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PSYCHOSOCIAL RISKS ASSOCIATED TO EXTRA-RENAL EPURATION: A CASE STUDY FROM TWO HEMODIALYSIS CENTERS IN NORTHERN MOROCCO

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Abstract

Background: End-stage renal disease (ESRD) and long-term hemodialysis may substantially affect patients' physical, psychological, social and economic well-being. Despite the medical necessity of hemodialysis, the psychosocial dimensions of living with long-term treatment remain insufficiently documented in Morocco. This study aimed to describe psychosocial vulnerability among patients receiving hemodialysis in Moroccan patients. **Methods:** A quantitative descriptive cross-sectional study with a correlational component was conducted among patients receiving hemodialysis in two public hemdialysis centers in Tetouan in Northern Morocco. Data were collected during the first half of March 2025 using a structured, interviewer-assisted questionnaire and the validated Multidimensional Scale of Perceived Social Support (MSPSS). A total of 95 eligible patients participated after providing verbal consent. Descriptive analyses and bivariate statistical tests were performed using IBM SPSS Statistics version 27. **Results: A**mong the 95 participants, 72.6% were unemployed and 47% had been receiving hemodialysis for more than five years. Financial difficulties related to treatment or health status were reported by 63.2% of participants. Overall, 71.6% reported that their health condition or treatment limited their participation in social activities. A significant association was observed between limitations in social or family activities and feelings of isolation (χ^2 test, $p < 0.001$). The mean perceived social support score was 52.10, indicating a moderate level of perceived social support. No statistically significant difference in perceived social support was observed according to duration of hemodialysis (one-way ANOVA, $F = 1.271$, $p = 0.289$). Sleep difficulties were reported by 82.0% of participants, while 69.4% reported feelings of despair always or often. A significant association was also observed between feelings of sadness or depression and loss of interest in usually enjoyed activities (χ^2 test, $p = 0.005$). **Conclusion:** The findings indicate substantial psychosocial vulnerability among patients receiving hemodialysis, particularly in relation to financial difficulties, reduced social participation, feelings of isolation, limited perceived social support, emotional distress, and sleep difficulties. These findings support the integration of psychosocial assessment and appropriate psychological and social support into comprehensive dialysis care. Further studies using standardized psychological instruments, larger samples, longitudinal designs and multivariable analyses are needed to identify independent factors associated with psychosocial vulnerability among hemodialysis patients in Morocco.

Keywords: End-stage renal disease; Hemodialysis; Psychosocial risks; Quality of life; Social support; Morocco.

Introduction

End-stage renal disease (ESRD) is a major public health problem requiring renal replacement therapy, most commonly hemodialysis or kidney transplantation. The increasing number of patients receiving dialysis represents an important medical, economic, and social challenge. In Morocco, ESRD has become an important concern for health services, particularly because of the long-term requirements associated with renal replacement therapy [1]. Hemodialysis is a life-sustaining treatment, but its long-term requirements can considerably modify patients' daily lives. Patients must adapt to regular dialysis sessions, dietary and fluid restrictions, medication regimens, vascular access care, and other treatment-related constraints. These requirements may affect professional activity, family relationships, leisure activities, physical activity, and social participation [2,3].

The impact of ESRD is therefore not limited to physical health. Patients may experience psychological distress, sleep disturbances, feelings of sadness or despair, reduced autonomy, social isolation, and difficulties maintaining previous social and professional roles. Perceived stress and reduced quality of life have been documented among patients with advanced chronic kidney disease undergoing hemodialysis [4]. Psychosocial vulnerability may be particularly important in patients who have been receiving hemodialysis for several years. Dependence on treatment, uncertainty

regarding the future, physical limitations, and changes in professional and family life may contribute to psychological and social difficulties. Depression and psychological distress have also been reported among patients undergoing chronic hemodialysis [5,6].

Social support is an important dimension of adaptation to chronic disease. Family members, friends, and significant others may provide emotional, practical, and social resources that help patients cope with the demands of long-term treatment. Conversely, insufficient social support may be associated with poorer psychological well-being and quality of life [7,8]. The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al., is a validated instrument designed to assess perceived support from family, friends, and a significant other [9]. Its use allows the assessment of an important psychosocial dimension among patients living with chronic illness.

