

# Pico strategy for scientific evidence: impact on the quality of life of hemodialysis patients

**RESUMO** | Objetivo: identificar o impacto científico da Estratégia PICO (Population, Intervention, Comparison, Outcomes) na qualidade de vida de pacientes hemodialíticos. Método: trata-se de uma revisão integrativa realizada no PubMed, MeSH e Cochrane Library cuja amostra foi composta por 13 artigos. A coleta dos dados foi realizada durante o período de maio a agosto de 2021. Resultados: verificou-se que a qualidade de vida do paciente hemodialítico é prejudicada em diversos segmentos, sendo os principais: redução da capacidade funcional; incapacidade de ser independente, de forma pessoal e profissional; e o impacto na saúde mental, em decorrência das alterações cotidianas que o tratamento exige em seu dia-a-dia. Conclusão: Em todos os estudos, a qualidade de vida e psíquica do paciente hemodialítico encontra-se prejudicada e associada a fatores negativos.

**Descritores:** Qualidade de vida; Insuficiência renal crônica; Diálise renal.

**ABSTRACT** | Objective: To identify the scientific impact of the PICO (Population, Intervention, Comparison, Outcomes) strategy on the quality of life of hemodialysis patients. Method: this is an integrative review conducted in PubMed, MeSH and Cochrane Library whose sample was composed of 13 articles. Data collection was carried out from May to August 2021. Results: It was found that the quality of life of hemodialysis patients is impaired in several segments, the main ones being: reduced functional capacity; inability to be independent, personally and professionally; and the impact on mental health, due to the daily changes that treatment requires in their daily lives. Conclusion: In all studies, the quality of life and mental health of hemodialysis patients is impaired and associated with negative factors.

**Descriptors:** Quality of life; Renal insufficiency, Chronic; Renal dialysis.

**RESUMEN** | Objetivo: Identificar el impacto científico de la estrategia PICO (Population, Intervention, Comparison, Outcomes) sobre la calidad de vida de los pacientes en hemodiálisis. Método: se trata de una revisión integradora realizada en PubMed, MeSH y Cochrane Library cuya muestra consistió en 13 artículos. La recopilación de datos se realizó durante el período de mayo a agosto de 2021. Resultados: se verificó que la calidad de vida del paciente hemodialítico se ve perjudicada en varios segmentos, siendo los principales: la reducción de la capacidad funcional; la incapacidad de ser independiente, de forma personal y profesional; y el impacto en la salud mental, en decadencia de las alteraciones cotidianas que el tratamiento exige en su día a día. Conclusión: En todos los estudios, la calidad de vida y psíquica del paciente hemodialítico se encuentra perjudicada y asociada a factores negativos.

**Descriptorios:** Calidad de vida; Insuficiencia renal crónica; Diálisis renal.

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## INTRODUCTION

The World Health Organization (WHO) defines health as a complete state of physical, mental and social well-being and not simply the absence of clinical pathologies involved. <sup>(1)</sup> This concept strengthens the idea that every individual who seeks a pleasant quality of life (QoL) needs a balance between these three pillars. The characteristics of the social context, which facilitate inequalities in exposures and vulnerabilities, influence a person's health. Such social and economic circumstances establish unequal living and working conditions, impacting on behavior and lifestyles, which create risk factors for the development of diseases, in addition to impacting on

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the person's well-being and QoL. <sup>(2)</sup>

From this perspective, a multidimensional concept emerges, in which researchers have agreed on the relevance of including physical aspects, such as functional capacity, social interactions, affective and emotional behavior and mental health to QOL, combining with the various aspects of human life. Furthermore, being in agreement with the fact that only the individual can evaluate or qualify his life. <sup>(3)</sup> In parallel, the term has been used as a considerable instrument of analysis, regarding the effectiveness of treatment and interventions in the health area, and it assesses the impact of chronic disease on the daily lives of individuals, through biopsychosocial indicators. <sup>(4)</sup>

In chronic diseases, dialysis chronic kidney disease (CKD) is included, which generates greater impact on the QoL of patients. This is due to living with the incurable disease, dependence on a machine to survive, strict therapeutic regimen, changes in body image and dietary and water restrictions. <sup>(1)</sup> For a better understanding of the chronicity of the disease, it is necessary to understand the kidney function, whose kidneys are vital organs for the normal functioning of the human body. Bilaterally located in the retroperitoneal region, which morphologically resemble beans, measure approximately 12 cm and weigh approximately 150g each. In addition, they have simple and sufficient characteristics to compromise the entire functioning of the organism in case there is any change. <sup>(5)</sup>

The kidneys are responsible for eliminating toxins or waste resulting from the body's metabolism, as well as for the production of hormones via the adrenal glands, maintaining the electrolyte balance, thus preventing the appearance of edema and increased blood pressure (BP), among other functions. <sup>(6)</sup> The Brazilian Society of Nephrology <sup>(7)</sup> estimates that 850 million people worldwide are suffering from kidney failure. In



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its acute form, it affects more than 13 million people worldwide, with 85% of these cases occurring in low- and middle-income countries, causing approximately 1,7 million deaths per year. In its chronic form, it causes at least 2,4 million deaths annually, with an increasing mortality rate.

