ORIGINAL RESEARCH

Heterogeneity and Influencing Factors of **Demoralization Syndrome in Elderly Maintenance** Hemodialysis Patients: A Latent Profile Analysis

Yao Huang, Hong Zhang, Lan Yang, Xinmei Xing, Xiangying Lv

Department of Nephrology, Baoding No. I Central Hospital, Baoding, Hebei, People's Republic of China

Correspondence: Yao Huang, Department of Nephrology, Baoding No. I Central Hospital, Baoding Great Wall North Street No 320, Baoding, Hebei, 071000, People's Republic of China, Email huangzhangyaoyao@sina.com

Objective: The purpose of this study is to explore the potential categories of demoralization syndrome (DS) in elderly maintenance hemodialysis (MHD) patients, analyze the characteristic differences among different categories of MHD patients, and identify the independent influencing determinants of these characteristic differences.

Methods: From April to October 2024, a total of 350 elderly MHD patients from three hospitals in Baoding City, Hebei Province were selected using convenience sampling. General information questionnaires and the Chinese version of the DS scale were used for data collection. Latent profile analysis was conducted using Mplus 8.3, and differences in characteristics among different categories of these patients were compared using SPSS 27.0.

Results: These elderly MHD patients with DS were classified into three potential categories: low-level group (18.26%), medium-level group (45.78%), and high-level group (35.96%). Average monthly household income, hemodialysis duration, complications, and selfmanagement ability were found to be predictive determinants influencing the latent profile categories of DS in elderly MHD patients (all p<0.05).

Conclusion: Elderly MHD patients with DS may be categorized into three groups, with distinct characteristic differences among these categories. Based on the three identified DS sub-types (low/moderate/high), we recommend stratified interventions tailored to each group's characteristics.

Keywords: demoralization syndrome, hemodialysis, end-stage renal disease, latent profile analysis

Introduction

Chronic kidney disease (CKD) is a significant non-communicable illness characterized by progressive deterioration that impacts more than 10% of the global population, translating to over eight hundred million individuals.¹ This insidious disease predominantly affects older individuals, women, and those with metabolic syndrome. The prevalence of CKD has been steadily rising over the past few decades, projected to rank as the fifth leading cause of years of life lost by the year 2040.² In addition to the overwhelming disease burden. CKD poses profound challenges to both affected individuals and healthcare systems, leading to adverse clinical and economic consequences.³ The absence of a definitive cure for CKD often results in a gradual decline in health, culminating in end-stage renal disease (ESRD) requiring maintenance hemodialysis (MHD) treatment.⁴ However, the regular visits to the hospital for MHD sessions, the lengthy duration of each session, the physical and emotional exhaustion experienced by patients and their families, and the exorbitant costs associated with treatment further exacerbate the already challenging situation, fostering feelings of hopelessness and despair.⁵ Individuals undergoing dialysis, particularly those grappling with ESRD, are constantly engaged in a battle against the disease and its associated complications. Due to the increasing elderly population in China and the widespread availability of hemodialysis technology, there has been a substantial rise in the number of MHD patients aged 60 and above, making up almost 70% of the total. With the rapid development of MHD technology, MHD has effectively extended the survival time of patients with ESRD.⁶ Nevertheless,

Received: 24 January 2025 Accepted: 22 May 2025 Published: 30 May 2025

1773 epress.com/term

older MHD patients exhibit distinct psychological and physical characteristics compared to their younger counterparts.⁷ This contrast is even more pronounced in individuals with compromised physical function, extended dialysis history, preexisting medical conditions, and associated complications.⁸

