
Determinants Of Quality of Hemodialysis Services in Selected County Dialysis Centers in Nyanza Region, Kenya

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DOI - <http://doi.org/10.37502/IJSMR.2023.6921>

Abstract

Background: Hemodialysis is a common management intervention in chronic kidney and End-Stage Renal Disease patients. Despite the increase in utilization of maintenance hemodialysis in low and medium-income countries, there needs to be more efforts to assess the quality of hemodialysis services.

Objective: To evaluate the quality of hemodialysis services at selected county dialysis centres.

Methodology: A cross-sectional descriptive study was used. Proportionate sampling was used with a sample size of 118 patients on hemodialysis. Chi squares test was used to determine the association between variables while binary logistic regression analysis was used to determine predictors of quality hemodialysis services.

Results: Fifty-six percent of the participants perceived the quality of hemodialysis services as good. Gender, education level, co-morbidities, admission due to side effects, social support, waiting time, education before dialysis session, and satisfaction with care were associated with the quality of hemodialysis services. Moreover, being male (AOR =3.75, 95%CI: 1.11 – 12.64, p =0.033), having secondary level education (AOR =2.31, 95%CI: 1.41 – 4.97, p =0.046), having been admitted due to side effects since the beginning of hemodialysis sessions (AOR =0.22, 95%CI:0.15 – 0.86, p<0.001), having received social support from family and friends (AOR =11.49, 95%CI: 1.79 -73.95, p =0.010) and not waiting longer to be allocated a H.D. (AOR = 0.21, 95%CI: 0.05 – 0.93, p =0.041) as predictors of quality of hemodialysis services:

Conclusion and recommendation: The quality of hemodialysis services in selected centres is slightly above average. Increased health education, training more staff on the needs of patients, and reviewing appointment period based on the number of machines available is essential to improve the quality of hemodialysis services.

Keywords: Determinants, Chronic Kidney Disease, Hemodialysis, Quality

1. Introduction

Quality of life is an essential parameter in determining the health and well-being of individuals. It is also an important indicator of outcomes such as mortality and morbidity of a disease. Chronic kidney disease (CKD) is the 14th leading cause of death worldwide (Fayer et al., 2015). The CKD global prevalence has drastically increased to 9.1 % (697.5 million cases). According to Lancet Statistics 2017, CKD resulted in 1.2 million deaths (Lancet, 2020). Treatment of CKD is divided into conservative management and renal replacement therapy. The most common form of kidney replacement therapy is hemodialysis. Hemodialysis has been considered a significant approach to managing CKD since 1940. Despite maintenance dialysis being essential to most CKD patients, more than 100 countries globally cannot maintain hemodialysis. Approximately 850 million renal patients are on hemodialysis (Li et al., 2021). The increased number of patients needing hemodialysis has limited the quality delivery and management practices. The burden has been higher in low and middle-income countries, which are mainly characterized by inadequate quality care (Rix et al., 2015)

There has been an increasing trend in morbidity and mortality in CKD patients despite the innovation and changes over the last five years (Grangé et al., 2013). Across Europe, the survival rate among CKD patients on hemodialysis has been reported as 78% (Balouchi et al., 2018a). Low-income countries have been struggling with the inability to improve the quality of healthcare and focus on specific healthcare needs. Bahadori et al. (2014) study identified the lack of enough hemodialysis machines, inadequate hemodialysis specialists, and patients' socioeconomic status as the main factors compromising the quality of hemodialysis services. Hashemi et al. (2018) identified critical aspects in assessing the quality of hemodialysis. These include physical patient stressors, support and improved quality of healthcare, improved facilities, and equipment requirements.

Kenya has yet to be exempted from these challenges in maintaining hemodialysis in patients on maintenance hemodialysis (Rix et al., 2015). More research is needed on the quality of life of hemodialysis services in Kenya. Therefore, the study aimed to establish the quality of hemodialysis services and associated factors in selected county facilities in Kenya.

A. *Broad objective*

To evaluate the quality of hemodialysis services at selected county referral hospitals.

