays an integral role in service quality in all service professions including health care professions" as stated by ⁽²²⁾. A study (Karaca A.) presented that nurses were less interested in explanations about their interventions and communication with patients that did not meet their expectations. ⁽¹⁰⁾. on the other hand, nurses ought to understand patients, build trust and respond to their needs through encouragement⁽¹³⁾. Moreover, Atashzadeh and colleagues recognized that fulfilling the patients' requirements via communication, carefulness, and shared respect concerning the nurse and the patient as focused care⁽²²⁾. "As a profession, nursing predominately requires communicating with and relating to, patients at the individual level.

In the hospital setting nurses to undertake many of their patient-related duties in a face-to-face manner with the patient at the bedside and these moments can facilitate effective interaction to occur between the nurse and the patient, which is patient-centered. McCabe et al. state that patient-centered communication as "defined by Langewitz et al. as 'communication that invites and encourages the patient to participate and negotiate in decision-making regarding their care'." ⁽²¹⁾. Communication is considered as the cornerstone of nurses' work which, affects clinical performance, with patient especially for those jeopardized clients on chronic renal dialysis.

Regarding patients' satisfaction toward meeting their needs the results of the present study revealed that (86.9%) patients were satisfied with the nurses' response to their needs and expectations, Health education had the lowest respondent score in this work (65.1%) this is supported by a study result revealed that the majority (78%) evaluated the general information about kidney disease and treatment as helpful⁽²¹⁾. Patients' education appeared to be another issue of discussion and skepticism. Overall, responders felt that although education consisted of an important part of care. ⁽⁶⁾

Health education is an essential element in patient management so educating patients who were in a challenge with continuous fluids and dietary restriction has great value in the stabilization of patient condition on daily life and even control of ultrafiltration of fluids during dialysis to avoid complications. As education affects the patients' adherence to dialysis and medication regimen beside the infection control practice and access site protection. this is supported by a result by ⁽¹⁵⁾. The present result is lacking, nurses need to assess their patients' knowledge and provide comprehensive health education that benefits the customer. "Early education for the hemodialysis procedure patient has the potential to improve the quality of patient satisfaction and increase care-effectiveness"⁽⁴⁾

Regarding satisfaction with nursing care, the result reflected (75.8%) rated (3.79) on the Likert scale (Table 1), which, supported by a work done by Soliman, et, al, who found that similarly satisfaction from the nursing care, we noted that in all cases, almost all patients were very to extremely satisfied. Ferentinou ⁽²⁰⁾. Also, moreover, a work done providing high-quality nursing care to patients is associated with several care challenges that decrease the quality of nursing care showed by a research done in Iran (18). The recent finding is in contradiction with a result of the study conducted in

Baghdad, Iraq indicated that there is moderate satisfaction to clinical nursing care⁽⁴⁾.

Moreover, 88.6% of the patients were satisfied by the nurses dealing with dialysis catheter and general wound dressing (88.6%) rated 4.43 on Likert scale, the highest score which came with a study done in Nairobi in which satisfaction with dialysis catheter and general wound dressing was rated at 3.81, which was the highest score on Likert scale by 76.2% of the patients and the general care of patients during dialysis was of high quality as patients were very satisfied, in the present work 75.1% of the patients were satisfied while patients and sharing in solving their problems got the lowest score 55.7% of them rated 2.79 on Likert scale.

With regards to the relationship between the patients' satisfaction with nursing care, the present study presented a strong relationship between nursing care and gender, occupation and, family income (0.013, 0.048, 0.009) respectively (Table 6). This is supported by a study results indicate that there is a significant relationship between the patient's satisfaction and their gender and occupation, and there is a non-significant relationship with their age and residency⁽⁵⁾. nursing care is a precis significant factor in patients' satisfaction or

dissatisfaction with their experiences in hospital, and nurses' and are the essential determinants of the patient satisfaction. It is of great importance for policymakers, managers, and program designers to recruit human resources who have the characteristics and competencies required for providing hemodialysis care according to⁽²¹⁾. Some international studies have reported low satisfaction from the provided nursing care according to⁽⁵⁾. Moreover, the result is in arrangement with similar studies particularly with Palmer et al. and Ferentinou E, et al^(18,20).

Concerning the physical environment of the unit, the result presented that there is low participants' satisfaction with the issue of the environment (51.6%) rated as (2.58) on the Likert scale. Especially with waiting place, temperature and lighting this is come with a study findings stated that "The limited space available in the dialysis department, poor hygiene, poor bed conditions, and worn-out mattresses, the shortage of linen, poor ventilation and limited audio-visual facilities were some of the factors that caused dissatisfaction with the facilities provided"⁽¹³⁾. Shafipour reported in their qualitative study that patients get relief from a human being more than the environment and up-to-date services. This matter reveals the nursing and human nursing imperative part invariance to the need for practical nursing and new specialized services⁽²²⁾. Hemodialysis is a life long continuous treatment for those patients spending about four hours receiving care which creates stressful consequences for the patients as well as for the staff, good physical environment with adequate facilities can promote comfort for the patients and support working condition and increase the quality of care thus, in turn, increase patients satisfaction.

