RIASE
REVISTA IBERO-AMERICANA DE SAÚDE E ENVELHECIMENTO
REVISTA IBERO-AMERICANA DE SALUD Y ENVEJECIMIENTO

ACCEPTANCE OF BODY IMAGE CHANGES IN INDIVIDUALS WITH VASCULAR ACCESS FOR HEMODIALYSIS: A CROSS-SECTIONAL QUANTITATIVE STUDY

ACEITAÇÃO DA ALTERAÇÃO DA IMAGEM CORPORAL NA PESSOA COM ACESSO VASCULAR EM HEMODIÁLISE: ESTUDO QUANTITATIVO TRANSVERSAL

ACEPTACIÓN DE LOS CAMBIOS EN LA IMAGEN CORPORAL EN PERSONAS CON ACCESO VASCULAR EN HEMODIÁLISIS: UN ESTUDIO CUANTITATIVO TRANSVERSAL

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Received/Recebido: 2025-12-01 Accepted/Aceite: 2026-07-08 Published/Publicado: 2026-08-218

DOI: http://dx.doi.org/10.60468/r.riase.2026.12(02).812.26-34

Abstract

Background: Vascular access for hemodialysis is a vital necessity, but it entails visible physical changes that can impact an individual's body image, self-concept, and social integration. **Aim:** To explore the attitudes and perceptions of hemodialysis patients regarding body image changes associated with the presence of vascular access. **Method:** A quantitative, cross-sectional, exploratory-descriptive study conducted at a hemodialysis clinic in the Alentejo region. The sample consisted of 70 participants (out of 85 eligible candidates). The instrument used was a 22-item Likert-type scale (adapted from the Mastectomy Attitude Scale) including one open-ended question; descriptive analysis was performed. **Results:** 60% were men; the predominant age group was over 60 years (82.9%); 63% had an arteriovenous fistula; 65% presented with aneurysms/pseudoaneurysms. Overall acceptance of body image changes ranged from 62% to 68% (no shame in exposing the access site; comfort wearing short-sleeved clothing; recognition of the access's vital importance; reduced sense of disfigurement). Discomfort or a tendency to conceal the access site, fear of public hemorrhage, and heightened anxiety regarding potential injury were observed in 32–38% of participants. The majority (≈ 80%) preferred to keep their current vascular access; family support was descriptively associated with higher levels of acceptance. **Conclusion:** Acceptance of body image related to the access site was generally positive among the majority of participants, although a subset reported difficulties linked to the visibility and significance of the access. Given the study's exploratory nature, the results highlight the importance of considering the psychosocial dimension of living with vascular access in nursing practice.

Keywords: Body Image; Chronic Kidney Disease; Hemodialysis; Nursing; Vascular Access.

Resumo

Enquadramento: O acesso vascular para hemodiálise é condição vital, mas acarreta alterações corporais visíveis que podem repercutir-se na imagem corporal, no autoconceito e na integração social da pessoa. **Objetivo:** Descrever, de forma exploratória, as atitudes e perceções de pessoas em hemodiálise face às alterações da imagem corporal associadas à presença de acesso vascular. **Método:** Estudo quantitativo, transversal, exploratório-descritivo, realizado numa clínica de hemodiálise do Alentejo. Amostra composta por 70 participantes (de 85 elegíveis). Instrumento: escala tipo Likert de 22 itens (adaptação da *Mastectomy Attitude Scale*), com uma questão aberta, e realizada análise descritiva. **Resultados:** 60% homens; faixa etária predominantemente > 60 anos (82,9%); 63% com Fístula Arteriovenosa; 65% com aneurismas/pseudoaneurismas. A aceitação global da alteração da imagem corporal variou entre 62–68% (sem vergonha de expor o AV; conforto em usar vestuário de manga curta; perceção da importância vital do acesso vascular; menor sensação de desfiguração). Entre 32–38% observou-se desconforto/ocultação do acesso, medo de hemorragia em público e maior receio de lesão do mesmo. A maioria (≈ 80%) preferiu manter o acesso vascular atual; e a presença de apoio familiar relacionou-se, descritivamente, com maior aceitação. **Conclusão:** A aceitação da imagem corporal associada ao acesso revelou-se globalmente positiva na maioria dos participantes, embora uma proporção refira dificuldades relacionadas com a visibilidade e significado do acesso. Atendendo ao carácter exploratório do estudo, os resultados sugerem a relevância de considerar a dimensão psicossocial da vivência do acesso vascular na prática de Enfermagem.