Psychosocial interventions may also have an important role in the management of patients undergoing hemodialysis. A systematic review and meta-analysis found that psychosocial interventions may improve depression, anxiety, and quality of life among hemodialysis patients [10]. Such evidence supports the importance of moving beyond a purely biomedical approach and incorporating psychosocial assessment and support into dialysis care. Sleep is another important dimension of quality of life in patients undergoing hemodialysis. Sleep disturbances are frequently reported in this population and may coexist with psychological distress and the burden associated with chronic treatment [11].

In Morocco, however, local evidence concerning the psychosocial experiences of patients receiving hemodialysis remains limited. The present study therefore aimed to describe psychosocial vulnerability among patients undergoing hemodialysis in two public centers in Tetouan, Northern Morocco, with particular attention to financial difficulties, social participation, perceived social support, isolation, sleep difficulties, and emotional distress.

Methods

Study design and setting

A quantitative descriptive cross-sectional study with a correlational component was conducted among patients receiving hemodialysis in two public hemodialysis centers in the province of Tetouan in Northern Morocco: the Hemodialysis Unit of the Provincial Hospital Center of Tetouan and Boussafou hemodialysis facility. The study was conducted during the first half of March 2025. Official authorization to conduct the study was obtained from the Delegate of the Ministry of Health and Social Protection in the Province of Tetouan.

Study population and sampling

The target population consisted of patients with end-stage renal disease receiving hemodialysis in the two public centers priorly defined. The centers served approximately 70 patients at the Tetouan Provincial Hospital Center and approximately 60 patients at the Boussafou facility. Patients were approached during their dialysis sessions. Participation depended on the patient's clinical condition at the time of data collection and their willingness to participate. Although all eligible patients attending the two centers during the study period were targeted, only patients who were clinically able to participate and who agreed to answer the questionnaire were included. A total of 95 eligible patients participated in the study. Participation was voluntary and based on verbal informed consent.

Because recruitment depended on patient availability, clinical condition, and willingness to participate, the sample should be considered a non-probability/convenience sample of eligible patients available during the data-collection period, rather than a formally randomized probability sample.

Eligibility criteria

Patients were eligible for inclusion if they were over 18 years old with end-stage renal disease requiring maintenance hemodialysis, if they were clinically able to participate at the time of data collection and voluntarily agreed to participate in the study. Patients were excluded when their clinical condition did not allow them to participate in the interview or when they declined participation.

Sample size

The theoretical population identified in the two participating centers was approximately 110 patients. The final study sample consisted of 95 eligible participants who agreed to participate. Because the study was conducted as part of an end-of-study student research project and the objective was to approach the eligible patients attending the two centers during the study period, a formal a priori sample-size calculation was not performed. This constitutes a methodological limitation of the study.

Data collection procedure

Data were collected during the first half of March 2025 using a paper-based questionnaire administered in person in an assisted format. This approach was selected to ensure that participants understood the questions and to facilitate completion among patients who might have experienced

difficulties completing a self-administered questionnaire. The questionnaire was developed following a review of the literature and included questions concerning socio-demographic characteristics, treatment-related conditions, financial difficulties, social participation, feelings of isolation, sleep difficulties, feelings of despair, sadness or depression, and loss of interest in usual activities.

Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. [9]. The MSPSS contains 12 items assessing perceived support from family, friends, and a significant other. Responses are rated on a seven-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree).

Ethical considerations and confidentiality

Participation was voluntary. Patients were informed about the purpose of the study and provided verbal consent before participation. No names or directly identifying personal information were recorded on the questionnaires. Questionnaires were completed anonymously, and the collected information was used exclusively for research purposes. Administrative authorization was obtained from the Delegate of the Ministry of Health and Social Protection in the Province of Tetouan before data collection.

The study was conducted following official administrative authorization issued by the Ministry of Health and Social Protection, through the Provincial Health Delegation of Tetouan, in the context of a final-year student research project on psychosocial risks among hemodialysis patients. The authorization allowed access to relevant health services and the administration of questionnaires to patients in the province of Tetouan. No formal approval from an independent ethics committee was obtained for this study. Participation was voluntary, and verbal informed consent was obtained from participants prior to data collection. The confidentiality of the collected information was ensured, and the data were used exclusively for research purposes.

Statistical analysis

Data were entered and analyzed using IBM SPSS Statistics version 27. Categorical variables were summarized using frequencies and percentages. Quantitative variables, including the perceived social support score, were summarized using the number of observations and mean values. Bivariate analysis was conducted to explore associations between selected categorical variables. The chi-square test was used for cross-tabulations when its assumptions were considered appropriate. For comparisons of the perceived social support score according to duration of hemodialysis, one-way analysis of variance (ANOVA) was used. Statistical significance was defined as p value < 0.05.

