

Physical symptoms distress and demoralization among haemodialysis patients; the mediating effect of spirituality and self-compassion. A cross-sectional questionnaire survey

Chia-Hui Lin^a, Yi-Chien Chiang^b, Wen-Yi Li^{c,d}, Tsung-Lan Chu^e, Ya-Chu Hsiao^{f,*}

^a Nurse practitioner in the Hemodialysis, Department of National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan

^b Department of Nursing, Chang Gung University of Science and Technology, Division of Pediatric Hematology and Oncology, Chang Gung Memorial Hospital Linkou Main Branch, Taiwan

^c Division of Nephrology, Department of Internal Medicine, National Taiwan University Hospital Yunlin Branch, Yunlin 640, Taiwan

^d College of Medicine, National Taiwan University, Taipei, Taiwan

^e Administration Center of Quality Management Department, Chang Gung Medical Foundation, Taiwan

^f Department of Nursing, Chang Gung University of Science and Technology, Administration Center of Quality Management Department, Chang Gung Medical Foundation, Taiwan

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ABSTRACT

Background: Long-term haemodialysis patients often experience physical symptom distress (PSD) and varying levels of demoralization. Spirituality and self-compassion can help patients to cope these challenges. However, the interrelations between these variables remain underexplored, necessitating further investigation.

Objectives: To examine the effect of PSD on demoralization among haemodialysis patients and to determine whether spirituality and self-compassion mediate these relationships.

Design: A cross-sectional correlational study.

Settings: A convenience sample was used to recruit from two haemodialysis clinics.

Methods: Self-report questionnaires were the Physical Symptom Distress Scale, Demoralization Scale, Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale-12, and Self-Compassion Scale. Relationships and mediators were examined with Pearson's correlations and multiple linear regression analysis, respectively.

Results: A total of 156 participants participated. Mean age of participants was 61.3 years ($SD = 11.3$). Most participants were male (66 %) and had received dialysis for ≥ 5 years (61.5 %). Pearson's correlation indicated higher scores for PSD were significantly associated with lower levels of spirituality and self-compassion and higher levels of demoralization. There was a significant total and direct effect of PSD on demoralization. Mediation analysis indicated that the relationship between PSD and demoralization was partially and significantly mediated by spirituality and self-compassion. Demoralization can be explained by 46.83 % variance accounted by these predictors in the mediation model.

Conclusion: Long-term haemodialysis can cause chronic symptom distress and feelings of demoralization. The mediating effects of spirituality and self-compassion on PSD and demoralization suggest that these qualities may act as emotional regulators that enable haemodialysis

* Corresponding author at: Department of Nursing, Chang Gung University of Science and Technology, No.261, Wenhua 1st Rd., Guishan District, Taoyuan City, 333 03 Taiwan.

E-mail addresses: yccchiang@mail.cgust.edu.tw (Y.-C. Chiang), jec75@cgmh.org.tw (T.-L. Chu), yjshiao@gw.cgust.edu.tw, yjshiao@mail.cgust.edu.tw (Y.-C. Hsiao).

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patients to be more accepting of symptom distress, which results in lower levels of demoralization. Our findings imply that developing strategies to increase spirituality and self-compassion could help patients manage chronic symptom distress associated with haemodialysis, reduce demoralization, and ultimately improve their quality of life.

What is already known

1. Physical symptom distress (PSD) is a common issue among haemodialysis patients.
2. PSD can increase the risk of psychological distress.
3. Spiritual well-being and self-compassion are coping factors that can help prevent emotional stress in patients with chronic diseases.

What this paper adds

1. Significant associations were seen between physical symptom distress, spiritual well-being, self-compassion, and demoralization among haemodialysis patients.
2. There was a direct and indirect effect of spiritual well-being and self-compassion on demoralization for haemodialysis patients.
3. Enhancing spiritual well-being and self-compassion could help reduce feelings of physical symptom distress and demoralization for patients undergoing haemodialysis.