HD is defined as a procedure, through which a machine filters and cleans the blood, doing part of the work that the diseased kidney cannot do, removing harmful residues from the body, such as excess salt and liquids. It also controls BP and helps the body maintain ionic and metabolic homeostasis. <sup>(8)</sup> Patients undergoing HD manifest restrictions in their daily lives and experience numerous biopsychosocial losses and changes, such as loss of health (at a physiological and biochemical level), anemia, loss of physical, cognitive and sexual competence, job loss and other activities/functions, dependence on medical treatment and renal therapy, in addition to physical and body image changes, dietary restrictions, associated with the treatment. <sup>(9)</sup>

Therefore, the problem posed for investigation has the following guiding question: what is the scientific impact of the PICO Strategy (Population, Intervention, Comparison, Outcomes) on the QoL of hemodialysis patients?

Thus, the objective was to identify the scientific impact of the PICO Strategy on the QoL of hemodialysis patients.

## METHOD

This is an integrative literature review whose bibliographic search was developed in the following databases: Online Medical Literature Analysis and Retrieval System (PubMed), Medical Subject Headings (MeSh) and Cochrane Library, using the union of Boolean operators in English as strategy in which he presented the following search algorithm: "Kidney Diseases" AND "Renal Insufficiency, Chronic" OR "Re-

nal Dialysis” AND “Quality of Life”. Data collection was carried out from May to August 2021.

A strategy for searching the literature and finding the studies was developed. Thus, the following inclusion criteria were adopted for the abstraction of articles: studies that correlated chronic renal failure (CRF) and QoL; full articles published in English or translated into Portuguese; studies published in the last 10 years, from January 2010 to December 2020, that addressed the subject. Duplicate studies published outside the coverage period were excluded. In the sample, 37 articles were obtained. After applying the eligibility criteria, the sample consisted of 13 articles. The extracted data were organized and summarized in tables according to the following variables: author, title, study design, factors influencing QoL,

patients' self-perception.

The structure of the PICO tool was used, a more common way of formulating a question for investigation. Generally, the research does not include all parts of the PICO question, so the focus was on the population and on the intervention, which can be used to build research questions of different natures, arising from the clinic, the management of human and material resources, the search instruments for symptom assessment, among others. An appropriate (well-constructed) research question enables the correct definition of what information (evidence) is needed to resolve the clinical research question.

#### RESULTS

The 13 articles in the sample address the perception of themselves re-

garding the impact of CKD, as well as the performance of HD, on QoL during their daily routine. This information is expressed in Table 1 below. In the studies found, there is a similarity between the articles, which highlights the importance of humane care for patients, seeking to minimize the negative effects of treatment on the life of patients with CKD on HD.

Table 2 shows the articles included and the evidence of the effects on the QoL of chronic renal patients on HD found in each study. The data show that there is a predominance of males, patients without a professional occupation and married, and also evidence of similar treatment.

Regarding the factors that influence the QoL of patients with CKD on HD, in 100% of the selected studies, decreased functional capacity, difficulty

**Table 1 – Sample distribution according to author, title, journal and study design.**

Author	Title	Study design
Santos, Alves, Quadros, Giorgi, Paula <sup>(10)</sup>	The person's perception of their condition as a chronic kidney patient on HD	Exploratory Study
Panzetti, Rosa, Santo, Silva, Vasconcelos, Maia, et al. <sup>(11)</sup>	QoL of patients undergoing HDT: integrative review	Integrative review of the literature
Barbosa, Ó, Bezerra, Borba <sup>(12)</sup>	Self-assessment of the health of individuals with CKD undergoing dialysis therapy	Cross-sectional study
Pereira, Leite <sup>(13)</sup>	Health-related QoL of patients on hemodialysis therapy	Cross-sectional study
Zanesco, Pitilin, Rosseto, Silva <sup>(14)</sup>	Assessment of the QoL of chronic kidney patients on HD - a cross-sectional study	Cross-sectional study
Marçal, Rêgo, Paiano, Radovanovic <sup>(15)</sup>	QoL of people with CKD in HD	Descriptive Study
Jesus, Souza, Mendes-Rodrigues, Almeida Neto, Rodrigues, Cunha <sup>(16)</sup>	QoL of individuals with CKD undergoing dialysis treatment	Cross-sectional study
Freitas, Freitas, Santos, Félix, Moraes Filho, Ramos <sup>(17)</sup>	Nursing care aimed at the QoL of chronic kidney patients on HD	Systematic literature review
Evangelista, Pires, Silva, Bueno, Silva <sup>(18)</sup>	Domains affected in the QoL of chronic renal patients undergoing hemodialysis: systematic review	Systematic literature review
Gomes, Leal, Pimenta, Martins, Ferreira, Costa <sup>(19)</sup>	QoL of men and women in HD	Cross-sectional study
Zanesco, Giachini, Abrahão, Silva <sup>(20)</sup>	QoL in hemodialysis patients: assessment using the kdqol-sf™ questionnaire	Exploratory Study

