Nível de atividade física de pacientes com insuficiência renal crônica em terapia dialítica: revisão integrativa

Physical activity levels of patients with chronic kidney disease undergoing dialytic therapy: an integrative review

Nivel de actividad física de pacientes con insuficiencia renal crónica en terapia dialítica: revisión integradora

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REVISA

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RESUMO

Objetivo: Revisar na literatura estudos que verifiquem o nível de atividade física em pacientes renais em terapia renal substitutiva dialítica. **Metodologia:** Revisão integrativa seguindo o Preferred Reporting Items for Systematic Reviews and Meta-Analyses – Scoping Reviews, adaptado, utilizando as bases de dados Literatura Latino-Americana e do Caribe em Ciências da Saúde, National Library of Medicine – National Institutes of Health e Scientific Electronic Library Online, com recorte temporal de 2015 a 2024. **Resultados:** Foram analisados 15 artigos, com diferentes métodos de avaliação do nível de atividade física, com apenas um estudo conduzido no Brasil, apontando escassez de pesquisas nacionais sobre a temática. Nos estudos, o perfil de inatividade física nos pacientes foi predominante. A idade média variou entre 52 e 71 anos, com leve predomínio de homens (média de 57,28%). Quanto às variáveis clínicas, as prevalentes foram: hipertensão (média de 83,16%) e diabetes mellitus (45,43%). **Conclusões:** A unissonância do baixo nível de atividade física identificado pode ser atribuída às consequências clínicas, à falta de motivação ou aos fatores socioeconômicos. Ressalta-se a necessidade de estratégias que aumentem o nível de atividade física, promovendo melhor prognóstico e qualidade de vida, com ênfase no papel fundamental dos profissionais de saúde, especialmente os enfermeiros.

Descritores: Insuficiência renal crônica; Atividade física; Diálise renal; Fatores sociodemográficos; Doença crônica.

ABSTRACT

Aim: To review studies in the literature that verify the level of physical activity in renal patients undergoing dialysis renal replacement therapy. **Methodology:** Integrative review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses – Scoping Reviews, adapted, using the databases Latin American and Caribbean Health Sciences Literature, National Library of Medicine – National Institutes of Health and Scientific Electronic Library Online, with a time frame from 2015 to 2024. **Results**: A total of 15 articles were analyzed, using different methods to evaluate physical activity levels, with only one study conducted in Brazil, indicating a scarcity of national research on the topic. In the studies, the patients' physical inactivity profile was predominant. The average age ranged from 52 to 71 years, with a slight predominance of men (57.28%). The most prevalent clinical conditions were: hypertension (83.16%) and diabetes mellitus (45.43%). **Conclusions:** The agreement regarding the low level of physical activity identified can be attributed to clinical consequences, lack of motivation or socioeconomic factors. The need for strategies that increase the physical activity levels should be highlighted, promoting better prognosis and quality of life, with emphasis on the crucial role of health professionals, especially nurses.

Descriptors: Chronic kidney disease; Physical activity; Renal dialysis; Sociodemographic factors; Chronic disease.

RESUMEN

Objetivo: Revisar estudios en la literatura que verifiquen el nivel de actividad física en pacientes renales sometidos a terapia dialítica de reemplazo renal. **Metodología:** Revisión integradora siguiendo el *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* – Scoping Reviews, adaptado, utilizando las bases de datos Literatura Latinoamericana y del Caribe en Ciencias de la Salud, National Library of Medicine – National Institutes of Health y Scientific Electronic Library Online, con un marco temporal de 2015 a 2024. **Resultados:** Se analizaron 15 artículos, con diferentes métodos de evaluación del nivel de actividad física, siendo apenas un estudio realizado en Brasil, lo que indica escasez de investigaciones nacionales sobre el tema. En los estudios, el perfil de inactividad física en los pacientes fue predominante. La edad promedio osciló entre 52 y 71 años, con un ligero predominio de hombres (promedio de 57,28%). Las variables clínicas más prevalentes fueron: hipertensión arterial (promedio de 83,16%) y diabetes mellitus (45,43%). **Conclusiones:** La concordancia respecto al bajo nivel de actividad física identificado puede atribuirse a consecuencias clínicas, falta de motivación o factores socioeconómicos. Se subraya la necesidad de estrategias que incrementen el nivel de actividad física, promoviendo un mejor pronóstico y calidad de vida, con énfasis en el rol fundamental de los profesionales de la salud, especialmente los enfermeros.