1. Introduction

End-stage renal disease (ESRD) is a chronic disease. Patients who are not eligible for kidney transplantation must undergo regular haemodialysis and the prevalence of ESRD continues to increase (U.S. Renal Data System, 2023). As of 2022, Taiwan had the second-highest incidence of patients with ESRD globally, with 90 % of patients receiving regular haemodialysis treatment (National Health Research Institutes and Taiwan Society of Nephrology, 2023). The three weekly 4-hour sessions of haemodialysis for ESRD can result in physical symptom distress (PSD) due to fatigue, sleep disturbances, myalgia, and nausea, which negatively impacts emotional health, feelings of well-being, and quality of life (Abeywickrama et al., 2020). PSD can also result in feelings of hopelessness, helplessness, and incompetence, referred to by Kissane and colleagues as demoralization (Kissane et al., 2004; Robinson et al., 2015). However, there is a gap in the literature about how demoralization impacts haemodialysis patients and if there are other influencing factors.

The presence of demoralization is recognized as a health concern, especially for patients with chronic diseases, because of its negative impact on symptom burden, which reduces a patient's quality of life, and psychological resilience (Sowan and Kissane, 2024). Unlike depression, which diminishes one's capacity to engage in daily activities and feel joy, demoralization causes an individual to feel disconnected from life's purpose while retaining emotional responsiveness. The symptoms of demoralization make it challenging to detect and treat (Belvederi Murri et al., 2020; Hung et al., 2010). However, a self-report scale for assessing demoralization, developed by Kissane et al. (2004) has been used for examining demoralization among various patient populations. An integrative systematic review of patients with cancer found demoralization was inversely related to spirituality (Garcia et al., 2023). However, whether there is an association between demoralization and spirituality for patients with ESRD has not been explored.

Spirituality has been demonstrated to help patients cope with the negative impact of a range of chronic diseases, including ESRD (Al-Ghabeesh et al., 2018; Bravin et al., 2019). Spirituality can be defined as individual's connection with the self, others, a higher being, or nature, from which people derive an understanding and experience of their own meaning and purpose in life (Chen et al., 2018). While spirituality is often beneficial, an insecure feeling about spirituality can lead to negative religious coping, has been demonstrated to be associated with poor health outcomes (Cheang et al., 2023). Patients with chronic disease and severe PSD have been reported to have significantly lower levels of spiritual well-being (Klimasiński et al., 2022). The findings suggest there may be associations between PSD and spirituality for haemodialysis patients.

The variable of self-compassion can also play a role in mitigating severe physical and emotional stress. Neff (Neff, K., 2003; 2016) describes the concept of self-compassion as the ability to treat oneself with patience, caring, and kindness when faced adverse or stressful circumstances. A study by Kane et al. (2018) demonstrated that patients with diabetes and high levels of symptom distress exhibited lower self-compassion, reflecting a diminished ability to approach themselves with kindness and care.

The theoretical framework of spirituality proposed by Park (2007) and the role of self-compassion proposed by Neff (2003) share the assumption that both are mechanisms for emotional regulation, which can positively influence an individual's health, quality of life, and alleviate suffering, particularly during times of difficulty. Thus, both self-compassion and spirituality might influence PDS and/or demoralization. However, the relationships among these variables have not been explored for haemodialysis patients.

The above literature suggests there is a gap in knowledge as to whether there are relationships between PSD, demoralization, spirituality, and self-compassion for haemodialysis patients and whether any variables act as mediators. Therefore, this study aimed to

examine if there is a relationship between PSD and demoralization among haemodialysis patients. Drawing on the theoretical frameworks of spirituality proposed by Park (2007) and self-compassion proposed by Neff (2003) we also examined whether spirituality and self-compassion mediate the relationship between PSD and demoralization. The following hypotheses were tested: (H1), there would be an association between scores for PSD, spirituality, self-compassion, and demoralization; (H2) spirituality would have a mediating effect on the relationship between PSD and demoralization; and (3) self-compassion would have a mediating effect on the relationship between PSD and demoralization. The hypothetical model is illustrated in Fig. 1.

2. Methods

2.1. Study design

A cross-sectional correlational study was conducted.