Marinho, Oliveira, Borges, Silva, Fernandes <sup>(21)</sup>	QoL of people with CKD in HD	Cross-sectional study
Negri, Sampaio, Silva, Paulo, Costa, Souza <sup>(22)</sup>	QoL of patients with CKF undergoing HD	Cross-sectional study

Source: The Authors, 2021. HDT = Hemodialysis Therapy.

**Table 2 – Distribution of studies according to factors that influence QoL and self-perception of patients undergoing HD.**

Title	Factors influencing QoL	Self-perception of patients undergoing HD
The person's perception of their condition as a chronic kidney patient on HD (10)	The sudden change that occurs in your routine, the limitations that now accompany your experience, the idea of HD as a continuous reality and the possibility of death generate negative influences on your QoL.	Emotions and sensations such as anxiety, fear, denial, regret and acceptance are part of the path taken by these individuals.
QoL of patients undergoing HDT: integrative review (11)	Work restriction related to physical limitation, as the disease is gradual and irreversible..	The patient feels debilitated after the procedure, having the need to leave the workplace.
Self-assessment of the health of individuals with CKD undergoing dialysis therapy (12)	CKD and its treatment can lead to limitations, impairing daily life and, consequently, impairment in physical and psychological aspects, with personal, family and social repercussions.	Problems most reported by them were associated with the time taken to perform HD, difficulties in maintaining a professional and social life, feelings of uselessness, loss of freedom, CKD-induced changes in future plans and changes in habits, such as travel and playing sports.
Health-related QoL of patients on hemodialysis therapy (13)	The changes established by HDT affect the social and economic life of patients due to the characteristics of the prescriptions, which mostly include therapy three times a week, lasting four hours each session.	Depressive symptoms and pain have independently been shown to be associated with the loss and shortening of HD sessions.
Assessment of the QoL of chronic kidney patients on HD - a cross-sectional study (14)	Limitations and intensity for the types and amount of work, or other activities performed, in addition to the most frequent complaints/answers, and it was observed that the responses were related to physical weakness, fatigue, malaise and general discomfort with the treatment..	CKD patients live daily with denial and mainly suffer from the consequences imposed by the disease and its evolution, in addition to having to undergo painful treatment, with numerous limitations and changes that affect their own QoL.
QoL of people with CKD in HD (15)	And with regard to the general health assessment, 70% of patients reported that their health is currently the best possible.	In the context of the self-assessment reported by the patients, it is possible to observe that, despite the kidney disease, the reported difficulties and the permanence in HD treatment, when comparing their current health with a year ago, most respondents said they were much better or a little better than a year ago.