V. Conclusion:

This study revealed that the respondents had lower levels of satisfaction concerning health education, and the unit environmental, moreover they showed moderate satisfaction toward the nursing care given in the dialysis unit. This needs extensive work to overcome the obstacles that led to this result to optimize the care for dialysis clients.

Yet again this study finding exposed the most common causes of dissatisfaction were the accessibility and convenience, residence, and family income, health education, and the unit environment. Focusing on these zones and improving its elements can lead to service quality and thus patients satisfaction.

VI. Recommendations:

- Managers, inspectors and health care providers of the health care service in the dialysis units should pay attention to improve the level of clients' satisfaction.
- The Stakeholders and other concerned bodies should improve the accessibility of services, through increasing dialysis machines to meet the increasing clients' numbers looking for better services including resources and materials needed for investigations, surgeries, dialysis, medications, and transportations.
- Reducing patient waiting time to obtain healthcare services by increasing the proportion of health care providers and all others supporting staff with the number of customers to make maximum utilization of their services and in turn to benefit the clients.
- Great emphasize should be directed toward clients reassurance, and the educational aspects at the hemodialysis unit by providing educational posters, guidelines, pamphlets, and manuals and it is provided the modern educational nursing team at hemodialysis enhance health education.

Acknowledgments:

This work is a part of the researcher's Doctoral study done through the University.

An annotation of appreciation goes to the researcher's Adviser Associate Professor/ Dr. Hayat Fadlalla Mukhtar, Dean, Faculty of Nursing and Technology of Health Sciences, Department of Medical-Surgical Nursing Sciences / Karray University. Khartoum, Sudan. For her patience and kind guidance. The authors thank all the patients who participated in the study and their caregivers. I would also like to thank and appreciate all my colleagues for their kindness and hopefully assistance. Great appreciation goes to the hospital authorities, department managers and the helpful nursing professionals for their kind approach.

References

- [1]. Olivier J. Wouters¹, Donal J. O'Donoghue^{2, 3}, James Ritchie², Panos G. Kanavos¹, and ASN. Early chronic kidney disease: diagnosis, management, and models of care. *Physiol Behav* [Internet]. 2015;11(8):491–502. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4531835/pdf/nihms-711558.pdf>
- [2]. Neuen BL, Chadban SJ, Demaio AR, Johnson DW, Perkovic V. Chronic kidney disease and the global NCDs agenda. *BMJ Glob Heal* [Internet]. 2017;2(2):7–10. Available from: <https://gh.bmj.com/content/bmjgh/2/2/e000380.full.pdf>
- [3]. U.S. Renal Data System. 2015 USRDS Annual Data Report Volume 2: Epidemiology of Kidney Disease in the United States. *United States Ren Data Syst* [Internet]. 2016;2:1–274. Available from: <http://www.usrds.org/2015/view/Default.aspx>
- [4]. Rocco M, Daugirdas JT, Depner TA, Inrig J, Mehrotra R, Rocco M V., et al. KDOQI Clinical Practice Guideline for Hemodialysis Adequacy: 2015 Update. *Am J Kidney Dis* [Internet]. 2015;66(5):884–930. Available from: [https://www.ajkd.org/article/S0272-6386\(15\)01019-7/pdf](https://www.ajkd.org/article/S0272-6386(15)01019-7/pdf)

