Pakistan Journal of Social and Clinical Psychology
2024, Vol. 22, No. 2, 19-27

Psychosocial Predictors of Health-Related Quality of Life in Patients Receiving Hemodialysis

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Abstract

Renal failure is a chronic, debilitating condition that is associated with several physical and psychological consequences and has a detrimental effect on the well-being of patients. Quality of life is strongly associated with a patient's characteristics such as views about the illness, coping, and resilience (Alharabi et al., 2021). This research aimed to invest in illness perception and resilience as the determinants of the quality of life of patients receiving hemodialysis. A correlation research design was employed. A sample of 200 participants was selected from various state (n=100) and private hospitals (n=100) in Lahore. A brief Illness Perception Questionnaire, State-Trait Resilience Inventory, and Quality of Life Index-Dialysis version were administered. Results showed a significant negative relationship between illness perception, state resilience, trait resilience, and overall quality of life in patients receiving hemodialysis and a significant positive relationship between state resilience, trait resilience, and quality of life. Threatening illness perceptions and trait resilience were substantial predictors of health-related quality of life in patients receiving hemodialysis. The findings of the present study implicate that by changing the threatening illness views of patients and by increasing resilience, the quality of life of chronic kidney disease patients can be enhanced.

Keywords: illness perception, resilience, quality of life, hemodialysis

It has been well known that chronic illnesses have debilitating effects on the physical and mental health of patients suffering from them. One such chronic condition is End Stage Renal Disease (ESRD) which refers to the failure of kidney functions. It is a severe disorder that renders a person incapable of producing an adequate amount of urine which in turn causes waste products to reside within the body. When kidneys cease to function, dialysis must be performed to get rid of cumulating toxic materials and waste products (Suthradar, 2019). Patients who are diagnosed with renal failure pass through 5 stages. Patients in stages 4 and 5 are at a serious threat and require Renal Replacement Therapy (RRT) to survive hence termed as End-Stage Renal Disease (Sattar et al., 2016). RRT includes dialysis and transplantation (Tandukar & Palevsky, 2019). In hemodialysis, blood flows through a machine that acts as an artificial kidney containing a dialyzer which purifies the blood (Seyyedrasooli et al., 2013). The patient's arterial blood passes continuously on intermittently through an artificial kidney (dialysis machine) and then enters the body through a vein. Inside the artificial kidney, blood passes through a hemofilter (dialyzer) excluding urea, phosphate, creatinine, and other unwanted substances into the dialysate.

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Used dialysate is constantly replaced by fresh dialysate. The duration and frequency of dialysis depend on the severity of renal insufficiency. On average, blood flows through dialysis machines 3-4 times a week for about 3-5 hours per visit (Suthradar et al., 2019).

Globally, chronic kidney disease has been determined as a progressive disease that has affected more than 10% of the population worldwide which makes around 800 million individuals. It is found to be more prevalent in low and middle-income countries and is one of the leading causes of mortality around the globe (Kovesdy, 2022). Specifically speaking of Pakistan, its prevalence has been reported between 12.5% to 31% (Ahmed et al., 2022). The quality of life of patients receiving hemodialysis is influenced by several biopsychosocial factors and these factors are mostly consistent globally. Physical factors like comorbid conditions, and psychological factors including the absence of social support and mental toughness would have a detrimental impact on wellbeing (Alosaimi et al., 2020). Certain economic and treatment-related factors like financial burden and dietary restrictions may undermine overall satisfaction (Lopez et al., 2022). All of these factors highlight the need to tailor personalized interventions to improve the quality of life of such patients.