Results

Socio-demographic and treatment characteristics

A total of 95 patients participated in the study. As shown in Table 1, 55.3% of participants were living as a couple, 24.5% were single, 12.8% were widowed, and 7.4% were divorced. Regarding employment status, 72.6% were unemployed, 16.8% were on sick leave, 7.4% were working, and 3.2% were retired. Regarding duration of hemodialysis, 47.0% had been receiving treatment for more than five years, 40.0% for two to five years, 10.0% for six months to two years, and 2.0% for less than six months. Regarding treatment frequency, 64.2% received two dialysis sessions per week, whereas 35.8% received three sessions per week or more.

Table I. Socio-demographic and treatment characteristics of participants

Variable	Terms/Categories	Percentage (%)
Family situation	Couple	55,3
	Single	24,5
	Widowed	12,8
	Divorced	7,4
Employment status	Unemployed	72,6
	Uon sick leave	16,8
	Working	7,4
	Retired	3,2
Duration of hemodialysis treatment	More than 5 years	47
	2 to 5 years	40
	6 months to 2 years	10
	Less than 6 months	2
Weekly frequency of sessions	2 sessions/ week	64,2
	3 sessions/ week or more	35,8

Percentages are based on the total sample (N = 95)

Financial difficulties related to treatment

Financial difficulties related to treatment or health status were reported by 63.2% of participants. Specifically, 37.9% reported significant difficulties and 25.3% reported very substantial difficulties. A further 20.0% reported few difficulties, while 16.8% reported no financial difficulties.

Impact of health status or treatment on the ability to participate in social events:

Among participants, 71.6% reported that their health condition or treatment limited their ability to participate in social events. Specifically, 32.6% reported that this limitation occurred always, 17.9% often, and 21.1% sometimes. Only 28.4% reported that they were never limited in participating in social events.

Social or family limitations and feelings of isolation

A statistically significant association was observed between limitations in social or family activities due to health status and feelings of isolation related to treatment (chi-square test, $p < 0.001$). Among participants who reported no limitation in social or family activities, 30 of 36 reported never feeling isolated. In contrast, feelings of isolation were reported more frequently among participants who reported that their health status often or always prevented them from participating in social or family activities.

Table 2. Association between social/family limitations and feelings of isolation

Workforce							
Variable		Do you feel isolated or lonely because of your condition?				Total	**Chi-square test**
		Never	Somtimes	Often	Always		
Does your state of health prevent you from participating in social or family activities?	Never	30	3	3	0	36	**<0.001**
	Somtimes	12	11	4	0	27	
	Often	3	1	6	3	13	
	Always	7	5	3	4	19	
Total		52	20	16	7	**95**	

χ^2 (chi-square test); $p < 0.001$ indicates a statistically significant association between limitations in social/family activities and feelings of isolation

Perceived social support

Approximately 66% of participants described perceived family and social support as non-existent, low, or moderate, whereas 34% described it as significant or very significant.

Table 3. Perceived family and social support

Variable	Terms/Categories	Percentage (%)
Support from family and friends	Non-existent	7%
	Moderate	31%
	Low	28%

Perceived social support score

The results obtained indicate that hemodialysis patients benefit from a moderate level of perceived social support, which corresponds to the interpretation thresholds proposed in the literature (9). This result suggests the presence of limited social support in a context of chronicity and medical dependence, which may limit the social life and psychological quality of life of this category of patients

Table 4 : Social support score

Social support		
N	Valid	95
	Missing	0
Average		**52,1053**

Perceived social support according to duration of hemodialysis

The mean perceived social support score was 40.5 among participants receiving hemodialysis for less than six months, 49.2 among those treated for six months to two years, 49.71 among those treated for two to five years, and 55.29 among those treated for more than five years. However, the difference between groups was not statistically significant (one-way ANOVA, $F = 1.271$, $p = 0.289$).

Table 5. Perceived social support according to duration of hemodialysis

Duration of hemodialysis	N	Mean MSPSS score
From 6 months to 2 years	10	49,2
From 2 to 5 years	38	49,7105
Over 5 years	45	55,2889
Less than 6 months	2	40,5
Total	**95**	52,1053

Table 6. One-way ANOVA comparing perceived social support according to duration of hemodialysis*

Social Support					
	Sum of squares	**df**	**Average square**	**F**	**Sig.**
Between groups	1027,787	3	342,596		
Within groups	24525,160	91	269,507	1,271	**0,289**
Total	25552,947	94			

Sleep difficulties

Sleep difficulties related to hemodialysis treatment were reported by 82% of participants. Specifically, 35% reported occasional difficulties, 24% frequent difficulties, and 23% regular difficulties, whereas 18% reported no sleep difficulties.

