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ASSESSMENT OF FACTORS BEHIND HEMODIALYSIS REFUSAL IN CHRONIC KIDNEY DISEASE PATIENTS: CROSS SECTIONAL STUDY

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ABSTRACT

Background: *Chronic kidney disease (CKD) is becoming more common, and this suggests that it is a public health concern. The progressive and irreversible destruction of functional nephrons in chronic kidney disease (CKD) is linked to a considerable morbidity and death rate.*

Objective: *To assess the factors contributing to refusal of hemodialysis among chronic kidney disease patients.*

Method: *A descriptive cross-sectional study was conducted in the Ghurki hospital Punjab. Data was collected with help of modified questionnaire from 138 patients who were in the 3rd, 4th and 5th stage of CKD. The informed consent was taken from the study participants and data was analyzed with help SPSS version 27 by using frequency and percentage while to assess factor a statistical chi square test used with a p less than 0.05.*

Results: *Most of them were females (80.3%), aged above 32 (67.9%), married (75.2%), unemployed (50.4%), living in urban area 58.4% with dialysis sessions of 1-2 per week (50.4%), advised with catheter route of dialysis by physician (56.2%) inability to afford hemodialysis (HD) (64.2%), fear of HD catheter(55.5%), fear of AV fistula needles (49..9%), presence of HD center near their residence (28.5%) and the acceptability for the lifelong and permanent HD (59.1%). perception that HD has poor quality of life (23.36%). the fear of complications of HD. (80.29%). the perception that HD leads to death (68.61%) . dissatisfaction with the frequency of HD (35%), adverse outcomes among family or friends(46%), received advice against HD from family members(31.4%), alternatives to HD (39.4%), and kidney transplant(24.8%).*

Conclusion: *Factors contributing to CKD patients' refusal of HD include fear of complications, perceived poor quality of life and mortality, financial constraints, acceptance of lifelong HD, urban residence, physician recommendations for catheter-based dialysis, apprehension about HD catheters, and a limited dialysis schedule. Addressing these challenges necessitates a comprehensive approach involving medical, psychological, and social support to enhance patient outcomes and quality of life.*

Key words: *Hemodialysis, Refusal, Chronic Kidney Disease and Assessment.*

INTRODUCTION

Chronic kidney disease (CKD) is a growing public health concern marked by irreversible nephron damage, high morbidity and mortality, complex causes, and no definitive cure despite available treatments (1). Chronic kidney disease (CKD) involves lasting kidney structure or function abnormalities, like albuminuria or eGFR below 60 ml/min for over three months (2). According to Tong and colleagues, CKD stages range from Stage 1

(GFR >90 ml/min) to Stage 5 (GFR <15 ml/min), with symptoms and kidney failure becoming evident in Stage 5 due to severe fluid and electrolyte imbalances (3). Chronic kidney failure (CKF) is a growing global health issue with a 23% prevalence in Pakistan, marked by gradual, irreversible kidney function loss that may be slowed with regular treatment (4).

Chronic kidney disease (CKD) is defined by a persistently low eGFR (<60 ml/min/1.73 m^2 for over three months), which impairs drug excretion, raising toxicity risks and healthcare costs (5). CKD prevalence is 4.7% in the U.S., while studies in Pakistan report a higher incidence ranging from 16.6% to 25% based on community and health screenings (6). Arterial hypertension and diabetes are primary causes of CKD, though it can also result from infections, obstructions, genetic, or autoimmune conditions, all leading to inflammation, fibrosis, and progressive kidney decline toward end-stage disease (7). Chronic kidney disease (CKD) involves long-term loss of renal function and is linked to complications like cardiovascular disease, metabolic disorders, immune dysfunction, cognitive decline, and poor sleep (8).

CKD treatment aims to slow progression, manage complications, and prepare for renal replacement, with 90% of Pakistani patients opting for dialysis due to limited transplant access (9). Hemodialysis, the most common renal replacement therapy globally and in Pakistan, removes waste from end-stage renal failure patients, with millions treated worldwide and a 14–17% annual hospitalization rate (10). Hemodialysis for ESRD, projected to double by 2026, poses high costs, low survival, and significant physical, mental, and emotional burdens, including high depression and anxiety rates (11). Hemodialysis patients face high first-year mortality up to 40.6% in Punjab, Pakistan restoring only 10% of kidney function while posing risks like organ failure, electrolyte imbalance, and cardiovascular complications (10). In Pakistan, hemodialysis costs $4,669 annually—over four times the average income posing a major financial burden as ESRD spreads silently like an epidemic in developing nations (10).

