

From Threat to Meaning Reconstruction: A Qualitative Study of Needling-Related Suffering and Coping Trajectory in Hemodialysis Patients——Based on Cassel's Framework of Suffering

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Abstract

Background

Needling of arteriovenous fistulae is routine but distressing for haemodialysis patients. Quantitative studies have focused on cannulation success, pain, and complications, yet the subjective, dynamic nature of needling-related suffering remains underexplored. Existing qualitative frameworks have not elucidated how patients' distress evolves over time. This study aimed to explore the nature and trajectory of needling-related suffering in maintenance haemodialysis patients using Cassel's framework, and to identify how patients cope with and reconstruct meaning from repeated needling.

Methods

A qualitative, single-centre study using a phenomenological hermeneutical approach was conducted. Fifteen adults on maintenance haemodialysis with functioning fistulae or grafts who self-reported significant needling-related discomfort were recruited. Semi-structured interviews were analysed using phenomenological hermeneutical methods, guided by Cassel's framework. Reporting followed COREQ guidelines.

Results

Four interconnected themes emerged, tracing a trajectory from threat to meaning reconstruction. Participants initially experienced threats to personhood—physical pain, situational fear, self-image disruption, and social disconnection (Theme 1). They oscillated between passive accommodation and active coping (Theme 2). Participants expressed yearnings for medical support beyond technical competence—predictable safety and sustained hope (Theme 3). Over time, some achieved meaning reconstruction—redefining the fistula as a lifeline, accepting pain, and revaluing life (Theme 4). The findings identify clinical conditions facilitating this transition: technical competence, predictable relationships, and sustained hope.

Conclusions

Needling-related suffering follows a dynamic trajectory—from threats to personhood, through oscillating coping and yearnings for support, to meaning reconstruction. This processual understanding offers a stage-based roadmap for stage-appropriate, person-centred interventions.

1 | Introduction

Maintenance haemodialysis (MHD) is a life-sustaining treatment for patients with end-stage renal disease (ESRD)(Arasu et al., 2022), with arteriovenous fistulas (AVF) being the preferred vascular access

type for approximately 84.7% of patients (Aitken et al., 2025, Zhao et al., 2025, Shanahan et al., 2019). Despite ongoing improvements in needling devices and techniques, needling-related distress remains a significant challenge that profoundly impacts patients' quality of life and treatment adherence (Anderson, 2024, Duncanson et al., 2023). Each dialysis session requires two needle insertions, amounting to approximately 312 needling procedures annually for patients undergoing thrice-weekly haemodialysis (Moore et al., 2025, Rønning et al., 2022, Wang et al., 2022b). The cumulative burden of repeated needling creates not only physical pain but also substantial psychological and emotional distress (Anderson, 2024).

Existing research has predominantly adopted quantitative approaches, focusing on cannulation success rates, pain scores, or complication incidence (Ding and Li, 2025, Peralta et al., 2026, Sharifnia et al., 2025). While these metrics provide valuable clinical information, they fail to capture the subjective, complex, and dynamic nature of needling-related suffering. In response to this gap, recent qualitative studies have begun to explore patients' lived experiences of needling. Internationally, Duncanson et al. (Duncanson et al., 2023) explored patients' perspectives on dialysis needle-related distress through interviews with 15 Australian haemodialysis patients, identifying four themes: uncovering a hidden source of distress, coping with cannulation pain and trauma, the environment created by dialysis nurses, and supporting patient self-management of distress. Their work highlighted that needling distress is often hidden—patients learn to tolerate it as an inevitable part of dialysis for survival—and that nurses' technical skills and the dialysis environment are key determinants of the cannulation experience (Duncanson et al., 2024, Duncanson et al., 2023).

In a more comprehensive qualitative investigation, Moore et al. (Moore et al., 2024) conducted a multicentre study involving 41 patients across six kidney centres in the United Kingdom, systematically exploring key factors influencing patients' needling experiences. Their thematic framework identified a core theme—*The Nature of Needling*—and five foundational aspects: Health of the Fistula/Graft, Steps in Needling, The Needler, The Patient, and Organisational Context. Two cross-cutting themes were also identified: *Learning from Needling Experience* and *Reciprocity*—the two-way interaction between patient and needler. This framework revealed that needling experiences are shaped by multiple psychological and relational influences, with the quality of nurse-patient interaction playing a central role (Moore et al., 2024).

However, despite these advances, a theoretical gap remains. Moore et al.'s framework (Moore et al., 2024), while providing a comprehensive structural account of factors shaping needling experience, does not explicitly adopt a theory of suffering to explain how patients' distress evolves over time or how they move from initial threat toward meaning-making. Similarly, Duncanson et al.'s study (Duncanson et al., 2023) described coping strategies but did not theorise the underlying mechanisms driving the dynamic process of suffering.