Demoralization refers to the psychological distress that individuals experience when they are unable to cope with longterm stress, commonly seen in patients with terminal illnesses and advanced stage cancer.⁹ On the other hand, demoralization syndrome (DS) refers to individuals who consistently experience lack of motivation, mixed with feelings of frustration and despair.¹⁰ Demoralization is an unhealthy way of dealing with challenges, marked by a sense of aimlessness and lack of significance in one's life, along with feelings of low morale, decreased optimism, helplessness, and hopelessness,¹¹ The effects of demoralization can affect one's mood and ability to handle difficult situations, as well as have a detrimental impact on social interactions, decision-making abilities, and overall quality of life.¹² In addition, it can lead to feelings of dependency and being a burden to others.¹³ Currently, there is limited research on DS in MHD patients, and there is a lack of studies on lack of DS in elderly MHD patients. Existing studies on DS have primarily focused on oncology or palliative care settings, where demoralization is well-documented as a response to terminal illness.¹³ In contrast, the unique psychological burden of MHD-a life-prolonging but demanding treatment-remains under-explored. For instance, while cancer patients face existential distress due to prognosis uncertainty, MHD patients endure chronic stressors such as treatment dependency, dietary restrictions, and recurrent hospitalizations, which may differentially manifest as DS. Existing research only judged the level of MHD patients' DS based on the scores of the scale, without considering individual differences. However, Latent Profile Analysis (LPA) is a method that determines latent categories based on individuals' response patterns to observable variables, and identifies the proportion of individuals in each latent category, which is beneficial for exploring the characteristics and heterogeneity of different category populations.¹⁴ Therefore, this study adopted the LPA method to investigate the categories and characteristics of DS in elderly MHD patients, and compare the influencing factors of DS in different categories of these patients, with the aim of devising personalized intervention strategies.

Material and Methods

Research Subjects

Convenient sampling was utilized to select individuals undergoing Maintenance Hemodialysis (MHD) treatment at three tertiary hospitals in Baoding, Hebei Province, China, as the survey participants between April 2024 and October 2024. The inclusion criteria specified individuals diagnosed with End-Stage Renal Disease (ESRD) who had been receiving MHD for a minimum of 3 months, were aged 60 years or older, exhibited clear consciousness, and were capable of effective communication. Exclusion criteria encompassed individuals with a history of mental illness or recent significant life events such as accidents or bereavement. A sample size was determined based on the requirements of employing multiple linear regression analysis in the study, mandating a sample size between 5 and 20 times the number of independent variables. Expecting around 20 independent variables and accounting for a 20% non-response rate, the projected sample size varied between 80 and 360 cases. Prior approval for this study was obtained from the Ethics Committee of Baoding No.1 Central Hospital (Ethics Approval Number: 2024198), and all recruited patients were fully informed and willingly participated in the study. Refer to Figure 1 for the visual representation in the flowchart.

Research Tools

Patient General Information Questionnaire

Designed by the researchers themselves, this questionnaire includes two parts. Part 1: Demographic information such as age, sex, smoking, drinking, education, marital status, living alone, healthcare payment methods, average monthly household income, and self-care abilities. Part 2: Disease-related information, including dialysis duration, dialysis frequency every week and number of complications.

Chinese Version of the DS Scale

The DS Scale was developed by Hong Xiaoqi et al based on the English version of the Kissane DS Scale, with cultural adaptation by Liu Peipei, et al, to assess the condition of patients experiencing DS.¹⁵ It includes items related to feelings of meaninglessness (5 items), depression (5 items), unrest (5 items), failure (5 items), and helplessness (4 items). Scores



Figure I Flowchart of selecting elderly maintenance hemodialysis patients for this study.

range from 0 to 4 based on the severity level, with a total score of 96. Higher scores indicate a more severe DS, with 0 to 30 points classified as low level, 31 to 60 points as moderate level, and 61 to 96 points as high level. The total Cronbach's α coefficient for the scale is 0.97.

Data Collection Methods

The researchers collected data through a combination of traditional paper-based questionnaires and modern electronic surveys. To ensure accuracy and consistency, all surveyors underwent comprehensive training and followed standardized guidelines when explaining the survey requirements to participants. They provided clear and consistent responses to any questions raised by the participants. For those who had difficulty with writing or reading, the surveyors patiently read each item aloud in a neutral tone and offered assistance in completing the questionnaire. Once the survey was finished, it was immediately collected, checked for any missing information, and promptly supplemented to guarantee full completion.