Public misconceptions about dialysis contribute to high refusal rates in Pakistan, where 67.3% of CKD patients decline treatment far higher than countries like Singapore (2.39%) (Anees et al., 2020). Some patients who say no to dialysis prefer other treatments like herbal medicine, spiritual methods, or homeopathy. Choosing not to have dialysis not only affects their quality of life but also their chances of survival.(9)

Methodology: This descriptive cross-sectional study was conducted over four months at Ghurki Hospital, Lahore, to explore the reasons behind hemodialysis refusal among patients with stage 3–5 chronic kidney disease (CKD). Using purposive sampling, 138 participants aged 18–40 were selected based on Cochran's formula. Inclusion criteria were male and female CKD patients scheduled for hemodialysis and willing to participate, while those with poor prognosis (GCS <7), comorbidities (e.g., HTN, DM), psychiatric issues, or language barriers were excluded. Data was collected using a two-part modified questionnaire covering demographics and 13 items on factors affecting refusal. Informed consent was obtained, and confidentiality ensured. Data were analyzed in SPSS v27 using descriptive statistics (frequencies, mean, SD) and the chi-square test to identify significant associations ($p<0.05$) between variables and dialysis refusal.

Results

Table No 1: Demographic variables regarding age gender marital status employment

		n	%
Age	18-25	28	20.4
	26-32	16	11.7
	>32	93	67.9
Gender	Male	27	19.7
	Female	110	80.3

Marital status	Unmarried	34	24.8
	Married	103	75.2
Employment	Unemployed	69	50.4
	Employed	68	49.6
	Total	**137**	**100.0**
Analyzed by frequency (n) and percentage (%)			

Table 1 presents the demographic data of CKD patients, including age, gender, marital status, and employment. The majority were over 32 years old (67.9%), female (80.3%), married (75.2%), and unemployed (50.4%). These findings highlight that most participants were older, female, married, and not engaged in employment.

Table No 2: Demographic variables regarding dialysis sessions, area, route of dialysis.			
		n	%
Dialysis sessions advised by physician per week	1-2	69	50.4
	3-4	68	49.6
	Total	**137**	**100.0**
Area	Rural	57	41.6
	Urban	80	58.4
	Total	**137**	**100.0**
Route of dialysis advised by physician.	AV fistula	45	32.8
	Catheter	77	56.2
	Graft	15	10.9
	Total	**137**	**100.0**
Analyzed by frequency (n) and percentage (%)			

Table 2 summarizes CKD patients' demographics related to dialysis sessions, residence, and dialysis routes advised by physicians. Most patients (50.4%) were advised 1–2 dialysis sessions per week, 58.4% lived in urban areas, and 56.2% were advised to undergo dialysis via Catheter.

Table No. 3: Responses of hemodialysis patients			
		n	%
Are you unable to afford hemodialysis?	No	49	35.8
	Yes	88	64.2
Do you have fear of hemodialysis catheter?	No	61	44.5
	Yes	76	55.5
Are you afraid of AV fistula needles?	No	70	51.1
	Yes	67	48.9
Is there any hemodialysis center present near your residence?	No	98	71.5
	Yes	39	28.5
Do you feel that permanent and lifelong hemodialysis is acceptable?	No	56	40.9
	Yes	81	59.1
	Total	137	100.0
Analyzed by frequency (n) and percentage %			

This table no 3 gives data that 64.2% were yes responses of inability to afford hemodialysis, 55.5% were yes responses of fear of hemodialysis catheter, 51.1% were no responses for fear of AV fistula needles, 71.5% were no responses for presence of hemodialysis center near their residence and 59.1% were yes responses for the acceptability for the lifelong and permanent hemodialysis shown by table no.3.

Table No.4: Assessment of acceptance and refusal rate of Hemodialysis among chronic kidney disease patients.			
		n	%
Do you think that frequency of hemodialysis per week is unacceptable?	No	89	65.0
	Yes	48	35.0
Have you seen any adverse outcome in family or friend with hemodialysis?	No	74	54.0
	Yes	63	46.0
Are you advised by a family member to avoid Hemodialysis?	No	94	68.6
	Yes	43	31.4
Do you have desire of any other option except hemodialysis?	No	83	60.6
	Yes	54	39.4
Are you going to undergo a kidney transplant?	No	103	75.2
	Yes	34	24.8
	Total	**137**	**100.0**
Analyzed by frequency (n) and percentage (%)			

Table 4 presents feedback from CKD patients on various aspects of hemodialysis. Most patients (65%) were not dissatisfied with the frequency of sessions, 54% did not observe adverse outcomes among others, and 68.6% had not been advised by family to avoid dialysis. Additionally, 60.6% did not prefer alternatives to hemodialysis, and 75.2% were not interested in undergoing a kidney transplant.

