ASSESSMENT INSTRUMENTS FOR TREATMENT ADHERENCE IN HEMODIALYSIS: A SCOPING REVIEW

Instrumentos de avaliação da adesão ao tratamento em hemodiálise: uma *scoping review*

Instrumentos de evaluación de la adherencia al tratamiento en hemodiálisis: una *scoping review*

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ABSTRACT

Background: scientific evidence reveals the existence of factors that negatively impact adherence to hemodialysis (HD) treatment among patients with chronic kidney disease (CKD). Therefore, identifying these factors using validated instruments is essential. **Objective:** to map scientific evidence regarding assessment instruments for treatment adherence in HD among individuals with CKD. **Methodology:** a scoping review was conducted following the methodology proposed by the Joanna Briggs Institute. The PCC framework (Population, Concept, and Context) was applied: included studies published in Portuguese, English, or Spanish, without time limitation, encompassing individuals aged 18 years or older with chronic kidney disease undergoing hemodialysis treatment and involving instruments for assessing HD treatment adherence. **Results:** fifteen studies were included. Results were reported according to the PRISMA Extension for Scoping Reviews (PRISMA-SCR) guidelines. Seven instruments assessing were identified, addressing dimensions such as commitment to hemodialysis treatment, medication regimen, and fluid and dietary regimens. **Conclusion:** the study mapped the assessment instruments for HD treatment adherence among individuals with CKD. These instruments help identify factors that act as barriers and/or facilitators to adherence, supporting the implementation of targeted strategies to promote adherence and reduce associated morbidity and mortality. The study's limitations included selection bias.

Keywords: renal dialysis; treatment adherence and compliance; surveys and questionnaires; chronic renal insufficiency

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RESUMO

Enquadramento: existem fatores que impactam negativamente a adesão ao tratamento em hemodiálise (HD) por parte da pessoa com doença renal crónica (DRC). A identificação desses fatores com recurso a instrumentos validados é fundamental. **Objetivo:** mapear a evidência científica acerca dos instrumentos de avaliação da adesão ao tratamento em HD, na pessoa com DRC. **Metodologia:** realizada uma *scoping review*, de acordo com a metodologia proposta pelo *Joanna Briggs Institute*. foi utilizado o quadro de referência População, Conceito e Contexto: incluídos estudos publicados em português, inglês ou espanhol, sem limitação temporal, que englobam pessoas com idade igual ou superior a 18 anos com DRC, sob tratamento de hemodiálise, e que envolvam instrumentos de avaliação da adesão ao tratamento de hemodiálise. **Resultados:** foram incluídos 15 estudos. Resultados apresentados com recurso ao PRISMA *Extension for Scoping Reviews*. Identificados 7 instrumentos de avaliação que abordam dimensões como o compromisso com o tratamento, regimes medicamentoso, hídrico e nutricional. **Conclusão:** os instrumentos de avaliação da adesão ao tratamento em HD na pessoa com DRC permitem identificar as barreiras e facilitadores da respetiva adesão, promovendo a implementação de estratégias no sentido da promoção da adesão e redução da morbimortalidade. Considerou-se como limitações do estudo o viés de seleção.

Palavras-chave: diálise renal; cooperação e adesão ao tratamento; inquéritos e questionários; insuficiência renal crónica