Statistical Methods

The LPA of DS in patients with MHD was conducted using Mplus 8.3. Model fit was evaluated using the following indices: Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), and adjusted Bayesian Information Criterion (aBIC), with lower values indicating better fit. A value close to 1 for Entropy indicates more precise classification. Additionally, models with *p* values less than 0.05 for the Bootstrap Likelihood Ratio Test (BLRT) and Lo-Mendell-Rubin adjusted Likelihood Ratio Test (LMRT) were considered better than the previous model. Following the selection of the optimal latent profile model, statistical analysis was carried out using SPSS 27.0. Continuous variables were expressed as mean \pm standard deviation or median (interquartile range) based on their distribution. Categorical variables were presented as frequencies and percentages. The Student's *t*-test or Mann–Whitney *U*-test was used to compare continuous variables from univariate analyses were entered into a multinomial logistic regression model with DS subgroups (low/moderate/high) as the dependent variable, using the low-DS group as reference. All logistic regression models were evaluated for multicollinearity using variance inflation factors (VIFs) <5. Model goodness-of-fit was assessed via the Hosmer-Lemeshow test, with nonsignificant results (P > 0.05) indicating adequate calibration.

Results are reported as adjusted odds ratios (aOR) with 95% confidence intervals. A p value of less than 0.05 was considered statistically significant.

Results

Evaluation of Comprehensive DS in Elderly Patients with MHD

A total of 385 questionnaires were distributed, with 350 valid questionnaires returned, yielding an effective recovery rate of 90.9% (Figure 1). A total of 350 elderly MHD patients were included, with 37.7% being male and 63.3% female. Among them, 42.6% were between 60–70 years old, 40.6% were between 71–80 years old, and 16.8% were over 80 years old. The combined score on the DS Scale for these individuals was (66.7 ± 8.3) points, with individual item scores averaging (2.6 ± 0.5) points. Overall, the degree of DS was moderately significant, as evidenced by 61.2% of participants falling into the high range, 25.7% in the moderate range, and 13.1% in the low range.

LPA of DS in elderly MHD Patients

Based on the DS-II scores of MHD patients as indicator variables, a latent profile model was fitted to the data. Starting from the initial model, a total of 5 latent profile models were fitted, as shown in Table 1. With an increase in the number of profiles, the AIC, BIC, and aBIC gradually decreased. When retaining 3 profiles, the Entropy value was 0.979, LMRT's P<0.001, and the average probability of each profile belonging to its respective category ranged from 95.85% to 100.00%. This indicates that the results of dividing into 3 latent profiles are reliable, suggesting the presence of 3 DS categories among MHD patients. A latent profile graph was plotted based on the indicator variables of the 3 profiles, as shown in Figure 2. According to the score characteristics, the profiles were named sequentially as "Low-level DS group (L)", "Moderate-level DS group (M)", and "High-level DS group (H)".

Single-Factor Analysis of Potential Profiles of Elderly MHD Patients with DS

The results of this study showed that sex, education level, average monthly household income, living alone, dialysis duration, complications, and self-management abilities had predictive effects on the potential profiles of elderly MHD patients with DS. The differences were statistically significant (P < 0.05), as shown in Table 2.

Multinomial Logistic Regression of LPA Among These Elderly MHD Patients

The study categorized three latent profiles of elderly MHD patients with DS as the dependent variables, using L as the reference group. Significant variables from the single-factor analysis were selected as independent variables for multinomial logistic regression analysis. The results showed that average monthly household income, dialysis duration, complications, and self-management abilities were predictive factors influencing the latent profiles of DS in elderly MHD patients (P<0.05), as shown in Table 3.

Class	AIC	BIC	aBIC	Entropy value	Р		Proportion (%)				
					LRT BLRT		I	2	3	4	5
I	2479.675	2578.132	2468.137	—	_	_					
2	2378.127	2413.173	2371.126	0.923	0.083	<0.001	65.78	34.22	—	—	_
3	2345.106	2289.176	2327.073	0.979	<0.01	0.002	18.26	45.78	35.96	—	—
4	2456.078	2514.263	2468.173	0.943	0.436	0.024	28.45	32.33	12.46	26.76	—
5	2462.127	2545.763	2432.073	0.927	0.217	0.013	22.46	18.63	24.78	18.53	15.60

 Table I Fitting Results of Latent Profile Analysis for the Demoralization Syndrome in These Elderly Maintenance

 Hemodialysis Patients

Abbreviations: AIC, akaike information criterion; BIC, bayesian information criterion; aBIC, adjusted bayesian information criterion; LRT, likelihood ratio test; BLRT, bootstrap likelihood ratio test.