Palavras-chave: Acesso Vascular; Doença Renal Crónica; Enfermagem; Hemodiálise; Imagem Corporal.

Resumen

Marco contextual: El acceso vascular para hemodiálisis es una condición vital, pero implica cambios corporales visibles que pueden afectar la imagen corporal, la autoestima y la integración social. **Objetivo:** Describir, de forma exploratoria, las actitudes y percepciones de las personas sometidas a hemodiálisis respecto a los cambios en la imagen corporal asociados a la presencia de acceso. **Métodos:** Estudio transversal, cuantitativo y exploratorio realizado en una clínica de hemodiálisis en Alentejo. La muestra estuvo compuesta por 70 participantes (de 85 elegibles). Instrumento: Escala tipo Likert de 22 ítems (adaptación de la *Mastectomy Attitude Scale*), con una pregunta abierta. Se realizó un análisis descriptivo. **Resultados:** 60% hombres; predominantemente mayores de 60 años (82,9%); 63% con fístula arteriovenosa; 65% con aneurismas/pseudoaneurismas. La aceptación general positiva osciló entre el 62 % y el 68 % (sin vergüenza por exponer el acceso vascular; comodidad al usar mangas cortas; percepción de la vital importancia del acceso vascular; menor sensación de desfiguración). Entre 32%–38% reportaron incomodidad/evitación, preocupación por sangrado en público y miedo a lesiones. La mayoría (≈ 80 %) prefirió su acceso actual; y la presencia de apoyo familiar se relacionó descriptivamente con una mayor aceptación. **Conclusión:** La aceptación de la imagen corporal asociada al acceso fue globalmente positiva en la mayoría de los participantes, aunque una proporción reportó dificultades relacionadas con la visibilidad y el significado del acceso. Dada la naturaleza exploratoria del estudio, los resultados sugieren la relevancia de considerar la dimensión psicosocial de la experiencia del acceso vascular en la práctica de enfermería.

Descriptores: Acceso Vascular; Enfermedad Renal Crónica; Enfermería; Hemodiálisis; Imagen Corporal.

Introduction

Hemodialysis (HD) remains the most widely used renal replacement therapy for individuals with stage 5 chronic kidney disease (CKD), requiring reliable and safe vascular access (VA)[1,2]. International guidelines (KDOQI, ERBP) emphasize aligning VA planning with the ESKD Life-Plan and patient preferences, aiming to maximize patency and minimize complications[3,4]. However, the creation of VA — particularly arteriovenous fistulas (AVF) and arteriovenous grafts (AVG) — is associated with visible physical changes (venous dilation, scarring, pseudoaneurysms) that may impact body image perception, self-esteem, and social participation[5,6]. Recent studies describe associations between treatment-related symptoms and experiences (pain, pruritus, fatigue, anxiety) and the emotional dimensions of body image, as well as quality of life, among HD patients[7–9].

Despite growing knowledge regarding the VA experience and treatment satisfaction, evidence concerning the acceptance of VA-related body image changes remains fragmented and methodologically heterogeneous, with a scarcity of quantitative studies in the Portuguese context[10–12]. This study aims to explore the attitudes and perceptions of HD patients regarding body image changes associated with the presence of VA.

Aims: (i) To characterize the sample regarding sociodemographic and clinical variables related to dialysis treatment and VA type; (ii) To describe attitudes and perceptions regarding the exposure or concealment of the VA; (iii) To describe emotions and beliefs associated with the perception of bodily disfigurement; (iv) To describe feelings of safety, fear, and vulnerability associated with the VA; (v) To describe perceptions of social interaction, family support, and emotional communication with the nursing team.

