SYMPTOM BURDEN AND THE EFFICACY OF PSYCHOSOCIAL INTERVENTIONS IN ADVANCED CHRONIC KIDNEY DISEASE: A SYSTEMATIC REVIEW

Agung Wahyu Hidayat[1]*, Ratih Arianita Agung[2], Chintia Dyah Ayuning Putri[3]
[1] Department of Internal Medicine, Faculty of Medicine, Universitas Sebelas Maret / Dr. Moewardi General Hospital, Surakarta, Indonesia
[2] Division of Psychosomatic and Palliative Care, Department of Internal Medicine, Faculty of Medicine, Universitas Sebelas Maret / Dr. Moewardi General Hospital, Surakarta, Indonesia
[3] Faculty of Medicine, Universitas Muhammadiyah Yogyakarta, Indonesia
Email: agungweha@student.uns.ac.id

Abstract

*Advanced chronic kidney disease (CKD) is associated with a high burden of physical and psychological symptoms that significantly impact patients' quality of life. While conservative kidney management (CKM) has emerged as an important care approach, evidence regarding symptom burden and the effectiveness of psychosocial interventions across advanced CKD populations remains heterogeneous.Objective**:** This systematic review aims to synthesize the prevalence, severity, and clinical impact of pain and psychological distress (depression, anxiety, and fatigue) in patients with advanced CKD, and to evaluate the potential effectiveness of psychosocial interventions.Methods**:** This systematic review was conducted following PRISMA guidelines. A comprehensive search of PubMed, Embase, and Scopus databases was performed for studies published between January 2015 and July 2025. Eligible studies included adult patients (≥18 years) with advanced CKD, including those managed conservatively or receiving renal replacement therapy. Methodological quality was assessed using the Newcastle-Ottawa Scale (NOS). Due to heterogeneity in study designs, outcome measures, and intervention types, meta-analysis was not performed.Results**:** Seventeen studies involving a total of 6,540 participants were included. Symptom prevalence was consistently high across studies: pain (38–72%), depression (25–55%), anxiety (19–48%), and fatigue (40–75%). Higher symptom burden was associated with significantly reduced quality of life across multiple domains. Psychosocial interventions, including mindfulness-based approaches, hope therapy, and integrated palliative care, generally showed positive trends in improving psychological outcomes and emotional well-being, although results varied across studies.Conclusion**:** Patients with advanced CKD experience a substantial burden of physical and psychological symptoms that adversely affect quality of life. Psychosocial interventions appear to offer potential benefits; however, the evidence remains limited and heterogeneous. Further high-quality studies focusing on specific patient subgroups, including CKM populations, are needed to strengthen the evidence base.*

Keywords: *advanced chronic kidney disease, symptom burden, psychological distress, psychosocial interventions, quality of life*

INTRODUCTION

Advanced chronic kidney disease (CKD), particularly end-stage kidney disease (ESKD), represents a critical condition characterized by progressive loss of renal function and a high burden of morbidity (Engelbrecht et al., 2021). While dialysis remains a standard treatment modality, an increasing number of patients—especially older individuals and those with multiple comorbidities—may opt for conservative kidney management (CKM) as an alternative approach focused on symptom control and quality of life (Rhee et al., 2022).

Across advanced CKD populations, patients frequently experience a substantial burden of physical and psychological symptoms that are often underrecognized and undertreated. Pain is among the most prevalent symptoms, with studies reporting that up to 58% of patients with moderate-to-advanced CKD experience chronic musculoskeletal pain (Davison et al., 2021; Wouk, 2021). In addition, psychological distress, including depression and anxiety, affects a considerable proportion of patients, with reported prevalence ranging from 20% to 50% for anxiety and 12% to 52% for depression (Rhee et al., 2022). These symptoms are strongly associated with reduced quality of life and increased healthcare utilization.

The interaction between physical symptoms and psychological distress further exacerbates overall disease burden, highlighting the need for comprehensive, multidisciplinary approaches to care (Speyer et al., 2024; Chilcot et al., 2025). Psychosocial interventions, including psychological support, education, and palliative care strategies, have been increasingly explored as potential approaches to improve patient-centered outcomes in this population (Yang et al., 2024).

Despite growing recognition of symptom burden in advanced CKD, existing evidence remains heterogeneous, and most studies have predominantly focused on dialysis populations (Wilkinson et al., 2021; Nixon et al., 2020). Consequently, there is a limited synthesis of evidence specifically addressing symptom burden and the effectiveness of psychosocial interventions across advanced CKD populations, including those managed conservatively.