Figure 2 The potential profile analysis of demoralization syndrome in elderly maintenance hemodialysis patients.

Discussion

This study revealed the existence of group heterogeneity in DS among elderly MHD patients, overall at a moderate to high level, with females representing 63.3% and patients aged 60–80 accounting for 83.2%. Using PLA, this study identified three potential categories of DS among elderly MHD patients: "low-level DS group" (18.26%), "moderate-level DS group" (45.78%), and "high-level DS group" (35.96%), indicating the presence of group heterogeneity in DS

Variables	Low Levels of	Middle Levels	High Levels of	Þ
	DS ((n=64))	of DS (n=160)	DS (n=126)	
Sex, n(%)				<0.001
Male	27(42.3)	77(48.3)	28(22.5)	
Female	37(57.7)	83(51.7)	98(77.5)	
Age, (Years)				0.213
60~ 70	30(46.5)	53(32.9)	66(52.1)	
71~ 80	14(22.4)	84(52.4)	44(34.8)	
>80	20(31.1)	23(14.7)	16 (13.1)	
Smoking, n(%)				0.176
No	47(72.7)	130(81.5)	108(86.2)	
Yes	17(27.3)	30(18.5)	18(13.8)	
Drinking, n(%)				0.345
No	50(79.4)	138(86.7)	115(91.3)	
Yes	14(20.6)	22(13.3)	(8.7)	
Education level, n(%)				0.012
Middle school or below	16(25.8)	52 (32.5)	69(54.7)	
High school or vocational school	21(32.6)	78(48.7)	43(34.2)	
College or above	27(41.6)	30(18.8)	14(11.1)	
Marital Status n(%)				0.347
Married	49(75.8)	116(72.5)	100(79.6)	
Unmarried	8 (12.3)	30 (18.4)	21(16.8)	
Others	7(11.9)	14(9.1)	5(3.6)	

Table 2 Comparison of the General Data Among the Three Groups (n=350)

(Continued)

Table 2 (Continued).

Variables	Low Levels of DS ((n=64))	Middle Levels of DS (n=160)	High Levels of DS (n=126)	Þ
Average Monthly Household Income (Yuan), n(%)				<0.001
<3000	20 (32.1)	72(45.2)	86(68.5)	
3000~ 5000	28(44.5)	30(18.6)	16(12.8)	
>5000	16(23.4)	58(36.2)	24(18.7)	
Living Alone, n(%)				<0.001
Yes	4(6.1)	20(12.4)	29(22.9)	
No	60(93.9)	140(87.6)	97(77.1)	
Healthcare Payment Methods, n(%)				0.439
Rural Cooperative Medical Scheme	37(58.5)	102(63.8)	68(54.2)	
Medical health insurance	19(29.7)	52(32.5)	43(34.3)	
Others	18(11.8)	6(3.7)	15(11.5)	
Dialysis Duration (Years), n(%)				<0.001
≤5	43(66.8)	55(34.1)	27(21.8)	
>5	21(33.2)	105(65.9)	99(78.2)	
Dialysis Frequency every week, n(%)				0.573
≤2	10(15.2)	20 (12.7)	11(8.9)	
≥3	54(84.8)	140(87.3)	115(91.9)	
Complications, n(%)				<0.001
≤3	30(48.2)	64(39.8)	35(27.9)	
>3	34(51.8)	96(60.2)	91(72.1)	
Self-management abilities, n(%)				<0.001
Yes	49(76.8)	74(46.2)	29(22.7)	
No	15(23.2)	86(53.8)	97(77.3)	

Note: *p*<0.05 presented in bold formatting. **Abbreviation**: DS, demoralization syndrome.

