

Therapeutic Patient Education and Patient Empowerment in Chronic Kidney Disease: A Narrative and Critical Review of the Literature

Moussa Tondi Zeinabou Maïga^{1*}, Abdel Nacer Amoukou Issaka², Bonkano Bawa Djibrilla¹

¹Faculty of Health Sciences (FSS), Abdou Moumouni University of Niamey (UAM), Niamey, Niger

²National Social Security Fund (CNSS), Agadez, Niger

Email: *zeinab_maiga@yahoo.fr

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Abstract

Background: Chronic kidney disease (CKD) affects over 673 million people worldwide and ranks 11th among causes of age-standardised mortality, with a disproportionate burden in sub-Saharan Africa (pooled prevalence 13.9%). Therapeutic adherence remains the main modifiable determinant of disease trajectory, placing therapeutic patient education (TPE) and empowerment at the centre of WHO- and KDIGO-recommended care strategies. Review question: In adults with CKD at any stage (population), what is the effect of structured TPE, empowerment, self-management, or health-literacy interventions (intervention), compared with usual care where reported (comparator), on knowledge, adherence, self-management skills, preparedness for shared decision-making on kidney replacement therapy, and quality of life (primary outcomes), and on hospitalisation and disease progression (exploratory outcomes)—with what implications for sub-Saharan Africa and Niger? **Objective:** To critically analyse evidence on the impact of TPE and empowerment on adherence, preparation for kidney replacement therapy, quality of life, and clinical outcomes in CKD, and derive implications for sub-Saharan Africa and Niger. **Methods:** An analytical narrative review followed a documented selection process represented by a PRISMA 2020 flow diagram, searching PubMed/MEDLINE, the Cochrane Library, KDIGO 2024 guidelines, and grey literature from January 2010 to December 2025. Selection and extraction were performed independently in duplicate, with disagreements resolved by consensus. A critical appraisal of the methodological quality of included sources informed the hierarchisation of evidence levels in the narrative synthesis. Of 747 records identified, 56 studies meeting the period criteria were retained after de-duplication, screening, and full-text assessment; one historical reference predating 2010 was added as a founding complement, outside the PRISMA count. **Results:** Structured TPE

programmes (teach-back, multidisciplinary workshops, individualised educational diagnosis) significantly improve knowledge, adherence, and preparedness for shared decision-making on kidney replacement therapy, with increased orientation toward home dialysis and pre-emptive transplantation. Empowerment—a cyclical process linking knowledge, confidence, and self-determination—is associated with improved quality of life and, in mostly observational studies that do not isolate the specific effect of TPE, with reduced hospitalisations and a possible, indirect, moderate-certainty slowing of CKD progression. In sub-Saharan Africa, where direct CKD-specific TPE evidence remains scarce, task-shifting, telehealth, mobile applications, and artificial intelligence emerge, by cautious extrapolation from hypertension and diabetes programmes, as promising levers against nephrologist shortages. **Conclusion:** TPE coupled with empowerment is a therapeutic intervention in its own right, requiring investment in training, structured care pathways, and policies adapted to resource-limited contexts, including Niger.

Keywords

Chronic Kidney Disease, Therapeutic Patient Education, Empowerment, Self-Efficacy, Treatment Adherence, Quality of Life, Health Literacy, Sub-Saharan Africa

1. Introduction

Chronic kidney disease (CKD) is a global public health priority. According to the Global Burden of Disease Study 2021, it affected 673.7 million people in 2021 (19.9 million new cases), causing 1.53 million deaths and 44.5 million DALYs—11th among causes of age-standardised mortality, with rising mortality despite a stable standardised prevalence [1]–[3]. Diabetes and hypertension are the leading aetiologies, with a growing burden in low- and middle-income countries [3]. This burden is particularly marked in sub-Saharan Africa (pooled prevalence 13.9%, 95% CI 12.2 - 15.7), where access to kidney replacement therapy remains structurally limited [4] [5].

The KDIGO 2024 guidelines recommend access to a multidisciplinary team (dietetics, education, support in choosing a kidney replacement modality) and the use of telehealth to deliver education [6] [7]. The WHO has defined TPE since 1998 as a continuous process, integrated into care, that helps patients acquire the skills needed to manage their chronic disease [8].

Non-adherence affects more than 60% of patients depending on the modality and is associated with accelerated disease progression, increased hospitalisation, and excess mortality [9]–[11], justifying the shift from a paternalistic model towards patient-centred care, of which Wagner’s Chronic Care Model is a major formalisation [12]. The concepts of empowerment and self-efficacy (Bandura: the belief in one’s capacity to organise and execute the actions required to achieve a goal) have become central [13]–[16]. Empowerment—knowledge, confidence,

self-determination—feeds into shared decision-making, particularly regarding the choice of kidney replacement modality [17]–[19]. Integrating these approaches within multidisciplinary teams is now a quality standard, with expected benefits for autonomy, quality of life, and care efficiency [20]–[22].

This analytical narrative review examines the current state of knowledge on TPE and empowerment in CKD, analyzes its clinical, organizational, and economic scope, and draws implications for sub-Saharan Africa and Niger.