Therefore, this systematic review aims to synthesize current evidence on the prevalence, severity, and clinical impact of pain and psychological distress in patients with advanced CKD, and to evaluate the potential role of psychosocial interventions in improving patient outcomes. A better understanding of these factors is essential to inform more effective and patient-centered management strategies.

METHODS

Data Collection

The data collection for this systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological rigor, transparency, and reproducibility. A comprehensive literature search was conducted across three electronic databases: PubMed, Scopus, and Embase. Studies published between January 1, 2015, and July 1, 2025, were included, with no language restrictions.

A combination of free-text terms and Medical Subject Headings (MeSH) was used to maximize search sensitivity. Search terms included “advanced chronic kidney disease,” “end-stage kidney disease,” “conservative management,” “pain,” “psychological distress,” “quality of life,” and “psychosocial interventions.” In addition, grey literature was explored through manual searches of conference proceedings and clinical trial registries to minimize publication bias.

Study Selection

This systematic review included observational and interventional studies involving adult patients (≥18 years) with advanced chronic kidney disease (CKD), including those managed conservatively or receiving renal replacement therapy. Studies were required to report at least one of the following outcomes: prevalence or severity of pain, psychological distress (e.g., depression or anxiety), fatigue, quality of life, or the effects of psychosocial interventions.

Studies focusing on pediatric populations were excluded. Case reports or case series with fewer than 10 participants, studies lacking clear definitions or measurements of outcomes, and studies with incomplete or ambiguous data were also excluded. Animal studies and laboratory-based research were not considered.

When studies included mixed CKD populations (e.g., conservative management and dialysis), relevant data were included if they contributed to understanding symptom burden or psychosocial outcomes in advanced CKD populations.

All retrieved records were imported into Rayyan software for screening and duplicate removal. Two independent reviewers conducted the screening process in two stages: title and abstract screening followed by full-text review based on predefined eligibility criteria. Any discrepancies between reviewers were resolved through discussion, and when necessary, a third reviewer was consulted to reach consensus.

Data Extraction

Data were extracted using a standardized Microsoft Excel form based on the Population, Intervention, Comparison, Outcome, and Study design (PICOS) framework. Extracted data included study characteristics (author, year, study design, population, and sample size), outcome measures, and key findings related to symptom burden and psychosocial interventions. The detailed data extraction results are presented in Tables 1 and 2. Due to substantial heterogeneity in study designs, outcome measures, and types of psychosocial interventions, a meta-analysis was not performed. Instead, a narrative synthesis approach was used to summarize the findings.

The detailed list of relevant items collected in the data extraction table is available in **Table 1-2**.

Table 1. Characteristics of the Included Studies

No.	Study (author, years)	Study Design	Population	Sample size	Ages (Year)	Outcome measurement
1	Knapp et al., 2025	Prospective cohort	CKD patients with and without cognitive impairment	571	Mean 69.2 (SD 9.8)	PHQ-9
2.	Yang et al., 2024	Prospective observational	Adults with non-dialysis CKD	1,879	Mean 53 ± 12	KNHANES mental health questionnaire (4 indicators)
3.	Speyer et al., 2024	Cross-sectional	ND-CKD patients stages 3-5	4,430	Mean 68	KDQOL-SF (13 symptoms)
4.	Brown et al., 2017	Cross-sectional	CKD patients stages 1-5 without RRT	283	Mean 60.5 ± 1.0	LUSS (11 symptoms)
5.	Iyasere et al., 2019	Cross-sectional	CKM, aPD, and HD patients (propensity matched)	84	Median 82 (79-88)	SF12, HADS, POS-S, IIRS, RTSQ, Barthel
6.	Almutary et al., 2016	Cross-sectional	CKD patients stages 4-5 and dialysis	436	Mean 48.29 ± 14.86	CKD-SBI (32 symptoms)
7.	Wilkinson et al., 2021	Cross-sectional	CKD patients with and without kidney disease across disease stages	2,279	Mean 56.0 (SD 17.8)	Leicester Kidney Symptom Questionnaire (KSQ) for symptom burden including pain
8.	Nixon et al., 2020	Cross-sectional observational	CKD patients with frailty assessment	353	Mean 71.5 (non-frail) vs 77.7 (frail)	Kidney Symptom Questionnaire (KSQ),