Descriptores: Insuficiencia renal crónica; Actividad física; Diálisis renal; Factores sociodemográficos; Enfermedad crónica.

Introduction

Chronic kidney disease (CKD) affects more than 850 million people around the world, surpassing other chronic diseases, such as diabetes mellitus (DM). [1] Despite the high social and economic impact, the population's awareness of the disease, as well as of its repercussions and treatment, is still insufficient. In Brazil, CKD is multifactorial, influenced by the epidemic of chronic diseases, such as systemic arterial hypertension (SAH), obesity, DM and cardiovascular diseases (CVD), typical of Westernization in developing countries.[2,3]

Conservative management of CKD aims to improve quality of life and control symptoms without resorting to dialysis. Nonetheless, in advanced stages, renal replacement therapy (RRT), including hemodialysis (HD) and peritoneal dialysis (PD), becomes indispensable.[1,4] In 2023, the census of the Brazilian Society of Nephrology recorded 60,267 patients in HD and 2,355 in PD, although the numbers may be underestimated, considering the low response rate of dialysis centers.[5]

Physical activity levels (PAL) are inversely related to the development of chronic diseases, and their reduction is associated with a higher risk for 19 chronic conditions, including kidney diseases.[1] The practice of physical activity (PA) protects against the impacts of CKD and RRT, improving functional capacity, muscle strength and quality of life, in addition to slowing the progression of the disease. [2,4,6] The nursing team plays an essential role in renal rehabilitation, promoting motivation for PA, nutritional support and safety in the dialysis service. [7] Evaluating PAL in renal dialysis patients allows planning care that improves functionality and quality of life.

Sociodemographic factors, such as income, education, age and sex, influence the prevalence and management of CKD, impacting access to health care and clinical outcomes.[8] Health professionals should consider the social determinants of health when planning interventions, expanding the evaluation beyond clinical and biological variables.[9]

In this sense, this integrative review aimed to review the literature on studies that verify the physical activity levels in renal patients in dialysis renal replacement therapy. As secondary aims, it was intended to identify the main associations found by the respective authors with the found results and to identify the sociodemographic data and the correlated clinical variables.

Methodology

Study design, period and location

This integrative review was conducted systematically, following defined steps: formulation of the guiding question, search and sampling in the literature, collection and critical analysis of data, discussion of the results and final presentation of the review.[10] In order to ensure the methodological quality of the review, the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* – Scoping Reviews (PRISMA-ScR) checklist was used, adapted to the reality of the integrative review, as well as the proposed flowchart for detailing the selection of articles.[11]

Firstly, the guiding question was defined through the PCC strategy (P – Population; C – Concept; C – Context), a mnemonic usually used in integrative reviews. The focus of the population is related to patients diagnosed with chronic kidney disease in the context of dialysis renal replacement therapy. The concept of interest refers to the physical activity level. Accordingly, the defined research question was: What are the physical activity levels among patients with chronic kidney disease undergoing dialysis renal replacement therapy?

The following databases were used: Latin American and Caribbean Health Sciences Literature (LILACS), National Library of Medicine – National Institutes of Health (PubMed) and Scientific Electronic Library Online (SciELO). The descriptors were located using the *Descritores em Ciências da Saúde* (DECs) and the corresponding Medical Subject Headings (MeSH) identified in the *Biblioteca Virtual de Saúde* (BVS), using the Boolean operators AND and OR, in order to locate articles that answer the research question. In addition to these databases, articles from other databases indexed in the BVS were also included. The searches were carried out between December 2024 and January 2025.

Chart 2. Database search strategies.