RESUMEN

Marco contextual: la evidencia científica revela la existencia de factores que impactan negativamente la adherencia al tratamiento de hemodiálisis (HD) por parte de las personas con enfermedad renal crónica (ERC). Por lo tanto, identificar estos factores mediante el uso de instrumentos validados es fundamental. **Objetivo:** mapear la evidencia científica en cuanto a los instrumentos de evaluación de la adherencia al tratamiento de hemodiálisis en personas con Enfermedad Renal Crónica (ERC). **Metodología:** se realizó una revisión de alcance (*scoping review*) según la metodología propuesta por el *Joanna Briggs Institute*. Se utilizó el marco PCC (Población, Concepto y Contexto): se incluyeron estudios publicados en portugués, inglés o español, sin limitación temporal, que abarcan a personas de 18 años o más con enfermedad renal crónica bajo tratamiento de hemodiálisis, e implican instrumentos para evaluar la adherencia al tratamiento de HD. **Resultados:** se incluyeron 15 estudios. Los resultados se presentaron siguiendo las directrices del PRISMA *Extension for Scoping Reviews* (PRISMA-SCR). Se identificaron siete instrumentos de evaluación, que abordan dimensiones como el compromiso con el tratamiento de hemodiálisis, el régimen medicamentoso y los regímenes hídricos y nutricional. **Conclusión:** el estudio permitió mapear los instrumentos de evaluación de la adherencia al tratamiento en HD para personas con ERC. Estos instrumentos ayudan a identificar factores que actúan como barreras y/o facilitadores de la adherencia, promoviendo la implementación de estrategias dirigidas a mejorar la adherencia al tratamiento y reducir la morbimortalidad asociada. Como limitaciones del estudio, se destacaron el sesgo de selección.

Palabras clave: diálisis renal; cumplimiento y adherencia al tratamiento; encuestas y cuestionarios; insuficiencia renal crónica

INTRODUCTION

Chronic kidney disease (CKD) is defined as a condition involving progressive and irreversible loss of kidney function, characterized in its advanced stages by chronic renal failure (CRF) due to the kidneys' inability to maintain homeostasis in the body's internal environment (Barradas, 2023). This condition poses significant challenges to public health due to the complexity of its treatment, the substantial financial costs involved, and its high incidence and prevalence in society (Malheiro et al., 2025; Oliveira et al., 2020).

In terms of the Portuguese context, Portugal has the highest prevalence in Europe and ranks fourth in Europe in terms of incidence per million inhabitants (Ferreira et al., 2021). These figures are projected to rise in line with the aging population and the increased prevalence of conditions such as high blood pressure and diabetes mellitus (Ferreira et al., 2021).

According to Evans et al. (2022), CKD is characterized by an initial phase in which symptoms are absent, which affects treatment and, consequently, allows the disease to progress to more advanced stages that can lead to cardiovascular complications. In more advanced stages, people with CKD become dependent on renal replacement therapy (RRT), namely hemodialysis (HD) treatment.

HD aims to replace the compromised kidney while maintaining the balance of substances such as sodium and potassium (Ammirati, 2020; Santos et al., 2017). It is a process in which the composition of one solution (blood) is altered when in contact with another (dialysate) via a semipermeable membrane, enabling solutes to pass through by diffusion, ultrafiltration, or convection. This dialysis therapy can be intermittent, hybrid, or continuous. These three types of modalities differ in terms of treatment time, blood pump speed, dialysate flow, and the presence or absence of replacement solution (Meireles, 2021).

In Portugal, hemodialysis sessions can be performed at a clinic, hospital, or at home. In hospitals and/or clinics, dialysis is usually scheduled on a fixed and regular basis, at least three times a week. Each dialysis session typically lasts between four and seven hours (Associação Portuguesa de Insuficientes Renais, 2024).

HD sessions cause various underlying reactions. These can include intradialytic complications, such as hypotension, metabolic and respiratory changes, as well as also long-term complications, such as heart disease, side effects from completing treatment, such as asthenia, and consequent difficulty in performing activities of daily living (Barradas, 2023). These complications can lead to feelings of distress, insecurity, and decreased self-esteem (Santos et al., 2017).

Currently, there is no cure for CKD, making prevention of its progression essential (Evans et al., 2022). Despite the available treatments, the risk of adverse events and disease progression is significant. Therefore, it is imperative to raise awareness among all parties involved so that early intervention can be made and mortality prevented (Evans et al., 2022).

Individuals with CKD face significant challenges in their health-illness transition process (Meleis, 2010). According to Oliveira et al. (2020), the complexity of the transition process in individuals with CKD highlights the importance of family, community, and social support, as well as the need to understand what can compromise adherence to treatment in order to guide health interventions and policies aimed at improving quality of life and facilitating these individuals'

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adaptation to new realities imposed by the disease.