Methodology

Study design

This study is quantitative, cross-sectional, and exploratory-descriptive in nature, aiming to describe the attitudes and perceptions of individuals undergoing HD regarding changes in their body image resulting from the presence of a VA. This design allowed for the characterization of perceptions at a specific point in time, without the manipulation of variables, making it suitable for an exploratory description of the phenomenon under study.

Context and participants

The study was conducted at a HD clinic in the Alentejo region, within the context of providing care to individuals with chronic kidney disease (CKD) undergoing a regular HD program. The target population consisted of 85 individuals receiving regular treatment at the unit. Exclusion criteria were defined as follows: altered state of consciousness that could compromise comprehension of the instrument, and the location of the VA in a lower limb — a less frequent scenario that could potentially differ in terms of body perception.

After applying eligibility criteria and obtaining informed consent, the final sample comprised 70 participants. This was a non-probabilistic convenience sample, representing approximately 82% of the eligible population at the study site. Although this represents a high participation rate within the analyzed context, the results should be interpreted with caution regarding their generalization to other settings.

Instrument

Data collection involved a 22-item Likert-type scale with three levels of agreement (1 = *completely disagree*; 2 = *partially agree*; 3 = *completely agree*). The instrument was adapted from the Mastectomy Attitude Scale, originally developed to assess attitudes and feelings regarding body image changes following a mastectomy[13,14]. The thematic adaptation focused on the specific reality of individuals with a VA for HD, rephrasing item content to reflect beliefs, emotions, and behaviors relevant to this clinical context.

The scale was supplemented with an open-ended question designed to capture additional perceptions or spontaneous comments regarding the experience of body image changes. A pre-test was also conducted with a small group of participants sharing characte-

ristics similar to the study sample to assess the clarity and comprehensibility of the items; no significant interpretation difficulties were identified during this pre-test.

It is important to note that, as this was a thematic and contextual adaptation of the original instrument, only an assessment of content and comprehensibility was performed. No formal psychometric validation procedures (such as factor analysis, internal consistency, or reliability studies) were carried out for the version used in this study. Consequently, the results are exploratory in nature and should be interpreted with caution, taking this methodological limitation into account. Data collection took place during the final four months of 2021.

Procedures and analysis

Data collection took place in person while participants were at the clinic, adhering to ethical principles regarding voluntary participation, anonymity, and confidentiality. Participants were informed of the study's objectives, the voluntary nature of their participation, and their right to withdraw at any time without affecting their treatment.

Statistical analysis was performed using IBM® SPSS® software, relying exclusively on descriptive analysis of frequencies and percentages for each item and for the defined conceptual groupings. For the purpose of organizing the descriptive results, the items were aggregated into four conceptual groupings:

1. Exposure and concealment of VA — behaviors and attitudes towards VA visibility;
2. Emotions and beliefs regarding bodily disfigurement — perceptions of mutilation, shame, or acceptance;
3. Safety and fear — feelings of physical vulnerability or concern regarding access;
4. Social and family interaction — perception of the impact on interpersonal relationships and social support.

The purpose of this organization was to systematize the descriptive presentation of the results, facilitating their subsequent discussion in light of the existing literature.

Results

Sample characterization

The sociodemographic and clinical characteristics of the sample are summarized in Table 1. The sample consisted of 70 participants undergoing a regular HD program; the gender distribution was 60% male (n = 42) and 40% female (n = 28), showing a slight male predominance.

Table 1: Sociodemographic and clinical characteristics of the sample (n=70).

Variable	Category	Percentage (%)
Gender	Male / Female	60/40
Age	≥ 60 years old	82.9
Type of VA	AVF/AVG/CKD	63/13/24
Time in HD	> 5 years	42,8
Aneurysms/pseudoaneurysms	Yes	65

Regarding age, 82.9% of the participants were 60 years old or older, with an age range of 21 to 89.

