

RESEARCH ARTICLE (ORIGINAL) 

Attitudes and barriers to evidence-based nursing in hemodialysis

Enfermagem baseada na evidência: atitudes e barreiras em contexto de hemodialis

Enfermería basada en la evidencia: actitudes y barreras en los centros de hemodiálisis

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Abstract

Background: Evidence-based practice (EBP) positively impacts the safety and quality of care for people with chronic kidney disease (CKD) on hemodialysis (HD).

Objective: To assess nurses' attitudes toward EBP and the barriers they face in implementing it when caring for people with CKD on HD.

Methodology: A cross-sectional, exploratory, and descriptive study was conducted and applied the Portuguese version of the Attitudes to Evidence-Based Practice questionnaire to 147 nurses working in HD. **Results:** Nurses demonstrated attitudes promoting EBP and perceived aptitude for searching (76.1%) and evaluating evidence (78.2%), which were related to professional group ($p = .001$; $r = -0.278$) and academic qualifications ($p = .02$; $r = -0.191$). Lack of time (66%), lack of education (68.6%), and lack of experts sharing information (72.1%) were reported as the main barriers.

Conclusion: Nurses recognize that EBP contributes to professional development, demonstrate positive attitudes toward EBP, and identify the associated barriers.

Keywords: nephrology nursing; evidence-based practice; evidence-based nursing; renal dialysis; nursing care

Resumo

Enquadramento: A Prática Baseada na Evidência (PBE) tem impacto positivo na segurança e na qualidade dos cuidados à pessoa com doença renal crónica (DRC) em hemodialis (HD).

Objetivo: Avaliar as atitudes e barreiras à PBE dos enfermeiros nos cuidados prestados à pessoa com DRC em HD.

Metodologia: Estudo transversal, exploratório e descritivo. Foi aplicada a versão portuguesa do Questionário de Atitudes e Barreiras face à implementação da Prática Baseada na Evidência (QABPBE-26) a 147 enfermeiros a exercer em unidades de HD.

Resultados: Os enfermeiros apresentam atitudes promotoras de PBE, reconhecendo aptidão na pesquisa (76,1%) e na avaliação dos artigos de investigação (78,2%), o que se relaciona com a categoria profissional ($p = 0,001$; $r = -0,278$) e habilitações académicas ($p = 0,02$; $r = -0,191$). As principais barreiras identificadas relacionam-se com limitações de tempo (66%), falta de formação (68,6%) e falta de partilha de conhecimento por peritos (72,1%).

Conclusão: Os enfermeiros reconhecem que a PBE contribui para o desenvolvimento profissional, demonstram atitudes promotoras e identificam barreiras associadas.

Palavras-chave: enfermagem em nefrologia; prática clínica baseada em evidências; enfermagem baseada em evidências; diálise renal; cuidados de enfermagem

Resumen

Marco contextual: La práctica basada en la evidencia (PBE) tiene un impacto positivo en la seguridad y la calidad de la atención a las personas con insuficiencia renal crónica (DRC, en portugués) en hemodiálisis (HD).

Objetivo: Evaluar las actitudes y barreras del personal de enfermería hacia la PBE en la atención a personas con DRC en HD.

Metodología: Estudio transversal, exploratorio y descriptivo. Se aplicó la versión portuguesa del Cuestionario de Actitudes y Barreras para la Implementación de la Práctica Basada en la Evidencia (QABPBE-26) a 147 enfermeros que ejercían en unidades de HD.

Resultados: Los enfermeros muestran actitudes que promueven la PBE, reconocen aptitud para la investigación (76,1%) y para la evaluación de artículos de investigación (78,2%), lo que se relaciona con la categoría profesional ($p = 0,001$; $r = -0,278$) y las cualificaciones académicas ($p = 0,02$; $r = -0,191$). Los principales obstáculos detectados están relacionados con la falta de tiempo (66%), la falta de formación (68,6%) y la falta de intercambio de conocimientos entre expertos (72,1%).

Conclusión: Los enfermeros reconocen que la PBE contribuye al desarrollo profesional, demuestran actitudes de apoyo e identifican las barreras asociadas.

Palabras clave: enfermería en nefrología; práctica clínica basada en la evidencia; enfermería basada en la evidencia; diálisis renal; atención de enfermería



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Introduction

Evidence-based practice (EBP) plays a critical role in improving care for people with chronic kidney disease (CKD) on hemodialysis (HD). Understanding the nurses' attitudes toward EBP and the barriers they face when implementing it in this context is essential to promoting a more effective and safer practice.