Patients undergoing dialysis experience a large variety of physical and psychological symptoms daily including fatigue, pain, constipation, and pruritus (Murtagh et al., 2007). In addition to these, lowering of blood pressure, itching, sexual problems, premature aging, and sleep problems are highly reported symptoms among patients receiving dialysis (Suthradar et al., 2019). Increased levels of anxiety, depression, and stress were found in

hemodialysis and peritoneal dialysis patients suffering from ESRD in Pakistan (Ashraf & Kausar, 2011). Also receiving dialysis is a time-consuming and expensive process that places a burden on patient by restricting their daily activities. In addition, patients receiving dialysis participate less in sports, leisure activities, paid jobs, and social activities (Anees et al., 2021). Such restrictions in physical functioning, fatigue, pain, and depression negatively affect the mental health and quality of life of patients on dialysis. Studies documented that the quality of life of patients undergoing dialysis declines as compared to the general population (Liu et al, 2018; Keskin, 2022; Alharbi et al., 2021; Gerasimoula, 2015). The majority of these researches posit that the quality of life of patients undergoing dialysis is lowered due to various factors like chronicity of their illness, severity of illness, negative illness views, lack of social support, financial constraints, and lack of autonomy (Dabrowska-Bender et al., 2018; Pretto et al., 2020). Restricted physical activity is associated with decreased self-esteem and lack of autonomy (de Rooij, 2021). Self-determination theory (2000) suggests that autonomy and independence are among the basic needs of human beings and its fulfillment is directly linked with satisfaction and well-being. Hence restricted physical activity and lack of autonomy are linked with lowered quality of life (Ishiwatari et al., 2020). Hence, the current study aimed to find out the risk and protected factors linked with the quality of life of patients receiving hemodialysis in Pakistan.

Considering the risk factors, literature suggested that patients with chronic illnesses have specific views about their illness which affects their psychological well-being highlighting that those patients who have positive beliefs about their illness have higher well-being (Alharbi et al., 2021; Ibrahim et al., 2012; Kim et al., 2019). Illness perceptions are a person's beliefs or cognitive representations about the causes, consequences, and controllability of their illness. These representations determine and direct a person's behavior related to illness which affects the overall recovery process. (Alharbi et al., 2021). Similarly, illness perception refers to how people comprehend and make sense of their condition when confronted with an illness. Illness perception could be well explained through the Leventhal Self-Regulation Model (1983) which provides a framework for illness perception. This model proposes that when a person's physical health is threatened by an illness, they form theories about their illness which have a direct impact on the ways of coping with the illness and hence the clinical outcomes. By understanding such beliefs, a patient's maladaptive perceptions could be altered to improve overall functioning (Alharabi et al., 2021; Fernendes & Mclntyre, 2020).

In addition to the adaptive illness perceptions, certain personality characteristics could also have a positive impact on the well-being of patients with chronic illnesses. Resilience is one such factor. Resilience is a complex concept without a unified definition however it could be regarded as the ability to recover after facing challenge or adversity (Baumgardner & Crothers, 2013). It is also a multidimensional concept including social competence, support, familial care, optimism, self-confidence, and strength (Sisto et al., 2019). Resilience includes personalized skills to overcome traumatic events and to emerge stronger in the face of adversity (González-Flores et al., 2021). Talking about chronic illnesses resilience is essential for treatment adherence and improved well-being (Friere et al, 2017). High resilience helps in alleviating stress associated with disease and dialysis in turn enhancing the quality of life (Keskin, 2022). While studies highlighted the importance of resilience in chronically ill patients research is limited in evaluating resilience as a protective factor in health-related quality of life in ESRD patients. Hence the current study hypothesized that resilience will be a significant protective factor in health-related quality of life against the threatening illness perceptions and chronicity of the disease (Liu et al., 2019).

Rationale and Hypotheses

ESRD is a public health problem in Pakistan. In the past five years, the incidences of ESRD have increased dramatically from 2.5% to 3.6% placing an enormous amount of burden on our healthcare system (Ullah et al., 2015). In an underdeveloped country like Pakistan, such a huge number of chronic patients places a large constraint on the economic development of the country. Moreover, such a huge number of patients is also a barrier to achieving sustainable development goal 3 which is health and well-being. In such circumstances, it is imperative to draw attention to renal failure patients and provide them with cost-effective care that enhances their quality of life. There is also a lack of indigenous studies highlighting the impact of views regarding illness and resilience in ESRD patients. For this reason, the present study was conducted to assess the quality of life of patients receiving hemodialysis.