2.2. Participants and setting

Haemodialysis patients were recruited by convenience sampling from haemodialysis units of two regional hospitals in Taiwan. Patients scheduled to undergo treatment with haemodialysis who met the following criteria were eligible to participate in the study: (1) age > 20 years; (2) had been receiving haemodialysis for more than three months; (3) able to communicate and complete the questionnaires; provided consent to participate in the study. The following criteria excluded patients: (1) being treated in an intensive care unit or hospital; and (2) had received a diagnosis of depression, schizophrenia, anxiety, dementia, or other psychiatric disorder. A total of 163 patients met the inclusion criteria and were invited to participate. However, seven patients declined, citing fatigue or preferring not to interrupt their treatment. A total of 156 agreed to participate and provided signed informed consent, for a response rate of 95.7 %. The sample size was estimated using G*Power 3.1.9.2 software based on a research framework with three predictors of demoralization (PSD, spirituality, and self-compassion) and nine covariates representing sociodemographic and clinical characteristics. An F-test for multiple linear regression was applied, with an effect size (f^2) of 0.15, $\alpha = 0.05$, power = 0.80, and a two-tailed test. The calculated minimum sample size was 127.

2.3. Measures

Data for this study were collected with self-report questionnaires about sociodemographic and clinical characteristics and valid instruments demonstrated to be reliable for use with patients in Taiwan for the variables of PSD, demoralization, spirituality and self-compassion.

2.3.1. Sociodemographic and clinical characteristics

A researcher developed survey instrument collected information about participants' demographics, such as age, marital status, and

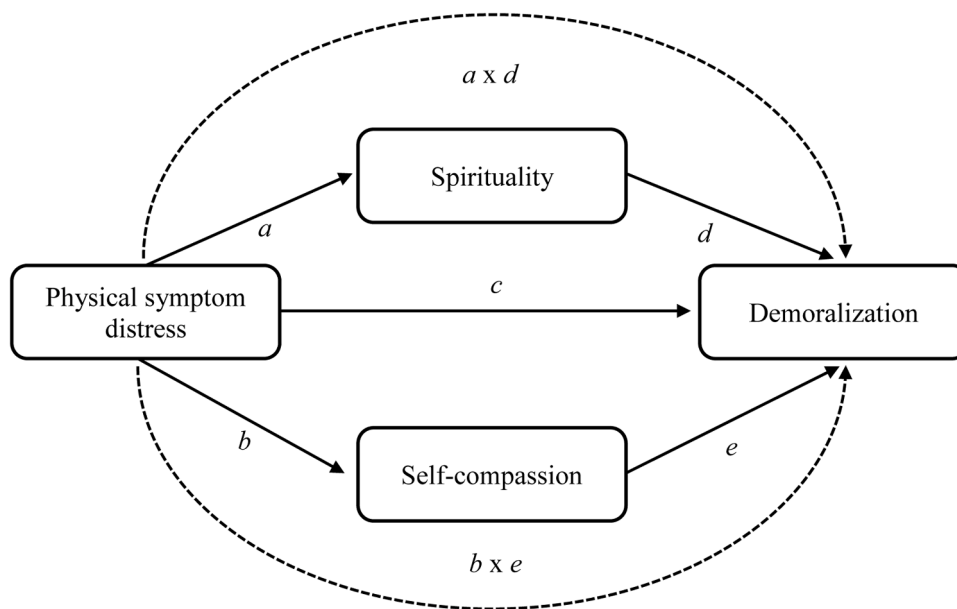


Fig. 1. Proposed model for hypothesis testing. Solid lines (a – e) represent hypothesized direct effects and relationships between variables; dotted arc represents hypothesized indirect effects ($a \times d$ and $b \times e$).

religious affiliation (yes/no) and two clinical characteristics, duration of haemodialysis (years) and number of comorbidities. Measurement instruments for the four study variables are described below.

2.3.2. Physical symptom distress

Physical symptom distress was assessed with the 15-item Physical Symptom Distress Scale (PSDS) developed by [Chiou \(1998\)](#) for haemodialysis patients with ESRD. The PSDS assesses the degree of distress related to symptoms resulting from haemodialysis over the past week. The scale measures symptoms due to fluid and electrolyte imbalance (8 items), such as numbness/tingling, impaired vision, fatigue and disturbance in neuromuscular function (7 items), such as dizziness, pain, poor appetite. Each item is scored on a 5-point Likert scale: 0=not bothered at all, 1=slightly bothered, 2 = moderately bothered, 3 =quite bothered, 4= extremely bothered. Total scores range from 0 to 60, with higher scores indicating more PSD. The PSDS has acceptable internal consistency (Cronbach's alpha = 0.87) and 2-week test-retest reliability of 0.82 ([Chiou, 1998](#)). The Cronbach's alpha was 0.82 in this study.