B. *Specific objectives*

1. To establish patient-related factors that influence the quality of hemodialysis Services at selected county dialysis centres.
2. To assess institutional-based factors that influence the quality of hemodialysis Services at selected county dialysis centres.
3. To find out healthcare personnel-related factors that influence the quality of hemodialysis Services at selected county dialysis centres.

2. Methodology

1. *Research design*

The study adopted a descriptive cross-sectional study design to assess the quality of hemodialysis services at selected county dialysis centres. The study design was appropriate because it provided an understanding of descriptive details of the study population about the quality of hemodialysis delivered.

2. Study area and setting

The study was carried out in four renal facilities within Kenya. These facilities include Kisii Teaching and Referral Hospital (KTRH), Nyamira County Referral Hospital, Homabay County Referral Hospital, and Migori County Referral Hospital. These facilities were considered because they serve almost all patients with similar characteristics and have comparable structures.

3. Sampling Method and Sample Size Determination

The study incorporated a proportionate sampling technique. The population involved four referral facilities; hence, the number of participants in each group was recruited proportionately based on the sample calculated. Taro Yamane formula was applied to calculate the minimum number required for the study's threshold. A sample size of 118 respondents were involved in the study.

4. Inclusion and exclusion criteria

Patients who had undergone hemodialysis for the past three weeks and could express themselves were included in the study. Patients with mental illness and the critically ill were excluded from the study.

5. Data collection method

A structured researcher-administered questionnaire with both closed and open-ended questions was used. The questionnaire had three major sections, including patient characteristics, institutional-based factors, and healthcare personnel-related factors that influence the quality of hemodialysis Services. SERVQUAL tool, which comprises five sections, namely, tangibles, responsiveness, assurance, reliability and empathy, was used to assess the quality of life. The tool included 22 questions (Tangibles = 4 questions, Responsiveness = 4, Assurance = 4 questions, Reliability = 5 questions, and Empathy = 5 questions). The questions have been modified to fit the hemodialysis care setting.

6. Validity and Reliability of Study Instrument

A pre-test was performed at Nyamache Level 4 Hospital to assess the validity and reliability of the questionnaire. This ensured the tool was efficient in determining the quality and checking the ambiguity of questions, ease of responding and whether the underlying study goals were attained.

7. Study Variables

The independent variables included patient-related factors, Institution-related factors, and healthcare personnel-related factors. The confounding variable was the perception of patients

and healthcare providers on hemodialysis. The dependent variable was the quality of hemodialysis services.

8. *Data analysis*

Categorical data was analyzed using frequencies and percentages and presented in graphs and charts. Continuous data was analyzed using Mean (S.D.) and median (IQR). Chi squares test was used to determine the association between the patient, institutional factors, healthcare professional aspects, and the quality of Hemodialysis services. Binary logistic regression was performed to identify independent predictors of the quality of hemodialysis services. All statistical tests were interpreted at a 5% level of significance.

9. *Ethical consideration*

The Kenyatta University Ethical Review Committee (KUERC), the National Commission for Science, Technology, and Innovation (NACOSTI), and the hospital's ethical review team sought ethical approval for the study. The subjects were provided with the purpose of the study, and informed written consent was obtained from them. Patients were made aware of voluntary participation.

4. Results

Hemodialysis patients' characteristics

The findings established that 61.9% (n =73) of the respondents were male, 28.8% (n =34) were aged ≥ 60 years, and 44.1% (n =52) of the respondents had secondary-level education. In addition, 66.9% (n =79) were married, and 72.9% (n =46) earned between ksh. 10,000 to ksh. 20,000 and 82.2% (n =97) had comorbidity. The findings also showed that among those who had a comorbidity, 67% (n =65) had hypertension (Table 1).