Review question. Framed using the PICO approach, the question guiding this review is as follows: in adults (≥ 18 years) with CKD at any stage (pre-dialysis, dialysis, transplantation)—Population—what is the effect of structured TPE, empowerment, self-management, or health-literacy interventions—Intervention—compared, where reported by the studies, with usual care without a structured educational component—Comparator—on knowledge, treatment adherence, self-management skills, preparedness for shared decision-making regarding kidney replacement therapy, and quality of life, taken as primary outcomes, as well as on hospitalisation and CKD progression, taken as exploratory outcomes owing to their rarely being isolated in the literature—Outcomes? This question is addressed for the general context and then related to the specificities of sub-Saharan Africa and Niger.

Methodological rationale. TPE and empowerment encompass complex and heterogeneous interventions (duration, format, outcome measures), making meta-analysis of limited relevance [23]. The narrative review allows randomized trials, observational studies, systematic reviews, and field reports to be integrated into an interpretative synthesis, while documenting its selection process through a PRISMA 2020 flow diagram for methodological transparency.

2. Methodology

Study type. Analytical and critical narrative review [23], chosen for its capacity to integrate heterogeneous sources on a complex subject, with a selection process documented according to the PRISMA 2020 checklist (Figure 1).

Review question. See the PICO formulation presented in the Introduction (Section 1).

Period and sources. Systematic search covering January 2010 to December 2025, restricted to publications in French and English: PubMed/MEDLINE, the Cochrane Library, KDIGO guidelines (including the 2024 update) [6] [7], WHO and ISN publications (Global Kidney Health Atlas) [5] [8], grey literature (HAS, the NEPHROLOR and AURAL networks, Nîmes/Lyon/Bordeaux university hospitals), and academic dissertations. Database searches were finalized in January 2026.

Search strategies by database. Boolean combinations (AND/OR) of French/English MeSH terms around three axes: condition (Chronic Kidney Disease, Renal Insufficiency, Chronic), intervention (Patient Education as Topic, Patient Empowerment, Self-Management, Self-Efficacy, Health Literacy, Shared Decision

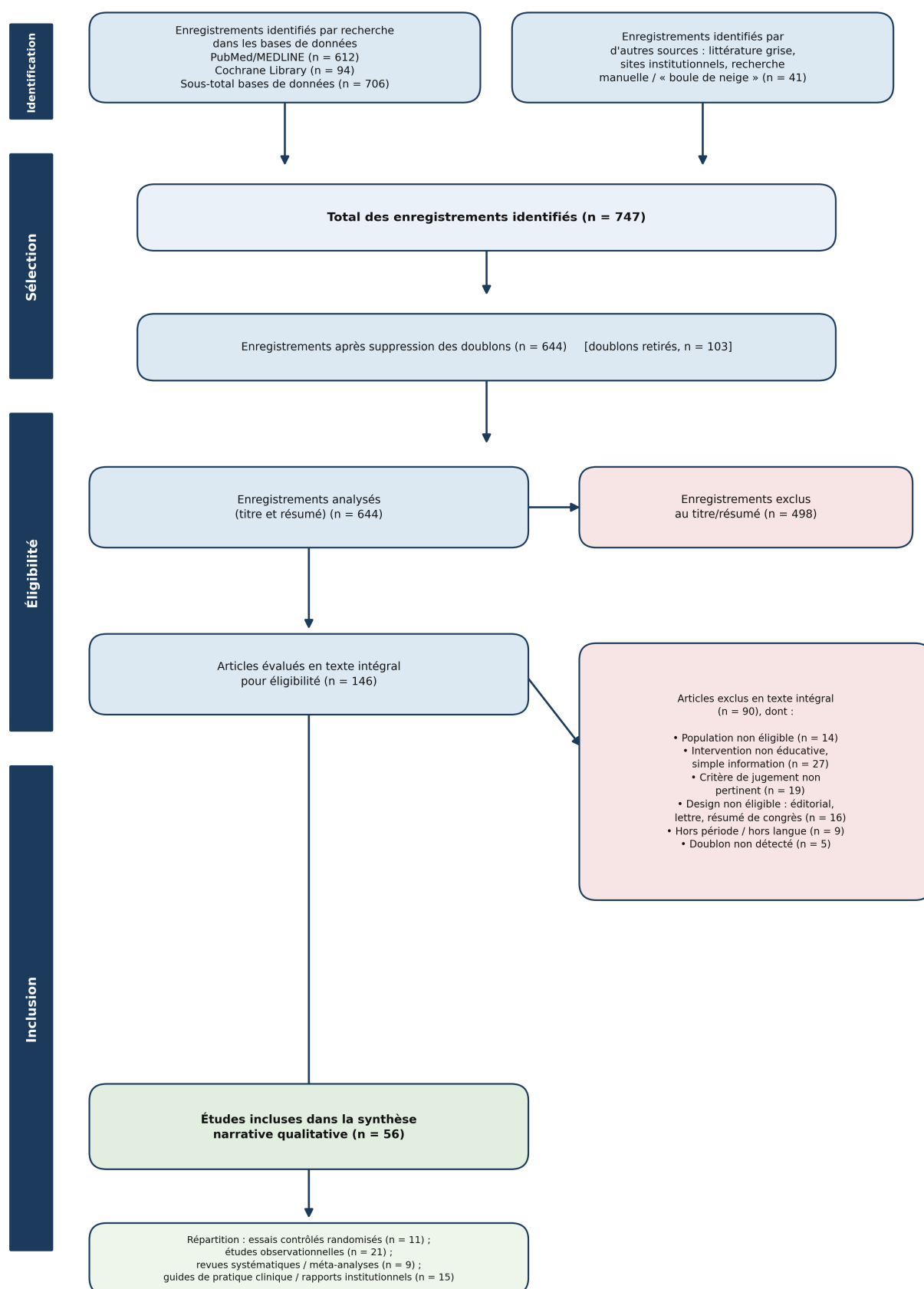


Figure 1. PRISMA 2020 flow diagram of the document selection process.