2.3.3. Demoralization

Self-perceived demoralization was measured with the 24-item Demoralization Scale (DS) developed by ([Kissane et al., 2004](#)) for patients receiving palliative care. The scale includes five factors associated with demoralization: loss of meaning, dysphoria, disheartenment, helplessness, and sense of failure. Each item of the scale is a statement about feelings related to existential distress, such as, "There is no purpose to the activities in my life", "I feel quite isolated or alone", "I feel distress about what is happening to me." Four items are positive statements that are reverse scored, such as "I cope very well with life" and I am a worthwhile person". Each item is scored on a 5-point Likert scale: 0= strongly disagree, 1 = disagree, 2 = not sure, 3 = agree, and 4 = strongly agree. We used to total scale score for this study, which ranges from 0 to 96; higher scores indicate a greater level of demoralization. A cutoff score of ≥ 30 is considered a significant level of demoralization ([Kissane et al., 2004](#)). This study used the Mandarin version of the DS (DS-MV) ([Hung et al., 2010](#)), developed for older patients with varying stages of cancer in Taiwan. The scale has good reliability as demonstrated by a Cronbach's alpha = 0.93. In this study, Cronbach's alpha was 0.82.

2.3.4. Spirituality

Participants' self-perceived spirituality was measured with a Chinese version of the 12-item Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale-12 (FACIT-Sp-12), developed by [Canada et al. \(2008\)](#) which has been translated into multiple languages and used in studies examining the relationship between spirituality for patients with chronic and terminal illnesses as well haemodialysis patients in China ([Zhang et al., 2020](#)). The scale measures three domains of spirituality: meaning (4 items), peace (4 items), and faith (4 items). The questionnaire asks the patient to rate each item, which is a statement "other people with your illness have said are important". Each item is rated on a 5-point Likert-type scale: 0 = Not at all; 1 = A little bit; 2 = Somewhat; 3 = Quite a bit; and 4 = Very much. Scores range from 0 to 48; higher scores indicate a greater level of spirituality. With permission from the FACIT group, the scale was translated into Mandarin for this study. A Cronbach's alpha of 0.92 was reported in the study by [Zhang et al. \(2020\)](#) indicating the FACIT-Sp-12 has acceptable reliability among haemodialysis patients. In this study, the Cronbach's alpha was 0.89.

2.3.5. Self-Compassion

We measured participants perceived self- compassion with the valid and reliable 26-item Self-Compassion Scale (SCS) developed by [Neff \(2003\)](#), which has been employed for a wide range of populations and languages. The SCS examines self-compassion in the context six subscales: three positive (self-kindness, common humanity, mindfulness) and three negative components (self-judgment, isolation, over-identification of negative experiences). Each item is a statement about being kind and understanding towards oneself following an adverse experience, such as, "I am kind to myself when I'm experiencing suffering" or "I can be a bit cold-hearted towards myself when I'm experiencing suffering". Participants used a 5-point Likert scale type scoring from "never" (1 point) to "always" (5 point), with negative composite items reverse-scored. Total scores from 26 to 130; higher scores indicate greater self-compassion. This study evaluated self-compassion with a Taiwanese version of the SCS ([Chen, Y. J. and Chen, 2019](#)) and only the total score was used. The Cronbach's alpha is 0.92 for the total SCS, Taiwanese. The Cronbach's alpha in this study was 0.81.

2.4. Data collection

Patients who agreed to participate were given the opportunity to answer the questionnaires at a time during a clinic visit, at a time convenient for the participant. The participant was given a packet containing sociodemographic and clinical survey and the self-report questionnaires. If a participant was unable to complete the questionnaire in writing, the first author read each question and recorded the answers. Completing the questionnaire took each participant approximately 20–30 minutes. Data were collected from February to March 2023.