Database	Strategy
National Library of Medicine – National Institutes of Health	(("Renal Insufficiency") OR ("Kidney Diseases") OR ("Renal Insufficiency, Chronic")) AND (("Renal Dialysis") OR ("Peritoneal Dialysis") OR ("Intermittent Renal Replacement Therapy") OR ("Renal Replacement Therapy")) AND (("Exercise") OR ("Sedentary Behavior") OR ("Active Mobility"))
Scientific Electronic Library Online	("Renal Insufficiency" OR "Kidney Diseases" OR "Renal Insufficiency, Chronic") AND ("Renal Dialysis" OR "Peritoneal Dialysis" OR "Intermittent Renal Replacement Therapy" OR "Renal Replacement Therapy") AND ("Exercise" OR "Sedentary Behavior" OR "Active Mobility")
Latin American and Caribbean Health Sciences Literature & *Biblioteca Virtual de Saúde*	("Renal Insufficiency" OR "Kidney Diseases" OR "Renal Insufficiency, Chronic") AND ("Renal Dialysis" OR "Peritoneal Dialysis" OR "Intermittent Renal Replacement Therapy" OR "Renal Replacement Therapy") AND ("Exercise" OR "Sedentary Behavior" OR "Active Mobility")

Sample, inclusion and exclusion criteria

The articles complied with the following inclusion criteria: articles from primary, analytical or experimental studies evaluating at least one of the outcomes the physical activity levels of patients diagnosed with chronic kidney disease in dialysis renal replacement therapy, in English, Spanish, or Portuguese, between the years 2015 and 2024. Duplicate articles, case studies, descriptive studies, reviews and others that are not related to the aims of this review were excluded.

It was decided to include primary studies of an analytical or experimental nature, given the ability of these designs to provide more robust evidence on associations and effects. Consequently, descriptive studies were excluded because they did not directly address the outcomes of interest with the thoroughness required for this review. The time frame from 2015 to 2024 was adopted with a view to including more recent studies, reflecting the management practices in terms of chronic kidney disease in the last ten years.

Collection procedure

The recovered articles were exported to the Rayyan platform for eliminating duplicate studies. After that, the titles and abstracts were evaluated by two independent reviewers who were unaware of each other's opinions and decisions until the verification phase, in order to decide whether to include or exclude them, following the established criteria. In cases of disagreement, a third reviewer would assist in the decision. The selected studies were read in full to verify agreement with the admissibility assumptions of this review.