Making, Teach-back), and outcomes (Medication Adherence, Quality of Life, Hospitalization, Disease Progression).

—PubMed/MEDLINE (n = 612): (“Chronic Kidney Disease” [Mesh] OR “Renal Insufficiency, Chronic” [Mesh]) AND (“Patient Education as Topic” [Mesh] OR “Patient Empowerment” [Mesh] OR “Self-Management” [Mesh] OR “Self Efficacy” [Mesh] OR “Health Literacy” [Mesh]) AND (“Medication Adherence” [Mesh] OR “Quality of Life” [Mesh] OR “Shared Decision Making” [Mesh] OR “Hospitalization” [Mesh] OR “Disease Progression” [Mesh]), limits: 2010/01/01 - 2025/12/31, French and English languages, adults.

—Cochrane Library (n = 94): search strategy adapted to Cochrane descriptors from the same three conceptual axes, combined with AND/OR operators, applied to the CENTRAL register and Cochrane systematic reviews, with the same date and language limits as for PubMed.

—Other sources (n = 41): targeted manual search of the websites of the Haute Autorité de Santé (French National Authority for Health), KDIGO, ISN (Global Kidney Health Atlas), WHO, the NEPHROLOR and AURAL networks, and the Nîmes, Lyon, and Bordeaux university hospitals, as well as academic thesis and dissertation repositories (DUMAS). This manual search was supplemented by a systematic review of the reference lists (“snowballing”) of the systematic reviews and key articles retained for full-text assessment, allowing the identification of additional studies not indexed in the databases searched.

Inclusion/exclusion criteria (Table 1): adults ≥ 18 years with CKD at any stage (pre-dialysis, dialysis, transplantation); structured TPE, empowerment, self-management, or health-literacy interventions; relevant outcomes (adherence, quality of life, knowledge, skills, clinical outcomes, treatment choice). Exclusions: information alone without an educational component, paediatric-only studies, outside the period/language, editorials/letters/conference abstracts.

Table 1. Key definitions and concepts.

Concept	Definition	Ref.
TPE	Continuous process, integrated into care, developing skills for managing chronic diseases	WHO [8]
Empowerment	Mastery over decisions/actions affecting one’s health: knowledge, confidence, self-determination	[13] [14]
Self-efficacy	Belief in one’s capacity to organize/execute the actions needed to achieve a goal	Bandura [16]
Health literacy	Capacity to access, understand, and use health information	[38] [39]
Shared decision-making	Joint construction of therapeutic consensus incorporating patient preferences	[17] [18]
Self-care/coping skills	Technical (monitoring, treatment)/psychosocial (stress, communication)	HAS [25]

Documented exception to the eligibility period. A single reference predating 2010 (Devins *et al.*, 2005) was identified through manual “snowball” searching and retained as a foundational supplement, owing to its seminal role in demonstrating the link between educational programmes, preparation for dialysis, and survival—a work still frequently cited in the contemporary literature on the topic. This reference

is explicitly flagged as an exception to the PRISMA count (**Table 2**) and is not included among the 56 studies from the formal 2010 - 2025 selection process.

Table 2. Representative sample of included studies (n = 10 of 56; one foundational reference predating the period is flagged separately).

Author, year	Country	Design	Intervention	Main result
Alizadeh <i>et al.</i> , 2024 [32]	Iran	RCT	Teach-back	↑ medication/fluid adherence (p < 0.001)
Kaur <i>et al.</i> , 2023 [31]	International	Systematic review	Teach-back	↑ self-management, self-efficacy, knowledge
El Kabbaj <i>et al.</i> , 2023 [36]	Morocco	Prospective	Pre-replacement TPE	Knowledge 29% → 73%; diversified choice
Devins <i>et al.</i> , 2005 [37]*	Canada	Cohort	Educational programme	↑ preparation for dialysis and survival
Bonner <i>et al.</i> , 2014 [20]	International	Literature review	Self-management	Heterogeneous positive effects
Wang <i>et al.</i> , 2022 [26]	China	Cross-sectional	Empowerment	Mediation via self-efficacy/health locus of control
Fraser <i>et al.</i> , 2013 [41]	United Kingdom	Systematic review	Health literacy	Limited literacy → lower adherence
NEPHROLOR network “E’dire” [29]	France	Report	Multidisciplinary workshops	80% ↑ knowledge; 90% ↑ self-monitoring
Stanifer <i>et al.</i> , 2014 [4]	Sub-Saharan Africa	Meta-analysis	—(epidemiology)	CKD prevalence: 13.9%
Okpechi <i>et al.</i> , 2023 [46]	Africa	Scoping review	Task-shifting	Feasibility of task transfer

*Devins *et al.*, 2005 predates the 2010 - 2025 eligibility period; it is retained as a supplementary foundational reference identified through manual searching (see Section 2, “Documented exception to the eligibility period”); it is not included among the 56 studies from the formal PRISMA process.