As for marital status, the majority of participants were married or in a stable partnership (64%), while 11% were single; cases of widowhood and divorce were also recorded, albeit in smaller proportions.

Regarding employment status, the majority of participants (85%) were retired.

Concerning the social support network, most participants reported receiving support from a spouse or partner; notably, 12 participants reported a lack of any regular support.

Regarding the clinical characteristics of the dialysis treatment, 42.8% of the participants had been in the HD program for more than five years.

With respect to the type of VA, the AVF was the predominant type (63%), followed by the AVG (13%) and the long-term/tunneled catheter (LTC), present in 24% of cases. The AVF was the most frequent type of access in the sample.

Finally, the presence of aneurysms or pseudoaneurysms associated with the VA was observed in 65% of the participants.

Preference for VA type

Regarding the preference for the type of VA, approximately 80% of the sample expressed an intention to maintain their current access method.

Among the participants who expressed a desire to change their access (n = 13), there was a predominant preference for a tunneled central venous catheter (CVC) over an AVF or AVG. Reasons cited for this preference included pain associated with repeated cannulation and aesthetic concerns, specifically the presence of visible deformities or aneurysms in AVFs.

Conversely, two participants with a CVC expressed a preference for an AVF or AVG. Reasons cited included the perception of a lower risk of infection and greater durability associated with these types of access.

Overall, various factors influenced the preference for a specific type of VA, including clinical, functional, and aesthetic considerations.

Attitudes towards body image

Descriptive analysis of responses regarding changes in body image revealed perceptions and behaviors associated with acceptance, concealment strategies, and feelings of discomfort regarding the VA, as summarized in Table 2 and Figure 1.

Overall, there was agreement with statements acknowledging the importance of the VA for the continuation of treatment. At the same time, responses expressing various emotions regarding the VA were identified, including feelings of shame, revulsion, or fear, particularly when the access site presented visible deformities.

Table 2: Key items by area and percentages of agreement/disagreement.

Topic	Item	Agreement (%)	Disagreement (%)
Exposure/concealment	Unashamed to expose the VA	68.6	31.4
Emotions	I feel different	28.6	62.9
Safety/fear	Fear of hemorrhaging while away from home	70.0	30.0
Social interaction	Shares feelings with the nurse	81.4	18.6
Global Estimate	Positive Acceptance	62–68	32–38

VA exposure/concealment:

- "I wear short sleeves/I am not ashamed to show the AV in public": **57.1%–68.6%** agreed; **31.4%–38.6%** reported avoiding exposure (summer/outdoors).
- "Keeping the VA covered makes me more accepted": **52.9% disagreed** (they do not feel the need to hide it in order to be accepted).

Emotions/desfiguration:

- "I feel different/disfigured": **62.9%** disagreed; **28.6%–31.4%** indicated emotional fragility associated with the VA.
- "I became depressed after the VA was created": **42.9%** disagreed (responses among the remainder were distributed).

Security/fear:

- "Fear of the VA failing": **74.3%** agreed.
- "Fear of hemorrhage away from home": the majority agreed (38 + 11 participants).
- "Fear of AV injury": **68.6%** agreed.

Social/family interaction and communication:

- More frequent **family support** was descriptively associated with greater acceptance.
- **Emotional expression to the nursing team: 57** participants reported speaking with nurses about feelings related to the VA (often when asked).

Global estimate

Positive acceptance of body image changes ranged from **62%** to **68%**; **32%** to **38%** exhibited profiles of vulnerability (concealment, shame, heightened fear/hypervigilance).

Figure 1: Body image acceptance — summary by dimension.

In the conceptual grouping of revealing and concealing the upper arm, a predominance of responses consistent with acceptance of its visibility was observed, with 57.1%–68.6% of participants expressing comfort in wearing short-sleeved clothing or a lack of embarrassment about exposing the upper arm in public. Nevertheless, 31.4%–38.6% reported behaviors aimed at avoiding or concealing the stump, specifically by wearing clothing that covered the limb. Avoiding exposure was reported more frequently by female participants. Some participants reported greater acceptance as their treatment progressed.