2.5. Ethical considerations

This study received approval from the hospital's research ethics committee (IRB No 202212044RIND). Patients eligible to participate in the study were provided with oral and written information about the study procedures by the first author. Patients were informed that their participation was voluntary and that choosing to participate or withdraw at any time would not affect their care. Patients were also ensured that the anonymity of their data would be preserved. All patients provided written informed consent to

participate before data were collected.

2.6. Statistical analysis

Data were analysed using IBM SPSS Version 24 (IBM, Inc., Armonk, NY, USA). Descriptive statistics were used to report socio-demographic and clinical characteristics of participants, which included the mean and standard deviation (*SD*) for continuous variables, and frequency and percentage for categorical variables.

The first hypothesis about the relationships among variables of PSD, demoralization, spirituality, and self-compassion was tested by examining relationships between scale scores using Pearson's bivariate correlation analysis. Prior to model testing, associations between demoralization and sociodemographic and clinical characteristics were examined with *t*-tests and ANOVA to identify any possible covariates that should be controlled for in the analysis. For the second and third hypotheses, multiple linear regression analysis and mediation testing was conducted using the method of Baron & Kenny (1986). Variables for the proposed mediation model were examined using Model 4 of the PROCESS 4.2 macro developed by Hayes (2013) to examine mediation effects using a 95 % bias-corrected confidence interval (*CI*) based on 5000 bootstrap samples. If the indirect effect is significant ($p < .05$), and the 95 % *CI* for the estimate does not include zero, the mediating effect is considered significant (Hayes, 2013). The Sobel test was used to assess the statistical significance of indirect mediating effects (Sobel, 1987).

3. Results

3.1. Participant characteristics

A total of 156 haemodialysis patients participated in the study. The mean age was 61.32 years ($SD = 11.3$), with 60.9 % of the participants being below 65 years old. Most participants were male (66.0 %), 71.2 % were married, and 93.6 % had a religious affiliation. The mean duration of haemodialysis was 7.48 years ($SD = 5.6$); 61.5 % had received haemodialysis for ≥ 5 years. Most (87.89 %) reported having one or more comorbidities. Details of participants' characteristics are shown in Table 1.

3.2. Descriptive statistics and Pearson's correlations for the study variables

Table 2 shows that the mean score for on the PSDS was 14.37 ($SD = 8.16$), indicating a mild level of physical symptom distress. The mean score for demoralization was 34.47 ($SD = 14.07$), which was above the cutoff of 30, suggesting many participants had significant

Table 1
Sociodemographic and clinical characteristics of participants ($N = 156$).

Variables	<i>n</i> (%)	Mean (<i>SD</i>)
Age, years		61.32 (11.3)
< 65 years	95 (60.9)	
≥ 65 years	61 (39.1)	
Gender		
Male	103 (66.0)	
Female	53 (34.0)	
Years of education		
0–6	47 (30.1)	
7–12	78 (50.0)	
> 12	31 (19.9)	
Marital status		
Single/divorced/widowed	45 (28.8)	
Married	111 (71.2)	
Religious affiliation		
Yes	146 (93.6)	
No	10 (6.4)	
Employment status		
Employed/Part-time	41 (26.3)	
Unemployed	69 (44.2)	
Retired	46 (29.5)	
Perceived economic situation		
Insufficient	132 (84.6)	
Sufficient	24 (15.4)	
Duration of hemodialysis, years		7.48 (5.6)
≥ 3 months to ≤ 1 year	17 (10.9)	
> 1 year to < 5 years	43 (27.6)	
≥ 5 years	96 (61.5)	
Number of comorbidities		
None	19 (12.2)	
≥ 1	137(87.8)	

Note: *SD*, standard deviation.

feelings of demoralization. Scores for spirituality (mean = 27.80, $SD = 9.24$) were moderately low, while scores for self-compassion (mean = 88.75, $SD = 12.78$) were moderate.

Pearson's correlation coefficient indicated there were significant relationships among variables. PSD was positively and significantly correlated with demoralization ($r = 0.303$, $p < 0.001$), and negatively and significantly correlated with spirituality and self-compassion ($r = -0.196$, $p < 0.05$ and $r = -0.251$, $p < 0.01$). Demoralization was negatively correlated with spirituality and self-compassion ($r = -0.642$, $p < .001$ and $r = -0.456$, $p < .001$, respectively). Spirituality was positively correlated with self-compassion ($r = 0.456$, $p < 0.001$).