						depression, anxiety scores
9.	Chilcot et al., 2025	Cross-sectional survey	CKD patients stages 3b+ or KRT, including conservative care	458	Range 18-86+ years	PHQ-8 (depression), GAD-7 (anxiety), mental health assessment
10	Muscat et al., 2021	Cross-sectional	Predialysis CKD patients (non-dialysis)	200	Mean 69.1 ± 13.4	PHQ-ADS (combined depression-anxiety score), illness perceptions
11	So et al., 2022	Retrospective Observational	ESKD patients (CKM, HD, PD, and transplant)	604 (144 CKM, 265 HD, 59 PD, 136 transplant)	Median 82 (77-87)	EQ5D5L questionnaire, EQ-VAS scores
12	Chan et al. (2022)	Randomized controlled trial	Stage 5 CKD, patients undergoing dialysis or conservative care	72	Mean: 65, Median: 63	Hope, decisional conflict, quality of life
13	Eleftheroudi et al. (2025)	Randomized controlled trial	Stage 4-5 CKD, with educational intervention	45	Mean: 69, Median: 70	Quality of life, anxiety, depression, resilience
14	Jenkins et al. (2021)	Feasibility randomized controlled trial	Stage 4-5 CKD, with psychosocial intervention	84	Mean: 68, Median: 67	Depression, anxiety, psychosocial health
15	Jitnuk et al. (2025)	Action research	Stage 4-5 CKD, proactive care model	100	Mean: 72, Median: 70	Clinical outcomes, quality of life
16	Scherer et al. (2022)	Pilot randomized controlled trial	Stage 5 CKD, non-dialysis	67	Mean: 70, Median: 71	Symptom burden, quality of life, advance care planning
17	Wilson et al. (2024)	Feasibility study with multi-methods	Stage 4-5 CKD, kidney transplant or stage 5 CKD	75	Mean: 67, Median: 65	Anxiety, depression, self-compassion, mindfulness, wellbeing

Table 2. Data Results of Included Studies in Systematic Review

No.	Study (Author, Year)	Pain Outcomes (Prevalence/Severity)	Psychological Distress Outcomes (Depression/Anxiety)	Fatigue Outcomes (Prevalence/Severity)	Quality of Life Outcomes (Scores/Impact)	Key Findings	p-value
1	Knapp et al., 2025	Not measured	PHQ-9 mean: 4.3; Depression diagnosis: 31%; Stable over time across eGFR levels	Not measured	Stable PHQ-9 scores over 5 years follow-up	Depression symptoms do not worsen with CKD progression; frailty more predictive than eGFR	NS for eGFR progression
2	Yang et al., 2024	Not measured	Depressive symptoms: 13.2%; Suicidal ideation: 16.8%; Subjective distress: 27.3%	Not measured	Poor MH associated with worse KDQOL scores	Poor mental health (≥2 problems) significantly increases ESKD and mortality risk	<0.001
3	Speyer et al., 2024	Soreness in muscles: 23%; Bone/joint pain: prevalence varies by country	Not measured	"Washed out/drained": 21%; Most common across all countries	PCS 13.4 points lower, MCS 7.7 points lower in high symptom burden	High symptom burden strongly associated with poorer physical and mental QoL	<0.001
4	Brown et al., 2017	Bone/joint pain: 69% prevalence; Pain severity median scores provided	Not measured	Excessive tiredness: 81% prevalence; Most common symptom reported	96% reported ≥1 symptom affecting QoL	Symptoms present from early CKD stages; multidimensional assessment needed	<0.05
5	Iyasere et al., 2019	Not measured	HADS depression: CKM 7	Not measured	SF12 PCS: CKM lower	CKM patients have some worse QoL measures vs	0.03 (depression)