There are barriers that negatively impact treatment adherence by individuals with CKD, such as transportation difficulties due to socioeconomic problems or inconsistent public transport services, lack of knowledge about the disease, and underestimation of the importance of following a diet and restricting fluid intake, among others (Maciel et al., 2015). Evans et al. (2022) state that although the disease is quite complex and prevalent in Portuguese society, there is a gap in awareness of its impact among the population and health professionals, which highlights the relevance of this study.

In this regard, it is essential to identify the factors that act as barriers and/or facilitators of adherence to hemodialysis treatment using validated instruments. At present, there are several available assessment instruments; however, it is necessary to assess their psychometric properties prior to their use, since "the quality of the information provided by the instruments depends, in part, on their psychometric properties" (Souza et al., 2017, p.650). The choice of instruments must take into account their reliability, defined as the "ability to reproduce a result consistently, in time and space" (Souza et al., 2017, p.650), and their validity, which refers to "the property of an instrument to measure exactly what it proposes to measure" (Souza et al., 2017, p.649). In order to ensure the integrity of the data, it is imperative that the results obtained from the instruments are accurate, valid, interpretable, and scientifically robust (Souza et al., 2017). A wide variety of health assessment instruments are currently available, but it is essential to utilize a suitable and accurate instrument that generates scientifically robust data to inform interventions targeting barriers and facilitators to adherence to hemodialysis treatment, with the objective of achieving health gains in this context.

The aim of this review is to answer the following research question: "What instruments are available to assess hemodialysis treatment adherence in individuals with CKD?" Thus, the objective of this review is to map the scientific evidence regarding instruments for assessing hemodialysis treatment adherence in individuals with CKD.

METHODOLOGICAL REVIEW PROCEDURES

This scoping review enabled us to map the available scientific evidence on the topic under analysis and identify existing knowledge gaps (Munn et al., 2018). The methodology recommended by the JBI (Peters et al., 2020) was used to conduct the study, following the three steps outlined in the protocol. The protocol for this review was developed and registered in the Open Science Framework (OSF) (Pinto et al., 2024). A preliminary search was conducted in the Joanna Briggs Institute (JBI) Database of Systematic Reviews and Implementation Reports, Cochrane Database of Systematic Reviews, Cumulative Index to Nursing and Allied Health Literature (CINAHL) (via EBSCOhost), the Medical Literature Analysis and Retrieval System Online (MEDLINE) (via PubMed), OSF, and the International Prospective Register of Systematic Reviews (PROSPERO). The search did not yield any literature reviews (published or in progress) on instruments for assessing adherence to hemodialysis treatment.

To ensure clear objectives and define eligible criteria for this review, the PCC (Population, Concept, and Context) framework was used. Thus, with regard to

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Population (P), studies involving individuals aged 18 years or older with CKD undergoing HD treatment were included; with regard to Concept (C), studies involving instruments for assessing adherence to HD treatment were included; and with regard to Context (C), the HD context was considered.

A limited search was conducted in the MEDLINE (via PubMed) and CINAHL (via EBSCOhost) databases to identify the most frequently used words in the titles and abstracts of articles written in the context under study, as well as indexing terms; 2) Next, using the identified words and index terms, a search strategy was developed and adapted to the databases/repositories included. 3) Lastly, the bibliographic references of the identified articles were examined to identify additional studies for inclusion.

The search for articles was conducted using the following electronic databases: MEDLINE (via PubMed), CINAHL (via EBSCO), SciELO, LILACS, Cochrane Database of Systematic Reviews, and JBI Database of Systematic Reviews. The search for unpublished studies was conducted in the Portuguese Open Access Scientific Repository (RCAAP), the Repository of Health Measurement and Assessment Instruments (RIMAS), and OpenGrey. The search strategies developed are outlined in Table 1.