In the grouping concerning emotions and beliefs about bodily disfigurement, responses described the VA as a permanent, visible physical alteration, often referred to as a "mark of the disease". These responses included references to self-esteem and how participants perceived themselves socially.

In the safety and fear grouping, concerns about rupture or bleeding of the access site — especially in the presence of aneurysms — were frequently mentioned. Practices involving monitoring the access site and self-protective behaviors were also reported.

Regarding social and family interaction, the majority of participants reported receiving emotional support from family members. Some reported voluntarily limiting social contact, linking this decision to concerns about the visibility of the VA.

In summary, the responses obtained highlighted the coexistence of attitudes of acceptance toward the VA and feelings of discomfort associated with its visibility and personal significance.

Discussion

Analysis of the results suggests that the alteration in body image associated with the presence of a VA in individuals undergoing HD may be multidimensional in nature, involving physical, emotional, and relational dimensions. The male predominance in the sample aligns with the epidemiological profile of the CKD population undergoing renal replacement therapy[15–17], helping to contextualize the findings within the national and international landscape. Similarly, the high proportion of participants aged 60 or older reflects the demographic pattern frequently observed in chronic HD programs[15–17], which may explain the high retirement rate observed.

Regarding the experience of body image, the results revealed a coexistence of the acknowledged vital importance of the VA with negative emotions such as shame, fear, or revulsion. This ambivalence mirrors findings in the literature describing a simultaneous sense of gratitude for life-sustaining treatment and discomfort regarding the visible bodily changes associated with it[18]. Such duality may reflect the tension between the VA's functional role and its symbolic significance as a marker of chronic illness[19].

The concealment of the VA — particularly among female participants — may indicate concerns regarding self-image and social perceptions of an altered body. Previous studies indicate that in the context of chronic illness, the body takes on new meanings, with the visibility of physical changes often linked to feelings of stigmatization[19]. However, given the cross-sectional design and the exploratory nature of the instrument used, these interpretations should be viewed with caution.

Some participants reported greater acceptance over the course of their HD treatment; this observation is consistent with studies describing gradual processes of body image adaptation during the dialysis journey[20]. Nevertheless, the present study does not allow for the establishment of causal relationships between treatment duration and the level of acceptance, as it is limited to describing trends reported by the participants.

The presence of aneurysms or pseudoaneurysms in 65% of the sample was frequently accompanied by reports of discomfort or fear of complications. Literature suggests that visible morphological changes in the VA may be associated with greater emotional vulnerability and a perceived loss of control[21]. These data may underscore the importance of integrating the emotional dimension into the clinical monitoring of individuals with VA, even though the study design does not allow for the inference of direct associations.

Regarding VA type preference, the majority of participants expressed an intention to maintain their current access. In cases where a desire for change was expressed, reasons related to cannulation-associated pain and aesthetic concerns were highlighted. Although FAV remains the preferred option for individuals with appropriate clinical and vascular characteristics, current recommendations emphasize individualized selection of the AV, taking into account benefits, complications, prognosis, and the individual's preferences[3,4,22], the results suggest that subjective factors, such as comfort and self-image, may influence the perception of the AV. Studies such as that by Murea *et al* [23] argue that decisions regarding access type should consider not only technical criteria but also psychosocial dimensions and quality of life, within a shared decision-making framework.

Concerning social support, the majority of participants reported family support — a factor described in the literature as facilitating adaptation to chronic illness[24]. Participants who reported a lack of support described greater social restriction, which may suggest increased vulnerability. Nevertheless, given the descriptive nature of the analysis, it is not possible to establish causal relationships between social support and body image acceptance.