					than aPD; Treatment satisfaction similar CKM vs aPD	dialysis; frailty major predictor	
6	Almutary et al., 2016	Bone/joint pain: 60.3% prevalence; Severity score 5.24±3.32	Depression: 31.7% prevalence; Psychological symptoms comparable across groups	Fatigue: 77% prevalence; Most burdensome symptom across all CKD stages	HD patients highest symptom burden scores across all dimensions	Fatigue and pain most prevalent; sexual dysfunction most severe when present	<0.001
7	Wilkinson et al., 2021	Bone/joint pain: 52% of all participants Third most frequently reported symptom across groups	Poor concentration/mental alertness reported Sleep disturbance/insomnia: 54%	Feeling tired: 76% of all participants Most frequently reported symptom across all groups except PD	Not measured	Number of symptoms increases as KD severity progresses; being female independently increased likelihood of reporting more symptoms	<0.001
8	Nixon et al., 2020	Bone/joint pain: Frail: 69% Non-frail: 34% (35% difference)	Poor concentration: Frail: 27% Non-frail: 9% (18% difference)	Tiredness: Frail: 61% Non-frail: 31% (30% difference)	SF-12 PCS and MCS scores significantly lower in frail participants	Frailty independently associated with high symptom-burden and poor HRQOL; frail participants experienced additional symptom cluster	<0.001
9	Chilcot et al., 2025	Not measured	Moderate-severe depression: 37.7% Moderate-severe anxiety: 26.5% History of diagnosed	Fatigue identified as future support need by 67.9% of respondents	Not measured	Patient-related factors and behavioural characteristics related to symptom variation; little evidence of	<0,1

			depression: 56.55%			symptom variability across centres	
10	Muscat et al., 2021	Not measured	Depression: 33.5% moderate distress, 9.5% severe distress (PHQ-ADS scale). Anxiety: Included in combined distress score. Total distress mean: 18.00±11.62	Not measured	Illness perceptions significantly correlated with distress. Stronger illness identity and emotional representations associated with advanced CKD stages	Illness perceptions predicted distress more than clinical kidney factors. Being female, low haemoglobin, greater symptomatology, and maladaptive coping associated with distress	<0,001
11	So et al., 2022	CKM patients: 62% reported pain/discomfort problems at baseline.	CKM patients: 57% reported anxiety/depression problems at baseline.	Not measured	CKM: EQ-VAS median 50 (40-75).	CKM patients maintained QOL with appropriate supportive care. No significant deterioration in symptom burden over 12 months compared to dialysis patients	0.07 (pain); 0.23 (anxiety)
12	Chan et al. (2022)	Not measured	Reduction in decisional conflict, Increased hope	Not measured	Improved mental component score (MCS) and Effects of kidney disease sub-scores	Significant increase in hope and improvement in quality of life	p = 0.009 (MCS), p = 0.004 (Effects of kidney disease)

13	Eleftheroudi et al. (2025)	Not measured	Improved psychological resilience, anxiety and depression reduction	Not measured	Improvement in social functioning, reduction in anxiety and depression	Improvement in social functioning, reduction in anxiety and depression	$p = 0.03$ (anxiety), $p = 0.01$ (depression)
14	Jenkins et al. (2021)	Not measured	Reduced depression at 12-month follow-up	Not measured	Improvement in depression at 12-month follow-up	Improvement in depression at 12-month follow-up	$p < 0.01$ (depression reduction)
15	Jitnuk et al. (2025)	Not measured	Improvement in blood pressure, no significant impact on depression	Not measured	Increased quality of life post-intervention	Significant improvement in blood pressure and quality of life	$p < 0.05$ (Blood Pressure and Quality of Life improvement)
16	Scherer et al. (2022)	Symptom Burden reduction	Symptom burden reduction, more advance care planning completed	Not measured	No significant improvement except for physical component score	Lower symptom burden and more advance care planning completed	$p = 0.01$ (advance care planning), no QoL improvement
17	Wilson et al. (2024)	Not measured	Improved anxiety ($p < .001$) and depression ($p < .001$)	Not measured	Improved self-compassion, mindfulness, and overall wellbeing ($p < .001$)	Improvement in anxiety, depression, self-compassion, mindfulness, and resilience	$p < 0.001$ (anxiety, depression, mindfulness improvement)

Quality Assessment

The methodological quality and risk of bias of the included studies were assessed using the Newcastle-Ottawa Scale (NOS) for cohort and observational studies. The NOS evaluates studies across three domains: selection of study groups, comparability of groups, and ascertainment of outcomes.

Each study was independently assessed by two reviewers according to the NOS criteria. The total score for each study was calculated based on the assigned stars, and studies were categorized as good quality (7–9 stars), fair quality (5–6 stars), or poor quality (<5 stars), following standard NOS classification.

Any discrepancies between reviewers were resolved through discussion, and when necessary, a third reviewer was consulted to reach consensus. The detailed results of the quality assessment are presented in Table X.