Cassel's suffering theory (Cassel, 1982), introduced in his seminal 1982 *New England Journal of Medicine* paper, offers a powerful lens for addressing this gap. Cassel defined suffering as a state of severe

distress arising from threats to the intactness of personhood—a multidimensional construct encompassing physical, psychological, social, and existential dimensions (Cassel, 1982, Cassell, 1999). A key insight is that suffering persists until the integrity of the person can be restored, making this framework particularly suited to understanding the dynamic trajectory of needling-related distress (Cassel, 1982, Duncanson et al., 2023, Moore et al., 2024). Applying Cassel's framework to the dialysis context enables us to move beyond descriptive accounts to examine how and why needling-related suffering evolves over time, and to explore the relational dimension of suffering—specifically, how clinical interactions may either alleviate or exacerbate distress (Cassel, 1982, Cassell, 1999). Guided by Cassel's conceptualisation of personhood, this study conducted semi-structured interviews with MHD patients to explore the nature and trajectory of needling-related suffering, aiming to provide both theoretical insights and practical guidance for developing precision nursing interventions.

2 | Methods

2.1 | Study Design

This study employed a qualitative explorative design (Thirsk and Clark, 2017) to gain an in-depth understanding of the nature and trajectory of needling-related suffering among patients receiving maintenance haemodialysis. A phenomenological hermeneutical approach, inspired by Ricoeur's theory of narrative and interpretation (Geanellos, 2000), was applied. This approach was particularly suited to our research aim, as it facilitates a systematic interpretation of lived experiences through a dialectical movement between understanding and explanation (Simonj et al., 2018). Furthermore, we explicitly adopted Cassel's (Cassel, 1982) conceptualisation of suffering as a sensitising theoretical framework to guide the interpretive process. The study is reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ) 32-item checklist (Tong et al., 2007) (see Supporting Information File 1).

2.2 | Setting and Participants

This study was conducted at the Haemodialysis Centre of a tertiary hospital in Chongqing, China, between October and November 2025. Participants were recruited using purposive sampling to ensure a diverse range of experiences regarding dialysis vintage, access type, and needling experiences. The inclusion criteria were: (1) aged ≥ 18 years; (2) diagnosed with ESRD and receiving maintenance haemodialysis for at least three months; (3) currently using an AVF or arteriovenous graft (AVG) as vascular access; (4) self-reported significant discomfort or distress during or after the needling procedure; (5) able to understand and respond to questions with effective verbal communication skills; and (6) willing to participate and provide written informed consent. Patients were excluded if they had severe cognitive impairment, (1) presence of severe cognitive impairment; (2) diagnosed psychiatric disorder that would preclude meaningful participation in the study; (3) acute critical illness or unstable medical condition; or (4) concurrent participation in another research project that might influence their perception of physical symptoms or the content of study interviews.

A total of 15 patients receiving maintenance haemodialysis were recruited. Their demographic and clinical characteristics are summarised in Table 1. The mean age was 46.9 ± 12.5 years (range: 27–64 years), and the majority were male ($n = 9$, 60.0%). Nearly half of the participants ($n = 7$, 46.7%) held a college degree or above, and eight (53.3%) were employed.

The median dialysis vintage was 4.0 years (range: 1.0–21.0 years). Thirteen participants (86.7%) used an AVF and two (13.3%) used an AVG, with a median access vintage of 4.0 years (range: 1.0–17.0 years). The rope-ladder cannulation technique was used by 12 participants (80.0%), while three (20.0%) used the buttonhole technique. Cannulation was completed in a single attempt for 10 participants (66.7%), with the remainder requiring two or more attempts. The mean pain score during cannulation was 3.5 ± 1.8 (range: 1–7) on the 0–10 Numerical Rating Scale.

Nine participants (60.0%) experienced at least one access-related complication, with thrombosis ($n = 3$, 20.0%) being the most common. Eleven participants (73.3%) were using their first vascular access.

Table 1
Demographic and Clinical Characteristics of Participants (N = 15)

Characteristic	Category	n (%)
Gender	Male	9 (60.0)
	Female	6 (40.0)
Age (years), mean $\pm$ SD (range)	—	46.9 $\pm$ 12.5 (27–64)
Education level	Junior high school or below	4 (26.7)
	High school / Technical secondary school	3 (20.0)
	College degree or above	7 (46.7)
Employment status	Employed	8 (53.3)
	Unemployed / Retired	7 (46.7)
Dialysis vintage (years), median (range)	—	4.0 (1.0–21.0)
Vascular access type	AVF	13 (86.7)
	AVG	2 (13.3)
Access vintage (years), median (range)	—	4.0 (1.0–17.0)
Cannulation technique	Rope-ladder	12 (80.0)
	Buttonhole	3 (20.0)
Cannulation difficulty	1 attempt	10 (66.7)
	2 attempts	4 (26.7)
	≥ 3 attempts	1 (6.7)
Pain score (NRS 0–10), mean $\pm$ SD (range)	—	3.5 $\pm$ 1.8 (1–7)
Access-related complications*	None	6 (40.0)
	Infection	2 (13.3)
	Stenosis	2 (13.3)
	Thrombosis	3 (20.0)
	Calcification	2 (13.3)
Note: AVF, arteriovenous fistula; AVG, arteriovenous graft; NRS, Numerical Rating Scale; SD, standard deviation.		

Characteristic	Category	n (%)
Previous access history	Pseudoaneurysm	2 (13.3)
	First access	11 (73.3)
	≥ 1 previous access	4 (26.7)
Note: AVF, arteriovenous fistula; AVG, arteriovenous graft; NRS, Numerical Rating Scale; SD, standard deviation.		