CKD is a complex health problem that requires comprehensive and personalized care. In Portugal, HD is the most widely used treatment modality for end-stage CKD, as it allows rapid and effective removal of toxins from the patient's blood. Nursing care in this context is particularly challenging, not only because of the complexity of the technique but primarily because of the management of the associated complications. Nurses must be up to date with the latest science to provide safe and high-quality care. Several studies have highlighted the importance of EBP in nursing, particularly in nephrology. Gorsuch et al. (2020) demonstrated that implementing EBP in this setting significantly improved the quality and safety of this care. Camargo et al. (2018) and Cardoso et al. (2019) also reached similar conclusions when they examined the implementation of EBP in the more specific context of HD.

However, despite the growing recognition of the importance of EBP, some challenges and obstacles may affect its effective implementation. Alqahtani et al. (2020) highlight some of the most common barriers nurses face when integrating EBP into their daily practice. These barriers include lack of time, lack of access to current information, and poor skills in searching for and evaluating evidence. In light of these considerations, this study aims to assess and better understand nurses' attitudes toward EBP and the barriers they face when implementing it in the care of people with CKD on HD.

Background

CKD is defined as abnormalities of kidney structure or function with severe complications in a person's health and well-being, such as anemia, bone disease, sleep disturbances, gastrointestinal disorders, and others [Kidney Disease Improving Global Outcomes (KDIGO), 2022]. It includes different severity levels (1 to 5) and is classified based on cause, glomerular filtration rate, and albuminuria (KDIGO, 2022). The most common etiologic factors are pathologies such as diabetes mellitus, hypertension, and glomerulonephritis (Galvão et al., 2021).

CKD is a public health problem that affects one in ten people worldwide and is associated with high morbidity and mortality rates (KDIGO, 2022). According to the 2020 Annual Report of the Portuguese Society of Nephrology (SPN) Registry, there are approximately 20,500 people in Portugal with end-stage CKD, of which 12,500 are on HD (Galvão et al., 2021). Portugal is one of the countries in Europe with the highest incidence and prevalence of CKD on renal replacement therapy, about 229.26 per million of population (pmp) and 2011.31 pmp, respectively, mainly due to population aging and

increasing life expectancy (Galvão et al., 2021).

The most common modality of renal replacement therapy in Portugal is HD, with 132 centers throughout the country (Galvão et al., 2021). Nursing care in HD is quite complex and demanding, requiring nurses to have a sound theoretical knowledge and high communication and technical skills (Andrade et al., 2021). The intradialytic complications associated with this treatment are diverse, requiring timely and differentiated nursing intervention to ensure the safety of the person with CKD (Flores et al., 2018). Ponce et al. (2019) also note that the role of the nurse in this context is multifaceted and requires a high level of skill.

Indeed, increasingly complex clinical challenges and science evolution require nurses and healthcare institutions to make decisions with a high level of quality, safety, efficacy, efficiency, and effectiveness (Pereira, 2021).

According to the *Ordem dos Enfermeiros* (Portuguese Nursing Regulatory Body; OE), nurses are expected to: practice their profession with adequate scientific and technical knowledge and respect for life, human dignity, and the health and welfare of the population, and take all measures to improve the quality of care and services. (OE, 2015, p. 78)

Knowledge translation is influenced by several dimensions that have been studied in different contexts, namely primary care, hospitals, and higher education (Camargo et al., 2018; Cardoso et al., 2019; Pereira et al., 2015). Nurses believe that implementing evidence-based practices benefits their professional development (Silva et al., 2021; Pereira, 2021), which demonstrates the importance that nurses place on research and its impact on improving nursing practice. However, Alqahtani et al. (2020) state that nurses still do not use the evidence recommended by national and international organizations in practice. Despite the topicality and positive impact of EBP on quality of care and patient safety, there is a gap between scientific research and its application in practice (Alqahtani et al., 2020). Barriers that limit the implementation of evidence are mainly related to lack of time, resources, education and encouragement from leaders, poor skills in evidence appraisal, high workload, and organizational culture (Cardoso et al., 2019).

Assessing nurses' attitudes toward EBP and the barriers they face in implementing it in HD provides strategies to promote its operationalization and effective implementation, thereby reducing the challenges of translating scientific knowledge into HD practice.

Research question

What are nurses' attitudes toward EBP and the barriers they face in implementing it in HD care?