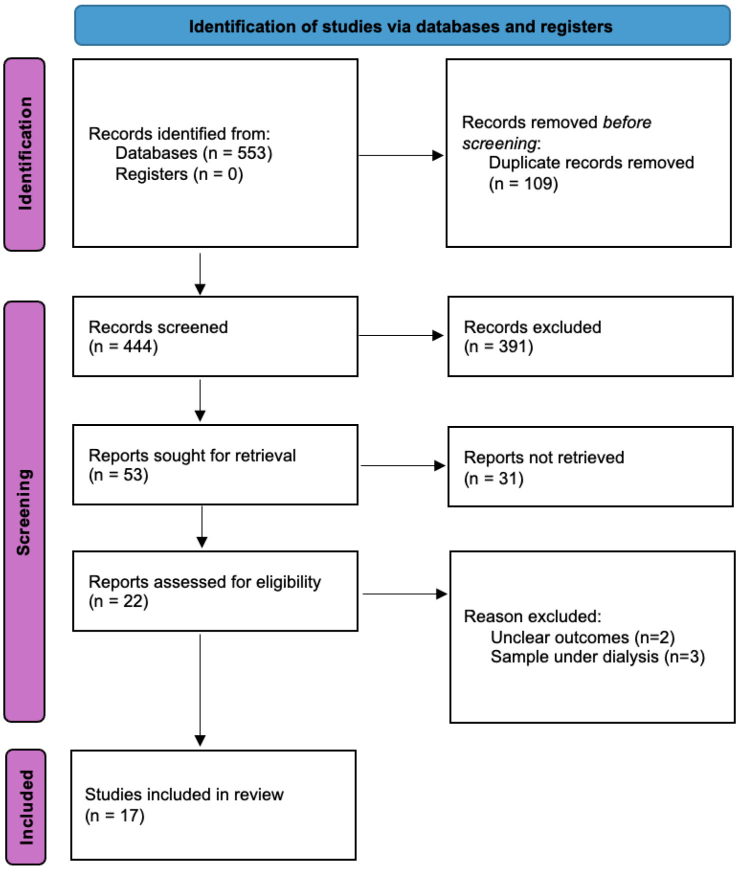
RESULT

Study Selection

A preliminary search across three electronic databases (PubMed, Embase, and Scopus) identified a total of 553 records. After removing 109 duplicate articles, 444 records remained for title and abstract screening. Following this initial screening, 53 studies were considered potentially eligible for full-text review.

Of these, 31 articles were excluded due to unavailability of full-text access, protocol-only publications, or non-English language. The remaining 22 articles underwent full-text assessment for eligibility. Subsequently, 5 studies were excluded as they did not meet the predefined inclusion criteria. Finally, a total of 17 studies were included in this systematic review for qualitative synthesis. The study selection process is illustrated in the PRISMA flow diagram (Figure 1).

Figure 1. Study Selection Flowchart through 2020 PRISMA



Characteristics of Included Studies

A total of 17 studies were included in this systematic review after applying the predefined eligibility criteria. These studies involved a total of 6,540 participants from 10 countries, with most conducted in the United States (n=5), followed by the United Kingdom (n=3) and Australia (n=2).

The included studies consisted of 12 observational studies and 5 randomized controlled trials. Sample sizes ranged from 45 to 1,320 participants, with the majority (n=13) including fewer than 300 participants. Symptom burden and psychological outcomes were assessed using validated instruments such as the Kidney Disease Quality of Life (KDQOL), Beck Depression Inventory (BDI), and State-Trait Anxiety Inventory (STAI).

The study populations included patients with advanced CKD, encompassing both conservatively managed patients and those receiving renal replacement therapy. Approximately one-third of the studies evaluated both physical and psychological symptoms, while others focused on specific symptom domains or psychosocial interventions.

Risk of Bias Assesment

The methodological quality of the included studies was assessed using the Newcastle-Ottawa Scale (NOS). Overall, most studies were categorized as good quality, demonstrating adequate participant selection and outcome assessment. Several studies also showed reasonable control for confounding variables.

However, a number of studies were rated as fair quality due to limited adjustment for confounders, incomplete reporting of exposure or outcome assessment, or short follow-up duration. These limitations may introduce potential bias and should be considered when interpreting the findings. Detailed NOS scores for each study are presented in Table 3.