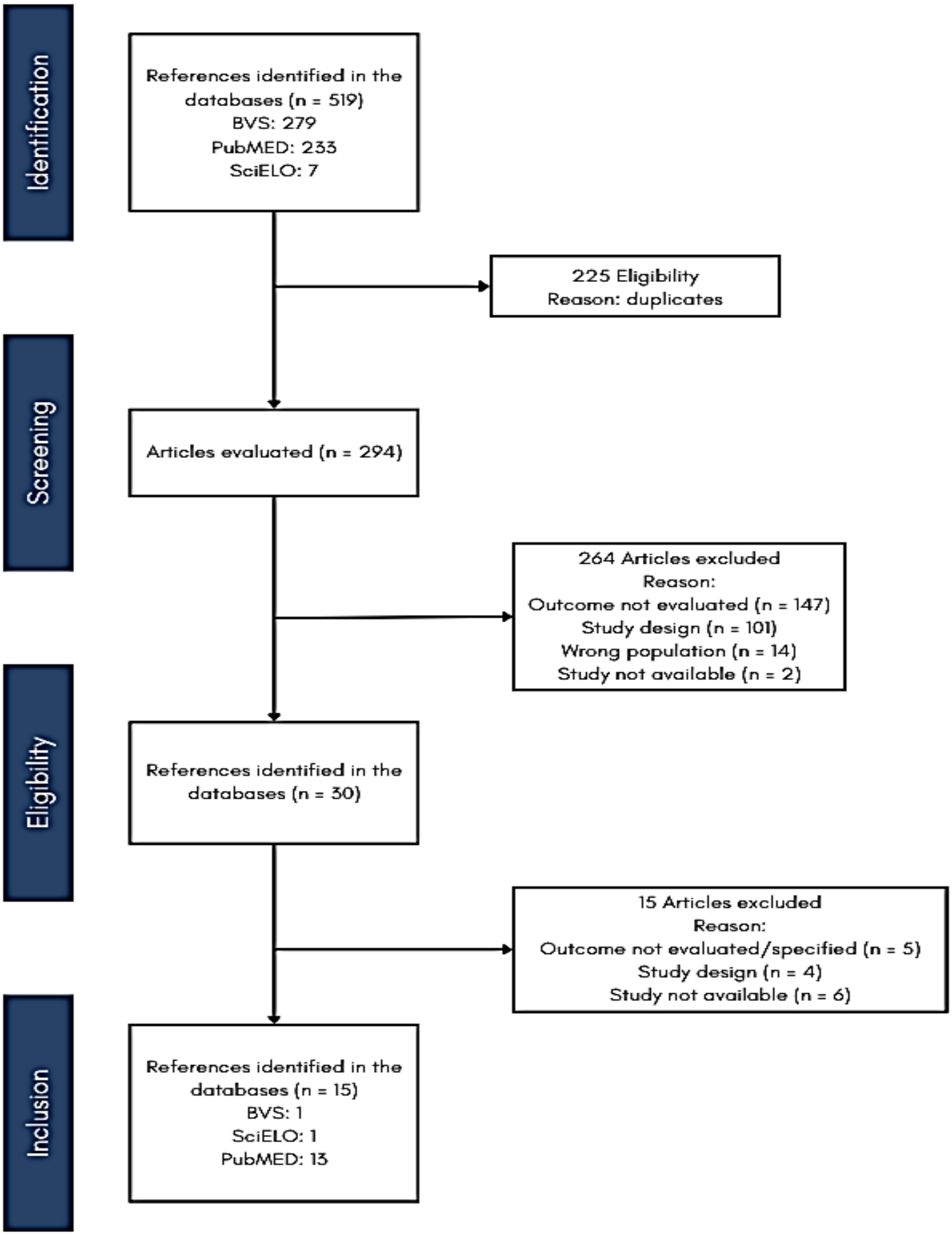

Figure 1. PRISMA flowchart for selecting articles in databases.

The included articles were organized in a table in Google Sheets, highlighting the following items: title, authors, journal, country of study, study design, instrument to verify the physical activity level, physical activity levels found in these studies, justification for the found physical activity levels, physical activity level after the health intervention (if any) and clinical and sociodemographic data. For the studies that presented, in addition to the results of the individuals in dialysis, the results of non-dialysis participants, only the results of the individuals in the first group were included.

The protocol for this study was started from the publication on the *Open Science Framework* website, available at: https://doi.org/10.17605/OSF.IO/CNAFB, entitled, at the time of publication: *Physical activity level of patients in dialytic renal replacement therapy: integrative literature review*.

Analyzing the results

The statistical analyses of this integrative review were descriptive in nature, aiming to summarize and present the main findings associated with the physical activity levels in patients with chronic kidney disease. Central tendency measures, such as average and median, were calculated for the quantitative variables, in order to provide an overview of the values observed in the analyzed articles. Percentages were also calculated for the categorical variables, in order to describe the distribution of the participants' sociodemographic and clinical characteristics, which were grouped and categorized according to the thematic similarities identified between the studies.

Ethical aspects

As this is a study that uses secondary data sources, in publicly accessible databases, there is no need for consideration by a Research Ethics Committee, safeguarding the need to reference the cited authors.

Results

A total of 15 articles were selected for the composition of this review, considering the inclusion and exclusion criteria established in the methodology, which is in line with the aims defined by the research question.

Chart 3. Characterization of the articles selected in the databases.

Reference	Title	Authors/ Year	Country	Study Design	Aim
A1	Sedentary Behavior in Individuals With Diabetic Chronic Kidney Disease and Maintenance Hemodialysis.[12]	Anderton et al./2015	United States of America	Observational, analytical and cross-sectional study	To examine whether more advanced kidney failure is associated with sedentary behavior and whether demographics, comorbidity, nutrition and inflammatory markers explain this association.
A2	Relationship between Changes in Physical Activity and Changes in Health-related Quality of	Katayama et al./2016	Japan	Observational, analytical and cohort study	To objectively measure sleep activity and quality among patients undergoing hemodialysis in a suburban hemodialysis population.