Study selection and data extraction. Title/abstract screening, followed by full-text assessment, was carried out independently in duplicate by two of the authors; disagreements were resolved through discussion until consensus, and, in the event of persistent disagreement, by arbitration from the third author. Data extraction (design, population, intervention, outcomes, main results) followed a pre-defined standardised grid; any extraction discrepancy was verified by cross-checking.

Critical appraisal of methodological quality. Given the heterogeneity of the designs included, a critical appraisal tailored to each source type was applied rather than a single tool: the Mixed Methods Appraisal Tool (MMAT) for randomized trials and quantitative observational studies, the AMSTAR-2 checklist for systematic reviews and meta-analyses, and a dedicated critical-reading grid (source authority, currency, methodological transparency, relevance to the CKD context) for institutional reports and grey literature. This appraisal did not produce an aggregate score but informed the hierarchy of evidence levels in the narrative synthesis: conclusions based on randomized trials or good-quality systematic reviews are presented as the best-established, whereas those derived from single-centre observational studies, in-

stitutional reports, or grey literature are explicitly qualified as preliminary, indirect, or of lower evidence level in the text (Sections 3 and 4).

Selection flow (PRISMA 2020). A total of 706 records were identified through databases (PubMed, $n = 612$; Cochrane, $n = 94$) and 41 through other sources, resulting in 747 in total. After the removal of 103 duplicates, 644 records were screened by title/abstract (498 excluded); 146 articles were assessed in full text, of which 90 were excluded (ineligible population, $n = 14$; non-educational intervention, $n = 27$; irrelevant outcome, $n = 19$; ineligible design, $n = 16$; outside period/language, $n = 9$; undetected duplicate, $n = 5$). Fifty-six studies meeting the period criteria were retained (11 randomised trials, 21 observational studies, 9 reviews/meta-analyses, 15 guides/institutional reports), to which the historical reference described above is added (**Figure 1**, **Table 2**).

Synthesis. Thematic extraction along four axes (fundamental concepts; TPE in CKD; effects of TPE; empowerment), narrative synthesis hierarchising evidence levels according to the critical appraisal described above, and contextualised against the KDIGO recommendations and the Medical Research Council framework for complex interventions [21] [24]. Citations are in Vancouver style with DOI where available.

3. Results

3.1. Fundamental Concepts

TPE is defined by the WHO as a continuous process, integrated into care, that helps the patient acquire the skills needed to manage their chronic disease [8], combining self-care skills (technical) and coping/adaptation skills (psychosocial) [25], according to a conceptual model integrating these various dimensions (**Figure 2**). Empowerment, a polysemic concept [14], is modelled by Chen and Mullins as a cyclical process: knowledge $\rightarrow$ confidence $\rightarrow$ self-determination [13] (**Figure 3**). Patient engagement refers to the patient's active participation throughout the care pathway. Self-efficacy (Bandura) is the belief in one's capacity to organise and execute the actions required to achieve a goal, a central mediator between TPE and health behaviours [16] [26] (**Table 1**).

3.2. TPE in Chronic Kidney Disease

Programmes aim to strengthen knowledge and skills, foster active adherence, and prepare the patient for kidney replacement therapy [6] [25] [27], covering disease knowledge, treatment management, self-monitoring, diet, and physical activity [28]-[30]. Teach-back (patient rephrasing) significantly improves self-management, self-efficacy, and knowledge [31], with a demonstrated effect on medication and fluid adherence ($p < 0.001$) in haemodialysis [32]. Multidisciplinary workshops (e.g., the “E'dire” programme, NEPHROLOR network) show notable results: 80% improvement in knowledge, 90% new self-monitoring skills, and 77% dietary adaptation [29]. Other specialised programmes structure the French-language literature: “Althyse” and “Mieux choisir sa suppléance rénale”

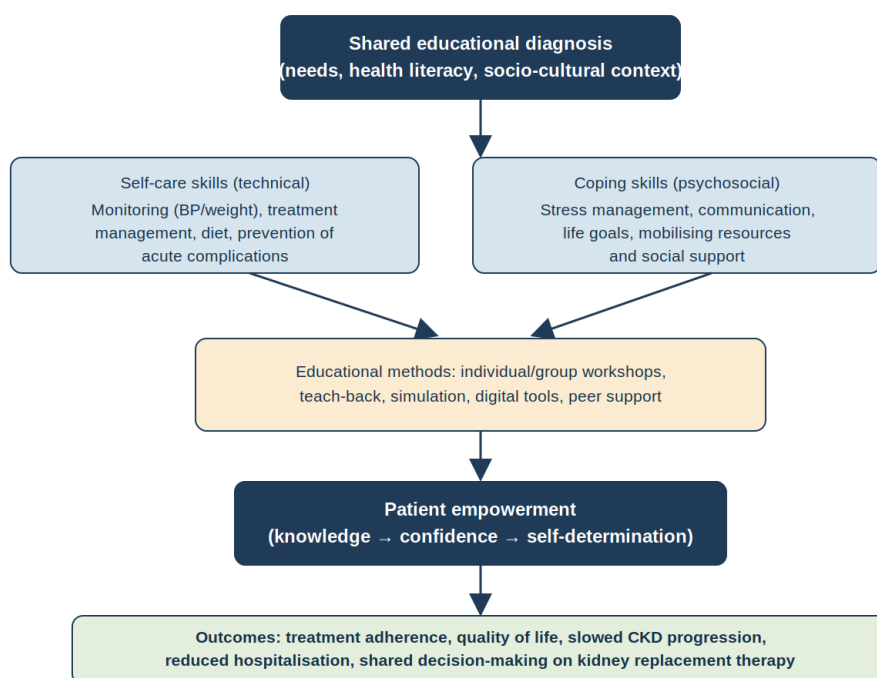


Figure 2. Conceptual model of therapeutic patient education in CKD.