Table 1: Hemodialysis Patients' characteristics

Patient characteristics	Frequency(n)	Percent (%)
Gender		
Male	73	61.9 %
Female	45	38.1
Age group		
Less than 30	21	17.8
30 - 39 years	25	21.2
40 - 49 years	25	21.2
50 - 59 years	13	11.0
60 years and above	34	28.8
Level of education		
No schooling	5	4.2
Primary	30	25.4
Secondary	52	44.1
Tertiary	31	26.3
Marital status		
Single	22	18.6

Married	79	66.9
Divorced	10	8.5
Widowed	7	5.9
Religion		
Christian	104	88.1
Muslim	14	11.9
Occupation		
Employed	68	57.6
Retired	18	15.3
Unemployed	32	27.1
Average monthly income		
Less than Ksh.10,000	40	33.9
Ksh.10,000 - Ksh.20,000	46	39
Ksh,20,000 - Ksh.50,000	26	22
Above Ksh.50,000	6	5.1
Duration		
Less than one year	56	47.5
2 - 5 years	42	35.6
More than five years	20	16.9
Means of H.D. payment		
Cash	39	33.1
NHIF	79	76.9
Presence of comorbidity		
Yes	97	82.2
No	21	17.8
Type of comorbidity		
Hypertension	65	67.0
Diabetes	24	24.7
Cancer	2	2.1
HIV/AIDS	6	6.2

SERV-QUAL quality of hemodialysis services

The minimum score was 121, while the highest score was 149. Thus, 135 was considered the cut-off for the perceived quality of hemodialysis services identified by hemodialysis patients. A score equal to or more than the mean was considered good quality, while a score below par was regarded as low quality of Hemodialysis services. The results revealed that 56% of the respondents perceived the quality of hemodialysis as good, while 44% perceived the quality of hemodialysis services as poor (Figure 1).

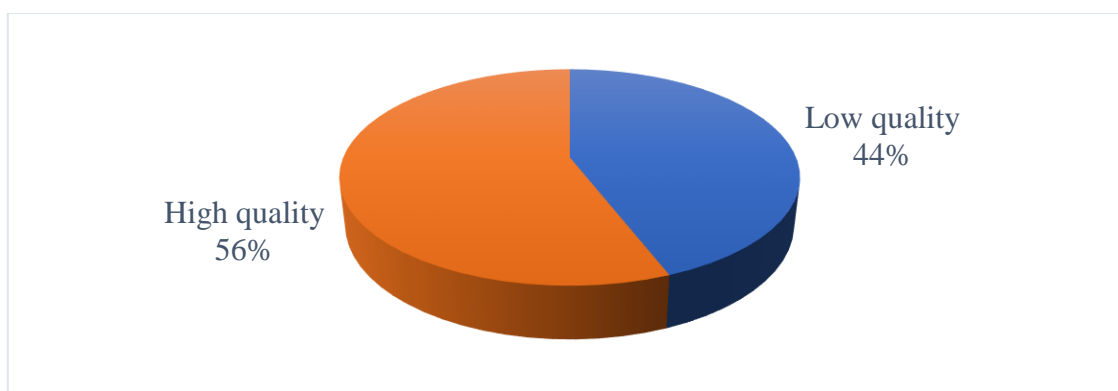


Figure 1: Perceived quality of Hemodialysis services

Disease-related characteristics among patients attending hemodialysis

Disease-related characteristics were assessed using a three-point Likert scale where 1 = Disagree, 2 = Neutral and 3 = Agree. The findings established that most of the respondents agreed that they do not have enough money to attend each dialysis session ($M = 2.5$, $SD = 0.8$), majority of the respondents also agreed that the dialysis time scheduled is convenient for them ($M = 2.75$, $SD = 0.62$) and disagreed of having health support groups ($M = 1.2$, $SD = 0.8$) (Table 2).

Table 2: Disease-related characteristics among patients attending hemodialysis

Statement	Disagree	Neutral	Agree	Mean	SD
I do not have enough money to attend each dialysis session	11(9.3)	44(37.3)	63(53.4)	2.5	0.8
The dialysis time scheduled is convenient for me	11(9.3)	8(6.8)	99(83.9)	2.75	0.62
I always adhere to my hemodialysis sessions	25(21.2)	24(20.3)	69(58.5)	2.6	0.8
I have been admitted due to side effects since I began hemodialysis sessions	78(66.1)	4(3.4)	36(30.5)	1.4	0.8
I receive emotional support from my family and friends	73(61.9)	14(11.9)	31(26.3)	1.3	0.6
I receive social support from family and friends	21(17.8)	24(20.3)	73(61.9)	2.6	0.6
I have a health support group where we discuss our progress	78(66.1)	20(16.9)	20(16.9)	1.2	0.8
Overall Mean				2.05	