3.3. Mediation model

Prior to mediation analysis, we examined if any sociodemographic or clinical characteristics were associated with demoralization and should be considered as covariates. Among the characteristics, only 'employment status' demonstrated a significant relationship with demoralization ($F = 4.749$, $p < .01$). The results of mediation model testing are presented [Table 3](#) and illustrated in [Fig. 2](#). After controlling for the covariate of employment status, there was a significant and positive total effect of PSD on demoralization ($B = 0.524$, 95 % CI 0.046, 0.455). PSD also had a significant positive direct effect on demoralization ($B = 0.268$, 95 % CI 0.058, 0.476). Moreover, the lower coefficient for the direct effect of PSD on demoralization ($B = 0.268$) compared with the coefficient for the total effect ($B = 0.524$) suggested the presence of a mediating variable. PSD had negative direct effects on spirituality ($B = -0.223$, 95 % CI -0.401 , -0.046) and self-compassion ($B = -0.391$, 95 % CI -0.633 , -0.149), suggesting that higher PSD levels reduce spirituality and self-compassion. In turn, spirituality and self-compassion were significantly negatively associated with demoralization ($B = -0.810$, 95 % CI -1.011 , -0.608 ; and $B = -0.192$, 95 % CI -0.340 , -0.045 , respectively), indicating that patients with higher scores for these two variables would experience less demoralization. There was a 46.83 % variance in demoralization, which was explained by these predictors. The significant positive indirect effects of spirituality and self-compassion on demoralization ($B = 0.181$, 95 % CI 0.001, 0.354; and $B = 0.075$, 95 % CI 0.011, 0.162, respectively) revealed that both variables partially mediated the relationship between PSD and demoralization. This finding suggests that patients with higher levels of spirituality and self-compassion may be better able to combat the negative impact of PSD on demoralization. Sobel tests indicated that the indirect mediation effects of spirituality and self-compassion were statistically significant ($z = 2.368$, $p = .018$ and $z = 2.012$, $p = 0.044$, respectively). These findings further support the robustness of the mediation effects identified through the bootstrap method.

4. Discussion

This is the first study to examine if there are relationships among PSD, demoralization, spirituality, and self-compassion for haemodialysis patients. Our findings demonstrated that PSD had a significant negative effect on demoralization and this relationship was mediated by spirituality and self-compassion.

The significant associations among all the outcome variables supports our first hypothesis. The positive association between PSD and demoralization for haemodialysis patients echoes the findings from a quantitative synthesis of 49 studies of patients with cancer, which reported a greater number of symptoms was associated with increased demoralization ([Hong et al., 2022](#)). High levels of demoralization were associated with low levels of spirituality and self-compassion for our participants. These associations echo the findings of a recent study that found spirituality was negatively associated with lower symptom distress and lower psychological symptoms; while feelings of peace, were associated with lower pain among patients with advanced cancer ([Yang et al., 2023](#)).

The significant positive mediating effect of spirituality on the relationship between PSD and demoralization supported our second hypothesis. This relationship is supported by an integrative systematic review of 10 studies on demoralization and spirituality for patients with cancer, which concluded that spirituality was a protective factor against the increase in demoralization that occurred with the proximity of death ([Garcia et al., 2023](#)). Spirituality, from the perspective of the theoretical framework of [Park \(2007\)](#), can provide hope and a sense of life's meaning through connections with others, including a higher being ([Chen et al., 2018](#); [Park, 2007](#)). Connections with a higher being can generate feelings of transcendence and a more optimistic world view ([Koenig, 2012](#)). Thus, spirituality as a partial mediator of the relationship between PSD and demoralization could help counter the discomfort and negative emotional impact associated with chronic haemodialysis. Interventions to enhance spiritual health could play a vital role in supporting haemodialysis patients. A systematic review and meta-analysis found that nurse-led interventions, such as supporting religious rituals, providing spiritual care, or implementing meditation-based practices, significantly improved spirituality ([de Diego-Cordero et al.,](#)

Table 2

Descriptive statistics for outcome variables and Pearson's bivariate correlations ($N = 156$).