* Some participants presented with multiple complications; therefore, the total percentage for complications exceeds 100%.

2.3 | Data Collection

Data were collected through face-to-face, semi-structured, in-depth interviews. The interview guide was developed based on a comprehensive literature review and the core constructs of Cassel's framework(Cassel, 1982), including the nature of suffering, threats to personhood, and coping mechanisms. The guide was piloted with two patients (not included in the final sample) to refine question wording and ensure clarity. The final interview guide comprised open-ended questions, such as:

- "Could you describe your overall experience with the repeated needling procedures?"
- "What does the needling process feel like for you—not just physically, but emotionally and psychologically?"
- "How has this experience affected your daily life, your sense of self, or your relationships with others?"
- "How do you cope with or make sense of these experiences over time?"
- "What do you think would help to improve your experience of the needling procedure?"

All interviews were conducted by the first author, a trained qualitative researcher with prior experience in nephrology nursing, who had established a rapport with the participants through routine clinical interactions. Interviews took place in a quiet, private room within the haemodialysis centre to ensure privacy and minimise distractions. Each interview lasted between 40 and 75 minutes (mean duration: 55 minutes) and was audio-recorded with the participants' explicit written consent. Throughout the interviews, field notes were taken to capture non-verbal cues, contextual observations, and the interviewer's initial reflections (Simony et al., 2018). Data collection proceeded concurrently with data analysis, and recruitment continued until data saturation was achieved—that is, when two consecutive interviews yielded no new codes or themes relevant to the research questions (Francis et al., 2010). In this study, saturation was reached after the 12th interview; however, we continued to recruit three additional participants to confirm the stability of the themes.

2.4 | Data Analysis

Data analysis was guided by the phenomenological hermeneutical method as described by Ricoeur and operationalised by Simonj et al(Geanellos, 2000, Simonj et al., 2018), which proceeds through three interconnected phases: (1) the naïve reading; (2) structural analysis; and (3) critical interpretation and discussion.

Phase 1: Naïve Reading. All audio-recorded interviews were transcribed verbatim in Chinese within 24 hours of the interview. The first author read each transcript multiple times to gain a holistic, preliminary understanding of the participants' experiences. Initial impressions and potential patterns were documented as reflective memos (Birks et al., 2025).

Phase 2: Structural Analysis. The transcripts were systematically coded using a thematic analysis approach embedded within the hermeneutical framework. Initially, the first author conducted open coding to identify meaning units—fragments of text that captured significant experiences related to needling suffering and coping. These meaning units were then condensed, abstracted, and grouped into subthemes and themes through an iterative process of comparison and reflection. Coding was performed using NVivo 14 software (QSR International Pty Ltd, Melbourne, Australia) to manage the data systematically. To enhance analytical rigor, a sub-sample of five transcripts was independently coded by a second researcher with expertise in qualitative methodology but not directly involved in patient care(Cypress, 2017). Any disagreements in coding were resolved through team discussion until consensus was achieved. Team meetings were held bi-weekly throughout the analysis to critically examine emerging themes, challenge assumptions, and refine the interpretive framework (Barry et al., 1999).

Phase 3: Critical Interpretation. The final phase involved interpreting the structural themes in light of Cassel's (1982) theoretical framework on suffering. This interpretive step moved beyond the descriptive level to examine how the identified themes collectively reflected, nuanced, or extended Cassel's propositions regarding the nature of suffering, the threat to personhood, and the path toward meaning reconstruction. The entire analytical process was iterative—moving back and forth between the parts (specific codes and themes) and the whole (the overall narrative of the participants' experiences) to ensure the interpretations remained grounded in the data while being informed by theory (Geanellos, 2000).

2.5 | Rigour and Trustworthiness

To ensure trustworthiness, we followed Lincoln and Guba's criteria(Enworo, 2023). Credibility was established through prolonged engagement, data triangulation, and member checking (three participants confirmed thematic accuracy). Initial coding of 15 transcripts generated 273 codes, refined via team discussion into 13 subthemes and four themes. Transcripts were not returned for participant review, as none requested this; credibility was further supported by investigator triangulation and team debriefing. Transferability was enhanced through thick descriptions. Dependability and confirmability were ensured via an audit trail and independent coding of a subsample by a second researcher.

2.6 | Ethical Considerations

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Clinical Research Review Committee of the First Affiliated Hospital of Army Medical University, PLA, Chongqing, China (Approval No.:KY2025222). All participants were fully informed about the purpose, procedures, and potential risks and benefits of the study. Written informed consent was obtained from each participant before any data were collected. Participants were assured of their right to withdraw from the study at any time without affecting their clinical care. To protect confidentiality, all personal identifiers were removed from transcripts, and pseudonyms were assigned to all participants in the presentation of findings. Audio recordings and transcribed data were stored securely on a password-protected computer accessible only to the research team.

3 | Result

Four interconnected themes with 13 subthemes emerged, reflecting a dynamic trajectory from threat to meaning reconstruction (Table 2). Theme 1 revealed the hidden roots of suffering—physical impact, fear, self-image disruption, and social disconnection—consistent with Cassel's notion of threats to personhood. Theme 2 captured participants' oscillation between passive accommodation and active coping. Theme 3 reflected a yearning for medical support, not only for competence but for predictability and hope. Theme 4 illustrated the meaning reconstruction of suffering, as participants redefined the fistula as a lifeline, accepted pain, and reconstructed life value. These findings extend Cassel's framework by illuminating the dynamic process through which patients move from threat towards meaning-making, and by specifying how medical care can facilitate this transition.