Table 1

Research strategies and results

Database: Medline (PubMed) - search conducted on October 8, 2024 **Results:** 767
("renal dialysis"[MeSH Terms] OR ("renal"[All Fields] AND "dialysis"[All Fields]) OR "renal dialysis"[All Fields] OR ("renal insufficiency"[MeSH Terms] OR ("renal"[All Fields] AND "insufficiency"[All Fields]) OR "renal insufficiency"[All Fields]) OR ("renal insufficiency, chronic"[MeSH Terms] OR ("renal"[All Fields] AND "insufficiency"[All Fields] AND "chronic"[All Fields]) OR "chronic renal insufficiency"[All Fields] OR "renal insufficiency chronic"[All Fields])) AND ("surveys and questionnaires"[MeSH Terms] OR ("surveys"[All Fields] AND "questionnaires"[All Fields]) OR "surveys and questionnaires"[All Fields] OR ("validation study"[Publication Type] OR "validation studies as topic"[MeSH Terms] OR "validation study"[All Fields])) AND ("patient compliance"[MeSH Terms] OR ("patient"[All Fields] AND "compliance"[All Fields]) OR "patient compliance"[All Fields] OR ("treatment adherence and compliance"[MeSH Terms] OR ("treatment"[All Fields] AND "adherence"[All Fields] AND "compliance"[All Fields]) OR "treatment adherence and compliance"[All Fields]))
Database: CINAHL (via EBSCO) - search conducted on October 8, 2024 **Results:** 152
((TX Renal dialysis OR TX Renal Insufficiency OR TX Renal Insufficiency, Chronic) OR (TI Renal dialysis OR TI Renal Insufficiency OR TI Renal Insufficiency, Chronic) OR (AB Renal dialysis OR AB Renal Insufficiency OR AB Renal Insufficiency, Chronic)) AND ((TX (Surveys and Questionnaires) OR TX Validation Study) OR (TI(Surveys and Questionnaires) OR TI Validation Study) OR (AB (Surveys and Questionnaires) OR AB Validation Study)) AND ((TX Patient Compliance OR TX (Treatment Adherence and Compliance)) OR (TI Patient Compliance OR TI (Treatment Adherence and Compliance)) OR (AB Patient Compliance OR AB (Treatment Adherence and Compliance)))
Database: SciELO - search conducted on October 8, 2024 **Results:** 0
Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic
Database: LILACS - search conducted on October 8, 2024 **Results:** 31
(TI AB SB Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic) AND ((TI AB SB Surveys and Questionnaires) OR Validation Study) AND ((TI AB SBTreatment Adherence and Compliance) OR Patient Compliance)

Database: Cochrane Database of Systematic Reviews - search conducted on October 8, 2024
Results: 57

((Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic)):ti, ab, kw AND ((Surveys and Questionnaires OR Validation study)): ti, ab, kw AND ((Patient Compliance OR Treatment Adherence and Compliance)):ti, ab, kw

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Database: JBI Database of Systematic Reviews - search conducted on October 8, 2024
Results: 0

Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic

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Database: RCAAP - search conducted on October 8, 2024
Results: 558

Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic

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Database: RIMAS - search conducted on October 8, 2024
Results: 0

Renal dialysis

Database: OpenGrey - search conducted on October 8, 2024
Results: 4

Renal dialysis OR Renal Insufficiency OR Renal Insufficiency, Chronic

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All primary studies, quantitative and qualitative, literature reviews, and gray literature were included. Systematic reviews and meta-analyses were included solely for the purpose of mapping assessment instruments; the quantitative results of these reviews were not extracted in order to avoid double counting of evidence. Works published at conferences in the form of oral presentations and/or posters, editorials, and letters to the editor were excluded from consideration. The review included studies with people aged 18 years or older, published in Portuguese, English, or Spanish, with no time limitation.

The results of the search were exported to the Rayyan platform, where duplicate articles were identified and subsequently removed. Five independent reviewers first analyzed the titles and abstracts of the studies, and then the full text, evaluating the studies according to the previously defined eligibility criteria. This was followed by a process of data extraction and analysis. Disagreements among reviewers at any stage of the selection process were resolved by consulting a sixth reviewer.