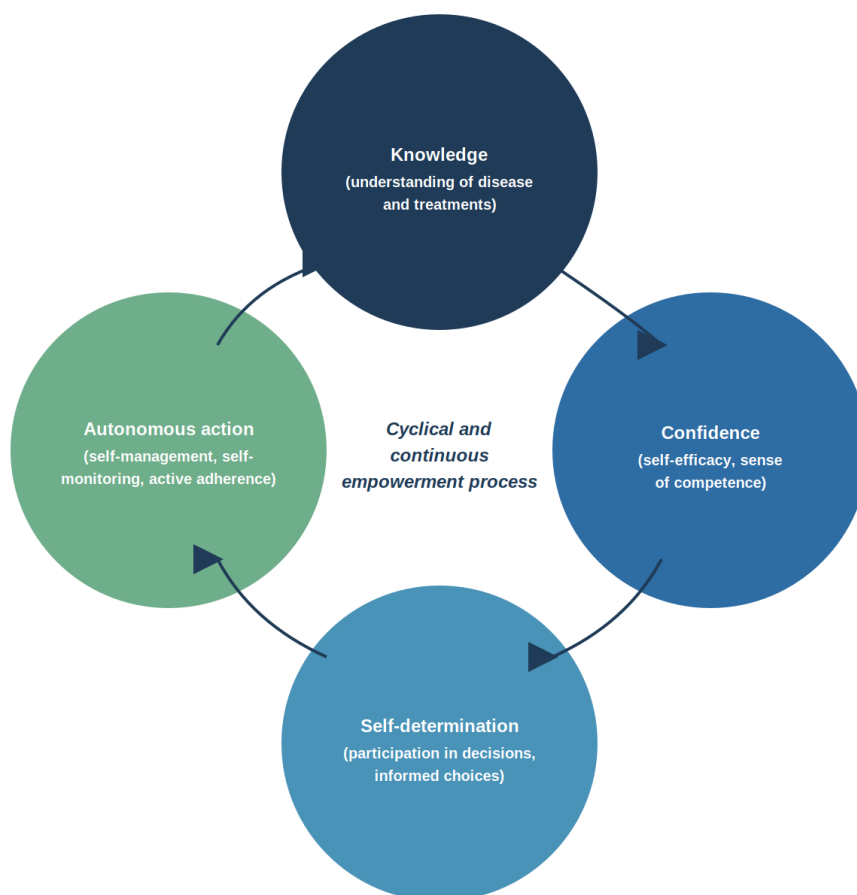


Figure 3. Patient empowerment process in CKD (adapted from [13] [14]).

(Better choosing one’s kidney replacement therapy) for pre-replacement care [29] [30], pre/post-transplant TPE (Bordeaux University Hospital) [33], and the ETIR programme (Lyon University Hospital) [34]—illustrating the need for an educational continuum (Table 3, Figure 4). It should be noted that the large majority of these programmes originate from high-resource settings (France, Iran, China, North America); their direct transposability to sub-Saharan Africa is not demonstrated by data specific to the region (see Section 5).

Table 3. Educational interventions identified.

Programme	Structure	Target stage	Main content
Teach-back	Multi-site	All stages	Rephrasing, comprehension check
“E’dire”	NEPHROLOR	Moderate-severe	Knowledge, diet, self-monitoring
“Althyse”	NEPHROLOR	Pre-replacement	Preparation for the choice of replacement therapy
ETIR	Lyon University Hospital	All stages	General education on renal insufficiency
Transplant TPE	Bordeaux University Hospital	Pre/post-transplant	Preparation and post-transplant follow-up
Community task-shifting	Health workers (Africa)	Screening	Identification of risk factors

Parcours éducatif du patient atteint de maladie rénale chronique

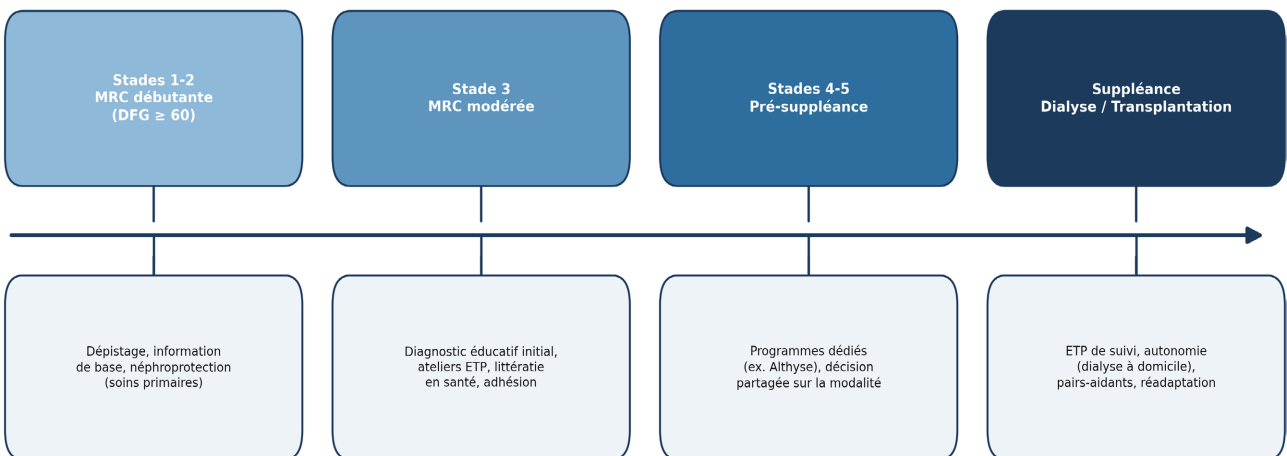


Figure 4. Educational pathway for the patient with CKD.