Participants were assigned codes from P1 to P15 sequentially based on the chronological order of their interviews. These codes are used throughout the results section to identify individual participants.

Table 2
Themes and Subthemes

Themes	Subtheme
Theme 1: Hidden roots of needling-related suffering	Immediate physical impact
	Situational fear of needling experiences
	Self-image disruption and social avoidance
	Sense of disconnection from social activities
Theme 2: Navigating between passive accommodation and active coping	Behavioural adjustment
	Cognitive reframing
	Enhanced self-management awareness
Theme 3: Yearning for medical support	Strengthened clinical competence
	Predictable sense of safety
	Sustaining technological hope
Theme 4: Achieving meaning reconstruction of suffering	Fistula as lifeline
	Embracing the existence of suffering
	Reconstructing life value

Theme 1: Hidden Roots of Needling-Related Suffering

Participants described multiple interconnected sources of suffering associated with repeated needling, extending beyond physical pain to encompass emotional, social, and existential dimensions.

Physically, needling constituted an immediate and visceral impact. Participants reported intense pain during insertion, positional discomfort throughout the four-hour dialysis session, and prolonged numbness or pulling sensations when needling was not properly placed : *"If the needle is not positioned well, it is extremely uncomfortable, and the entire dialysis session becomes agonising"* (P6); *"The needles remain in my veins for three to four hours. If the insertion is not precise, I experience a persistent pulling sensation and swelling pain"* (P11).

This physical suffering was compounded by situation-specific fear triggered by prior painful experiences and unfamiliar clinicians, creating a feedback loop in which anticipatory anxiety amplified the subjective experience of pain : *"If I notice that a particular nurse has caused me more pain in the past, I become noticeably more anxious"* (P11); *"If a new nurse needles me, I become even more anxious because she*

doesn't know my vascular anatomy" (P13); "I am supposed to have just two needle insertions, but if it takes more, I become afraid that the nurse will keep trying" (P4).

Beyond these immediate concerns, participants articulated suffering related to identity and social connection. Visible access marks—scars, bruises, and deformities—led to self-image disruption and social avoidance, as participants feared stigmatisation yet were reluctant to disclose their diagnosis :*"When I see the scars on my fistula, I feel extremely anxious. When others ask about it, I don't want to explain" (P3); "I worry that people might see my fistula and think I'm a drug user. But I also don't want to tell them that I have uraemia" (P1); "My biggest feeling now is that I've become ugly. I don't enjoy going out or making friends as much anymore" (P15).*

The dialysis and needling routine further fragmented participants' life continuity, imposing concrete restrictions on travel, employment, physical activities, and spontaneity : *"I have dialysis three times a week. I cannot travel far or go on business trips for extended periods. It severely restricts my freedom" (P1); "I feel like my left arm has become a useless hand. I can't do anything with it—even raising my arm or wearing tight clothing makes me fear that the blood flow might be compromised" (P11); "Even when I'm enjoying myself outside, I suddenly remember that I have to go for dialysis and needling every day—and that happiness just fades away" (P12).*

Collectively, these findings reflect what Cassel conceptualised as threats to personhood—manifested simultaneously across physical, social, and existential dimensions, wherein the integrity of the embodied, relational, and temporal self is progressively undermined by the cumulative burden of repeated needling.

Theme 2: Navigating Between Passive Accommodation and Active Coping

Participants described a gradual shift from passive habituation to active cognitive reframing and behavioural management in response to needling-related suffering. This evolution was not linear but oscillatory—between passive endurance and active control—reflecting ongoing efforts to restore psychological and behavioural autonomy.

At the behavioural level, some participants developed habituation and numbness through repeated exposure, reducing the emotional impact of pain: *"The needling sensation has become a form of muscle memory for me—I've grown numb to it and have gradually adapted to the pain" (P3).* Others employed distraction: *"During needling, I generally don't watch. I cover my eyes or look at my phone to distract myself" (P6);* or closely observed practitioners' movements to anticipate pain: *"To cope with the pain, I observe you [the nurses] very carefully every time—your actions and movements" (P7).* Active verbal expression of pain also emerged as an effective emotional release: *"When I express the pain during needling, I feel much more relaxed afterwards" (P13).* Socially, some participants transitioned from concealment to open disclosure: *"When I go out, I wear long sleeves. If others ask about my fistula, I explain openly that I'm ill—I don't feel embarrassed about it anymore" (P15).*

At the cognitive level, participants constructed purposeful explanatory frameworks for unavoidable pain through internal rationalisation. Some developed cognitive acceptance: *"There is no way to avoid the physical pain of needling. Psychological pain can be relieved by myself, but physical pain truly exists—I cannot ignore it, and I have come to accept its existence"* (P12). This reframing extended to clinical practices—participants understood unpredictable needling sites as necessary for long-term access health: *"The nurses like to needle different sites on my fistula. Although it hurts more when the needle doesn't go in properly, I understand that it's for the good of my fistula—I don't blame them"* (P7). Some demonstrated empathic cognitive reframing, attributing needling difficulties to task complexity rather than clinician incompetence: *"If I react badly to a nurse who often fails on me, I start to think—would she also have psychological shadows when needling me? After all, she doesn't do it on purpose, so I can understand"* (P13). This mutual understanding emerged as a key mechanism for maintaining therapeutic alliance despite ongoing pain.