The results of the data extraction were incorporated into a document that was prepared by the authors, in line with the objective and review question. Throughout the extraction process, this document was reviewed and amended by the researchers in accordance with the purpose of the review. The data were extracted by two independent reviewers, with a third reviewer involved in cases of disagreement. During the review process, the ethical principles inherent to this type of study were upheld, namely respect for the authorship of the studies and their correct and honest referencing in the bibliography.

Although this study is a scoping review, which does not directly involve human participants, relevant ethical considerations were taken into account, namely transparency in the selection of studies, accuracy in data extraction, respect for scientific integrity, and proper citation of authors (Nunes, 2020).

RESULTS

15 studies that met the inclusion criteria were included in this review. A total of 1553 studies were excluded. The results were presented according to the PRISMA Extension for Scoping Reviews (PRISMA-SCR)

guidelines. The search results and reasons for study exclusion at each stage of the assessment are recorded and presented using a PRISMA flowchart (Figure 1) (adapted from Page et al., 2021).
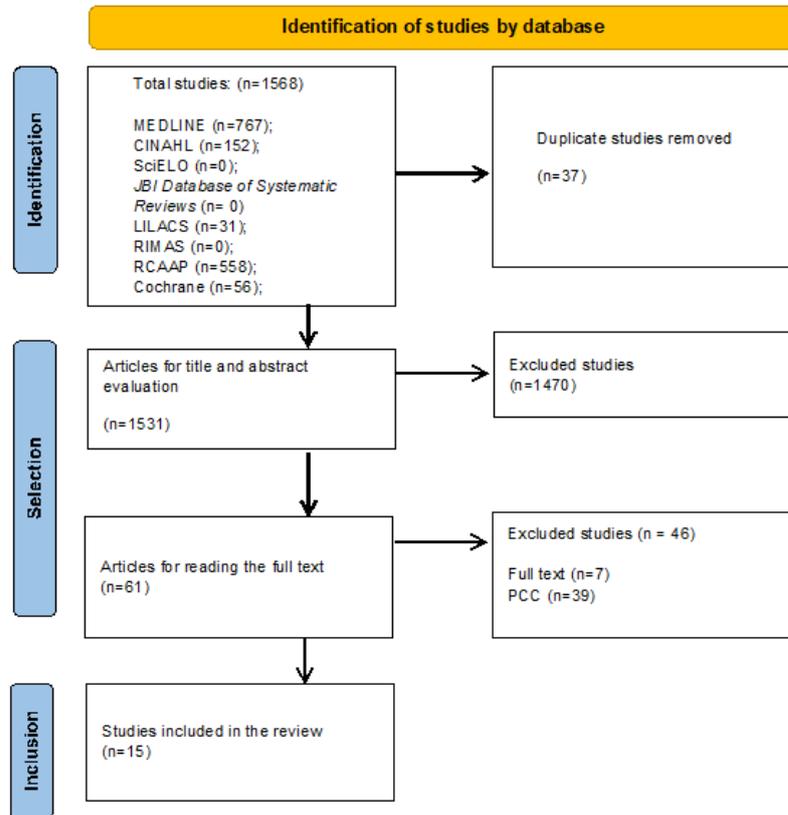

Figure 1

PRISMA flowchart (adapted from Page et al., 2021)

The main results of the studies included in the review are presented in Table 2.

Table 2

Summary of the main results of the included studies

Author/Year	Study title	Study type	Assessment instruments	Number of items	Instrument dimensions	Psychometric properties
Kim et al., 2010	The End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ): testing the psychometric properties in patients receiving in- center hemodialysis	Methodological	"The End-Stage Renal Disease Adherence Questionnaire" (ESRD_AQ)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Construct and content validity; Reliability (internal consistency not assessed).
Kugler et al., 2011	Non-adherence in patients on chronic hemodialysis: an international comparison study	Multicenter cross-sectional comparative	"Dialysis Diet and Fluid Non-adherence Questionnaire" (DDFQ)	4	Hydration regimen; Nutritional regimen.	Validity; Reliability.
Kim e	Relationship between	Cross-	"ESRD-Adherence	46	Commitment to HD	Content, face, and