The purpose of the current study was to find predictors of health-related quality of life among patients receiving hemodialysis. We also evaluated the impact of sociodemographic and illness-related variables and their influence on the quality of life of such patients. Hence, based on the literature review the following hypotheses were formulated:

1. Threatening illness perception will have a significant negative relationship with resilience and quality of life among patients receiving hemodialysis.
2. There will be a significant positive correlation between resilience and quality of life in patients receiving hemodialysis.
3. Illness perception and resilience are expected to be predictors of quality of life in patients receiving hemodialysis.

The findings of the current study will help practitioners and physicians promote healthy living in people living with physical ailments. Furthermore, based on these factors interventions could be designed to increase resiliency in individuals living with chronic conditions and enhance their quality of life (Stewart & Yuen, 2011).

Method

Sample

A cross-sectional (Correlational) research design was used for this study as the present research explored the relationship between illness perception, resilience, and quality of life among patients receiving hemodialysis. Two hundred patients undergoing hemodialysis from three government teaching hospitals and three private hospitals

were selected. Patients were recruited after the permissions were granted. 100 patients from government hospitals and 100 patients from private hospitals in Lahore, Pakistan were taken. The age range of the participants was from 30 to 50 years (*M*=50.08, *SD*=13.67). The sample was equally divided for gender. Only those patients who have been receiving dialysis for the past three months have been included in this study. Participants undergoing transplants in nearly 6 months were excluded. Table 1 shows the frequencies and percentages of personal demographics of participants.

Table 1

Frequency and Percentage of Personal Demographics of Participants from Public and Private Hospitals (N=200)

Demographics	Government		Private	
	f	%	*f*	%
Education				
Illiterate	22	22	1	1
Primary	6	6	1	1
Middle	16	16	3	3
Matriculation	29	29	22	22
Intermediate	9	9	12	12
Graduate	14	14	42	42
Post Graduate	4	4	19	19
Occupation				
No Job	62	62	42	42
Business	12	12	26	26
Government servant	2	2	11	11
Private Job	3	3	14	14
Labor	13	13	0	0
Retired	8	8	7	7
Religion				
Islam	96	96	93	93
Christianity	4	4	7	7

Instruments

Brief Illness Perception Questionnaire (BIPQ; Broadbent et al., 2006)

Brief Illness Perception Questionnaire was used to measure illness perception. It is a nine-item scale developed by Broadbent in 2006. Brief IPQ is designed to measure cognitive and emotional representations of illness (Broadbent et al., 2006). Responses are given on 10 10-point Likert-type scale. Brief IPQ assesses a participant's responses on 4 domains including emotional representation, cognitive representation, illness comprehensibility, and perceptions regarding the cause of illness. Cognitive representations include 5 items based on identity, timeline, personal control, consequences, and treatment control. Emotional representation includes 2 items, concern, and emotions. One item of illness comprehensibility and one item of perception regarding the cause of illness are included. A translated version by Zainab and Naz, 2012 was employed in the present research.

State-Trait Resilience Inventory (STRI; Hiew, 2002)

State trait resilience inventory by Hiew (2002) was used to assess resilience. Resilience in dialysis patients was assessed using the Urdu version of the State-Trait Resilience Inventory (STRI) translated by Kausar and Jabeen (2009). It has 33 items. STRI is divided into two subscales that are State Resilience Scale (SRC) and the Childhood Trait Resilience Scale (TRC). TRC had 18 items and the SRC had 15 items.