Overall, the results highlight the importance of considering body image as an integral dimension of the HD experience. Nursing literature supports the importance of person-centered approaches that integrate physical care with emotional support[25]. However, it is important to emphasize that the suggested clinical implications should be interpreted with caution, given the limitations of the present study. Key limitations include the cross-sectional design, non-probability convenience sampling, and the use of an adapted instrument lacking formal psychometric validation. The absence of assessments regarding properties such as internal consistency or factor structure limits the inferential robustness of the results and their generalizability to other contexts. Thus, the findings should be viewed as an exploratory contribution to understanding body image acceptance among individuals with arteriovenous access for HD.

Future research should focus on the psychometric validation of instruments specific to this population and — using more robust methodologies — explore the associations between clinical characteristics, social support, and the emotional dimensions of body image, thereby helping to inform evidence-based nursing interventions.

Conclusion

This study contributed to an exploratory understanding of the attitudes and perceptions of individuals undergoing HD regarding body image changes associated with the presence of a VA. The results suggest that, although most participants acknowledge the vital importance of the VA, negative emotions associated with its visibility — such as shame, discomfort, and fear — coexist and may interfere with how individuals perceive themselves both physically and socially.

Some participants reported greater acceptance over the course of treatment, a finding consistent with the progressive adaptation processes described in the literature. Nevertheless, visible anatomical changes, such as aneurysms or other deformities, were frequently linked to emotional distress, particularly among female participants and those reporting lower levels of social support. However, the study's cross-sectional design precludes the establishment of causal relationships between these variables.

Preferences regarding the type of VA indicate that the choice of access type may be influenced not only by clinical criteria but also by subjective factors, such as comfort and self-image. These results highlight the importance of considering the psychosocial dimension when caring for individuals on HD, particularly within the context of shared decision-making.

It is important to note that these findings should be interpreted in light of the identified methodological limitations, specifically the use of a convenience sample and an adapted instrument lacking formal psychometric validation. Thus, the results offer an exploratory contribution to the field, pointing to the need for future studies that validate specific instru-

ments and — with greater methodological rigor — explore the emotional and social dimensions of the experience of living with a VA.

Limitations

This study presents limitations that should be considered when interpreting the results. The use of a non-probability convenience sample, confined to a single HD unit, limits the external validity and generalization of the findings to other care settings.

Additionally, the instrument used was a thematic adaptation of a pre-existing scale; no formal psychometric validation procedures (such as factor analysis, internal consistency, or reliability testing) were conducted for the version applied. This methodological choice affects the inferential robustness of the results and precludes direct comparisons with studies using instruments validated for the HD population.

The decision to conduct an exclusively descriptive analysis — consistent with the study's exploratory nature — did not allow for the exploration of associations between clinical and perceptual variables (e.g., VA type and attitudes toward body image), thereby limiting the understanding of potential interrelationships between dimensions of the phenomenon.

Finally, the absence of a complementary qualitative component may have restricted a deeper exploration of the symbolic and emotional dimensions associated with the experience of VA, which could have been better examined through mixed-methods approaches.

Future perspectives

The results of this exploratory study suggest possible implications for nursing practice in HD settings, which are summarized in Table 3. The psychosocial dimension associated with altered body image may warrant increased attention from healthcare professionals, particularly regarding the identification of feelings of discomfort, shame, or apprehension related to the visibility of the VA.

Table 3: Practical implications for nursing.

Topic	Recommended interventions
Therapeutic education	VA nursing consultation; self-care training; hemorrhage action plan.
Emotional support	Screening for emotional distress; referral for psychological support.
Family involvement	Person and family-centered education; normalization of scars/aneurysms.
Promotion of empowerment	Support groups and peer support programs; strengthening self-efficacy.

In this regard, it may be pertinent to consider:

- The systematic integration of body image assessment and the emotional impact of VA into clinical practice.
- Strengthening therapeutic education, encompassing not only the technical aspects of the VA but also the subjective experience associated with it.
- The promotion of person-centered approaches that value coping strategies, self-esteem, and psychosocial adaptation.
- Valuing shared decision-making regarding the type of VA, considering both clinical and perceptual dimensions.
- Attention to signs of social isolation or emotional distress, with coordination with psychological or social support resources when indicated.