Variable	Range	Mean (SD)	1	2	3	4
1. Physical symptom distress	0 – 64	14.37 (8.16)	1.000			
2. Demoralization	0 – 96	34.47 (14.07)	0.303***	1.000		
3. Spirituality	0 – 48	27.80 (9.24)	-0.196*	-0.642***	1.000	
4. Self-compassion	26 – 130	88.75 (12.78)	-0.251**	-0.456***	0.456***	1.000

* $P < .05$.

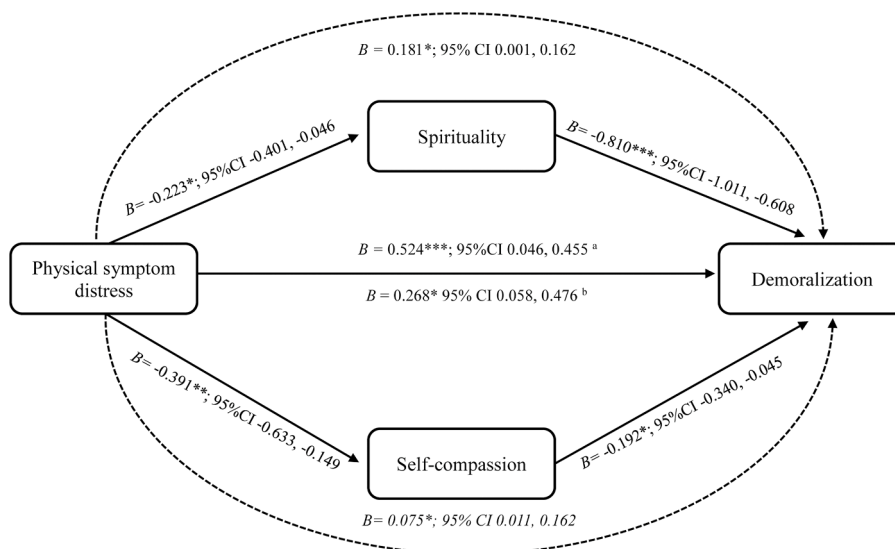
** $P < .01$.

*** $P < .001$.

Table 3

Final mediation model for total, direct, and indirect effects between the outcome variables.

Effect	<i>B</i>	<i>p</i> -value	95 % <i>CI</i>
Total effect			
PSD → Demoralization	0.524	< 0.001	0.046, 0.455
Direct effect			
PSD → Demoralization	0.268	< 0.05	0.058, 0.476
PSD → Spirituality	−0.223	< 0.05	−0.401, −0.046
PSD → Self-compassion	−0.391	< 0.01	−0.633, −0.149
Spirituality → Demoralization	−0.810	< 0.001	−1.011, −0.608
Self-compassion → Demoralization	−0.192	< 0.05	−0.340, −0.045
Indirect effect			
PSD → Spirituality → Demoralization	0.181	< 0.05	0.001, 0.354
PSD → Self-compassion → Demoralization	0.075	< 0.05	0.011, 0.162

Note: *B*, unstandardized coefficients; *CI*, confidence interval, based on 5000 bootstrap samples; PSD, physical symptom distress.**Fig. 2.** The final mediation model demonstrating direct effects (solid lines) and indirect effects (dotted arc) between variables. Note: *B* = unstandardized coefficient; a, total effect; b, direct effect.

2022). These interventions not only enhance spiritual health but also help patients manage the pain and symptom distress of ESRD, reducing demoralization and improving quality of life (Bravin et al., 2019; Loureiro et al., 2018). Spirituality, as a core value and belief system, empowers patients to face illness and cope with physical and psychological challenges. Taiwan is a multi-religious society, with 82 % of the population practicing Buddhism, Taoism, or Chinese folk religions (Grim et al., 2018). Therefore, programs for improving spiritual health for haemodialysis patients in Taiwan must be tailored to be culturally compatible with a broad range of religious perspectives. Such programs could foster a sense of purpose, instil meaning in life, and ultimately enhance patients' overall well-being.