- [5]. Stavropoulou A, Grammatikopoulou MG, Rovithis M, Kyriakidi K, Pylarinou A, Markaki AG. Through the Patients' Eyes: The Experience of End-Stage Renal Disease Patients Concerning the Provided Nursing Care. *Healthcare* [Internet]. 2017;5(3):36. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5618164/pdf/healthcare-05-00036.pdf>
- [6]. Knowles, S. R., Ski, C. F., Langham, R., O'Flaherty, E., Thompson, D. R., Rossell, S. L., ... Castle, D. J. Design and protocol for the Dialysis Optimal Health Program (DOHP) randomized controlled trial. *Trials*, 2016; 17(1), [447]. Available from: <https://doi.org/10.1186/s13063-016-1558-z>
- [7]. Dawood RA, El- NE, Salem YM, Hussein R. Effect of Implementing a Protocol of Nursing Care on Hemodialysis Patients ' Safety Outcomes. *IORS J Nurs Heal Sci*. 2016;5(5):31–43.
- [8]. Global status report on noncommunicable diseases 2014. Geneva: World Health Organization; 2014. Available from: http://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854_eng.pdf;jsessionid=19E4FF995306BDD189D98617243563FD?sequence=1
- [9]. Luyckx VA, Tonelli M, Stanifer JW. The global burden of kidney disease and the sustainable development goals. *Bull World Health Organ* [Internet]. 2018;96(6):414–422C. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5996218/pdf/BLT.17.206441.pdf>
- [10]. Karaca A, Durna Z. Patient satisfaction with the quality of nursing care. *Nurs Open*. 2019;6(2):535–45.
- [11]. 41818e8d7a81381ba461629eea327e62f36c2400971b63cfb7fc0cc72b6da3c4 Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6419107/>
- [12]. Coleman S, Havas K, Ersham S, Stone C, Taylor B, Graham A,... Bonner A. Patient satisfaction with nurse- led chronic kidney disease clinics: A multicentre evaluation. [Internet]. 2017; 43(1):11-20. Available from: https://eprints.qut.edu.au/101810/1/Patient%20satisfaction%20with%20nurse%20led%20clinics_Accepted.pdf
- [13]. Park GY, Yoo EK. A study on quality of life in hemodialysis patients. *Inf* [Internet]. 2016;19(11):5607–12. Available from: https://www.researchgate.net/publication/282574684_Quality_of_Life_in_Hemodialysis_Patients/fulltext/587bb5c508ae9275d4e00c46/282574684_Quality_of_Life_in_Hemodialysis_Patients.pdf?origin=publication_detail
- [14]. Bayoumi M, Guindy HA El, Ahmed A. Patients ' Satisfaction with Care at Dialysis Unit. *Int J Nurs Sci*. 2016;6(5):117–22. Available from: <http://article.sapub.org/10.5923.j.nursing.20160605.02.html>
- [15]. Monika Sharma. Satisfaction With Care In Hemodialysis Unit Among Maintenance Hemodialysis (Mhd) Patients. 2018;08(6):21185–92. Available from: <https://www.journalijdr.com/satisfaction-care-hemodialysis-unit-among-maintenance-hemodialysis-mhd-patients> (13)
- [16]. Wanjiku H. an Evaluation of Perceptions on Maintenance Haemodialysis Services in a Resource-Limited Setting : a Quality of Care Survey. 2014; Available from <https://pdfs.semanticscholar.org/6c2f/bfd044d05088e3d2ce0d74cc8b9d36ac544.pdf> (14)
- [17]. Al-Abri R, Al-Balushi A. Patient satisfaction survey as a tool towards quality improvement. *Oman Med J*. 2014;29(1):3–7. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3910415/pdf/OMJ-D-13- 00247.pdf> 17
- [18]. Rojas JN. Hemodialysis Patient Care in Renal Dialysis Unit among Selected Hospitals in the Sultanate of Oman. *IORS J Nurs Heal Sci*. 2017;06(02):01–8. Available from: <https://pdfs.semanticscholar.org/d982/7e96b53770c5bba1655841f060ac0dbaa884.pdf>
- [19]. Palmer SC, Berardis G De, Craig JC, Tong A, Tonelli M, Pellegrini F, et al. Patient satisfaction with in-center hemodialysis care : an international survey. 2014;4(5):1–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4039823/pdf/bmjopen-2014-005020.pdf>
- [20]. Teshome Habte Wurjine1, * SKR 1Department. Assessment of Patients' Satisfaction with Care at Selected Governmental Dialysis Units in Addis Ababa, Ethiopia, 2018. *Am J Nurs Sci* [Internet]. 2018;7(6):202–9. Available from: <http://article.sciencepublishinggroup.com/pdf/10.11648.j.ajns.20180706.11.pdf>
- [21]. Ferentinou E, Giannakopoulou M, Prezerakos P, Sachlas A, Theofilou P, Zyga S. Measuring beliefs and satisfaction regarding nursing care among Greek patients on hemodialysis. *J Behav Heal* [Internet]. 2016;5(3):117. Available from: https://pdfs.semanticscholar.org/40e7/dd3eeaf2937664d02294d7e742690f91df87.pdf?_ga=2.76536534.237859848.1573792873-497814527.1573792873
- [22]. Newell S, Jordan Z. The patient experience of patient-centered communication with nurses in the hospital setting: a qualitative systematic review protocol. *JB I Database Syst Rev Implement reports*. 2015;13(1):76–87. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/26447009>
- [23]. Shahdadi H, Rahnama M. Experience of Nurses in Hemodialysis Care: A Phenomenological Study. *J Clin Med*. 2018;7(2):30. Available from:

Zalfa Hamed Door. "The Satisfaction of Patients on Maintenance Hemodialysis Concerning the Provided Nursing Care in Hemodialysis Units." *IORS Journal of Nursing and Health Science (IORS-JNHS)*, vol. 8, no. 06, 2019, pp. 25-35.