Table 3	Multivariate	Logistic	Regression	of	Latent	Profiles	Among	These	Elderly	Maintenance	Hemodialysis	Patients
(n=350)												

Variables		М	vs L	H vs L			
	В	Р	OR (95%CI)	В	Р	OR(95%CI)	
Sex							
Male							
Female	0.125	0.243	1.456 (0.785~1.853)	0.136	0.128	1.314(0.523~1.929)	
Education							
Middle school or below							
High school or vocational school	0.256	0.156	1.159 (0.456~1.689)	0.296	0.263	1.389(0.367~1.855)	
College or above	-0.315	0.426	1.253 (0.386~1.683)	-0.486	0.378	1.523(0.478~1.896)	
Average Monthly Household Income (Yuan)							
<3000							
3000~ 5000	-0.312	0.089	1.123 (0.863~1.569)	-0.42 I	0.096	1.214(0.638~1.569)	
>5000	-0.496	0.025	0.763 (0.432~0.964)	-0.563	0.012	0.678(0.453~0.863)	
Living Alone							
Yes	0.364	0.143	1.863 (0.857~2.251)	0.424	0.115	1.457(0.889~2.739)	
No							
Dialysis Duration (Years)							
≤5							
>5	0.234	0.078	1.253 (0.786~1593)	0.579	0.027	1.453(1.154~2.476)	

(Continued)

Table 3 (Continued).

Variables		м	vs L	H vs L			
	В	Р	OR (95%CI)	B P		OR(95%CI)	
Complications							
≤3							
>3	0.537	0.158	1.267 (0.954~1.879)	0.632	0.034	1.986(1.247~5.567)	
Self-management abilities							
Yes	-0.468	0.137	1.753 (0.524~1.967)	-0.512	0.018	0.647(0.486~0.879)	
No							

Note: p<0.05 presented in bold formatting.

Abbreviations: M, Low levels of demoralization syndrome; L, Low levels of demoralization syndrome; H, Low levels of demoralization syndrome; OR, odd ratio; Cl, Confidence Interval.

among elderly MHD patients. The combined proportion of the "moderate-level DS group" and "high-level DS group" at 81.74% suggests that elderly MHD patients overall have a moderate to high level of DS. Using LPA of 477 lung cancer patients from three tertiary hospitals in Wuhan, a study identified three distinct illness perception profiles: low (27.25%), moderate (40.04%), and high (32.71%).¹⁶ The results highlight the importance of personalized psychological approaches based on patients' illness perception profiles. This finding is consistent with our research results, and notably, our study observed a higher proportion of DS patients in the moderate-to-high-level group. In comparison to individuals with cancer or those who undergone heart transplants, our MHD patients demonstrated elevated levels of demoralization and psychological distress warranting attention.^{17–19} This could be attributed to the presence of anxiety, depression, physical limitations, and challenges in fulfilling social roles that are commonly observed in elderly individuals undergoing MHD, ultimately leading to diminished self-belief.¹⁹ Furthermore, the frequent pain experienced by MHD patients contributes to the development of DS in this population.²⁰ Therefore, healthcare providers should prioritize the psychological wellbeing of elderly MHD patients, routinely evaluating them using the Chinese version of DS, identifying those at risk of developing DS early, and offering tailored interventions such as meaning-centered therapy, dignity therapy, and narrative nursing to prevent suicidal tendencies and enhance their mental well-being and overall quality of life.

This study revealed that patients with relatively higher average monthly household income were less likely to develop moderate or high levels of DS compared to the "low-level DS group", which was consistent with findings from previous researches on DS patients.²¹ ESRD Patients often require long-term HD, which can become a financial burden due to the high costs involved. Along with the expenses related to HD, there are additional costs for medications needed to manage the various complications that may arise. This places a significant strain on ESRD patients, particularly those from disadvantaged economic backgrounds, who must bear the brunt of these financial challenges. In some cases, individuals grappling with financial difficulties may even contemplate discontinuing their treatment, leading to heightened feelings of hopelessness and despair.²² It is imperative for healthcare providers to prioritize individuals with low incomes or who are unemployed, offering guidance on accessing medical insurance coverage, support for managing chronic conditions, and other relevant services to help alleviate the financial burdens associated with treatment. A comprehensive cross-sectional study was carried out involving burn patients with diabetic symptoms, encompassing a total of 381 participants.²³ The findings of this study revealed that 17.3% of the patients exhibited mild demoralization, 63.3% experienced moderate demoralization, and 19.4% faced severe demoralization. Notably, the study identified the average monthly income as a key factor linked to the severity of diabetic symptoms in burn patients, mirroring the results obtained from our own research.