At the self-management level, heightened awareness of access longevity threats motivated proactive behaviours: *"I keep thinking—as needling goes on for years, there will be fewer and fewer places to puncture. I'm really afraid that my fistula will develop problems and I won't be able to have dialysis. That's why I pay close attention to management now"* (P6). Participants monitored thrill daily: *"Before, I didn't pay attention to my fistula at all. Now, I check the thrill every day—after more than 10 years, I can clearly feel it's not as good as before"* (P5). Previous access failure served as a powerful motivator: *"My left arm became unusable before because of stenosis and calcification, and the infection was also very serious. Now, I mainly follow the nurses' instructions to prevent infection"* (P2).

Collectively, these findings illustrate a trajectory from passive habituation to active cognitive reframing and enhanced self-management. Within Cassel's framework, this progression reflects participants' evolving response to threats against personhood—moving from enduring suffering, to cognitively containing it, to actively reclaiming agency over their bodies and lives. The ultimate shift toward self-management embodies Cassel's assertion that relieving suffering requires not only alleviating physical pain but also restoring personal integrity and meaning.

Theme 3: Yearning for Medical Support

Participants expressed strong yearnings for medical support that extended beyond technical competence, encompassing three interconnected dimensions: strengthened clinical competence, predictable safety, and sustained technological hope.

Participants desired proficient and empathetic needling skills that would enable first-attempt success and reduce physical and emotional burden: *"I hope every nurse can improve their needling technique so that the needle goes in on the first attempt, with more care and attention to reduce pain and avoid repeated punctures"* (P10); *"I hope the nursing team can be gentler during needling, especially when using large-gauge needles"* (P15). Verbal encouragement during the procedure was valued as an adjunctive source of comfort: *"Verbal encouragement during needling helps me relax"* (P2). Respect for patients' physical

conditions was seen as essential to preserving self-esteem: *"If nurses constantly comment that my vessels are difficult, it damages my self-esteem"* (P11).

Consistency and predictability in care were viewed as essential to reducing anxiety. Participants preferred familiar nurses and stable environments: *"I prefer to be needled by the same nurse or a familiar nurse. I hope they don't change personnel frequently. Also, having a fixed bed and environment would be ideal"* (P7). When needling failed, participants expected a systematic response—such as having another nurse take over rather than persisting with repeated attempts: *"If one nurse cannot needle me successfully, I don't want them to try a second time. I would prefer that another nurse take over"* (P3). Regular access assessment and technique adjustment were seen as means of psychological relief: *"I hope the fistula can be regularly assessed, and that needling methods can be adjusted accordingly. Good technique is the best way to help me relax and reduce my psychological burden"* (P9). Some participants suggested concrete strategies such as topical anaesthesia to reduce pain: *"I recommend using anaesthesia before disinfection prior to cannulation, to reduce the superficial pain during needle insertion"* (P1).

Hope for future technologies served as a psychological anchor. Participants awaiting transplantation described reduced fear and despair due to the prospect of liberation from needling: *"I am on the waiting list for a kidney transplant, hoping to be freed from needling. Because I feel my chances are quite good, my fear and despair are much less intense"* (P1). Others envisioned needle-free dialysis or remote monitoring technologies that would minimise invasive treatment: *"In the future development of medical technology, I hope there will be needle-free dialysis. That would improve our quality of life"* (P15); *"If dialysis could be monitored remotely like cardiac telemetry, we wouldn't need invasive treatment—we could just come to the hospital when problems arise"* (P12). These forward-looking projections sustained participants' motivation to endure present suffering by orienting them toward a meaningful future.

Collectively, these yearnings—for competence, predictability, and hope—reflect what Cassel identified as essential conditions for relieving suffering: the restoration of agency, dignity, and a meaningful future—core elements of personhood threatened by the cumulative burden of repeated needling.

Theme 4: Achieving Meaning Reconstruction of Suffering

Participants described a transformative process through which they gradually reconstructed the meaning of needling-related suffering, moving from viewing it as a purely negative experience toward integrating it into a broader narrative of survival, acceptance, and renewed life purpose. This theme captured three interconnected dimensions: reframing the fistula as a lifeline, embracing the existence of suffering, and reconstructing life value.

Participants reconceptualised the fistula from a source of pain to an essential condition for survival: *"The fistula has become a necessity in my life, just like eating every day—I must protect it"* (P9); *"The fistula is very important to me now—I must protect it. It is a lifeline for my life. If it fails, I would have to go for a*

kidney transplant" (P12). These accounts illustrate how participants transformed the meaning of the fistula from a source of suffering to a vital conduit of life itself.