Quality of life index_Dialysis Version (QLI; Ferrans & Powers, 1985)

Quality of life index_ dialysis version by Ferrans and Powers (1985) was employed to measure the quality of life of patients receiving hemodialysis. The questionnaire is composed of two parts. One part assesses the patient's satisfaction with certain domains of life whereas the other part measures the significance of these domains to the patients. It consists of four domains including health and functioning, family, economic functioning, and psychological/spiritual functioning. For the present study, the tool was translated into Urdu for administration to the target population. The questionnaire was translated according to the guidelines provided by the MAPI research institute to meet the requirements of the study. The purpose involves five steps such as forward translation, backward translation, pilot testing, cognitive debriefing, and proofreading (Beaton et al., 2000).

Demographic Sheets

Demographic information was taken using two questionnaires including a general information sheet and a disease-specific form. Both of these forms were developed by the researcher. The information in the general demographic sheet included age, gender, marital status, education, socioeconomic status, monthly income, religion, and religious inclination. Disease-specific form*s* include questions like approximate date of onset of renal failure, nature of treatment, duration of treatment, social support, relationships with caregivers, other physical and psychological illness records, side effects checklist, and patient's opinion regarding their ailment.

Procedure

Permission letters were acquired to collect data from private and state hospitals from the Centre for Clinical Psychology, University of the Punjab. Permission was also

taken from the authors of the tools used in the research. Permissions were then taken from the respective heads of government hospitals and private hospitals in Lahore after explaining to them the rationale of the study. Questionnaires were individually administered after obtaining consent from the participants on the consent form and each participant was debriefed about the purpose of the study. The researcher assured participants about confidentiality issues and informed the participants about their right to withdraw from the study at any time. Oral individual administration of questionnaires was done to ensure patient ease and comfort, to guarantee confidentiality, to ensure independent responses, and to resolve any queries of the participants. After obtaining permission, data was collected in all three shifts depending upon the availability of patients and ease of research.

Ethical Considerations

The research project was evaluated and improvised thoroughly by the Board of Studies of the University of the Punjab, Lahore. Permission letters were then granted to seek permission from respective authors to use the instruments and from concerned administrative officials of nephrology units of government and private hospitals**.** Informed consent was taken from each participant before administering questionnaires after ensuring confidentiality, beneficence, non-maleficence, and informed decision-making. Confidentiality was maintained by anonymizing personal and medical data and safely storing information. Autonomy was upheld by informing participants that they can quit from research if they feel overburdened or fatigued and this will have no impact on their ongoing treatment. Beneficence and non-maleficence were ensured as they were informed about the availability of psychological services if any of the participants faced distress. These considerations will maintain the integrity of the research by prioritizing the safety and dignity of participants.

Results

The present study was conducted to assess the relationship between illness perception, resilience, and quality of life. Another aim of this study was to explore the predictors of quality of life among patients who have been receiving hemodialysis.

For preliminary analysis, mean scores and standard deviations of all the scales were assessed. Cronbach alpha was also calculated to assess the internal consistency of the scales.

Table 2

Mean Scores, Standard Deviations and Cronbach Alpha of Brief Illness Perception Questionnaire, State-Trait Resilience Checklist, and Quality of Life Index (N=200)

	M	*SD*	*α*	Minimum	Maximum
Illness Perception Questionnaire	43.96	7.96	.58	17.00	61.00
State Resilience	7.35	.98	.71	4.93	9.60
Trait Resilience	7.32	1.03	.81	4.33	9.67
Quality of Life Index	17.97	2.92	.91	12.12	25.68

Table 2 depicts that the Cronbach alpha of the Brief Illness Perception Questionnaire is fairly good. Cronbach alpha for state resilience, trait resilience, and quality of life index are in excellent category.

Inter-Correlations between Illness Perception, Resilience and Quality of Life

Pearson Product Moment Correlation was carried out to find out the association between illness perception, state resilience, trait resilience, and health-related quality of life. Tables 3 and 4 show the results of correlation analysis. Table 3 shows correlations for patients from government hospitals and table 4 shows correlations for private hospital patients.