Methodology

A descriptive study was conducted using a quantitative approach. Two questionnaires were applied: a sociodemo-



graphic questionnaire and the *Questionário de Atitudes e Barreiras face à Prática Baseada na Evidência* (QABPBE-26; Pereira et al., 2015), which is the Portuguese version of the Attitudes to Evidence-Based Practice questionnaire by McKenna et al. (2004).

Data were collected using an online form with the two questionnaires. Access to this form was given was provided by e-mail to all HD units of Diaverum Portugal to improve the accessibility of nurses working in the field. Data collection took place in April 2021 and the sample was selected based on non-probability convenience sampling.

The QABPBE-26 allows assessing nurses' attitudes and the barriers they face in implementing evidence-based practice. It consists of 26 items rated on an ordinal 5-point Likert scale: 1 - strongly disagree, 2 - disagree, 3 - unsure, 4 - agree, and 5 - strongly agree. This instrument analyzes the different dimensions of attitudes and barriers considered crucial for EBP integration, taking into account personal, professional, and organizational factors. This questionnaire was translated and validated by Pereira et al. (2015), and the authors of the original version (McKenna et al., 2004) reported a reliability coefficient of $\alpha = 0.74$. In agreement with Pereira et al. (2015) and McKenna et al. (2004), it was decided to consider the QABPBE-26 as unidimensional. Thus, each of the 26 items of the QABPBE-26 was treated as one variable.

Descriptive statistics were used to analyze the data by calculating relative and absolute frequencies. In addition, inferential statistical tests were used to test the normality of the distribution of the continuous variables. Fisher's exact test was used to evaluate the association between categorical variables, while Spearman's correlation was used to evaluate the relationship between continuous variables.

All data collected were coded and processed in a database created for this purpose. Data processing and analysis were performed using the statistical software IBM SPSS statistics, version 26.0. The significance level was set at 5%. The study followed established ethical procedures and received prior approval from the national clinical directorate of Diaverum Portugal and a positive opinion from its ethics committee. All participants voluntarily agreed to participate in the study and were guaranteed anonymity of their responses after giving their free and informed consent. The consent form was attached to the questionnaire and was presented to the participants before the questions. Accepting the requirements was a necessary condition to proceed with the study. Throughout the study, the participants' identity was preserved and data confidentiality was ensured.

Results

The sample consisted of 147 nurses working in HD departments across the country, predominantly female (72.1%), with a mean age of 39.9 years, ranging between 23 and 67. Regarding academic qualifications, 50.3% have a bachelor's degree and 49.7% have postgraduate education (25.2% master's, 23.1% specialization, and 1.4% doctoral). Regarding the professional group, 54.4% are general nurses, 34.0% are specialists, and 11.6% have managerial functions. The years of experience shows a mean total of 16.8 years (minimum 1 year and maximum 41 years) and a mean in HD experience of 12.4 years. Regarding the employment relationship with the HD department, 43.5% of the nurses worked full-time and 56.5% worked part-time (Table 1).

Table 1*Sociodemographic characterization of the study population (n = 147)*

	<i>N</i> (147)	%
GENDER		
Female	106	72.1 %
Male	41	27.9 %
AGE (= 39.9 years)		
23-40 years	85	57.8%
More than 40 years	62	42.2%
ACADEMIC QUALIFICATIONS		
Bachelor's degree	74	50.3%
Specialization + Master's + Doctoral degree	73	49.7%
PROFESSIONAL GROUP		
General nurse	80	54.4%
Nurse specialist	67	34.0%
Nurse manager	17	11.6%
TOTAL EXPERIENCE (= 16.8 years)		
0-15 years	71	48.3%
16 years and more	76	51.7%
EXPERIENCE IN HOSPITAL SETTINGS (= 13.2 years)		
0-15 years	82	55.8%
16 years and more	65	44.2%
EXPERIENCE IN HD (= 12.4 years)		
0-15 years	96	65.3%
16 years and more	51	34.7%
TYPE OF EMPLOYMENT RELATIONSHIP WITH THE HD DEPARTMENT		
Full-time	64	43.5 %
Part-time	83	56.5 %

Data resulting from the use of the QABPBE-26 indicate an attitude supportive of EBP, with 91.1% of nurses reporting that implementing EBP will be of benefit to their professional development, and 85.7% of nurses agreeing that there are benefits to changing their practice based on research. When asked if much of the available research is not relevant to their professional practice, 66.6% of the nurses disagreed, and 78.2% also disagreed that research articles are not easily understood. The majority of the sample (84.3%) felt confident using computers to search for evidence-based information, and 76.1% reported knowing how to search for it. The most commonly cited barriers were lack of time (66.0%), lack of training in how to use research effectively (68.7%), and lack of confidence due to experts not sharing relevant knowledge in this area (72.1%).