QoL of individuals with CKD undergoing dialysis treatment (16)	The treatment of patients with CKD causes significant functional and physical impairment in the individual, with frequent problems such as sedentary lifestyle, reduced social interaction, loss of autonomy and dependence, as they start to need help from others to perform various daily activities.	Self-image is also greatly impacted and negative feelings arise, starting with the need to install an access route for dialysis (arteriovenous fistula or catheter) and the concern related to the care required for maintenance.
Nursing care aimed at the QoL of chronic kidney patients on HD (17)	Patients undergoing HD may have a lower QoL both in social, emotional, physical and sexual aspects. Already, they say that in addition to the individual being affected by these factors, he is also mentally affected, with the economic factor as a limiting part interfering directly in the patient's QoL.	The patient feels sad, angry, insecure, worrying about his future.
Domains affected in the QoL of chronic renal patients undergoing hemodialysis: systematic review (18)	The QoL of patients undergoing hemodialysis is compromised, with the physical and cognitive domains being the most affected.	Prevalence of anxiety, depression, perceived social support, fatigue, signs of stress affecting QoL levels in patients.
QoL of men and women in HD (19)	The onset of a chronic disease, the long treatment imposed, the reduction in social contact and physical limitations interfere in the acceptance of the disease, producing negative feelings that influence well-being.	They report that the rates of psychological problems, such as anxiety, depression and low self-esteem in patients undergoing dialysis treatment are high.
QoL in hemodialysis patients: assessment using the kdqol-sf™ questionnaire (20)	Limitations due to physical aspects, limitations due to emotional problems, general health.	Self-perception was reduced in several aspects, mainly in relation to physical capacity and emotional problems, demonstrating that there is a high rate of patients with CKD who need monitoring and referral by the specialized team.
QoL of people with CKD in HD (21)	Considering the lowest level of QoL, the lowest means were found in Work Situation and Physical Function, also reported in the literature..	For those people who find a positive meaning for the treatment, the disease takes on less weight in the individual's life and he or she is able to permanently seek a positive redefinition of their experiences, with improvement in the symptoms of the pathology and consequent improvement in QoL.
QoL of patients with CKF undergoing HD (22)	This study demonstrated that the physical domain influences the QoL of patients with CKF undergoing HD, causing changes in the patient's lifestyle, often requiring adaptations in daily activities.	The imposed treatment is one of the main reasons that lead the patient to insecurity about his life and the future, as the resulting limitations can generate feelings of both physical and psychological incapacity, which, in a way, lead to uncertainty and increase the rate of illness.

Source: The Authors, 2021

in maintaining a formal job due to the particularities of the treatment, changes established in the day-to-day and effects on the psychological.

## DISCUSSION

IRC and HD can lead to limitations, in a way that harms daily life and, consequently, compromises phy-

sical and psychological aspects, with repercussions of a personal, family and social nature, which is also described by several studies on the same theme.<sup>(12)</sup> However, patients need special at-

attention and care, and suffer from physiological changes such as malaise, hypotension, cramps and tiredness.<sup>(17)</sup> Still, among the most uncomfortable symptoms also mentioned by people on chronic HD, fatigue, cramps, itching and depression stood out.<sup>(23,24)</sup> In the professional area, the difficulty of finding a balance between work and the time required in HD was identified in the reports.<sup>(25)</sup> In addition to the changes that have occurred, hemodialysis therapy affects the social and economic life of patients due to the characteristics of the prescriptions, which mostly include therapy three times a week, lasting four hours each session.<sup>(13)</sup>

The most reported problems are associated with the time taken to perform HD, difficulties in maintaining a professional and social life, feelings of uselessness, loss of freedom, CKD-induced changes in future plans and changes in habits, such as travel and practice of sports,<sup>(12)</sup> because HD also causes restrictions in work activities due to decreased mobility, physical strength, work rhythm and limitation in the use of the arm that has an arteriovenous fistula (AVF).<sup>(26)</sup> Another study corroborates this damage to the patient's physical

condition, as it produces daily changes, in eating habits and in work capacity.<sup>(19)</sup> Having a partner helps to minimize the impact of CKD and in the readaptation to changes in the face of the disease.<sup>(21)</sup> Affective protection when the healthy spouse supports the patient makes the treatment less negative.<sup>(27)</sup> Thus, the fact that individuals without a partner do not have the support of their spouses negatively affects their QoL.<sup>(12)</sup>

Regarding the patients' self-perception, a factor that interferes with adherence are the negative feelings that the adolescents reported in the interviews regarding HD due to the disease, which entails a long and complex treatment that imposes restrictions on the patient's life.<sup>(28)</sup> In the early stages, fright, fear and anxiety reactions can be observed, as the individual begins to glimpse how the outcome of his illness will be; in the final stages, when HD becomes essential, not knowing what your difficulties will be with this therapy can generate a mixture of suffering and sadness.<sup>(10)</sup> Among all the selected studies, one of them reported that in the context of the patients' self-assessment, it was possible to observe that, despite the kidney disease, the re-

ported difficulties and the permanence in HD treatment, when comparing their current health with a year ago, most of respondents said they were much better or a little better than a year ago.<sup>(15)</sup>

After treatment, the most affected aspect is the emotional one,<sup>(20)</sup> although the patients were optimistic and resigned to the treatment, without this being reflected in their daily lives.<sup>(29)</sup>

## CONCLUSION

The PICO strategy made it possible to identify that the QoL of patients with CKD on HD is impaired, mainly in terms of reduced functional capacity, inability to be independent, personally and professionally, and the impact on mental health, due to the daily changes that the treatment demands in their day-to-day life. It was observed in all studies that HD in the life of patients with CKF allows the extension of life, thus improving their QoL. Also, the constant treatment routine makes it impossible for him to carry out various activities and remain in a job, which causes a great psychological impact and may develop depression and anxiety.

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