Feelings of despair

Overall, 69.4% of participants reported feelings of despair always or often, whereas 30.6% reported experiencing such feelings sometimes or never.

Sadness/depression and loss of interest in usual activities

A statistically significant association was observed between feelings of sadness or depression and loss of interest in activities usually enjoyed ($p = 0.005$). Participants who reported never feeling sad or depressed were more likely to report no loss of interest in their usual activities, whereas participants reporting more frequent feelings of sadness or depression more frequently reported loss of interest.

Table 7. Association between feelings of sadness/depression and loss of interest in usual activities

		Have you lost interest in activities you enjoy?				**Chi-square test**
		Never	Somtimes	Often	Always	
Do you feel sad or depressed?	Never	22	2	5	5	**0.005**
	Sometimes	9	7	13	5	
	Often	5	5	5	7	
	Always	1	1	0	3	
N=95		37	15	23	20	

χ^2 (chi-square test); $p = 0.005$ indicates a statistically significant association between feelings of sadness or depression and loss of interest in activities usually enjoyed

Discussion

The present study highlights several dimensions of psychosocial vulnerability among patients receiving hemodialysis in two public centers in Tetouan, Northern Morocco. The findings indicate that the burden associated with long-term hemodialysis extends beyond the medical requirements of treatment and includes financial difficulties, limitations in social participation, feelings of isolation, limited perceived social support, sleep difficulties, feelings of despair, and emotional distress. The high proportion of unemployed participants (72.6%) is notable. Nearly half of the participants had been receiving hemodialysis for more than five years. Long-term dialysis may impose substantial constraints on professional and social activities because patients must regularly attend treatment sessions and manage dietary, medication, and treatment-related requirements. Previous research has similarly highlighted the impact of chronic kidney disease and dialysis on patients' quality of life and daily functioning [2,3]. However, the present cross-sectional study cannot determine whether unemployment resulted from hemodialysis or whether other socioeconomic factors contributed to both unemployment and psychosocial vulnerability. Financial difficulties were reported by 63.2% of participants. This finding emphasizes the economic dimension of living with ESRD. The financial consequences of chronic kidney disease may include difficulties maintaining employment, additional health-related expenditure, and dependence on family resources. These socioeconomic dimensions should therefore be considered when assessing the overall quality of life of patients undergoing dialysis. Social participation was substantially affected in the present study. More than seven out of ten participants reported that their health condition or treatment limited their participation in social events. Moreover, a statistically significant association was observed between social or family limitations and feelings of isolation ($p < 0.001$). Participants reporting greater limitations were more likely to report feelings of isolation. This finding is consistent with the broader literature describing the effects of chronic kidney disease and dialysis on social functioning and quality of life [2,3]. Restrictions related to treatment, physical condition, and daily disease management may interfere with patients' social and family activities. Nevertheless, because the present study was cross-sectional, the observed association should not be interpreted causally. Reduced social participation and feelings of isolation may influence each other, but the direction of this relationship cannot be established from the present data. Perceived social support was another important

dimension. Approximately 66% of participants reported non-existent, low, or moderate support, while only 34% reported significant or very significant support. The mean MSPSS score was 52.10, indicating a moderate level of perceived social support. Recent research has emphasized the relationship between social support and quality of life among patients undergoing hemodialysis [7,8]. Social support may provide emotional and practical resources that facilitate adaptation to chronic illness and treatment. Conversely, limited social support may increase vulnerability to social isolation and psychological distress. In the present study, patients receiving hemodialysis for more than five years had the highest mean perceived social support score (55.29). However, the difference between treatment-duration groups was not statistically significant ($F = 1.271$, $p = 0.289$). The observed differences should therefore be interpreted descriptively rather than as evidence that longer dialysis duration increases social support. The MSPSS used in this study provides a structured assessment of perceived support from family, friends, and significant others [9]. Its use is particularly relevant in the context of chronic illness, where social relationships may constitute an important resource for adaptation.