Evangelista, 2010	illness perceptions, treatment adherence, and clinical outcomes in patients on maintenance hemodialysis	sectional; quantitative approach.	Questionnaire"		treatment; Medication regimen; Hydration regimen; Nutritional regimen.	construct validity; Reliability (intraclass correlation coefficient – ICC).
Sousa, 2012	Adherence to medication treatment in individuals with chronic renal failure treated with hemodialysis	Descriptive-correlational	"Questionário"	67	Nutritional regimen; Medication regimen.	No information.
Kim e Evangelista, 2013	Development and cultural adaptation of the Spanish version of the End Stage Renal Disease Adherence Questionnaire (SESRD-AQ)	Methodological	"The End Stage Renal Disease Adherence Questionnaire" (SESRD-AO)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Validity; Reliability (internal consistency not assessed); translated and cross-culturally adapted from the ESRD-AQ into Spanish.
Efe e Kocaöz, 2015	Adherence to diet and fluid restriction of individuals on hemodialysis treatment and affecting factors in Turkey	Descriptive	"Dialysis Diet and Fluid Non-Adherence Questionnaire" (DDFQ)	41	Hydration regimen; Nutritional regimen.	Validity; Reliability (Cronbach's alpha = 0.66).
Poveda et al., 2016	End-stage renal disease adherence questionnaire: translation and validation to the portuguese language	Methodological	"Questionário de doença renal terminal autorrelatado" (ESRD-AQ) e PESRD-AQ	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Validity; Reliability.
Lins et al., 2017a	Validation of the adherence questionnaire in Brazilian chronic renal patients on hemodialysis	Descriptive; Cross-sectional; quantitative approach.	"Questionário de avaliação sobre a adesão do portador de DRC em HD" (QA-DRC-HD)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Reliability (stability and internal consistency); Content, construct, and face validity.
Naalweh et al., 2017	Treatment adherence and perception in patients on maintenance hemodialysis: a cross–sectional study from Palestine	Descriptive; Cross-sectional; quantitative approach.	"Questionário de adesão à Doença Renal em estágio Final" (ESRD-AQ)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Validity; Reliability.
Lins et al., 2017b	Cultural adaptation of the adherence questionnaire for chronic renal patients on hemodialysis	Descriptive; Cross-sectional; quantitative approach.	"The End-Stage Renal disease Adherence Questionnaire" (ESRD-AQ)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	No information.
Lins et al., 2018	Adherence to prescribed treatment among chronic renal disease patients on hemodialysis	Descriptive; Cross-sectional; quantitative approach.	"Questionário de avaliação sobre a adesão do portador de DRC em HD" (QA-DRC-HD)	46	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Content and face validity; Reliability (ICC = 0.91; Cronbach's alpha = 0.57)
Delgado et al., 2020	Inflexibilidad psicológica e impacto clínico: adaptación del Cuestionario de Aceptación y Acción-II en una muestra de pacientes en tratamiento de hemodiálisis	Cross-sectional; prospective.	"The Acceptance and Action Questionnaire-II" (AAQ-II)	7	Commitment to HD treatment; Quality of life	Construct validity; Reliability (internal consistency); Spanish version of the AAQ-II adapted for HD patients.
Lim et al., 2020	Understanding how nutrition literacy links to dietary adherence in patients undergoing maintenance hemodialysis: a theoretical exploration using partial least squares structural equation modelling	Multicenter cross-sectional	"Questionário de Adesão à Doença Renal em Estágio Final Escala de Autogestão Renal/Diálise Percebida" (PKDSMS)	8	Commitment to HD treatment; Nutritional literacy; Nutritional regimen; Self-empowerment.	Validity; Reliability (ICC; Cronbach's alpha = 0.76)
James et al., 2021	Impact of patient counseling on treatment adherence behavior and quality of life in maintenance hemodialysis patients	Prospective; longitudinal; observational; comparative; multicenter.	"Questionário de Adesão" ESRD-AQ)	14	Commitment to HD treatment; Medication regimen; Hydration regimen; Nutritional regimen.	Construct and content validity; Reliability.
Sousa et al.,	Establishing the criterion	Systematic	"Questionário de	46	Nutritional regimen;	Moderate to strong