Regarding inferential statistics, there is no statistically significant difference in the overall responses comparing

the two genders. The only notable difference is that female respondents were more likely to agree ($p = 0.015$) with Q16, "My onsite computer facilities are adequate for searching evidence-based literature."

Results from Fisher's exact test show a significant association between the professional group and questions Q5 "I find that management are supportive in the use of EBS" ($p < .001$), Q15 "I know how to search for evidence-based information" ($p = .035$), Q16 "My onsite computer facilities are adequate for searching evidence-based literature" ($p = .003$), and Q17 "I find it hard to influence changes to clinical practice in my work setting" ($p = .011$). Nurse managers are more likely to believe that management support EBP, have adequate IT resources for research, and know how to search for information. They also do not find it hard to make changes in the workplace. Statistically significant differences were found between the sociodemographic variable "academic qualifications"

and questions Q12 "I am confident using computers to search for evidence-based information" ($p = 0.017$), Q15 "I know how to search for evidence-based information" ($p = 0.009$), Q21 "I find time limitations prevent EBP being used effectively in my practice" ($p = 0.027$), and Q23 "I would feel more confident if there was an individual experienced in research to supply me with relevant information" ($p = 0.005$). Thus, nurses with postgraduate education (specialization, master's, or doctoral degree) are more confident using computers and in their ability to search for evidence-based information. Nurses with advanced degrees often report lack of time and experts not sharing relevant information in the field as barriers to EBP.

Associations were found between the QABPBE-26 questions and the sociodemographic variable "work experience". Longer years of experience in hospitals is related to greater feelings of isolation from knowledgeable colleagues with whom to discuss research findings and lower confidence using computers to search for evidence-based information. There is a statistically significant relationship between this variable and questions Q10 "I feel isolated from knowledgeable colleagues with whom I can discuss research findings" ($p = 0.021$; $r = 0.1919$) and Q12 "I am confident using computers to search for evidence-based information" ($p = 0.014$; $r = -0.202$). A statistically significant relationship was also found between this variable and Q23 "I would feel more confident if there was an individual experienced in research to supply me with relevant information" regardless of whether it is total work experience ($p = 0.001$; $r = -0.278$), hospital work experience ($p = 0.001$; $r = -0.263$), or HD ($p = 0.023$; $r = -0.188$). Nurses with longer years of experience are less likely to feel the need to share with relevant information by research experts. Similarly, nurses with longer years of experience in hospitals are less likely to believe that implementing EBP will be of benefit to their professional development (Q26; $p = 0.02$; $r = -0.191$).

Discussion

The importance of EBP is undisputed, as is the relevance of the role of nurses in caring for people with CKD on HD. In this sense, it is urgent to know the reality of this specific context in order to define strategies that promote nurses' empowerment and EBP in HD. In this study, attitudes toward EBP and perceived barriers to its implementation by nurses in HD units in Portugal were identified.

Nurses showed positive attitudes toward EBP because they believe it is beneficial to their professional development. In a study of medical-surgical nurses' perceptions of EBP, Pinto (2022) shows that these professionals admit that their professional development is positively affected by the integration of best evidence into their specialized clinical practice. Silva et al. (2021) state that nurses consider EBP an essential pillar of clinical practice. Similarly, Camargo et al. (2018) concluded in their integrative literature review that nurses have a positive attitude toward EBP.

Peixoto et al. (2017) compared the attitudes of nurses in hospitals and primary care settings and concluded that professionals in both contexts have positive attitudes toward EBP. These findings are also supported by Friesen et al. (2017), Pereira (2021), and Torres (2019). However, these attitudes tend to decrease the longer the work experience in the hospital, possibly due to the greater time distance between these professionals and academia, which highlights the importance of lifelong learning and the relevance of this topic.

Although nurses seem to be supportive of EBP and recognize its positive impact on care, the incorporation of evidence into practice is still not as desired (Alqahtani et al., 2020; Pereira, 2021).

In fact, there are several barriers to EBP that have been studied worldwide, namely lack of time, lack of support from management, lack of research funding, lack of training, organizational culture, low number of EBP mentors, lack of skills to evaluate evidence, difficulty in meeting the stages of scientific implementation, insufficient resources, and high workload (Cardoso et al., 2019; Pinto, 2022). In this study, nurses perceive that lack of time prevents the effective use of EBP, which is consistent with the studies of Torres (2019) and Pinto (2022), although in these studies the perception of lack of time is greater.