Reference	Title	Authors/ Year	Country	Study Design	Aim
	Life in Patients on Chronic Hemodialysis with 1-Year Follow-up.[13]				
A3	Physical Activity and Sleep Patterns in Hemodialysis Patients in a Suburban Environment.[14]	Williams et al./2017	United States of America	Randomized clinical trial	1) To evaluate the physical activity levels and sleep of hemodialysis patients living in a suburban setting. 2) To determine whether providing feedback on activity during dialysis treatments will have an impact on physical activity levels.
A4	Hypogonadism associated with muscle atrophy, physical inactivity and ESA hyporesponsiveness in men undergoing haemodialysis.[15]	Cobo et al./2017	Spain	Observational, analytical and cross-sectional study	To evaluate the effects of physical activity on various aspects of Asian patients undergoing dialysis.
A5	The Clinical Significance of Physical Activity in Maintenance Dialysis Patients.[16]	Seok et al./2017	South Korea	Retrospective, analytical and cohort study	To evaluate the prevalence of sedentary lifestyle and the physical capacity and nutritional status of a cohort of elderly patients in peritoneal dialysis in relation to the population with non-dialysis chronic kidney disease of the same age.
A6	Assessment of physical activity, capacity and nutritional status in elderly peritoneal	Cupisti et al./2017	Italy	Multicenter, case-control and cross-sectional study	To analyze factors associated with low levels of physical activity in patients with chronic kidney disease and to compare physical activity on hemodialysis and

Reference	Title	Authors/ Year	Country	Study Design	Aim
	dialysis patients.[17]				non-hemodialysis days.
A7	Association of physical activity with quality of life in patients with chronic kidney disease.[18]	Pinillos-Patiño et al./2019	Chile	Observational, analytical and cross-sectional study	To evaluate physical activity levels and cognitive function in hemodialysis patients and to compare the cognitive function of active and insufficiently active hemodialysis patients.
A8	A Walking Intervention to Increase Weekly Steps in Dialysis Patients: A Pilot Randomized Controlled Trial.[19]	Sheshadri et al./2020	United States of America	Pilot randomized controlled trial	To compare the effects of intradialysis versus home-based exercise programs on the physical activity levels of maintenance hemodialysis patients.
A9	Comparison of intradialytic versus home-based exercise programs on physical functioning, physical activity level, adherence, and health-related quality of life: pilot study.[20]	Villar et al/2020	Spain	Randomized controlled clinical trial	To verify the correlation between physical activity and quality of life in individuals with chronic kidney disease undergoing hemodialysis.
A10	Physical activity and quality of life in individuals with chronic kidney disease.[21]	Cecconello et al./2021	Brazil	Observational, analytical and cross-sectional study	Primary aim: To understand whether the functional capacity of patients with chronic kidney disease-5D differed between those who practiced higher or lower levels of physical activity. Secondary objective: To compare functional capacity, quality of life and depressive

Reference	Title	Authors/ Year	Country	Study Design	Aim
					symptomatology in patients with chronic kidney disease-5D who received renal replacement therapy by hemodialysis or peritoneal dialysis.
A11	Prevalence and correlates of physical activity across kidney disease stages: an observational multicentre study.[22]	Wilkinson et al./2021	United Kingdom	Multicenter, observational, analytical and cross-sectional study	To investigate the association between self-reported physical activity and all-cause mortality in outpatients with chronic kidney disease, stage 4–5, including maintenance dialysis.
A12	Sex Difference in the Association between Physical Activity and All-Cause Mortality in Ambulatory Patients with Chronic Kidney Disease.[23]	Molsted S, Eidemak I e Aadahl M /2021	Denmark	Prospective, analytical and cohort study	To evaluate whether lower levels of physical activity are associated with adverse health outcomes in patients with advanced chronic kidney disease.
A13	Continuous Long-Term Physical Activity Monitoring in Hemodialysis Patients.[24]	Cohen et al./2022	United States of America	Observational, analytical and longitudinal study	To test the feasibility of long-term continuous physical activity monitoring using wrist-worn accelerometers in a representative cohort of patients receiving hemodialysis and to examine daily activity patterns in the context of patient-reported symptoms and physical functioning.