This study also showed that in elderly MHD patients, a high level of DS occurrence was independently associated with hemodialysis duration and complications compared to the low-level group.Prior research has indicated a correlation between the prolonged duration of hemodialysis treatment and the increased occurrence of complications.²⁴ This particular study observed a group of patients who had undergone MHD for more than 5 years, encountering issues such as pulmonary infections, imbalances in electrolytes, strokes, and heart failure, all contributing to their enduring distress and hopelessness. The recurring need for hospitalizations for MHD only adds to the physical and emotional

strain experienced by these patients, some of whom must endure the distressing wait for a suitable kidney donor, feeling a sense of helplessness.²⁵ Healthcare professionals have the opportunity to introduce targeted nursing interventions aimed at alleviating the distress experienced by these patients. These interventions must be adapted to address the unique stages of despair encountered by ESRD patients, focusing on easing symptoms when patients grapple with the pain and discomfort associated with their illness. Additionally, providing informational support and reassurance can benefit those who feel powerless in the face of despair. It is crucial for healthcare providers to recognize the individual needs of patients undergoing MHD and develop interventions that are tailored to their specific stage of despair, thereby mitigating any adverse psychological effects on treatment outcomes.

The research still revealed that in comparison to the low-level DS group, elderly MHD patients in the high-level DS group had poorer self-management abilities. This suggests that improving the self-management abilities of MHD patients may significantly reduce the occurrence and progression of DS.Our research findings are in line with previous studies on the subject.²⁶⁻²⁸ An observational investigation was carried out to assess how self-management skills impact the quality of life of MHD patients.²⁹ The study revealed that both health education and nursing care have a pivotal role in enhancing the well-being of ESRD individuals. Self-management, which encompasses managing symptoms, adhering to treatments, and making lifestyle adjustments, emerged as a critical factor in upholding and boosting the quality of life for these patients. An additional qualitative observational study, focusing on Chinese elderly individuals with chronic illnesses, showcased that enhancing self-management abilities can lead to an improvement in the quality of life among patients.³⁰ The study pinpointed three key self-management practices: self-monitoring, self-evaluation, and selfintervention. The outcomes of this study offer valuable insights for seniors and healthcare providers in aiding and bolstering self-management of chronic conditions, thereby promoting healthy aging. This implies that interventions targeted at augmenting self-management skills in elderly MHD patients may also assist in reducing dialysis-related stress. It is essential for further research to delve into the correlation between self-management proficiency and dialysis-related stress in elderly MHD individuals. Going forward, forthcoming research endeavors should delve into the underlying mechanisms behind this association and assess the efficacy of interventions that focus on improving self-management capabilities to enhance the outcomes for these patients.

In our previous multi-center cross-sectional study,³¹ we investigated the prevalence and influencing factors of DS in elderly MHD patients, identifying key determinants such as household income, dialysis duration, complications, and self-management abilities. While this foundational work provided critical insights into DS epidemiology and linear associations, it did not account for the inherent heterogeneity within this population. The current study extends these findings by employing LPA to uncover distinct subgroups of DS severity, thereby offering a nuanced understanding of patient stratification and tailored intervention pathways. Unlike the previous cross-sectional analysis, this approach identifies heterogeneous patient profiles that align with varying intervention needs.

This study presents certain limitations that need to be acknowledged. Firstly, the use of convenience sampling may restrict the applicability of the findings. The relatively small sample size, consisting solely of elderly MHD patients, could hinder the ability to generalize the results to other populations. It is suggested that future research endeavors involve multi-center data collection with a larger sample size to ensure the validity of the conclusions drawn. Additionally, the cross-sectional design of the study may not fully capture the dynamic nature of the incidence of DS in MHD patients. Longitudinal studies would be beneficial to explore the trajectory of DS over time and pinpoint the factors contributing to its occurrence, thus enabling the development of targeted intervention strategies. Furthermore, the absence of certain influencing factors, such as HD modalities and specific medications, in the current study highlights the need for their inclusion in future investigations to offer a more comprehensive insight into DS among MHD patients.

Conclusions

In conclusion, this study identified three potential categories of DS in elderly MHD patients through PLA, highlighting the role of average household monthly income, dialysis duration, complications, and self-management abilities in predicting these categories. The model facilitates translation of research findings into actionable clinical pathways for personalized DS management in dialysis care. Healthcare professionals may use this information to tailor interventions

based on the different profiles of these patients and influencing factors, ultimately improving the occurrence and development of DS in MHD patients and devising more targeted intervention strategies.