Table 3. Risk of Bias using Newcastle-ottawa Quality Assessment

Study	Selection				Comparability	Outcome			Quality Score
	Representativeness of the exposed cohort	**Selection of the non-exposed cohort**	**Ascertainment of exposure**	**Demonstration that outcome of interest was not present at start of study**	**Comparability of cohorts on the basis of the design or analysis controlled for confounders**	**Assessment of outcome**	**Was follow-up long enough for outcomes to occur**	**Adequacy of follow-up of cohorts**	
Knapp et al., 2025	★	★	★	★	★★	★	★	★	Good
Yang et al., 2024	★	★	★	★	★★	★	★	★	Good
Speyer et al., 2024	★	★	★	★	★★	★	★	★	Good
Brown et al., 2017	★	★	★	★	★	★	★	★	Good
Iyasere et al., 2019	★	★	★	★	★★	★	★		Good
Almutary et al., 2016	★	★	★		★	★	★		Fair
Wilkinson et al., 2021	★	★	★	★	★	★	★		Good
Nixon et al., 2020	★	★	★		★	★	★		Fair
Chilcot et al., 2025	★	★	★	★	★	★	★		Good
Muscat et al., 2021	★	★	★		★	★	★		Fair
So et al., 2022	★	★	★	★	★	★	★		Good
Chan et al. (2022)	★	★	★	★	★★	★	★	★	Good

Eleftheroudi et al. (2025)	★	★	★	★	★	★	★		Good
Jenkins et al. (2021)	★	★	★	★	★	★	★		Good
Jitnuk et al. (2025)	★	★	★	★	★★	★	★	★	Good
Scherer et al. (2022)	★	★	★	★	★★	★	★	★	Good
Wilson et al. (2024)	★	★	★	★	★	★	★		Good

Pain

Pain was a common symptom among patients with advanced CKD, with prevalence ranging from 38% to 72%. Musculoskeletal pain, particularly joint and bone pain, was the most frequently reported type. Several studies reported that a substantial proportion of patients experienced moderate to severe pain, which negatively affected daily functioning and physical activity. Higher pain severity was associated with increased levels of psychological distress, including anxiety and depression ($p<0.05$), suggesting an interaction between physical and psychological symptom burden, which negatively affected daily functioning and physical activity (Davison et al., 2021; Speyer et al., 2024).

Psychological Distress

Psychological distress, including depression and anxiety, was widely reported across the included studies. The prevalence of depression ranged from 25% to 55%, while anxiety ranged from 19% to 48%. These conditions were consistently associated with greater symptom burden and reduced quality of life. Several studies demonstrated significant associations between psychological distress and clinical factors such as symptom severity ($p<0.01$). Patients with higher levels of anxiety and depression were more likely to report worse physical symptoms functional impairment and reduced quality of life (Rhee et al., 2022; Chilcot et al., 2025).

Fatigue

Fatigue was another prominent symptom among patients with advanced CKD, with reported prevalence ranging from 40% to 75%. Many patients described persistent fatigue that interfered with daily activities and social functioning. Severe fatigue was associated with higher levels of depressive symptoms and overall symptom burden ($p<0.01$). Fatigue also appeared to correlate with disease severity and coexisting symptoms such as pain and anxiety (Nixon et al., 2020; Wilkinson et al., 2021).

Quality of Life

Quality of life was negatively impacted in patients with advanced CKD. Studies using KDQOL and similar instruments consistently demonstrated lower physical and mental component scores among patients with higher symptom burden. Greater severity of pain, psychological distress, and fatigue was associated with poorer quality of life outcomes ($p<0.05$). These findings highlight the multidimensional impact of symptom burden on patients' overall well-being (So et al., 2022; Brown et al., 2017).

Role of Psychosocial Intervention

Several studies evaluated the effects of psychosocial interventions in patients with advanced CKD. Interventions such as hope-based therapy, mindfulness programs, and integrated palliative care were generally associated with improvements in psychological outcomes, including reductions in anxiety and depression and improvements in emotional well-being.

However, the magnitude and consistency of these effects varied across studies. While some interventions demonstrated statistically significant improvements in specific outcomes, others showed more modest or domain-specific benefits. Overall, the findings suggest potential benefits of psychosocial interventions, although the evidence remains heterogeneous (Yang et al., 2024; Muscat et al., 2021).