Reference	Title	Authors/ Year	Country	Study Design	Aim
A14	The Impact of a Wearable Activity Tracker and Structured Feedback Program on Physical Activity in Hemodialysis Patients: The Step4Life Pilot Randomized Controlled Trial.[25]	Malhotra et al./2023	United States of America	Pilot randomized controlled trial	To evaluate the feasibility and efficacy of a 12-week intervention coupling a wearable activity tracker (FitBit) and structured feedback coaching versus wearable activity tracker alone on changes in physical activity in hemodialysis patients.
A15	Validity and reliability of Persian version of Low Physical Activity Questionnaire (LoPAQ).[26]	Tabibi et al./2024	Iran	Observational, analytical and cross-sectional study	To translate and culturally adapt the Low Physical Activity Questionnaire into the Persian language (Farsi) and to evaluate its reliability and validity in hemodialysis patients.

Chart 4. Characterization of the physical activity levels of the samples.

Reference	Dialysis Sample	Evaluation Instrument	Main findings of the measured physical activity levels	Intervention
A1	N = 80	Baecke's Physical Activity Questionnaire	Sedentary behavior was identified in 50% of the hemodialysis sample, while only 11.3% of the patients were classified as physically active.	Without intervention
A2	N = 71	Accelerometer	Total physical activity was 0.89 ± 0.86 multiples of metabolic equivalents x hour/day in all the patients, while daily step count was 2,445.7 ± 2,018.3 steps per day. The study did not directly classify patients into "active" or "sedentary" categories based on a specific cutoff.	Without intervention
A3	N = 29	Pedometer	The patients walked an average of 5,281 steps/day, within the parameter considered reasonably active. Only 3% of the monitored population was active.	Feedback

Reference	Dialysis Sample	Evaluation Instrument	Main findings of the measured physical activity levels	Intervention
A4	N = 57	Pedometer	Hypogonadal patients had lower physical activity (2,753±1,784 steps/day) than their non-hypogonodism equivalents (4,291±3,225 steps/day). Based on the criterion of less than 5,000 steps/day for sedentary individuals, the group with hypogonadism had considerably low levels of physical activity, close to sedentary lifestyle.	Without intervention
A5	N = 1611	Physical activity was defined as the presence of regular exercise during leisure time in the last 3 months.	Around 22% of the participants were considered physically active, while the rest were considered Moderately/Insufficiently Active or Inactive/Sedentary.	Without intervention
A6	N = 71	Rapid Assessment of Physical Activity	It was found that 65.3% of the patients undergoing peritoneal dialysis were considered sedentary or hypoactive.	Without intervention
A7	N = 80	International Physical Activity Questionnaires	Most patients with chronic kidney disease, regardless of the length of diagnosis or treatment, do not reach the recommended physical activity levels and are, therefore, considered inactive or sedentary.	Without intervention
A8	N = 60	Pedometer	The participants' average daily steps at baseline were 3,578 ± 3,680 in the control group and 3,924 ± 3,422 in the intervention group. After the three-month intervention period, patients in the intervention group returned to baseline steps levels during post-intervention monitoring.	Pedometer and counseling
A9	N = 46	Human Activity Profile Questionnaire and Physical Activity Scale for Elderly	At the start of the study, three participants were considered active in the home-based group and three participants were considered active in the intradialysis group. At the end of the study, no participants were considered active in the home-based group and five participants were considered active in the intradialysis group.	Own intervention prepared by a physiotherapist
A10	N = 40	Pedometer	With a median of 2,690.0 (918 – 5,009) steps/day, the study found that most patients had an insufficient number of steps for a physically active life.	Without intervention
A11	N = 1339	General Practice Physical Activity Questionnaire	Only 6% of the hemodialysis patients and 8% of the peritoneal dialysis patients were active.	Without intervention