Sleep difficulties were reported by 82% of participants. Sleep disturbance is frequently reported among patients with chronic kidney disease and those undergoing dialysis [11]. The high proportion observed in the present study suggests that sleep should be considered when assessing the psychosocial and quality-of-life burden associated with long-term hemodialysis. Psychological vulnerability was also apparent in the present study. Feelings of despair were reported always or often by 69.4% of participants. In addition, a significant association was found between feelings of sadness or depression and loss of interest in usual activities ($p = 0.005$). These findings are broadly consistent with research documenting psychological distress among patients receiving hemodialysis. García-Martínez et al. reported relationships between perceived stress, quality of life, and resilience among patients with advanced chronic kidney disease undergoing hemodialysis [4]. Other studies have also documented depressive symptoms among dialysis populations [5,6]. However, an important methodological distinction must be made. The present study assessed sadness, despair, and loss of interest through individual questionnaire items rather than through a standardized diagnostic instrument such as the Hospital Anxiety and Depression Scale (HADS) or the Patient Health Questionnaire (PHQ-9). Therefore, these findings should be described as emotional or depressive symptoms and should not be interpreted as a clinical diagnosis of depression.

The significant association between sadness/depressive feelings and loss of interest is nevertheless relevant. These two indicators may reflect emotional vulnerability among patients living with a chronic, treatment-dependent condition. Further studies using validated psychological instruments would be required to determine the prevalence of clinically significant depression or anxiety in this population. The findings have implications for nursing and multidisciplinary care. Nurses have frequent contact with patients during dialysis sessions and are therefore well positioned to identify changes in mood, social participation, perceived support, and sleep. Early identification may facilitate referral to appropriate psychological or social services. Psychosocial interventions may also be beneficial. A systematic review and meta-analysis by Barello et al. reported beneficial effects of psychosocial interventions on depression, anxiety, and quality of life among hemodialysis patients [10]. These findings support the development of comprehensive care models in which psychological and social needs are considered alongside the medical management of ESRD. The present study is also relevant in the Moroccan context. Research conducted among Moroccan patients with ESRD has documented an important burden on quality of life among patients receiving renal replacement therapy [1]. The current findings complement this work by focusing specifically on psychosocial dimensions including social participation, isolation, perceived support, financial difficulties, and emotional distress. Overall, the results suggest that the psychosocial experience of hemodialysis is multidimensional. Financial vulnerability, reduced social participation, limited social support, sleep difficulties, and emotional distress may coexist. Rather than considering these dimensions separately, dialysis care should adopt a holistic and patient-centered approach.

Limitations

Several limitations should be considered. First, the cross-sectional design does not permit causal inference. The statistically significant associations identified in this study should therefore not be interpreted as causal relationships. Second, the study was conducted in only two public hemodialysis centers in Tetouan, with a final sample of 95 participants. The findings may therefore not be definitely generalizable to all patients undergoing hemodialysis in Morocco. Third, participation depended on patients' clinical condition and willingness to participate. The sampling approach was therefore non-probability-based and may have introduced selection bias. Fourth, the study did not use a formal a priori sample-size calculation. This limitation should be acknowledged when interpreting the statistical power of the study. Fifth, some psychological indicators were assessed using individual questions rather than standardized

diagnostic instruments. Consequently, the findings concerning sadness, despair, and sleep difficulties should not be interpreted as formal psychiatric diagnoses.

Conclusion

This study identified several dimensions of psychosocial vulnerability among patients receiving hemodialysis in two public centers in Tetouan, Northern Morocco. Financial difficulties, reduced social participation, feelings of isolation, moderate perceived social support, sleep difficulties, feelings of despair, and emotional distress were frequently reported. Significant associations were observed between limitations in social or family activities and feelings of isolation, and between feelings of sadness or depression and loss of interest in usually enjoyed activities. These findings highlight the importance of considering psychological and social dimensions alongside medical treatment in the management of patients with ESRD. The results support the need for comprehensive, multidisciplinary and patient-centered dialysis care that incorporates psychosocial assessment, psychological support, family involvement, and appropriate social assistance.

Nevertheless, the findings should be interpreted in light of the cross-sectional design, the relatively small sample, the non-probability sampling approach, the absence of multivariable analysis, and the use of non-diagnostic questions for some psychological indicators. Future Moroccan studies should use larger and more representative samples, validated psychological instruments, longitudinal designs, and multivariable statistical models to identify independent factors associated with psychosocial vulnerability and evaluate the effectiveness of psychosocial interventions among patients receiving hemodialysis.

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