At the organizational and training levels, these findings may also suggest the relevance of specific training focused on the psychosocial dimension of HD care. However, such implications should be interpreted with caution, given the study's methodological limitations.

References

1. Lok CE, Yuo T, Lee T. Hemodialysis Vascular Access: Core Curriculum 2025. Am J Kidney Dis. 2025;85(2):236–252. Available from: https://doi.org/10.1053/j.ajkd.2024.05.021

2. Johansen KL, Gilbertson DT, Li S, Li S, Liu J, Roetker NS, et al. US Renal Data System 2023 Annual Data Report: Epidemiology of Kidney Disease. American Journal of Kidney Diseases. 2024 April;83(4 Suppl 1):A8–13. Available from: https://doi.org/10.1053/j.ajkd.2024.01.001

3. Lok CE, Huber TS, Lee T, Shenoy S, Yevzlin AS, Abreo K, et al. KDOQI Clinical Practice Guideline for Vascular Access: 2019 Update. American Journal of Kidney Diseases. 2020 April;75(4 Suppl 2):S1–164. Available from: https://doi.org/10.1053/j.ajkd.2019.12.001

4. Gallieni M, Hollenbeck M, Inston N, Kumwenda M, Powell S, Tordoir J, et al. Clinical practice guideline on peri- and postoperative care of arteriovenous fistulas and grafts for haemodialysis in adults. Nephrol Dial Transplant. 2019;34(Suppl 2):ii1–ii42. Available from: https://doi.org/10.1093/ndt/gfz072

5. Silva DMD, Silva RMCRA, Pereira ER, Ferreira HC, Alcantara VCGD, Oliveira FDS. The body marked by the arteriovenous fistula: a phenomenological point of view. Rev Bras Enferm. 2018 December;71(6):2869–75. Available from: https://doi.org/10.1590/0034-7167-2017-0898

6. Taylor MJ, Hanson CS, Casey JR, Craig JC, Harris D, Tong A. "You know your own fistula, it becomes a part of you" — Patient perspectives on vascular access: a semistructured interview study. Hemodial Int. 2016;20(1):5–14. Available from: https://doi.org/10.1111/hdi.12340

7. Yang Y. The Mediating Effects of Symptom Experiences on the Relationship between Body Image and Quality of Life among Hemodialysis Patients in a Single Center. Healthcare. 2024 September 5;12(17): 1779. Available from: https://doi.org/10.3390/healthcare12171779

8. Hassan F, Doğan N. Evaluation of body image perception, pain, fatigue and anxiety levels of individuals on hemodialysis and waiting for kidney transplantation and individuals with kidney transplantation. Actas Urol Esp (Engl Ed). 2025;49(2):501707. Available from: https://doi.org/10.1016/j.acuroe.2025.501707

9. Fontao SM, Manso P, Audije-Gil J, Gascueña DH, Dapena F, Aresté N, et al. Quality of life and clinical data in hemodialysis patients with different degrees of pruritus. Sci Rep. 2025 February 20;15(1):6222. Available from: https://doi.org/10.1038/s41598-024-83833-2

10. Carvalho AR, Barbosa MR. A depressão nos doentes hemodialisados: o papel da satisfação corporal e da sexualidade. Rev Port Saude Pública. 2016;34(2):144–153. Available from: https://doi.org/10.1016/j.rpsp.2016.02.002

11. Barros JP, Fonseca JA, Pinto R, Pratas J, Cruz-Correia R. Cross-cultural validation of the Short-Form Vascular Access Questionnaire. J Vasc Access. 2024;25(5):1528–1538. Available from: https://doi.org/10.1177/11297298231170407

12. Oliveira JCMS. O impacto da técnica dialítica na imagem corporal do cliente com doença renal crónica [dissertação]. Lisboa: Escola Superior de Enfermagem de Lisboa; 2024.

13. Heyl MAR. Attitudes toward mastectomy: the development of a measurement scale [dissertação]. Greensboro (NC): University of North Carolina at Greensboro; 1977.