The findings established that the majority of the respondents agreed to travel more than 5km to the hospital for dialysis ($M = 2.8$, $SD = 0.6$), to have their dialysis session shortened sometimes ($M = 1.3$, $SD = 0.7$) and that their lab reports are processed on time ($M = 2.6$, $SD = 0.3$). Respondents were neutral in stating that their dialysis sessions always begin as scheduled ($M = 2.3$, $SD = 0.8$) (Table 3).

Table 3: Institutional-based factors that influence quality of hemodialysis Services

Statement	Disagree	Neutral	Agree	Mean	SD
I travel more than 5km to the hospital for dialysis	48(40.7)	0	70(59.3)	2.8	0.6
Dialysis sessions always begin as scheduled	66(55.9)	0	52(44.1)	2.3	0.8
My dialysis sessions have never been shortened	84(71.2)	0	34(28.8)	1.3	0.7
Delivery of care is sometimes delayed because of faulty machines	77(65.3)	0	41(34.7)	1.4	0.8
My dialysis sessions do not always take four hrs.	104(88.1)	0	14(11.9)	1.3	0.5
I am given health information before hemodialysis sessions	29(24.7)	64(54.2)	25(21.2)	2.1	0.7
I waited for a long to be allocated a H.D. machine	25(21.2)	14(11.9)	79(67)	2.5	0.4
Lab reports are always processed on time	26(22)	3(2.5)	89(75.4)	2.6	0.3
I receive health education before every session	48(40.7)	30(25.4)	40(33.9)	2.2	0.8
Overall Mean				2.1	

Healthcare personnel-related factors that Influence quality of Hemodialysis Services

The findings also revealed that the majority of respondents agreed that they were always informed when there is a delay in the dialysis or break down in advance (M = 2.8, SD = 0.2); most of them also agreed that the healthcare workers always communicate about the following schedule (M = 2.5, SD = 0.5). However, the majority of the respondents disagreed with the statement that their questions were addressed promptly (M = 1.3, SD = 0.6) (Table 4).

Table 4: Healthcare personnel-related factors

Healthcare personnel	Disagree	Neutral	Agree	Mean	SD
The healthcare workers always communicate about my next schedule	19(16.1)	9(7.6)	90(76.3)	2.5	0.5
I am always informed when there is a delay in the dialysis or break down of machine in advance	28(23.7)	0	90(76.3)	2.8	0.2
I am satisfied with the care I receive	55(46.6)	26(22.0)	37(31.4)	2.1	0.3
My queries are always addressed promptly	82(69.5)	20(16.9)	16(13.6)	1.3	0.6
I always feel safe and comfortable when coming for my hemodialysis	30(25.4)	41(34.7)	47(39.8)	2.2	0.5
Overall				2.18	

Patient-related factors associated with the quality of hemodialysis services

The findings revealed that gender, $\chi^2(1) = 9.726$, $p = 0.0026$, level education, $(\chi^2) (3) = 18.907$, $p < 0.001$ and the presence of comorbidity $(\chi^2) (1) = 6.488$, $p = 0.014$ were significantly associated with patient's perception of quality of hemodialysis (Table 5).