Table 3

Inter-correlation, Mean, and standard deviation between Illness Perception, Resilience, AND Quality of Life in Patients Receiving Hemodialysis from Government Hospitals (n=100)

Subscales	1	2	3	4	5	6	7	8	*M*	*SD*
1. IPQ	-	-.33**	-.40**	-.45**	-.51**	-.30**	-.36**	-.20**	45.76	8.53
2. SRC		-	.79**	.61**	.57**	.50**	.48**	.54**	7.12	.97
3. TRC			-	.73**	.68**	.63**	.58**	.56**	7.01	1.14
4. QLI				-	.92**	.81**	.85**	.75**	16.54	3.09
5. HFSUB					-	.64**	.68**	.63**	15.51	3.36
6. SOCIAL						-	.61**	.64**	18.25	3.13
7. PSPSUB							-	.53**	19.09	4.22
8. FAMSUB								-	23.51	3.52

Note. IPQ = Illness Perception Questionnaire; SRC = State Resilience; TRC= Trait Resilience, QLI = Total Score of Quality of Life Index; HFSUB = Health and Functioning subscale; SOCSUB= Social and Economical Subscale; PSPSUB= Psychological/Spiritual Subscale; FAMSUB=Family Subscale

**p < .01, *p<.05

Table 4

Inter-correlation, Mean, and standard deviation between Illness Perception, Resilience, and Quality of Life in Patients Receiving Hemodialysis from Private Hospitals (n=100)

Subscales	1	2	3	4	5	6	7	8	*M*	*SD*
1. IPQ	-	-.15	-.27**	-.26**	-.29**	-.15	.17	-.21	42.16	6.94
2. SRC		-	.79**	.62**	.57**	.58**	.47**	.35**	7.57	.94
3. TRC			-	.69**	.67**	.50**	.59**	.34**	7.64	.80
4. QLI				-	.91**	.75**	.83**	.67**	19.40	2.15
5. HFSUB					-	.50**	.67**	.53**	17.52	2.21
6. SOCSUB						-	.46**	.53**	22.13	2.39
7. PSPSUB							-	.38**	21.38	3.57
8. FAMSUB								-	24.82	2.70

Note. IPQ = Illness Perception Questionnaire; SRC = State Resilience; TRC= Trait Resilience, QLI = Total Score of Quality of Life Index; HFSUB = Health and Functioning subscale; SOCSUB= Social and Economical Subscale; PSPSUB= Psychological/Spiritual Subscale; FAMSUB=Family Subscale

***p < .01, *p<.05*

Tables 3 and 4 demonstrate significant correlations among illness perception, state resilience, trait resilience, and health-related quality of life. Illness perception shows a highly significant negative correlation with state resilience, trait resilience, and all quality-of-life domains (p<.01) in patients undergoing hemodialysis at government hospitals. In private hospitals, illness perception negatively correlates with trait resilience, overall quality of life, health and functioning, and family subscales. This suggests that a more threatening illness perception lowers resilience and quality of life, impacting health, social, psychological, and family functioning.

Additionally, state resilience exhibits a strong positive correlation with trait resilience and quality of life across both hospital types, indicating that greater resilience enhances overall well-being. Similarly, trait resilience positively correlates with quality of life and its subdomains, suggesting that as resilience strengthens, health, social, economic, psychological, and family functioning improve. Lastly, a significant positive relationship is observed between quality of life and its subscales across both hospital settings, reinforcing that better overall quality of life leads to improved well-being in all domains.

Predictors of Quality of Life

Hierarchical regression analysis was performed to control the effect of covariates and to assess the amount of variance caused by illness perception and resilience on the quality of life among patients receiving hemodialysis. Table 5 shows the results of hierarchical regression analysis.