Table No. 5: Association between fear of complications of Hemodialysis and Age						
		Age			Total	P-value
		18-25	26-32	>32		
Do you have fear of complications of hemodialysis?	No	6	2	19	27	
	Yes	22	14	74	110	0.738
Total		28	16	93	137	
Analyzed by chi square with p less than 0.05						

There's a significant association between fear of complications of hemodialysis and Age. In which most of the participants of age above 32 have fear of complication (74 out of 110) while some participants of age 18-25 have fear of complication (22 out of 110) and a few participants of age 26-32 have fear of complications (14 out 110). So majority of participants were of age above 32 as shown in the table 5.

Table No. 6: Association between fear of complications of Hemodialysis and Gender					
		Gender		Total	P-value
		Male	Female		
Do you have fear of complications hemodialysis?	No	0	27	27	0.004
	Yes	27	83	110	
Total		27	110	137	
Analyzed by chi square with p less than 0.05					

There is a significant association between fear of complications of hemodialysis and gender. In which most of the females (83 out of 110) have fear of complications of hemodialysis while some of the males (27 out of 110) have fear of complications of hemodialysis. So, majority of them were females as shown in the table 6.

Table No. 7: Association between fear of complications of Hemodialysis and Marital status					
		Marital status		Total	P-value
		Unmarried	Married		
Do you have fear of complications of hemodialysis?	No	1	26	27	0.005
	Yes	33	77	110	
Total		34	103	137	
Analyzed by chi square with p less than 0.05					

A significant link was found between fear of hemodialysis complications and marital status, with most affected participants being married (77 out of 110) as shown in the table 7.

Table No. 8: Association between perception of mortality due to Hemodialysis and Age						
		Age			Total	P-value
		18-25	26-32	>32		
Do you believe that hemodialysis will lead to death?	No	7	1	35	43	0.032
	Yes	21	15	58	94	
Total		28	16	93	137	
Analyzed by chi square with p less than 0.05						

A significant association was found between perception of mortality due to hemodialysis and age, with most participants holding this perception being over 32 years old (58 out of 94) as shown in the table 8.

Table No. 9: Association between perception of mortality due to Hemodialysis and Gender.					
		Gender		Total	P value
		Male	Female		
Do you believe that Hemodialysis will lead to death?	No	6	37	43	0.252
	Yes	21	73	94	
Total		27	110	137	
Analyzed by chi square with p less than 0.05					

A significant association was found between perception of mortality due to hemodialysis and gender, with most participants holding this belief being female (73 out of 94) as shown in the table 9.

Table No. 10: Association between perception of mortality due to hemodialysis and Marital status					
		Marital status		Total	P-value
		Unmarried	Married		
Do you believe that hemodialysis will lead to death?	No	8	35	43	
	Yes	26	68	94	0.255
Total		34	103	137	
Analyzed by chi square with p less than 0.05					

A significant association was observed between perception of mortality due to hemodialysis and marital status, with most believing it leads to death being married (68 out of 94).

Table No. 11: Association between fear of AV fistula needles and Age						
		Age			Total	P-value
		18-25	26-32	>32		
Are you afraid of AV fistula needles?	No	11	12	47	70	0.073
	Yes	17	4	46	67	
Total		28	16	93	137	
Analyzed by chi square with p less than 0.05						

A significant association was found between fear of AV fistula needles and age, with most fearful participants being over 32 years old (46 out of 67).

Table No.12: Association between fear of AV fistula needles and Gender					
		Gender		Total	P-value
		Male	Female		
Are you afraid of AV fistula needles?	No	9	61	70	
	Yes	18	49	67	0.039
Total		27	110	137	
Analyzed by chi square with p less than 0.05					

A significant association was found between fear of AV fistula needles and gender, with most affected participants being female (49 out of 67).

Table No. 13: Association between fear of AV fistula needles and Marital status					
		Marital status		Total	P-value
		Unmarried	Married		
Are you afraid of AV fistula needles?	No	26	44	70	
	Yes	8	59	67	< 0.001
Total		34	103	137	
Analyzed by chi square with p less than 0.05					

A significant association was found between fear of AV fistula needles and marital status, with the majority of those affected being married (59 out of 67).