Participants gradually accepted the inevitability of needling-related pain as an unchangeable reality, learning to coexist with their illness: *"Everyone will pass away one day. Since I have this disease, I try to think longer-term—as long as I survive, there is still hope, especially with medical advancements"* (P12); *"If I fear everything, I cannot go on living. I need to face reality and accept it"* (P2); *"It's useless to fear needling—it's useless to overthink it too. Whether I'm afraid or not, I still have to go through it, so I just let it be"* (P4); *"I didn't accept it at first. The first needling was extremely painful and I resisted strongly. But I've persisted until now because I want to live—and that has allowed me to accept the pain"* (P11). These accounts reveal a gradual movement from resistance to acceptance, driven by the fundamental will to survive.

Ultimately, participants shifted from dwelling on past health or fearing future death toward a more present-oriented appreciation of life itself: *"I feel that nothing matters more now than my own happiness. My body has been through enough—why would I make things harder for myself? I just want to cherish the present moment"* (P9); *"Human life is fragile. We cannot determine its length; we can only do our best to extend it within our capacity"* (P13); *"My organs are gradually failing. I can feel that my time is becoming shorter. I just try to experience the meaning of life as it comes"* (P12). These statements illustrate a fundamental reorientation—participants moved from mourning lost possibilities to finding value in the present, from fearing death to accepting life's finitude, and from passive suffering to active meaning-making.

4 | Discussion

Guided by Cassel's framework of suffering (Cassel, 1982), this study explored the nature and trajectory of needling-related suffering in patients undergoing maintenance haemodialysis. The findings reveal that patients' experience of repeated needling constitutes a dynamic process of ongoing adjustment, rather than passive immersion in distress. To visually integrate the four themes and their dynamic trajectory, we developed a multidimensional management framework, which is presented in Fig. 1. Drawing on Cassel's framework and the extant literature, we discuss these findings, delineate the novel contributions of this study, and propose implications for clinical nursing practice.

Our findings revealed that participants initially experienced suffering as multidimensional threats to personhood, including physical pain, situational fear, self-image disruption, and social disconnection. This is consistent with Cassel's assertion that suffering extends beyond nociceptive pain to encompass social and existential dimensions (Cassel, 1982). Duncanson et al. (Duncanson et al., 2023) similarly reported that dialysis-related distress is not limited to physical pain but includes emotional and social burdens.

In response to these threats, participants oscillated between passive accommodation and active coping, actively seeking a sense of control through accumulated experience. This observation aligns with Moore et al. (Moore et al., 2024). However, our study further elucidated the dynamic nature of this process,

revealing that patients fluctuated between coping modes depending on contextual factors and accumulated experience, rather than moving linearly from passive to active coping. This dynamic process also involved cognitive reframing, through which participants constructed rational explanations for unavoidable pain, thereby preserving therapeutic trust.

Additionally, participants articulated yearnings for medical support that extended beyond technical competence. These yearnings encompassed clinical proficiency, predictable safety, and sustained hope, resonating with Moore et al.'s NPREM framework (Moore et al., 2025). Over time, some participants achieved meaning reconstruction, redefining the fistula as a lifeline, accepting pain, and revaluing life. This trajectory aligns with Cassel's assertion that relief of suffering requires restoration of meaning, not merely pain elimination (Cassel, 1982). Our findings further specify the clinical conditions that facilitate this transition. Technical competence, predictable care relationships, and sustained hope enable patients to move from passive endurance toward active meaning-making.

However, although participants in this study demonstrated the potential to transition from passive accommodation to active coping, cross-sectional evidence indicates that, among the broader dialysis population, the majority of patients remain entrenched in maladaptive psychological patterns, including comorbid pain and anxiety, pain catastrophising cognitions, and fear-avoidance behaviours, with some patients even reducing dialysis frequency due to fear of needling pain (Ibrahim et al., 2022, Varrassi et al., 2025, Zhang et al., 2020). This reality underscores the urgency of translating our theoretical findings into clinical practice—namely, the need for systematic intervention strategies to facilitate patients' transition from passive endurance to active management.

To drive this transition, clinical practice requires the integration of multidimensional, evidence-based intervention strategies. At the psychological level, psychosocial interventions—including cognitive behavioural therapy (Dember et al., 2025), logo-therapy (Mehrizi et al., 2022), and dignity therapy (Chen et al., 2026)—have been shown to effectively alleviate physical and psychological symptom burden, reduce pain catastrophising cognitions, and improve treatment adherence, with greater benefits observed in patients with higher baseline levels of psychological distress. At the operational level, active pain management strategies—such as cryotherapy combined with visual distraction, virtual reality technology, and pain-free nursing management models—have been demonstrated to significantly reduce needling pain scores and improve cannulation success rates (Ozen et al., 2025, Sharifnia et al., 2025). In addition, time perspective therapy (Tao et al., 2024), by guiding patients to positively reframe past experiences and future planning, may further enhance self-management awareness.

Nevertheless, the implementation of these strategies faces substantial challenges. Their long-term effects are subject to attenuation, and their application is constrained by both patient-level barriers (treatment fatigue, stigmatisation associated with the “needle fear” label) and system-level barriers (excessive nursing workload) (Dember et al., 2025). Consequently, clinical nursing practice must shift from fragmented interventions toward a systematic, full-course support network to achieve a paradigm shift from passive endurance to active management.