3.3. Effects of Therapeutic Education

Improved knowledge is the most consistent effect, but the real lever is the development of practical and psychosocial skills [25] [31] [32]. Regarding adherence, TPE increases adherence by up to 10 points in some studies [10] [11], with a significant effect on medication and fluid adherence [32] (Table 4). These studies, although among the methodologically most robust in the review, remain limited in number and derive mainly from single cohorts; their results should therefore be interpreted with caution regarding generalisability.

Table 4. Effects on adherence.

Dimension	Effect of TPE	Ref.
Medication adherence	+10 points according to the studies	[10] [32]
Fluid/dietary restriction	Significant improvement ($p < 0.001$)	[28] [32]
Passive → active adherence	Strengthened motivation	[11] [14]

Regarding CKD progression, improved control of risk factors (blood pressure, proteinuria) associated with TPE is reported as contributing to a slowing of progression [6] [20] [35] (**Table 5**); however, this effect remains indirect and of moderate evidence level, as none of the included studies isolated the specific effect of TPE from that of concomitant nephroprotective treatments or used CKD progression as a pre-specified primary outcome.

Table 5. Effects on clinical outcomes.

Outcome	Effect	Ref.
Blood pressure/metabolic control	Improvement via nephroprotective adherence	[6] [20] [35]
CKD progression	Indirect slowing (moderate evidence, not isolated from concomitant treatments)	[20] [35]
Choice of replacement therapy	Diversification, informed decision	[36] [48]
Hospitalisation	Indirect association with reduction, via self-management of complications (mostly observational studies).	[21] [34]

Regarding preparation for kidney replacement therapy, a Moroccan study showed that a single TPE session tripled the level of knowledge (29%→73%) and enabled a diversified choice (36% peritoneal dialysis, 19% transplantation, 11.8% haemodialysis, 33.2% deferred decision) [36], consistent with older work on preparation for dialysis and survival [37]—this latter association, historically established, has not been reproduced by recent controlled trials specifically isolating the effect of TPE on survival.

Improved self-management is associated, in mostly observational studies, with a reduction in hospitalisations related to preventable acute complications [21] [34]; in the absence of controlled trials that isolated this outcome as a primary objective, this link should also be regarded as an indirect association rather than a demonstrated causal effect.

Regarding quality of life, the “E’dire” programme reports +8.3 points in self-esteem and +6.1 points in mental health [29], with reduced anxiety and improved patient satisfaction [10] [29] (**Table 6**).

Table 6. Effects on quality of life.

Dimension	Observed effect	Ref.
Self-esteem	+8.3 points (“E’dire” programme)	[29]
Mental health	+6.1 points (“E’dire” programme)	[29]
Anxiety/depression	Reduction associated with a sense of control	[10] [29]
Perceived self-efficacy	Strengthened, mediating effect on self-management	[16] [26]

3.4. Patient Empowerment

Empowerment is expressed through participation in shared medical decision-making, particularly regarding kidney replacement therapy [17] [18] [19] [36], and through autonomy in adapting treatment to lifestyle [25] [29], mediated by self-efficacy and health locus of control [26]. Self-monitoring depends on the level of health literacy—the capacity to access, understand, and use health information [38] [39]—with low literacy associated with poorer adherence [40] [41], which justifies an initial educational diagnosis and adapted methods (teach-back, visual aids) [31] [38]. The Personalised Patient Activation and Empowerment model highlights the need to tailor interventions to the cultural context, particularly for populations facing communication barriers [13]—a finding directly transposable to African contexts, although not specifically validated by studies conducted in CKD in sub-Saharan Africa (Table 7; Section 5).

Table 7. Factors promoting empowerment.

Factor	Mechanism	Ref.
Personalised educational diagnosis	Identification of needs and literacy level	[25]
Interactive methods (teach-back)	Active skill reinforcement	[31] [32]
Shared medical decision-making	Strengthened self-determination	[17] [36]
Cultural/linguistic adaptation	Reduced communication barriers	[13]

4. Discussion

4.1. Comparison with KDIGO/WHO

The results converge with KDIGO 2024 (multidisciplinary team, educational tele-health) [6], but few large-scale trials isolate the effect of TPE on hard outcomes (progression, mortality), limiting the certainty of the recommendations [6] [7]. The 1998 WHO definition remains stable [8], and recent international consensus repositions patient education as a public health priority, particularly in resource-limited countries [42].

4.2. Clinical, Organizational, and Economic Benefits

Clinically, TPE improves adherence, shared decision-making, and quality of life; it is associated, indirectly and with a moderate evidence level given the absence of trials specifically isolating this outcome, with a reduction in preventable hospitalisations [10] [21] [29] [32] [34]. Organisationally, it enhances structured care pathways and new roles (advanced practice nurses, patient educators) [27] [29] [43]. Economically, reduced hospitalisations and the deferral of unplanned kidney replacement therapy are potential efficiency levers, particularly relevant where the cost of dialysis weighs heavily on households, as in sub-Saharan Africa [4] [5] [21]. All of these clinical, organisational, and economic effects come together within an integrated model linking TPE, empowerment, and clinical outcomes (Figure 5).