DISCUSSION

This systematic review demonstrates that patients with advanced chronic kidney disease (CKD) experience a substantial burden of physical and psychological symptoms, including pain, psychological distress, fatigue, and reduced quality of life. These findings highlight the multidimensional nature of symptom burden in advanced CKD and underscore the importance of comprehensive, patient-centered care approaches. Notably, although symptom burden in CKD has been widely studied, no previous systematic review has specifically focused on psychosocial interventions in patients with advanced CKD populations, particularly those managed conservatively, highlighting an important gap in the current literature (Engelbrecht et al., 2021; Rhee et al., 2022).

Pain emerged as one of the most prevalent and clinically significant symptoms, particularly musculoskeletal and bone-related pain. This is consistent with the known pathophysiology of CKD, including CKD-mineral and bone disorder, which contributes to chronic pain syndromes.

Importantly, the findings suggest that pain is closely linked with psychological distress, supporting the concept of a bidirectional relationship between physical and psychological symptoms in chronic disease populations (Davison et al., 2021; Speyer et al., 2024).

Psychological distress, including depression and anxiety, was also highly prevalent and consistently associated with poorer clinical and functional outcomes. Several studies reported improvements in psychological outcomes following psychosocial interventions such as mindfulness-based programs, palliative care approaches, and cognitive-behavioral strategies. However, the magnitude and consistency of these effects varied across studies, indicating that while such interventions may be beneficial, the overall evidence remains heterogeneous (Chilcot et al., 2025; Rhee et al., 2022).

Fatigue was another dominant symptom, affecting a large proportion of patients and significantly impairing daily functioning. The coexistence of fatigue with pain and psychological distress suggests a symptom cluster that may share common underlying mechanisms, including inflammation, metabolic disturbances, and reduced physical capacity. These findings emphasize the need for integrated management strategies that address multiple symptoms simultaneously (Nixon et al., 2020; Wilkinson et al., 2021).

Quality of life was consistently reduced among patients with advanced CKD and was strongly associated with overall symptom burden. Studies included in this review demonstrated that higher levels of pain, fatigue, and psychological distress were linked to lower physical and mental quality of life scores. Although some psychosocial interventions were associated with improvements in quality of life, these effects were not uniform across studies (So et al., 2022; Brown et al., 2017).

Overall, psychosocial interventions appear to offer potential benefits in improving psychological outcomes and aspects of quality of life. However, the variability in study design, intervention types, and outcome measures limits the ability to draw definitive conclusions regarding their effectiveness. These findings suggest that psychosocial interventions may be a valuable component of multidisciplinary care, but further high-quality evidence is needed (Yang et al., 2024; Muscat et al., 2021).

In the context of Indonesian and other resource-limited healthcare settings, where access to renal replacement therapy may be limited and conservative management is frequently adopted, integrating structured psychosocial screening and multidisciplinary support into routine CKD care may improve patient-centered outcomes, including quality of life and symptom burden.

Several limitations of this review should be acknowledged. First, there was substantial heterogeneity among the included studies in terms of design, population characteristics, interventions, and outcome measures, which limited comparability across studies. Second, the inclusion of studies with mixed CKD populations, including both conservatively managed and dialysis patients, may reduce the specificity of findings related to particular subgroups. Third, many studies had relatively small sample sizes and limited follow-up duration, which may affect the generalizability and long-term interpretation of results. Additionally, variability in reporting of confounding factors may introduce bias, and reliance on self-reported measures raises the possibility of reporting bias (Knapp et al., 2025; Wilkinson et al., 2021).

Future research should focus on well-designed, adequately powered studies with standardized outcome measures to better evaluate the effectiveness of psychosocial interventions in advanced CKD populations. In particular, further studies targeting specific patient subgroups, including those managed conservatively, are needed to provide more precise and clinically applicable evidence (Engelbrecht et al., 2021).

CONCLUSION

Patients with advanced chronic kidney disease (CKD) experience a substantial burden of pain, fatigue, and psychological distress, which significantly impacts their quality of life. Psychosocial interventions may offer potential benefits in improving psychological outcomes and aspects of well-being; however, the current evidence remains limited and heterogeneous.

These findings highlight the importance of integrating comprehensive, multidisciplinary approaches into routine care for patients with advanced CKD. Further well-designed studies with standardized outcome measures are needed to better evaluate the effectiveness and sustainability of psychosocial interventions, particularly in specific patient subgroups such as those managed conservatively.

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