Table 5: Patient-related factors associated with the quality of hemodialysis services

Factors	Perceived quality of health services		χ^2	Df	P-value
	Low quality n (%)	High-quality n (%)			
Gender					
Male	24(46.2)	49(74.2)	9.726	1	0.002
Female	28(53.8)	17(25.8)			
Age					
Less than 30	11(21.2)	10(15.2)	18.907	4	0.218
30 - 39 years	7(13.5)	18(27.3)			
40 - 49 years	9(17.3)	16(24.2)			
50 - 59 years	5(9.6)	8(12.1)			
60 years and above	20(38.5)	14(21.2)			
Level of education					
No schooling	3(5.8)	2(3.0)	18.907	3	<0.001
Primary	22(42.3)	8(12.1)			
Secondary	21(40.4)	31(47)			
Marital status					
Single	10(19.2)	12(18.2)	0.844	3	0.839
Married	35(67.3)	44(66.7)			
Divorced	5(9.6)	5(7.6)			
Widowed	2(3.8)	5(7.6)			
Religion					
Christian	49(94.2)	55(83.3)	3.303	1	0.088
Muslim	3(5.8)	11(16.7)			
Occupation					
Employed	29(55.8)	39(59.1)	5.05	2	0.082
Retired	12(23.1)	6(9.1)			
Unemployed	11(21.2)	21(31.8)			
Monthly income					
Less than Ksh.10,000	17(32.7)	23(34.8)	0.617	3	0.873
Ksh.10,000 -	22(42.3)	24(36.4)			
Ksh.20,000					
Ksh,20,000 -	11(21.2)	15(22.7)			
Ksh.50,000					
Above Ksh.50,000	2(3.8)	4(6.1)			
Duration since diagnosis					
Less than one year	27(51.9)	29(43.9)	1.006	2	0.605
2 - 5 years	16(30.8)	26(39.4)			
More than five years	9(17.3)	11(16.7)			
Mode of payment for services					
Cash	13(25)	26(39.4)	2.723	1	0.117

NHIF	39(75)	40(60.6)			
Comorbidities					
Yes	48(92.3)	49(74.2)	6.488	1	0.014
No	4(7.7)	17(25.8)			
Type of comorbidity					
Hypertension	25(55.6)	40(67.8)			
Diabetes	14(31.1)	13(22.0)	4.088	3	0.252
Cancer	2(4.4)	0			
HIV/AIDS	4(8.9)	6(10.2)			

Institutional-based factors that influence the perceived Quality of hemodialysis Services

The results established that waiting time for H.D., $\chi^2(2) = 5.228$, $p = 0.027$ and receiving education before the start of dialysis, $\chi^2(2) = 14.045$, $p < 0.001$ were significantly associated with perceived quality of hemodialysis services (Table 6).

Table 6: Institutional-based factors that influence the perceived quality of hemodialysis Services

Institutional factors	Quality of health services		χ^2	Df	p-value
	Low quality (%)	n High quality n (%)			
I travel more than 5km to the hospital for dialysis					
Disagree	19(36.5)	29(43.9)	0.66	1	0.455
Agree	33(63.5)	37(56.1)			
Dialysis sessions always begin as scheduled.					
Agree	20(38.5)	32(48.5)	1.186	1	0.351
Disagree	32(61.5)	34(51.5)			
My dialysis sessions have never been shortened.					
Disagree	40(76.9)	44(66.7)	1.492	1	0.306
Agree	12(23.1)	22(33.3)			
Delivery of care is sometimes delayed because of faulty machines.					
Disagree	7(13.5)	10(15.2)	0.062	1	0.505
Agree	45(86.5)	56(84.8)			
My dialysis sessions sometimes take up to four hours.					
Disagree	5(9.6)	9(13.6)	0.45	1	0.576
Agree	47(90.4)	57(86.4)			
Disagree	9(17.3)	16(24.2)			
I waited for a long to be allocated a H.D. machine.					
Disagree	16(30.8)	9(13.6)			
Neutral	6(11.5)	8(12.1)	5.228	2	0.027
Agree	30(57.7)	49(74.2)			
Lab reports are always processed on time.					
Agree	16(30.8)	10(15.2)			
Neutral	1(1.9)	2(3.0)	3.796	2	0.051
Agree	35(67.3)	54(81.8)			

I receive health education before every dialysis session.

Disagree	31(59.6)	17(25.8)	14.045	2	<0.001
Neutral	11(21.2)	19(28.8)			
Agree	10(19.2)	30(45.5)			

Healthcare personnel-related factors that influence the perceived quality of hemodialysis Services.