Reference	Dialysis Sample	Evaluation Instrument	Main findings of the measured physical activity levels	Intervention
A12	N = 374	Saltin-Grimby Physical Activity Level Scale	A total of 128 participants (34%) were classified as inactive.	Without intervention
A13	N = 48	Accelerometer	Lower step counts on dialysis days (average of 3,991 steps) compared to non-dialysis days (average of 4,561 steps).	Without intervention
A14	N = 55	Pedometer	The starting average of daily steps of the participants was 3,755 steps. The greatest increase in step count occurred in the first 4 weeks, and the effect of structured feedback was maintained throughout the 12 weeks of the intervention, with statistically significant differences between the groups.	Accelerometer or self-target counseling and accelerometer
A15	N = 109 (dialysis)	Low Physical Activity Questionnaire	The average sedentary time, measured by the Low Physical Activity Questionnaire, was 1690.5 ± 525 minutes per week. In turn, the average total energy expenditure reported by the Low Physical Activity Questionnaire was 780.5 ± 292 kcal/week; while, according to CHAMPS, it was 821.5 ± 302.1 kcal/week.	Without intervention

The studies included in the review predominantly evaluated age and sex, while variables like education and race were less explored. The average age ranged from 52 to 71 years, with an overall average of 61.49 years, with a predominance of adult and elderly populations. The proportion of men ranged from 41.4% to 93.0%, with an overall average of 57.28%. Only five studies analyzed the variable "race", with the proportion of black individuals ranging from 5.0% to 72.4% (average of 44%), all conducted in the United States. Only one study included social stratum, evidencing a limited analysis of these determinants.

Among the clinical variables, the most frequent were hypertension (average of 83.16%), DM (45.43%) and CVD, such as coronary artery disease (35.05%), congestive heart failure (23.75%) and peripheral vascular disease (30.3%). The average body mass index (BMI) was 27.46 kg/m², suggesting overweight, and the average duration of dialysis was 34.05 months. Arteriovenous fistula (AVF) was the predominant vascular access (69% to 70%). Only one study evaluated depression as an associated psychosocial condition.

Discussion

Characterizing the studies and samples

Objective methods for verifying PAL were used in 46.6% of the studies in this review, with pedometers and accelerometers, reducing biases such as recall, social desirability and comprehension. Despite this, they have limitations, such as reactivity bias (Hawthorne effect), measurement errors by device placement, and inability to capture activities without effective mobility.[27,28]

In addition, 66.0% of the studies were observational and analytical without intervention, evidencing the predominance of this methodological design in the investigation of the theme. Only one study has been conducted in Brazil, pointing to the scarcity of national studies evaluating PAL in renal dialysis patients, constituting a gap in the literature.

Analysis of samples adjusted for patients undergoing HD or PD revealed a median of 71 participants, indicating relatively small samples. The average of 532.6 was influenced by discrepant studies, such as those of 1,611 and 1,339 participants, raising the average value. This difference reflects the asymmetric distribution of the data, where most studies use small sample sizes, and the median better represents the typical sample size.

Physical activity level

The analyzed articles indicated a predominance of physical inactivity, evidenced by the number of daily steps below 10,000 or by self-reported questionnaires. Recent studies suggest that 2,600 to 2,800 steps a day already promote a reduction in the risk of mortality and cardiovascular diseases, with progressive benefits up to about 8,800 steps, regardless of the traditional recommendation of 10,000 steps.[29] Study A12 presented a sample with a moderate activity profile that, performed at least twice a week, was associated with better renal outcomes, including a lower incidence of albuminuria and a decline in glomerular filtration rate.[30]

The KDIGO 2024 guideline reinforces the importance of encouraging physical activity compatible with cardiovascular health and frailty in patients with CKD.[1] Four articles included interventions aimed at PAL with informational or instructional approaches, but with different methodologies. It was observed that these strategies increased the number of steps in the short term, but without maintaining the effects in the long term.