The cornerstone of building such a network is the establishment of a patient-centred, full-course, multidimensional integrated care pathway, encompassing four principal pillars (Dember et al., 2025, Zheng et al., 2025). First, a multidisciplinary precision assessment and planning system should be developed, incorporating point-of-care ultrasound for vascular assessment during the early use of the AVF (2024) and establishing collaborative working mechanisms among nephrology, pain medicine, and dialysis nursing teams (Schweiger et al., 2025) to lay the foundation for individualised cannulation plans. Second, evidence-based optimisation of cannulation techniques and pain-free operational protocols should be implemented (Buchanan et al., 2024), including the promotion of soft-needle cannulation and blunt-needle buttonhole techniques (Jin et al., 2024, Wang et al., 2022a), optimisation of needle bevel orientation and “rapid insertion, slow advancement” techniques (Loizeau et al., 2023), combined with multimodal non-pharmacological interventions such as topical anaesthesia and cryotherapy (Sharifnia et al., 2025). Third, structured patient psychological empowerment and self-management support should be provided. Nursing staff should identify patients' current coping stages—employing cognitive reframing techniques for those in passive accommodation, while strengthening self-management skills for those transitioning to active coping. Pain Coping Skills Training (PCST) (Dember et al., 2025), standardised self-care education, and family involvement programmes (Zheng et al., 2025) can enhance patients' psychological resilience. Fourth, an organisational framework ensuring continuity of care and dynamic monitoring is essential (Zhu et al., 2025). Given that different nurses' techniques and patients' physical and psychological status on any given day both influence needling experiences (Duncanson et al., 2024), a primary nurse responsibility system or an intelligent appointment-based dialysis unit allocation system should be implemented, with real-time monitoring through integrated online-offline models (Buchanan et al., 2024, Özdemir and Şendir, 2025) to prevent treatment resistance.

In summary, the ultimate direction of clinical nursing should move beyond isolated technical optimisation toward the construction of a culturally sensitive, sustained care system that integrates technical, psychological, social, and organisational support (Zheng et al., 2025). Grounded in patients' authentic coping patterns and targeting full-course disease management, this approach represents a feasible pathway to improve long-term access safety and quality of life for dialysis patients.

5 | Limitations

Several limitations should be acknowledged. First, this single-centre study in Chongqing, China, limits transferability to other cultural and healthcare contexts. Second, the predominance of AVF users in our sample may not represent the experiences of AVG users. Third, as with all qualitative research, our findings represent subjective interpretations, and alternative interpretations are possible. Fourth, social desirability bias may have influenced participant responses. Despite these limitations, the rich, in-depth data obtained through rigorous qualitative methods provide valuable insights into the dynamic nature of needling-related suffering and offer practical guidance for clinical practice.

6 | Conclusions

This qualitative study, guided by Cassel’s framework, reveals that needling-related suffering in maintenance haemodialysis patients follows a dynamic trajectory—from threats to personhood, through oscillating coping responses and yearnings for medical support, to meaning reconstruction. Compared with Moore structural framework, our study provides a processual understanding of how suffering evolves and how patients actively reconstruct meaning. These findings extend Cassel’s framework by specifying how clinical care can facilitate this transition. Clinical practice should adopt multidimensional assessments, implement individualised, stage-based interventions, and establish comprehensive support networks to address the full spectrum of patients’ needs. Future research should validate these findings in diverse populations and develop and test interventions targeting each stage of the suffering trajectory.

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The authors wish to thank and acknowledge the patients for their participation in this study, and the nursing staff of the Haemodialysis Centre for their support and assistance with participant recruitment. We also extend our gratitude to the Institutional Review Board for their ethical review and approval of the study protocol.

8 | Abbreviations

MHD, Maintenance haemodialysis

ESRD, end-stage renal disease

AVF, arteriovenous fistulas

AVG, arteriovenous graft

NRS, Numerical Rating Scale

SD, standard deviation

9 | Author contributions

Xuemei Jiang(First Author): Conceptualisation, methodology, investigation, data curation, formal analysis, writing—original draft, writing—review and editing, visualisation, project administration.

Qiongfang Zhang: Conceptualisation, methodology, investigation, data curation, formal analysis, writing—review and editing, supervision.

Qianlin Yang: Investigation, data curation, formal analysis, writing—review and editing.

Yuting Wang: Investigation, data curation, formal analysis, writing—review and editing.

Wen Yang: Investigation, data curation, formal analysis, writing—review and editing.

Li Wei: Investigation, data curation, formal analysis, writing—review and editing.

Yi Wu (Corresponding author): Conceptualisation, methodology, validation, formal analysis, writing—review and editing, supervision, project administration.

10 | Funding

No funding was received for this study.

11 | Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request. Participant transcripts are not publicly available to protect participant confidentiality, as the data contain potentially identifying information. An anonymised coding book can be provided on request.

12 | Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki. Ethical approval was obtained from the Clinical Research Review Committee of the First Affiliated Hospital of Army Medical University, PLA, Chongqing, China (Approval No.:KY2025222). All participants were fully informed about the purpose and procedures of the study and provided written informed consent prior to enrolment.

13 | Consent for publication

Not applicable.

14 | Conflicts of Interest

The authors declare no conflicts of interest.