The findings established that satisfaction with care was significantly associated with the quality of hemodialysis services $\chi^2(2) = 11.308$, $p = 0.001$ (Table 7).

Table 7: Healthcare personnel-related factors that influence the perceived quality of hemodialysis Services.

Health personnel factors	Quality of health services		χ^2	Df	P-value
	Low quality n(%)	High quality n(%)			
The healthcare workers always communicate about my schedule.					
Disagree	10(19.2)	9(13.6)	5.694	2	0.121
Neutral	7(13.5)	2(3.0)			
Agree	35(67.3)	55(83.3)			
I am always informed when there is a delay in the dialysis or a breakdown of the machine in advance.					
Disagree	14(26.9)	14(21.2)	0.524	1	0.518
Agree	38(73.1)	52(78.8)			
I am satisfied with the care I receive					
Disagree	31(59.6)	24(36.4)	11.308	2	0.001
Neutral	13(25)	13(19.7)			
Agree	8(15.4)	29(43.9)			
My queries are always addressed promptly.					
Disagree	38(73.1)	44(66.7)	0.586	2	0.746
Neutral	8(15.4)	12(18.2)			
Agree	6(11.5)	10(15.2)			
I always feel safe and comfortable when coming for my hemodialysis.					
Disagree	21(40.4)	9(13.6)	24.541	1	0.625
Neutral	23(44.2)	18(27.3)			
Agree	8(15.4)	39(59.1)			

Determinants of perceived quality of Hemodialysis services

Multivariate analysis using logistic regression used variables significantly associated with the perceived quality of hemodialysis services. The results showed that male respondents were 3.75 times more likely to perceive the quality of hemodialysis services as good (AOR =3.75, 95% CI: 1.11 – 12.64, $p=0.033$). Those with secondary education were 2.31 times more likely to perceive the quality of hemodialysis services as good than those without schooling (AOR =2.31, 95%CI: 1.41 – 4.97, $p=0.046$). Respondents who agreed that they receive social support from family and friends were 11.5 times more likely to perceive the quality of hemodialysis services as good (AOR =11.49, 95%CI: 1.79 -73.95, $p=0.010$) (Table 8).

Table 8: Determinants of quality of hemodialysis services

	AOR	95% C.I. AOR		P-value
		Lower	Upper	
Gender				
Male	3.75	1.114	12.644	0.033
Female	Ref			
Level of education				
No schooling	Ref			
Primary	0.10	0.02	2.11	0.612
Secondary	2.31	1.41	4.97	0.046
Presence of comorbidity				
Yes	0.6	0.1	2.9	0.504
No	Ref			
I receive social support from family and friends.				
Disagree	Ref			
Neutral	1.89	0.49	7.28	0.356
Agree	11.49	1.79	73.95	0.010
I waited for a long to be allocated a H.D. machine.				
Disagree	Ref			
Neutral	0.21	0.05	0.93	0.041
Agree	1.66	0.28	9.64	0.574
I receive health education before every dialysis session.				
Disagree	Ref			
Neutral	0.33	0.09	1.27	0.108
Agree	0.64	0.14	3.01	0.577
I am satisfied with the care I receive				
Disagree	Ref			
Neutral	0.28	0.08	1.05	0.059
Agree	0.24	0.05	1.23	0.088

5. Discussion

The quality of hemodialysis services

The results revealed that 56% of the respondents perceived the quality of hemodialysis as good, while 44% perceived the quality of hemodialysis services as poor. These findings compare to previous studies (Ndambuki, 2013; Saran et al., 2015; Balouchi et al., 2018) where most respondents considered their quality of hemodialysis good. The higher rate of hemodialysis services could be attributed to using bio-clinical parameters and improved health systems in Saudi Arabia compared to Kenya. The differences in results may be attributed to the different parameters used in determining the quality of hemodialysis services in the two studies.