Table 5

Hierarchical Regression Analysis for Predictors of Quality of Life among Renal Failure Patients (N=200)

Predictors	Quality of Life ΔR^2	β
Model I	.22	
Category of hospital		.37***
Age		.13*
Gender		.18*
Employment status		-.22**
Model II	.44	
Illness perception		-.14**
State resilience		.08
Trait resilience		.56***
Total R^2	.88	
N	200	

**p<.05, **p<.01, ***p<.001*

Hierarchical regression analysis was carried out to control the effect of covariates on quality of life. Assumption of independent observation of errors and multicollinearity were fulfilled. In the first step, co-variates that could have a potential impact on quality of life were added such as category of hospital, age, gender, and employment status. In step 2, illness perception, state resilience, and trait resilience were added.

Results showed that Model I was statistically significant: F(4, 195)=13.76, p<.001, and accounted for a 22% variance in health-related quality of life. Among the variables that were entered, government hospitals, male

gender, age, and unemployment were the significant predictors of health-related quality of life. Model II was also statistically significant: $F(3, 192)= 34.76$, $p<.001$, and accounted for 44% variance after controlling for covariates. Among these variables, trait resilience and illness perception were found to be the strongest determinants of quality of life among patients receiving hemodialysis while controlling the effect of covariates. The increase in explained variance ($\Delta R^2 = 0.24$) suggests that the additional predictors included in Model 2 contribute significantly to the overall explanatory power of the model. This improvement indicates that Model 2 provides a better fit in capturing the variance in the outcome variable.

Discussion

The purpose of the present study was to assess the health-related quality of life of patients receiving hemodialysis. The findings of the current study depicted a lowered overall quality of life among patients receiving hemodialysis which is in line with previous literature suggesting that the quality of life of hemodialysis patients was lower than the quality of life of the normal population (deRooij, 2022; Hejazi et al., 2021; Ishiwatari et al., 2021). Several factors could be coupled with lower quality of life among such patients such as restricted physical activity of these patients compromises their quality of life. Researches posit that lack of autonomy; restricted activity levels, pain, and reduced energy levels were associated with lowered quality of life and well-being (Alosaimi et al., 2020; Lopez et al., 2022). Fatigue, reduced energy levels, and pain are associated with hemodialysis. In the present study, the majority of the patients (93.5%) reported that they felt fatigued after receiving dialysis. Hence, their physical, social, and leisure life will be affected. Patients had to visit the hospital two to three times per week which limited their functioning and significantly interfered with their normal life. In the present study, the majority of the patients (94.5%) also experienced a co-morbid physical condition such as high blood pressure, diabetes, heart problems, hepatitis, etc. with renal failure that can lower their quality of life. Chisavu et al. (2024) suggested that co-morbid physical conditions could lower the QoL of patients undergoing hemodialysis. The financial burden of the patients should also be considered. Based on the observation made during data collection, it was seen that the patients who had lower quality of life had reported experiencing financial burden in addition to the pain associated with their ailment. Comparatively low quality of life demonstrated a need for more sophisticated healthcare facilities for renal failure patients to stabilize their quality of life.

The majority of the patients in the current study had threatening views (M=43.96, SD=7.96) regarding their illness which is in line with the past research. A vast number of researches depicted that ESRD patients had negative views regarding their illness (Alharabi, 2021; Kim, Kim & Ryu, 2019). Chronically ill patients when have negative views like self-blame, increased vulnerability, and inability to cope with the illness lead to devastating health outcomes (Oliveira et al., 2022). Aurangzeb and Naz (2013) conducted a study on Pakistani diabetic patients and suggested that such patients have negative perceptions of their illness. It could be because renal failure is a chronic condition that could ultimately lead to the death of the patients. The majority of the patients consider hemodialysis as a bonus life. Coming to the hospital four times a week and receiving hemodialysis for about three to four hours can negatively affect a person's attitude toward life. Furthermore, pain associated with the treatment cannot be ignored which can contribute to the decreased QOL. Taking into account the socio-cultural perspective, threatening views about illness and lowered quality of life could be explained by the healthcare facilities provided to the patients in our society. Negligence of the doctors, defective machinery, and lack of hygienic conditions could be the precipitating factors of such perceptions and compromised quality of life (Ahmed et al., 2022; Chaudhry, 2022)