Like spirituality, self-compassion not only had a direct negative relationship with demoralization but also served as a mediator between PSD and demoralization, which supports our third hypothesis. Thus, haemodialysis patients with greater self-compassion might be protected against the demoralization associated with PSD, which is supported by several studies. A systemic review of studies on the effects of self-compassion on medically ill patients, found a negative correlation between self-compassion and psychological outcomes, such as stress, anxiety, and depression and a positive association between high levels self-compassion and improvements in clinical outcomes for patients with chronic illness (Baxter and Sirois, 2024). Self-compassion was also demonstrated to have a moderating and buffering effect on physical symptoms and psychological well-being for patients with COVID-19 (Tudor et al., 2023). Individuals with self-compassion treat themselves with the same kindness, care, acceptance, and encouragement they would offer their best friends (Neff, 2003). This may explain the lower levels of demoralization for participants with greater levels of self-compassion and suggests enhancing self-compassion for patients receiving chronic haemodialysis may help offset the impact of PSD. A systematic review of 15 studies on interventions designed to improve self-compassion found mindfulness-based therapies all effectively improved self-compassion, as well as resulting in reductions in depression and anxiety in patients with chronic disease (Kılıç et al., 2021).

Whether strategies can effectively improve self-compassion and reduce demoralization for haemodialysis patients have not been

thoroughly explored. However, there are cultural differences between Western and Asian countries that might need to be considered when designing a self-compassion intervention for patients in Taiwan. In Chinese cultures, which are strongly influenced by the Confucian ethics of filial piety and prioritizing the needs of others (Chien, 2016), the concept that self-compassion can impact one's health is often overlooked. Therefore, the backgrounds of patients from Chinese cultures, such as Taiwan, should be acknowledged when promoting self-compassion as a strategy for reducing demoralization, possibly by emphasizing that self-compassion is a form of self-care. For example, caregivers of terminally ill patients who received self-compassion training were better able to understand the need to be kind to oneself when compassion was presented as self-care, which helped them better fulfil their caregiving responsibilities (Diggory and Reeves, 2022).

4.1. Limitations

Our study had some limitations. First, this was a cross-sectional design, which prevents identifying causal relationships among the variables. Second, the convenience sample was drawn from two clinical haemodialysis units in central Taiwan, which may not fully capture the diversity of haemodialysis patients in wider populations. Participants from these two clinics may not represent the demographic, cultural, and clinical variation seen in other regions or settings. Finally, the outcome variables were assessed with self-report instruments and may not be an accurate measure of the variables.

4.2. Conclusions

Our findings that spirituality and self-compassion can mediate the negative effects of PSD on demoralization. Spirituality fosters meaning making, enabling patients to find purpose and connection beyond their immediate physical and emotional distress. By helping patients reinterpret their disease and treatment experiences in a more positive or accepting way, spirituality buffers the psychological burden of symptom distress. Self-compassion, acting as an emotional regulator, encourages patients to approach suffering with kindness and understanding rather than self-criticism or despair. Both spirituality and self-compassion can empower patients to adopt a more transcendent attitude toward their symptom distress, fostering resilience and reducing demoralization.

These results suggest that assessing spirituality and self-compassion should be an important component of clinical practice. Identifying patients with low levels of spirituality and self-compassion can be used to target patients that might benefit from interventions to increase these variables to help them cope with the impact of treatment and reduce demoralization such as re-establishing spiritual connections within the community or offering compassion-focused therapy. Helping patients connect with family, nature, and themselves can provide feelings of meaning and purpose during the disease and treatment, which could reduce feelings of demoralization over the trajectory of ESRD.

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Ethics statement

The study was approved by the Ethics Committee D of National Taiwan University Hospital (202212044RNID).

CRediT authorship contribution statement

Chia-Hui Lin: Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Yi-Chien Chiang:** Writing – original draft, Methodology, Conceptualization. **Wen-Yi Li:** Writing – original draft, Methodology, Conceptualization. **Tsung-Lan Chu:** Writing – original draft, Methodology, Conceptualization. **Ya-Chu Hsiao:** Writing – review & editing, Methodology, Formal analysis, Conceptualization.

Declaration of competing interest

No conflict of interest has been declared by the authors.

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