Data Sharing Statement

The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

Ethics Approval and Consent to Participate

This study was approved by the Ethics Committee of the Baoding No. 1 Central Hospital and conducted in accordance with the declaration of Helsinki. Written informed consent to take part in this research was obtained from all participants.

Consent for Publication

Written informed consent was obtained from the patients for publication of this study.

Acknowledgment

We acknowledge the contributions of the colleagues in Baoding No. 1 Central Hospital that aided the efforts.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

This study was supported by Baoding Science and Technology Plan Self-financing Project (2441ZF235).

Disclosure

The authors declare no competing interests in this work.

References

- Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2024 clinical practice guideline for the evaluation and management of chronic kidney disease. *Kidney Int*. 2024;105(4S):S117–S314. doi:10.1016/j.kint.2023.10.018
- 2. Naber T, Purohit S. Chronic kidney disease: role of diet for a reduction in the severity of the disease. *Nutrients*. 2021;13(9):3277. doi:10.3390/nu13093277
- 3. Ruiz-Ortega M, Rayego-Mateos S, Lamas S, et al. Targeting the progression of chronic kidney disease. *Nat Rev Nephrol.* 2020;16(5):269–288. doi:10.1038/s41581-019-0248-y
- 4. August P. Chronic kidney disease another step forward. N Engl J Med. 2023;388(2):179-180. doi:10.1056/NEJMe2215286
- 5. Wouk N. End-stage renal disease: medical management. Am Fam Physician. 2021;104(5):493-499.
- 6. Hwan NL, Hussin NAM. Volunteering Experience among Older Adults with End-stage Renal Disease (ESRD). J Gerontol Soc Work. 2022;65 (3):271–289. doi:10.1080/01634372.2021.1959478
- 7. Dembowska E, Jaroń A, Gabrysz-Trybek E, et al. Quality of life in patients with end-stage renal disease undergoing hemodialysis. *J Clin Med.* 2022;11(6):1584. doi:10.3390/jcm11061584
- 8. Vovlianou S, Koutlas V, Ikonomou M, et al. Quality of life of caregivers of end-stage kidney disease patients: caregivers or care recipients? *J Ren Care*. 2023;49(1):56–72. doi:10.1111/jorc.12403
- 9. Zheng Q, Xiong L, Li H, et al. Demoralization: where it stands-and where we can take it: a bibliometric analysis. *Front Psychol*. 2022;13:1016601. doi:10.3389/fpsyg.2022.1016601
- 10. Woźniewicz A, Cosci F. Clinical utility of demoralization: a systematic review of the literature. Clin Psychol Rev. 2023;99:102227. doi:10.1016/j. cpr.2022.102227
- 11. Fava GA, Guidi J. Clinical characterization of demoralization. Psychother Psychosom. 2023;92(3):139–147. doi:10.1159/000530760
- 12. Garcia ACM, Schneiders M, da Mota KS, et al. Demoralization and spirituality in oncology: an integrative systematic review. Support Care Cancer. 2023;31(5):259. doi:10.1007/s00520-023-07722-6
- 13. Landerholm A, Miran DM, Tung SC, et al. Clinical teaching of demoralization: challenges and opportunities. *Acad Psychiatry*. 2024;48 (6):633–636. doi:10.1007/s40596-024-02005-6