Responses to Q23 confirm that 72.1% of nurses agree/strongly agree with the statement "I would feel more confident if there was an individual experienced in research to supply me with relevant information." In the validation study of the QABPBE-26, 85.3% of nurses responded positively to this question, supporting the perception of the need for research experts to share relevant information (Pereira et al., 2015). Experts not sharing relevant information, which may hinder the use of EBP, occurs in different nursing contexts, as shown by Torres (2019) in his study in a pediatric setting and Peixoto et al. (2017) in a cross-sectional study with primary care and hospital nurses, in which 81.2% of nurses recognized that research experts do not share information (Peixoto et al., 2017). Similarly, Pinto (2022) found that 76.6% of medical-surgical nurses responded positively to the same question, highlighting the lack of mentors as a real barrier to EBP.

Another barrier to EBP in HD highlighted by nurses was the lack of EBP training. This barrier is also highlighted by Pereira (2015) and Torres (2019), where 87.1% and 76.5% of nurses, respectively, emphasized the need for training to use research effectively.

Various strategies for overcoming these obstacles have been described in the literature. In a study conducted in the United States of America (USA), nurses from five hospitals participated in an EBS implementation training program supported by mentors. The results show that EBP training supported by mentors can promote knowledge translation (Friesen et al., 2017). Melnyk et al. (2018) examined the extent to which mentors support and guide the development of EBP skills and knowledge in a study of 2344 nurses from 19 hospitals in the USA and confirmed that close collaboration between mentor and practicing nurse promotes EBP implementation.

Silva et al. (2021) state that theoretical-methodological workshops for nursing leaders and lifelong learning supported by mentors encourage and instill confidence in participants. Similarly, Peixoto et al. (2017) emphasize the importance of leading and participating in EBP workgroups, and Gorsuch et al. (2020) promote formal skill-building programs to enhance EBP. Pinto (2022) suggests designing lifelong learning curricula that target gaps perceived by nurses in their specific context, creating mentoring relationships between experts (teachers/researchers) and practicing nurses, and building an organizational culture that promotes EBP. A study conducted in the USA demonstrated the benefits of EBP teams that developed critical appraisal skills with mentor support (Friesen et al., 2017). Based on the findings, the authors suggested expanding these teams to include research fellowships for nurses (Friesen et al., 2017). The development of an intranet with EBP support materials also allowed participants to easily access these resources in their hospitals (Friesen et al., 2017). Silva et al. (2021) and Camargo et al. (2018) also suggest integrating EBP into undergraduate and graduate nursing curricula as a useful strategy.

Lack of encouragement to develop research skills was also perceived as a barrier to EBP, but to a lesser extent (54.4%), unlike in the study by Pinto (2022) and Torres (2019), in which 83.9% and 73.5%, respectively, agreed/strongly agreed with Q9 "There are no incentives to develop my research skills for use in my clinical practice." Indeed, the way organizations view EBP-related issues has a major impact on implementation by their professionals. An organizational culture that promotes and supports EBP creates a favorable environment for EBP integration (Crawford et al., 2020).

Perceived confidence in IT use tends to be higher among nurses with advanced degrees, a finding consistent with the findings of Melnyk et al. (2018) and Crawford et al. (2020) and actually not surprising given that EBP phases and pillars are introduced and explored in postgraduate education, particularly in the second and third cycles of study. Regarding Q1, "I feel confident in my ability to evaluate the quality of research papers," we found that nurse specialists feel more confident than general nurses, which is consistent with the study by Silva et al. (2021), who found that nurse specialists perform better in implementing EBP.

The authors consider limitations of the study to be the restriction of the sample to the Diaverum Portugal nursing team and the small number of national studies that used the QABPBE-26, which limits the comparison and discussion of the results.

Conclusion

This study concludes that nurses value EBP and recognize that implementing it will contribute to their professional development. Results from the QABPBE-26 application indicate positive attitudes toward EBP, but also barriers primarily related to lack of time, training needs, and lack

of incentives to develop search skills for use in clinical practice.

Implications for practice include the need for research training programs that enable knowledge sharing and effective learning in the field. In addition, it is critical to raise awareness and educate leaders about the importance of providing nurses with more incentives and time for research and seeking knowledge of HD.

Further research should be conducted to obtain a deeper understanding and more accurate description of nurses' EBP knowledge, skills, and competencies in HD. It would also be important to explore organizations' positioning in relation to EBP implementation, particularly regarding the role of the nurse mentor in EBP.

Author Contributions

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