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2022	validity of self-report measures of adherence in hemodialysis through associations with clinical biomarkers: a systematic review and meta-analysis	review with meta-analysis.	Adesão à Doença Renal em estágio Final"; "Questionário de Não adesão à dieta e fluídos para diálise" "Questionário de comportamento de adesão renal" (RABQ)	13 25	Hydration regimen; Medication regimen.	criterion validity

The 15 studies included in the review were published between 2010 and 2022. With regard to the study type, three were methodological, two were multicenter cross-sectional, five were quantitative cross-sectional, two were descriptive, one was prospective cross-sectional, one was prospective longitudinal, and one was a systematic review with meta-analysis. It was also possible to conclude that the studies were developed in different geographical contexts. The countries mentioned were the United States of America, Cameroon, Portugal, South Korea, Turkey, Brazil, Palestine, Spain, Colombia, Malaysia, and India.

Seven instruments were identified: "The End-Stage Renal Disease Adherence Questionnaire" (ESRD) (Kim et al., 2010), "Dialysis Diet and Fluid Non-Adherence Questionnaire" (DDFQ) (Vlaminck et al., 2001), "Questionário" by Sousa (2012), "Questionário de avaliação sobre a adesão do portador de doença renal crônica em hemodiálise" (QA-DRC-HD) (Lins et al., 2017a), "The Acceptance and Action Questionnaire-II" (AAQ-II) (Delgado et al., 2020), "Questionário de Adesão à Doença Renal em Estágio Final Escala de Autogestão Renal/Diálise Percebida" (PKDSMS) (Lim et al., 2020), and "Questionário de Comportamento de Adesão Renal" (RABQ) (Machado et al., 2015).

The analysis of the instruments reveals that the dimensions assessed are closely associated with commitment to HD treatment, hydration regimen,

medication regimen, and nutritional regimen. It was also possible to conclude that only one of the instruments has been translated and cross-culturally adapted to the Portuguese context (PESRD-AQ) (Poveda et al., 2016), which was based on the original ESRD-AQ instrument (Kim et al., 2010).

DISCUSSION

The life of an individual with CKD undergoing HD treatment changes significantly due to the fact that they have to travel to the dialysis unit regularly, make major changes to their usual diet, and strictly comply with their medication regimen (James et al., 2021; Kim et al., 2010). The success of treatment depends on the individual's commitment and adherence to the prescribed treatment plans. Failure to adhere to these regimens can result in a decline in quality of life, an escalation in complications, morbidity and mortality, and increased health expenditures (James et al., 2021; Kim et al., 2010). Consequently, it is imperative to assess adherence to HD treatment.

The objective of the study, to map the scientific evidence regarding instruments for assessing adherence to HD treatment in people with CKD, was achieved. Seven instruments for assessing adherence to HD treatment were identified, most of which were tested for psychometric properties such as validity and reliability. The selection of valid and reliable instruments for the assessment of adherence to HD

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treatment is of crucial importance in order to obtain quality results and thus promote the development and implementation of appropriate strategies (Souza et al., 2017). According to Lins et al. (2018), the treatment of CKD depends on several factors, including adherence to hemodialysis, medication regimen, diet regimen, and hydration regimen. From the analysis of the results obtained, it was possible to assess that two of the instruments evaluate the hydration regimen dimension, four evaluate the dietary regimen dimension, two evaluate the medication regimen dimension, and 11 evaluate commitment to the treatment itself.

The geographical diversity of the studies included promotes cultural variety that enriches this review. However, it is important to acknowledge that data collection instruments may be subject to cultural bias, which can limit their comparability across different contexts (Cruchinho et al., 2024). In a methodological literature review conducted in 2024, the authors emphasize that differences in concepts between cultures, in the items used to represent constructs, and even in response styles can compromise the validity of the results. They also emphasize that, rather than a literal translation of the instrument, it is essential to carry out a cross-cultural adaptation and rigorous validation in order to mitigate these risks (Cruchinho et al., 2024).