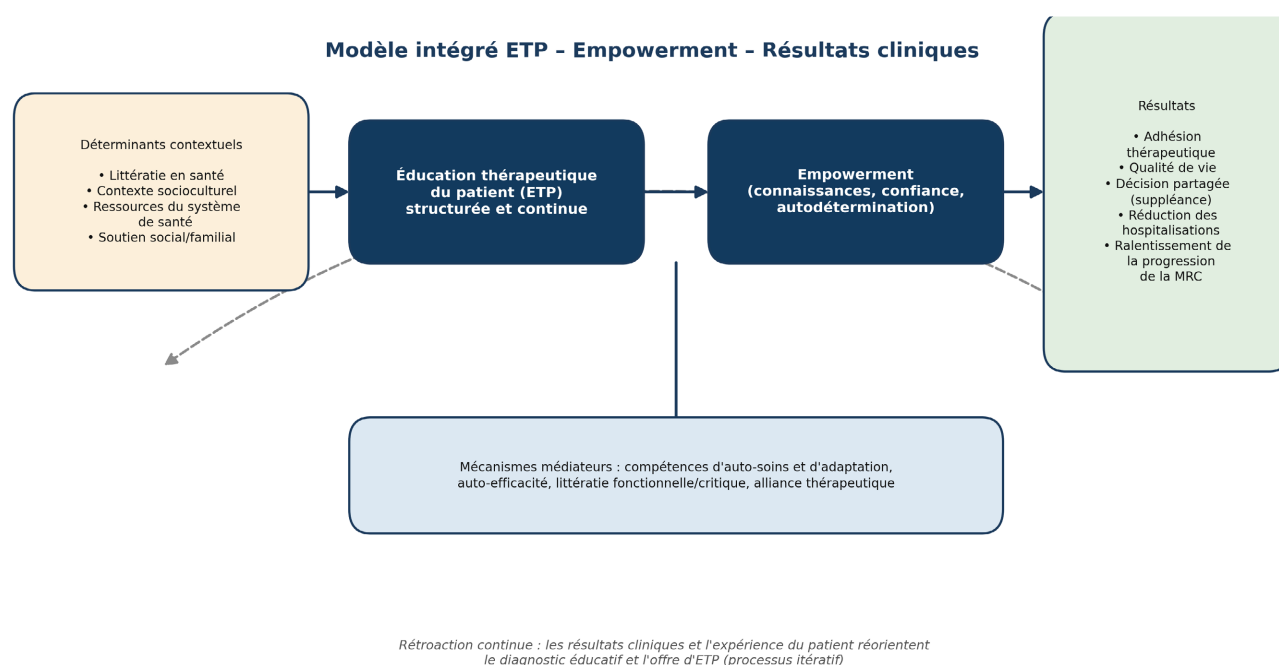


Figure 5. Integrated model of TPE—Empowerment—Clinical outcomes.

4.3. Quality of Care and the Patient-Provider Relationship

TPE shifts the relationship from a transmissive to a collaborative model [11] [15] [44], positioning the patient as an active participant rather than a passive recipient of care; decision-support tools, including those for older or vulnerable populations facing life-altering kidney replacement decisions, contribute to this shift [19].

4.4. Limitations of the Literature

Heterogeneity of interventions and outcome measures limits comparability [23] [31]; under-representation of African contexts despite a high burden—most available data on the specific mechanisms of TPE and empowerment come from high-resource countries, meaning extrapolations to sub-Saharan Africa should be regarded as working hypotheses rather than established conclusions [4] [5]; scarcity of follow-up data beyond 12 - 24 months and of robust cost-effectiveness analyses [21] [24]; risk of subjective selection inherent to narrative reviews, mitigated by the PRISMA formalisation and by the critical appraisal described in the methodology.

4.5. Perspectives

Multicentre trials on hard outcomes and efficiency indicators, in particular trials specifically isolating the effect of TPE on CKD progression and hospitalisation; cultural and linguistic adaptation of TPE tools, with the generation of data specific to sub-Saharan Africa rather than by extrapolation; judicious use of digital technologies without replacing the human relationship [21] [25] [42]; political recog-

dition and sustainable funding for TPE [21] [43] [45]—all of which respond to the main obstacles currently hindering the wider roll-out of TPE, namely insufficient professional training, time and funding constraints, low health literacy, and a shortage of specialists (Table 8).

Table 8. Barriers to TPE.

Barrier	Description	Ref.
Insufficient training	Pedagogical skills are rarely taught.	[40] [49]
Time/funding constraints	Time-consuming activity, poorly recognized	[21] [45]
Low literacy/cultural barriers	Reduces understanding and adherence.	[38] [40] [41]
Shortage of specialists	Limited access, marked in sub-Saharan Africa	[4] [5]

5. Therapeutic Patient Education and Empowerment: Opportunities for Sub-Saharan Africa and Niger

5.1. Challenges of CKD in Sub-Saharan Africa

Pooled prevalence of 13.9% (ranging from 2% to over 30% depending on the country), very limited access to dialysis and transplantation, a severe shortage of nephrologists, and often partial insurance coverage [4] [5]: a substantial proportion of patients with end-stage CKD die for lack of kidney replacement therapy, which confers strategic importance on lower-cost interventions such as TPE [3]–[5]. These epidemiological data are drawn directly from studies conducted in sub-Saharan Africa; however, data on the specific effectiveness of TPE and empowerment in CKD in the region remain virtually non-existent, so this section relies largely on a reasoned extrapolation from data obtained in other chronic conditions or other geographical contexts, which limits its evidentiary weight.