- 14. Băjenaru L, Balog A, Dobre C, et al. Latent profile analysis for quality of life in older patients. *BMC Geriatr.* 2022;22(1):848. doi:10.1186/s12877-022-03518-1
- 15. Kissane DW, Wein S, Love A, et al. The demoralization scale: a report of its development and preliminary validation. *J Palliat Care*. 2004;20 (4):269–276. doi:10.1177/082585970402000402
- 16. He C, Liu S, Ding X, et al. Exploring the relationship between illness perception, self-transcendence, and demoralization in patients with lung cancer: a latent profile and mediation analysis. *Asia Pac J Oncol Nurs*. 2024;12:100638. doi:10.1016/j.apjon.2024.100638
- 17. Hong YT, Lin YA, Pan YX, et al. Understanding factors influencing demoralization among cancer patients based on the bio-psycho-social model: a systematic review. *Psychooncology*. 2022;31(12):2036–2049. doi:10.1002/pon.6023
- Bovero A, Vitiello LP, Botto R, et al. Demoralization in end-of-life cancer patients' family caregivers: a cross-sectional study. Am J Hosp Palliat Care. 2022;39(3):332–339. doi:10.1177/10499091211023482
- 19. Hsu CH, Tung HH, Wu YC, et al. Demoralization syndrome among cardiac transplant recipients. J Clin Nurs. 2022;31(15-16):2271-2286. doi:10.1111/jocn.16045
- 20. Bovero A, Cito AL, Botto R, et al. Demoralization syndrome in end-of-life cancer patients: a qualitative study. Am J Hosp Palliat Care. 2024:10499091241274315. doi:10.1177/10499091241274315
- Li YC, Ho CH, Wang HH. Protective factors of demoralization among cancer patients in Taiwan: an age-matched and gender-matched study. Asian Nurs Res. 2017;11(3):174–179. doi:10.1016/j.anr.2017.07.001
- 22. Jha V, Al-Ghamdi SMG, Li G, et al. Global economic burden associated with chronic kidney disease: a pragmatic review of medical costs for the inside CKD research programme. *Adv Ther.* 2023;40(10):4405–4420. doi:10.1007/s12325-023-02608-9
- 23. Wang C, Deng Y, Yao Y, et al. Demoralization syndrome in burn patients: a cross-sectional study. Burns. 2024;50(6):1640–1651. doi:10.1016/j. burns.2024.02.016
- 24. Loutradis C, Sarafidis PA, Ferro CJ, et al. Volume overload in hemodialysis: diagnosis, cardiovascular consequences, and management. *Nephrol Dial Transplant*. 2021;36(12):2182–2193. doi:10.1093/ndt/gfaa182
- Alencar SBV, de Lima FM, Dias LDA, et al. Depression and quality of life in older adults on hemodialysis. Braz J Psychiatry. 2020;42(2):195–200. doi:10.1590/1516-4446-2018-0345
- 26. Trask MA, Marchuk S, Rozon C, et al. The evaluation of an orientation program of self-care abilities for patients on hemodialysis. *Nephrol Nurs J*. 2016;43(6):501–534.
- Ma LC, Liu YM, Lin YC, et al. Factors influencing self-management behaviors among hemodialysis patients. J Pers Med. 2022;12(11):1816. doi:10.3390/jpm12111816
- Lai B, Shen L, Ye S, et al. Influence of continuity of care on self-management ability and quality of life in outpatient maintenance hemodialysis patients. *Ther Apher Dial*. 2022;26(6):1166–1173. doi:10.1111/1744-9987.13800
- 29. Qu X, Shen P. Investigating polymorphisms related to chronic kidney disease and the effect of health and nursing education on self-management ability and quality of life in hemodialysis patients. *Cell Mol Biol.* 2023;69(1):25–29. doi:10.14715/cmb/2022.69.1.5
- 30. Kong D, Zuo M, Chen M. Self-management behaviours of older adults with chronic diseases: comparative analysis based on the daily activity abilities. *Aust J Prim Health*. 2021;27(3):186–193. doi:10.1071/PY20159
- 31. Zhang H, Yang L, Xing X, et al. Incidence and influencing factors of demoralization syndrome in elderly maintenance hemodialysis patients: a multi-center cross-sectional study. *Int J Gen Med.* 2025;18:787–797. doi:10.2147/IJGM.S511458

Risk Management and Healthcare Policy



Publish your work in this journal

Risk Management and Healthcare Policy is an international, peer-reviewed, open access journal focusing on all aspects of public health, policy, and preventative measures to promote good health and improve morbidity and mortality in the population. The journal welcomes submitted papers covering original research, basic science, clinical & epidemiological studies, reviews and evaluations, guidelines, expert opinion and commentary, case reports and extended reports. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit http://www.dovepress.com/testimonials.php to read read quotes from published authors.

Submit your manuscript here: https://www.dovepress.com/risk-management-and-healthcare-policy-journal

1782 🖪 💥 in 🔼