In the current study, it was hypothesized that there will be a negative association between illness perception, resilience, and quality of life in patients receiving hemodialysis. The findings of the present study depicted the significant negative relationship between illness perception, resilience, and quality of life. Hence, the hypothesis was accepted which means that if a person has threatening (negative) views regarding his illness then his resilience will be lowered (AAharabi, 2021; Quiceno & Alpi, 2013). Living with a chronic condition such as renal failure with long-term and continuous treatment as hemodialysis requires substantial vigor and determination from the patients. Chronicity of their condition, pain, fatigue, and reduced energy levels continuously interfere with the patient's determination and stamina. Hence, a more resilient personality trait is required from such patients to have better survival outcomes. The findings of the present study illustrated a significant negative relationship between illness perception and quality of life. It means that if a person has threatening views regarding illness then his quality of life will be lowered. This assumption was empirically supported by a large number of researchers (AAlharbi, 2021; Chilcot, 2012; Kim et al., 2019). Threatening views regarding illness are associated with the patient's belief regarding lack of personal control, treatment control, negative consequences, and negative emotions. If a patient has such views then his desire to live will be lowered which will in turn compromise his quality of life. It was hypothesized that there would be a positive relationship between resilience and quality of life. The hypothesis was accepted as the findings of correlation in the present study revealed a significant positive association between resilience and quality of life which is also in line with previous research which depicts a direct association between resilience and quality of life (Stewart & Yuen, 2011; Cromm, 2012). Hence, it could be said that the higher the resilience higher the quality of life of ESRD patients. The reason behind this finding could be that chronic conditions like renal failure require increased determination against the stressors to combat this disease. Hence, this resistance will help patients to live a better life with hemodialysis.

Illness perception and resilience were found to be the most significant determinants of quality of life in ESRD patients. Both illness perception and trait resilience accounted for 44% variance in overall QoL after controlling for the covariates. This means that a person's views regarding illness and his trait of resilience will contribute significantly to his quality of life which is in line with past literature (Keskin, 2022; Yazdi-Ravandi et al., 2012). It could be because chronicity of renal failure causes

the perceptions of the patients to be more threatening as they consider their illness and treatment as a lifelong provision. Among state and trait resilience, only trait resilience was found to be a significant determinant of QoL. Trait resilience is a personality trait that may help an individual to stand against adversities faced in life and is not situationally bound as state resilience. Coping with the stressors associated with a chronic ailment such as end-stage renal disease, a more persistent pattern of personality is required. For this reason, trait resilience was found to be a significant predictor of state resilience.

Hierarchical Regression Analysis also revealed significant demographic covariates that affected the quality of life of hemodialysis patients. Among them, government hospital category, male gender, unemployment, and age are the significant predictors together with illness perception and trait resilience. All of these factors account for a 66% variance in overall quality of life in ESRD patients. The findings of the current study are concurrent with the past research which suggested that factors such as age, race, stage of CKD, pain, modality of dialytic therapy, patient's satisfaction with care, and perception of illness have predictive effects on the quality of life of ESRD patients.