Table No. 14: Association between acceptance of hemodialysis as a permanent and lifelong treatment and Age						
		Age			Total	P-value
		18-25	26-32	>32		
Do you feel that permanent and lifelong hemodialysis is acceptable?	No	9	8	39	56	0.478
	Yes	19	8	54	81	
Total		28	16	93	137	
Analyzed by chi square with p less than 0.05						

A significant association was found between acceptance of hemodialysis as a lifelong treatment and age, with most participants holding this view being over 32 years old (54 out of 81).

Table no. 15: Association between acceptance of hemodialysis as a permanent and lifelong treatment and Gender.

		Gender		Total	P-value
		Male	Female		
Do you feel that permanent and lifelong hemodialysis is acceptable?	No	25	31	56	< 0.001
	Yes	2	79	81	
Total		27	110	137	
Analyzed by chi square with p less than 0.05					

There is a significant association between acceptance of hemodialysis as a lifelong and permanent treatment and gender. In which most of them were females (79 out of 81) while few of them were males (2 out of 81). So, most of them who feel that hemodialysis is a lifelong and permanent treatment were females.

Table no 16: Association between acceptance of hemodialysis as a permanent and lifelong treatment and Marital status.

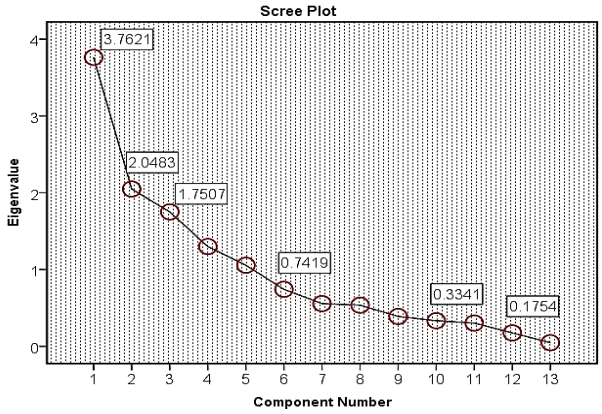
		Marital status		Total	P-value
		Unmarried	Married		
Do you feel that permanent and lifelong hemodialysis is acceptable?	No	8	48	56	0.018
	Yes	26	55	81	
Total		34	103	137	
Analyzed by chi square with p less than 0.05					

A significant association was found between acceptance of hemodialysis as a lifelong treatment and marital status, with most believing so being married (55 out of 81).

Factor analysis:

Table no 17: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.604
Bartlett's Test of Sphericity	Approx. Chi-Square	864.699
	df	78
	Sig.	0.000
Analyzed by factor analysis with KMO > 0.6 and Bartlett's Test <0.05		

This table presents factor analysis results, indicating adequate sampling with a KMO value of 0.604 and significant item correlations confirmed by Bartlett's test (p = 0.000).



The scree plot shows a downward trend in eigenvalues, indicating decreasing variance across items, with item 1 ("Are you unable to afford hemodialysis?") showing minimal response variation (3.7621), followed by items 3, 6, 10, and 12 with progressively lower values.

Discussion: The present study stated that most of the participants 80.3% were female having age greater than 32 years and mostly 75.2% participants were married. In similar context the study of Benet and his colleagues conducted in 2020 stated that 55% were people having were over age above 32 years and 66% participants were married while some of the finding were different from the current study such as there were more male 73% then female (12). This present study stated that on the base of employment 50.4% participants were unemployed. However, the study of Gulzar and his colleagues conducted in 2022 stated that 71% of participants had jobs (13). According to Oluyombo, unemployed persons refuse hemodialysis because they cannot afford the cost of therapy (14). Furthermore, the present study stated that the most common responses were 50.4% with dialysis sessions of 1-2 per week. However, another previous study of Fotheringham and his colleagues conducted in 2022 stated that 38.3% were advised for 3-4 sessions of hemodialysis per week (15).

According to our present study conducted 58.4% participants were living in urban area. Similarly, another study of Amjad and colleagues conducted in 2023 stated that 70% participants were living in urban areas (10). This present study stated that 56.2% participants were advised with catheter route of dialysis by physician. Similarly, the study of shamasneh and his colleague conducted in 2020 stated that 47% of HD access instances use a central venous catheter (16). According to Steve J. Schwab, the catheters are of great value in situations where an immediate vascular access is required and have come to be increasingly used in patients with chronic renal failure. So, the physicians advise the use of catheter in hemodialysis patients.