Patient-related factors associated with the quality of hemodialysis services

The findings revealed that 61.9% of the patients were male, consistent with several studies which showed male patients on hemodialysis to be more than females (Cherono, 2017; Balouchi et al., 2018b and Backhaus et al., 2017). Besides, this study showed that 61 % of the respondents were aged 40 years and above, with 28.8 per cent of the patients aged 60 years and above. These findings agree with a study by Kamau et al. (2014) but disagree with Riang et al. (2017) and Zyga et al. (2015) studies, which established that the majority of patients with CKD were aged above 50 years. Lifestyle diseases are commonly associated with ageing, with some complicating CKD. This is due to increased comorbidities such as high blood pressure, diabetes, prolonged use of over-the-counter drugs, and kidney stones, which are common in this age group (Kistler et al., 2021).

Sociodemographic variables that were significantly associated with good quality hemodialysis services were gender and educational level. Concerning gender, male patients were 3.75 times more likely to perceive the quality of hemodialysis as good than female patients. These findings agree with Bahadori et al. (2014) and Wanjiku (2014), where most male patients rated the quality of dialysis services as good and were more satisfied with dialysis services than female patients. The findings also revealed that patients with secondary-level education were twice as likely to perceive the quality of hemodialysis as good compared to those with a lower education level. These findings collaborate with previous studies, which established a significant relationship between patient education level and quality of hemodialysis (Grondahl et al., 2019; Bayoumi et al., 2016). Females are more burdened with family and numerous domestic tasks, which they may not circumvent despite the illness, negatively impacting their quality of life (Kamau et al., 2014). Patients with a low level of education have low expectations concerning the quality of hemodialysis services. They lacked enough awareness of what to anticipate regarding the health facility's dedication to providing hemodialysis services and hence ended up having many challenges with the services they received (Patrick et al., 2017),

Institutional factors influencing perceived quality of hemodialysis

The results established that patients with hemodialysis-related side effects perceived the quality of hemodialysis services as poor compared to those who did not have side effects. These findings align with those from Hashemi et al. (2018), who found that the development of side effects is majorly associated with a challenge in care. However, it is difficult to determine

whether the side effect is due to hospital quality of care or the inability of patients to adhere to the defined treatment regimen.

The study also revealed that waiting time for hemodialysis was significantly associated with the perceived quality of hemodialysis services. Patients who waited longer for a H.D. machine perceived their quality of hemodialysis as poor. These findings are consistent with past studies by Wanjiru (2014) and Fried et al. (2017), which revealed poor quality ratings among patients with a longer duration to access care. Longer waiting time among H.D. patients increase irritation, negatively influencing their care perception (Fried et al., 2017). The rate of fatigue is higher among H.D. patients, and thus, longer duration before care increases the likelihood of fatigue and exhaustion (Al Naamani et al., 2021).

Healthcare personnel factors influencing the perceived quality of hemodialysis.

The present study's findings revealed that receiving family support was a significant factor influencing the perceived quality of hemodialysis services. Respondents who agreed that they receive social support from family and friends were 11.5 times more likely to perceive the quality of hemodialysis services as good. The study's results concur with Kwaliimwa et al. (2015) and Ndambuki's (2013) findings, which revealed that receiving support from family and healthcare providers is associated with improved quality of care. Kwaliimwa et al. (2015) affirmed that healthcare providers and family members of patients on maintenance hemodialysis must work efficiently and diligently to ensure that the quality of care remains high to the patient's satisfaction.

The present findings also revealed that satisfaction with care received was significantly associated with the perceived sound quality of hemodialysis services but not a predictor of good quality. The results are contrary to Ahoui et al. (2019) study, which identified satisfaction as a critical predictor of the quality of hemodialysis services. The results could be due to differences in study settings and assessment tools. In our present study, the SERV-QUAL assessment tool has been utilized. In contrast, in their research, a general assessment of satisfaction was assessed as a critical measure of the quality of services.

6. Conclusion

The study demonstrates the strength of the relationship between sociodemographic factors, patient-related factors, institutional-related factors and quality of hemodialysis services. Being male, having a secondary education level, having been admitted with side effects from hemodialysis and receiving social support influenced the Quality of hemodialysis services. Health educational services should be provided targeting patients with lower levels of education to help understand the delivery of hemodialysis services. This will improve their perception of the quality of hemodialysis services.

Funding

The research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest

None

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