Accordingly, the need to develop strategies that can ensure the continuity of PA benefits should be highlighted, considering factors like motivation, social determinants and clinical conditions. Comprehending the factors that contribute to sedentary lifestyle can guide actions to mitigate them and, therefore, promote better health outcomes.[31,32] In this review, the most important findings include: fatigue, unavailability, pain, depressed mood, uncertainty about how to exercise, malnutrition-inflammation and a feeling of tiredness after dialysis.

Sociodemographic variables

In this review, all studies analyzed age and/or sex, emphasizing its relevance in evaluating the PA profile. Nonetheless, variables like education and race were explored in only five studies, while social status was evaluated in only one, evidencing a limited analysis of social determinants. This gap undermines a deeper comprehension of the factors associated with physical inactivity in this population.

The literature indicates that socioeconomic status is strongly related to the prevalence and progression of CKD. Studies show that individuals with lower income, inequity in access to health services and reduced educational level have a higher risk of developing CKD and progressing to advanced stages of the disease.[33] Therefore, considering sociodemographic variables is essential for more effective public health strategies, improving clinical outcomes.[34]

The analysis suggests that the sample is composed mostly of adult and elderly citizens, with an average age of 61.49 years, reflecting the high prevalence of chronic kidney disease in this age group. There is a slight male predominance (57.28%), possibly associated with epidemiological factors and differences in treatment adherence. Racial representativeness was limited, being analyzed in only five studies, with an average of 44% of black individuals, ranging from 5.0% to 72.4%. This may indicate inequalities in access to health and greater socioeconomic vulnerability among this population. The scarcity of data on race and other sociodemographic factors makes it difficult to further analyze the impact of social determinants on disease progression and patients' physical activity levels.

Clinical variables

Evaluations related to BMI, SAH, DM and cardio-cerebrovascular diseases prevailed, that is, the results of these studies show a significant prevalence of comorbidities in patients in renal replacement therapy. These indicators have been widely used, possibly due to their sensitive relationship with the risks associated with CKD.[35] The choice of these variables reflects the recognition of the influence of pre-existing clinical conditions in terms of limiting the practice of physical activities, also highlighting the association of the cardio-renal-metabolic systems, in addition to their relevance in the definition of management and intervention strategies for this population.[36]

SAH was the most frequent comorbidity, affecting an average of 83.16% of patients, reflecting its high prevalence in CKD. DM, a condition strongly associated with the progression of CKD, was observed in 45.43% of the cases.[1] The investigated and found cardiovascular conditions highlight an association between kidney disease and heart dysfunctions in this population, already documented in the literature.[37] The average BMI of 27.46 kg/m² suggests a tendency towards overweight among the evaluated patients. However, the literature debates whether a high BMI could have a protective effect on renal health, considering that this measurement does not differentiate between muscle mass and body fat, in addition to metabolic variations between visceral and subcutaneous fats.[38]

The presence of depression was evaluated in only one of the studies, despite the impact of mental health on quality of life, prognosis and treatment adherence, making it essential to monitor it and implement appropriate interventions.[39]

Finally, arteriovenous fistula (AVF) was the predominant vascular access (69% to 70%), consistent with guidelines that prioritize AVF due to its efficacy, lower complication rate and better blood flow when compared to other types of access.[40]

Conclusion

The studies are unanimous in identifying a low level of physical activity in all the employed objective methods and subjective evaluation questionnaires, generally attributed to the clinical consequences of chronic kidney disease, lack of motivation or socioeconomic factors. The sociodemographic characterization revealed a majority of the sample population composed of men in the adult and elderly age groups, while the clinical characterization identified a predominantly hypertensive and diabetic profile. It is also worth underlining the scarcity of Brazilian studies and/or studies conducted with the population residing in Brazil, pointing to a possible gap in national research. Once the established aims have been achieved, these results highlight the need for the agents involved in health care, especially nurses, to outline strategies that can increase the identified activity levels, corroborating better health outcomes for patients.

The main limitation of this integrative review refers to the methodological variability of the included studies, since different designs, sample sizes, evaluation instruments and inclusion criteria may impact the comparability of the results and the generalization of the findings.

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