The government hospital category was also found as a significant predictor of quality of life in the present study. It means that receiving treatment from government hospitals significantly lowers the quality of life of patients. The reason behind this is that patients belonging to poor socioeconomic status cannot afford health care services provided in private hospitals hence they are compelled to seek treatment from government hospitals where facilities are substandard, defective, and unhygienic. No relevant past research has been found in this regard as in Western countries finances of the patients do not affect the quality of treatment provided to them. In developing countries like Pakistan, costs of treatment are not covered in any health care policy provided by the government which affects their capacity to attain treatment and hence lowers their quality of life. Male gender was found a significant predictor of quality of life in the present study. It means that male renal failure patients have a more compromised quality of life than female patients. In Pakistani culture, males are observed to be more influential than females as they are the only breadwinners of the whole family. Males also have more social interactions than females as they go out for jobs whereas females stay at home to look after their family and children. When suffering through renal failure, the physical activity of the males becomes restricted due to lack of energy, pain, and fatigue which subsequently lowers their quality of life to a greater extent than females. Unemployment was found as a significant predictor of quality of life in the present study. Literature highlights that renal failure patients participate less in occupations, sports, and leisure or social activities which compromises their well-being and quality of life (White & Gallagher, 2010). In developing countries like Pakistan, meeting the financial needs of a family is crucial to survival due to low employment rates and illiteracy. Reduced energy levels associated with hemodialysis render patients incapable of carrying out work-related responsibilities which eventually lead to lying off from the job and unemployment. Hence, the lower quality of life of renal failure patients could be well explained due to unemployment.

Conclusion

Based on the above-stated results and their discussion, it can be presumed that the majority of the patients receiving renal replacement therapy have compromised quality of life as they have threatening beliefs about their illness and poor resilience. Results also highlighted a significant relationship between illness perception, resilience, and quality of life among patients receiving hemodialysis. Most of the patients have threatening views regarding their illness which subsequently lowers their quality of life. To enhance the practical applicability of these findings, future interventions should focus on integrating mental health support within dialysis treatment programs, developing targeted psychosocial counseling strategies, and improving patient education on coping mechanisms. Moreover, healthcare policies could be developed aiming at multidisciplinary care approaches that address both medical and psychosocial aspects of patient well-being. Further research is recommended to explore the effectiveness of psychosocial intervention that may enhance the quality of life in diverse patient populations.

Limitations and Future Directions

In the present study, the Brief Illness Perception Questionnaire was administered to patients. However, it is recommended that the full version of the Illness Perception Questionnaire (IPQ-R) be used in future research to obtain a more in-depth understanding of illness perception. The data collection process faced challenges, as obtaining permissions from certain hospitals proved difficult. This limitation impacted the planned research methodology and should be considered in future studies. Additionally, this study focused solely on patients receiving hemodialysis, while peritoneal dialysis, another form of dialysis, was not included. In Pakistan, hemodialysis is the most commonly used treatment due to its relatively lower cost and wider availability, whereas peritoneal dialysis remains expensive and is offered by only a few hospitals.

Future research should compare patients undergoing hemodialysis and peritoneal dialysis to assess their psychological correlates and determine which method is more effective in improving patients' quality of life. Furthermore, a longitudinal study is recommended to examine whether the quality of life of dialysis patients changes over time as their duration on dialysis increases or decreases. Additionally, this study did not employ personality assessment measures, which could be useful in identifying specific personality traits that contribute to a better quality of life over time. Future research should incorporate personality assessments to explore their role in the well-being of dialysis patients.

Implications

Results of the current study can help in determining whether the perceptions of renal failure patients are benign or threatening, which decreases their quality of life. Mental health providers can formulate therapeutic guidelines for such patients and hence could enhance their quality of life by reframing their threatening perceptions. Healthcare providers can also use the findings of the present study and can help increase the quality of life of chronic renal failure patients by formulating strategies to increase their

resilience. Personalized psychological interventions like counseling, stress management, and support groups could be developed to improve patient's well-being. In terms of research, further longitudinal studies could be designed to assess the long-term impact of psychological factors on mental health. Cross-cultural research could be carried out to explore the differences in perceptions of patients from collectivistic and individualistic cultures to develop culture-sensitive interventions. On a social level, the findings of the study emphasize the role of family support in improving overall well-being.

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Received: April 18, 2017
Revision Received: March 13, 2025