This present study states that 64.2% participants were having inability to afford hemodialysis. Similarly, another previous study of Oluyombo and his colleagues conducted in 2014 stated that only 6.8% were those participants who can afford hemodialysis beyond 6 months (17). According to our justification, Pakistan is an under-developed country and people don't have enough funds to afford the cost of hemodialysis. That's why they refuse hemodialysis. The present study stated that 55.5% participants had fear of hemodialysis catheter. However another previous study of Murray and his colleagues conducted 2016 stated that 79.6% participants were not having fear of hemodialysis catheter (18). According to our present study conducted 51.1% of participants were not having fear of AV fistula needles, similarly Shafi and (6) stated that 76.1% patients gave no responses for fear of AV fistula needles. According to Peralta, fear of pain with needles was less common in patients and they had perception that safe needling is not harming them. That's why, they preferred AV fistula needles over catheter (19).The present study stated that 71.5% had no access of hemodialysis center near their residence. In contrast, another previous study of Kumar conducted in 2021 stated that only 29% of the patients confessed that they had missed dialysis sessions on multiple occasions in the last one year because there were no dialysis center near their residence (20). According to our justification, there are only a fewer dialysis centers in Pakistan which are far away from the patients and they have to travel a great distance to reach the dialysis center.

According to the present study 59.1% participants had a belief of the acceptability for the lifelong and permanent hemodialysis, likewise According to JR Casey, patients believe that hemodialysis doesn't hurt and improves the quality of life (21). The present study shows about perception of people that hemodialysis has poor quality of life. In which, 76.64% no responses, while, 23.36% yes responses. Similarly, another previous study (6) said that 35.6% patients gave yes responses about poor quality of life due to hemodialysis. According to JR Casey, patients had a belief that quality of life and survival (life expectancy) are often better than in people who are treated with hemodialysis (21).

This present study shows the fear of complications of hemodialysis. In which, 80.29% were yes responses and 19.71% were no responses. However, another previous study of Fotheringham and his colleagues conducted in 2022 stated that 38.3% participants were afraid of hemodialysis complications (15). According to Rachael C. Walker, patients had fear of being alone (social isolation and medical disconnection), concern of family burden (emotional demands on caregivers, imposing responsibility, family involvement, and medicalizing the home), opportunity to thrive (re-establishing a healthy self-identity, gaining control and freedom, strengthening relationships, experiencing improved health, and ownership of

decision), and appreciating medical responsiveness (attentive monitoring and communication, depending on learning and support, developing readiness, and clinician validation) (22)

This present study shows the perception that hemodialysis leads to death. In which 68.61% were yes responses and 31.39% were no responses. In contrast a study of Shafi and his colleagues conducted in 2018 states that 22.6% participants have perception that hemodialysis leads to death (6). According to BH Beard, patients with renal failure believe that their lives will be cut short by an untimely death, and as we listen closely we also hear that these same patients express their fears that even if they live, they will have poor quality of life (23).

The present study states that 65% of respondents did not express dissatisfaction with the frequency of hemodialysis , in the similar context another previous study (6) stated that 52.8% patients accepted the frequency of hemodialysis. According to our justification, patients who are having and experiencing better life outcomes due to hemodialysis, express the satisfaction with hemodialysis. This present study stated that 54% participants did not report adverse outcomes among family or friends. In similar context, another previous study of Shafi and his colleagues stated that 20.7% participants reported adverse outcomes among family or friends (6). This present study stated that 68.6% did not receive advice against hemodialysis from family members. similarly In similar findings, another previous study of Campos and his colleagues conducted in 2020 stated that 85.65 participants preferred hemodialysis over renal replacement therapy (24). In our justification, patients prefer hemodialysis over renal replacement therapy because either it is difficult to find the donor or the life expectancy is short with renal replacement therapy. This present study stated that 75.2% participants were not inclined towards undergoing kidney transplant. However, another previous study of clayton and his colleagues conducted in 2019 stated that 50% of participants in current era reject the kidney transplant (25). In our justification, it is difficult for people to afford the cost of kidney transplant so sudden and even it is difficult to match the donor.

Conclusion: This study found most respondents were female (80.3%), over 32 years old (67.9%), married (75.2%), and unemployed (50.4%), with key reasons for hemodialysis refusal including fear of complications, poor quality-of-life perceptions, financial issues, and acceptance of lifelong treatment, while less common factors included transplant concerns, family influence, and fear of AV fistula needles highlighting the need for holistic medical, psychological, and social support.

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