15 | Footnotes

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Declarations

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Figures

A Multidimensional Management Framework for Needling-Related Suffering in Dialysis Patients

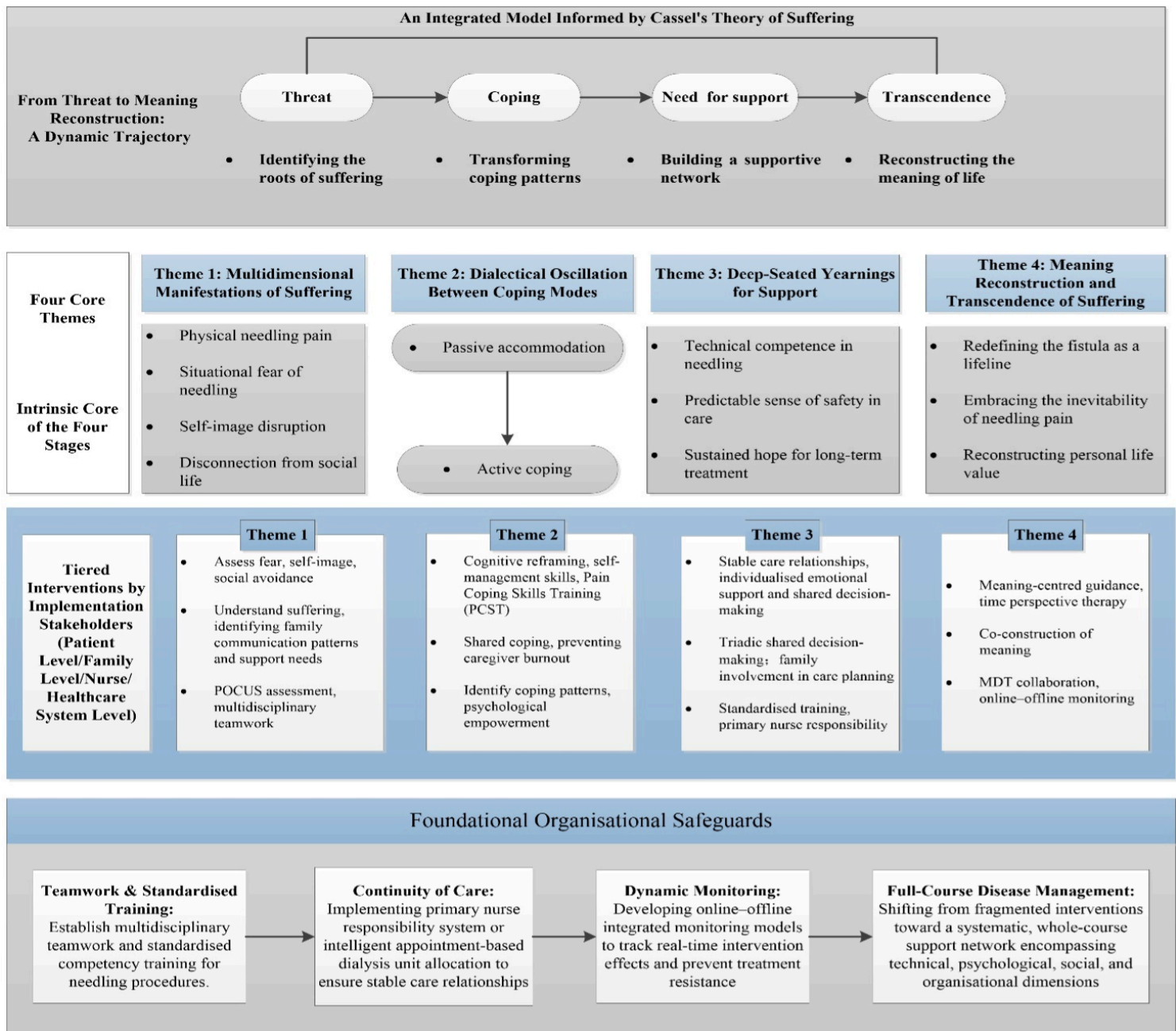


Figure 1

Presents an integrated framework for understanding and managing needling-related suffering in maintenance haemodialysis patients, derived from the four interconnected themes identified in this qualitative study. At the core of this framework is the recognition that patients' experience of needling is not static but follows a dynamic trajectory—from initial threats to personhood, through oscillating coping responses and yearnings for support, to ultimate meaning reconstruction. This trajectory is organised across three interdependent dimensions. The horizontal axis depicts the dynamic trajectory of patients' experience across four progressive stages: Threat, Coping, Need for Support, and Transcendence. The vertical layers map tiered interventions across patient, family, and nurse/healthcare system levels, with strategies tailored to each stage. The base layer comprises foundational organisational safeguards that

enable sustainable implementation. Each stage is grounded in the corresponding thematic findings (Themes 1–4) and reflects the progressive evolution of patients’ relationship with needling—from passive endurance toward active meaning-making. The framework is interpreted within Cassel’s framework of suffering, wherein relief of suffering requires restoration of meaning and personal integrity. This model offers a practical, theory-driven roadmap for clinicians to identify where a patient currently is on the suffering trajectory and to select stage-appropriate, stakeholder-specific interventions, thereby translating theoretical insights into actionable clinical strategies.