Inequalities in access to information and literacy. Heterogeneous literacy levels, a multiplicity of local languages poorly covered by existing materials, and distance to referral centres [4] [41]: all factors argue for programmes designed in local languages, with visual aids adapted to audiences with limited literacy; these observations on literacy are based on general public health data rather than on cohorts of CKD patients in sub-Saharan Africa.

5.2. Community Health Workers and Task Shifting

A strategy already proven for hypertension and diabetes, and documented for kidney and cardiovascular health [46]: screening of at-risk populations, basic nephroprotection messages, relay of follow-up, and following Kenyan, Ugandan, and Nigerian experience with hypertension [46], subject to rigorous supervision and standardised protocols. It should be emphasised that these data come almost exclusively from programmes dedicated to hypertension and diabetes; direct evidence of the effectiveness of task-shifting applied specifically to TPE in CKD in sub-Saharan Africa remains limited, and its extension to nephrology is, at this stage, a matter of cautious extrapolation rather than an established finding.

5.3. Digital Tools, Telehealth, AI

Community-worker-delivered mHealth is feasible and acceptable in rural settings (Malawi) despite infrastructure constraints [47]. Telehealth reduces costly travel; mobile applications strengthen self-monitoring via mobile phones, which are widespread even in rural areas [21] [47]. Artificial intelligence (conversational agents, risk-stratification support) is promising but requires rigorous local validation and vigilance regarding equity of access given the digital divide; to date, no published study has evaluated these tools specifically for TPE in CKD in sub-Saharan Africa, so this paragraph reflects a reasoned projection rather than an established observation.

5.4. Recommendations for Niger (Table 9)

Table 9. Applications in resource-limited settings.

Lever	Description	Ref.
Community task-shifting	Delegated first-level screening and education	[46]
mHealth/SMS/telehealth	Adherence reminders, remote monitoring	[47]
Local-language materials	Cultural and linguistic adaptation	[13]
Conversational AI	Strengthening of renal health literacy	Section 5
Dedicated TPE funding	Recognition as a fully fledged intervention	[21] [42]

- i) Integrate a basic TPE component, in national languages, into hypertension/diabetes screening programmes in primary care;
- ii) Train community health workers and nurses in identifying at-risk patients and delivering first-level education (supervised task-shifting);
- iii) develop culturally adapted materials (audio, video);
- iv) explore low-cost telehealth solutions (SMS, automated calls) for adherence;
- v) advocate for institutional recognition and dedicated funding for TPE within the non-communicable disease care pathway;
- vi) support the generation of local data on TPE in CKD, a prerequisite for turning these recommendations, currently largely extrapolated, into practices grounded in evidence specific to the Nigerien context.

6. Conclusions

This review confirms that therapeutic patient education, inseparable from empowerment, is a cornerstone of modern CKD care: beyond the transmission of information, it equips the patient with the knowledge, confidence, and skills needed to become an active participant in their own health, with demonstrated effects on adherence and shared decision-making regarding kidney replacement therapy, and probable but less directly established effects on quality of life, reduced hospitalisation, and slowed disease progression.

Empowerment—a cyclical process linking knowledge, confidence, and self-de-

termination—is the central mechanism underlying these effects, with restored autonomy itself constituting a health benefit by reducing anxiety, depression, and feelings of helplessness.

For African health systems and Niger, investing in TPE and empowerment is a strategic lever, not a peripheral cost, provided that region-specific data—currently largely lacking—are developed. Community-based task-shifting, cultural and linguistic adaptation, and the judicious use of digital tools represent realistic pathways to scale-up without waiting for a hypothetical increase in the number of nephrologists. Making this a public health priority is both an ethical and strategic imperative for durably improving the prognosis and quality of life of patients with CKD.

Author Contributions

Moussa Tondi Zeinabou Maïga: Conceived and formulated the research problem; defined the study objectives; provided overall scientific supervision; contributed to the study methodology; interpreted the results; critically revised the manuscript; validated the final version for submission.

Abdel Nacer Amoukou Issaka: Contributed to the methodological design; conducted the literature search and data collection; analysed and interpreted the data; structured the manuscript according to the IMRAD format; drafted the initial version of the manuscript; developed and revised the tables and summary figures; critically revised the scientific content.

Bonkano Bawa Djibrilla: Contributed to the literature search; participated in data collection and organisation; conducted documentary analysis; contributed to the interpretation of the results; provided scientific and critical proofreading of the manuscript.

Moussa Diongole Hassane: Contributed to the methodology and to the scientific analysis; verified the consistency of the data; contributed to the interpretation of the results; critically proofread the manuscript; helped improve its scientific and editorial quality.

Collective Responsibility

All authors contributed to the preparation of the manuscript, approved the final version submitted for publication, and agree to be accountable for the integrity and accuracy of the entire work, in accordance with the principles of the CRediT taxonomy and international recommendations on scientific authorship.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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