14. Reaby LL, Hort LK. Postmastectomy attitudes in women who wear external breast prostheses compared to those who have undergone breast reconstructions. J Behav Med. 1995;18(1):55–67. Available from: https://doi.org/10.1007/BF01857705

15. Johansen KL, Gilbertson DT, Li S, Li S, Liu J, Roetker NS, et al. US Renal Data System 2025 Annual Data Report: Epidemiology of Kidney Disease in the United States. Am J Kidney Dis. 2026;87(5S1):A6–A9. Available from: https://doi.org/10.1053/j.ajkd.2026.02.635

16. Hoekstra MWF, Boenink R, Bonthuis M, Boerstra BA, Astley ME, Montez de Sousa IR, et al. The ERA Registry Annual Report 2023: epidemiology of kidney replacement therapy in Europe, with a focus on age comparisons. Clin Kidney J. 2026;19(5):sfag036. Available from: https://doi.org/10.1093/ckj/sfag036

17. Sociedade Portuguesa de Nefrologia, Gabinete de Registo da Doença Renal Crónica. Registo Português da DRC sob tratamento de substituição renal 2023 [Internet]. Lisboa: Sociedade Portuguesa de Nefrologia; 2024. Available from: spnefro.pt/assets/relatorios/tratamento_doenca_terminal/er-2024---registo-atualizado.pdf

18. Casey JR, Hanson CS, Winkelmayer WC, Craig JC, Palmer S, Strippoli GFM, et al. Patients' perspectives on hemodialysis vascular access: a systematic review of qualitative studies. Am J Kidney Dis. 2014;64(6):937–953. Available from: https://doi.org/10.1053/j.ajkd.2014.06.024

19. Richard CJ, Engebretson J. Negotiating living with an arteriovenous fistula for hemodialysis. Nephrol Nurs J. 2010;37(4):363–375.

20. Romyn A, Rush KL, Hole R. Vascular access transition: experiences of patients on hemodialysis. Nephrol Nurs J. 2015;42(5):445–454.

21. Kim BM, Kim JA. Lived Experiences of Women with Arteriovenous Fistula Undergoing Hemodialysis: A Phenomenological Study. Healthcare (Basel). 2026;14(10):1296. Available from: https://doi.org/10.3390/healthcare14101296

22. Aitken E, Anijeet H, Ashby D, Barrow W, Calder F, Dowds B, et al. UK Kidney Association Clinical Practice Guideline on vascular access for haemodialysis. BMC Nephrol. 2025;26(1):461. Available from: https://doi.org/10.1186/s12882-025-04374-y

23. Murea M, Grey CR, Lok CE. Shared decision-making in hemodialysis vascular access practice. Kidney Int. 2021;100(4):799–808. Available from: https://doi.org/10.1016/j.kint.2021.05.041

24. Symister P. Beyond social support: using family expectations to predict psychological adjustment in end-stage renal disease patients. J Health Psychol. 2011;16(7):1015–1026. Available from: https://doi.org/10.1177/1359105311398680

25. Muringai T, Noble H, McGowan A, Channey M. Dialysis access and the impact on body image: role of the nephrology nurse. Br J Nurs. 2008;17(6):362–366. Available from: https://doi.org/10.12968/bjon.2008.17.6.28900

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PL: Study coordination, study design, data collection, storage and analysis, review and discussion of results.
MM: Study coordination, study design, data collection, storage, and analysis.
PP: Study coordination, study design, data collection, storage, and analysis.
All authors have read and agreed with the published version of the manuscript.

Ethical Disclosures/Responsabilidades Éticas
Conflicts of Interest: The authors have no conflicts of interest to declare.
Financial Support: This work has not received any contribution, grant or scholarship.
Provenance and Peer Review: Not commissioned; externally peer reviewed.
Conflitos de Interesse: Os autores declararam não possuir conflitos de interesse.
Suporte Financeiro: O presente trabalho não foi suportado por nenhum subsídio ou bolsa.
Proveniência e Revisão por Pares: Não comissionado; revisão externa por pares.