According to Naalweh et al. (2017), the English instrument "ESRD-AQ" can be used regardless of language or culture, provided that the translation is accurate. Accordingly, authors Kim and Evangelista (2013) proceeded with the translation and cross-cultural adaptation of the aforementioned instrument to the Spanish context ("SESRD-AQ"). They noted that

this process may result in some changes to the initial instrument (Naalweh et al., 2017).

The ESRD-AQ instrument was also translated and adapted to the Portuguese context (PESRD-AQ), involving cultural adjustments necessary to maintain its relevance and clarity. Although translation and adaptation may involve changes in wording and presentation, these processes are essential to ensure that the "PESRD-AQ" effectively adapts to the cultural context (Poveda et al., 2016).

The time taken to self-complete an instrument is an important aspect to consider. According to Poveda et al. (2016), self-completion time can be influenced by factors such as decreased visual acuity (due to underlying pathologies, for example) and reduced levels of health literacy. As a consequence of these factors, there may be bias in the application of the instruments in the sample, as well as an increase in the time taken to answer the questions. In this regard, the study by the authors identified the high number of items as a limitation of the "PESRD-AQ" instrument and recommended reducing them (Poveda et al., 2016). Conversely, Delgado et al. (2020) employ the "AAQ-II" instrument, comprising a mere seven items, which requires less time to complete.

The analysis of the results reveals factors that act as barriers and facilitators to adherence to HD treatment, such as self-empowerment (Lim et al., 2020; Poveda et al., 2016), the existence of family and/or social support (Efe & Kocaöz, 2015), levels of nutritional literacy (Lim et al., 2020), and levels of anxiety and depression (Delgado et al., 2020).

According to Efe and Kocaöz (2015), family and/or social support is a factor that facilitates adherence to HD treatment. The authors assert that the absence of

this type of support induces stress, anxiety, and psychological changes that interfere with the immune system and, consequently, negatively impact treatment adherence. Conversely, family and/or social support is vital because it facilitates acceptance of the disease and the lifestyle modifications required to manage it (Efe & Kocaöz, 2015).

Lim et al. (2020) conclude that there is a positive correlation between nutritional literacy and adherence to both diet and treatment. According to the authors, there are differences in outcomes when nutritional guidance is provided and when it is not. Consequently, they regard nutritional literacy as a predictor of treatment adherence. The authors also point out the existence of a stigma related to nutritional literacy, with some health professionals assuming that everyone has high levels of it, thus fostering fear in people with CKD when it comes to expressing doubts, difficulties, and requests for advice in this area.

According to Delgado et al. (2020), anxiety and depression have a significant impact on the quality of life of people with CKD. Therefore, the authors consider it is relevant to study these variables when assessing adherence to HD treatment. It is important to note that only the "AAQ-II" instrument encompasses these aspects, distinguishing it from all others identified in this review.

James et al., in their 2021 study, substantiate that adherence to HD treatment can change over time. In this regard, they emphasize the importance of assessing adherence to HD treatment at regular intervals. This allows for the adaptation of nursing interventions and the implementation of strategies tailored to different moments.

CONCLUSION

This study mapped the scientific evidence regarding instruments for assessing adherence to HD treatment in individuals with CKD.

The implications for practice of this study relate to the fact that these instruments are useful tools for identifying factors that act as barriers and/or facilitators of adherence to HD treatment, promoting the implementation of strategies aimed at fostering adherence to treatment and consequently reducing morbidity and mortality in people with CKD. The research carried out reveals that this topic has not yet been explored in depth, and therefore future studies addressing this topic are suggested. Given the limited number of instruments that have been cross-culturally validated for the Portuguese context, methodological studies are also recommended. Considering the impact that nutritional literacy and social/family support have on treatment adherence by individuals with CKD, it is important to translate and validate instruments that encompass these dimensions, including and systematically describing their psychometric properties.

The limitations of this study are inherent to the methodology used, namely selection bias and the authors' inexperience in scientific writing and publishing.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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