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Challenges and Lived Experiences of People with Lower Limb Amputation: A Qualitative Study

Desafios e experiências vividas por pessoas com amputação de membros inferiores: um estudo qualitativo

Desafíos y experiencias vividas de personas con amputación de extremidades inferiores: un estudio cualitativo

Diana Fonseca Rodrigues[a,b,c]
António Luís Rodrigues Faria de Carvalho[a,c]
Cristina Maria Correia Barroso Pinto[a,c]

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ABSTRACT

Objective: To understand the experience of people with dysvascular major lower-limb amputation throughout the health/disease transition process, focusing on their needs, challenges, and perceptions during the hospital-to-home transition, including hospital discharge preparation and strategies that promote empowerment in their return to daily life.

Method: An exploratory study using a qualitative approach. Semi-structured interviews were conducted with 40 individuals with dysvascular major lower limb amputation living at home. Data were analyzed using Bardin's content analysis methodology, supported by ATLAS.ti.® software. The study was conducted in Vila Nova de Gaia, Portugal, from 2022 to 2023.

Results: Five categories emerged: (1) needs/difficulties of amputees, (2) discharge preparation, (3) returning home, (4) empowerment strategies for amputees, and (5) impact of amputation.

Final considerations: The challenges faced by individuals with dysvascular major lower limb amputation when returning home include functional limitations, comorbidities, physical, emotional, and social barriers, highlighting the importance of person-centered and family-centered care.

Descriptors: Activities of daily living; Amputation; Disabled person; Lower limb; Self-care; Vascular disease.

RESUMO

Objetivo: Compreender a experiência de pessoas com amputação major do membro inferior por etiologia vascular ao longo do processo de transição saúde/doença, com foco nas suas necessidades, desafios e perceções durante a transição do hospital para o domicílio, incluindo a preparação para a alta hospitalar e as estratégias que promovem o empoderamento no regresso à vida quotidiana.

Método: Estudo exploratório, com abordagem qualitativa. Foram realizadas entrevistas semiestruturadas com 40 indivíduos com amputação maior de membros inferiores de causa vascular que residiam em seus domicílios. Os dados foram analisados por meio da metodologia de análise de conteúdo de Bardin, com o apoio do software ATLAS.ti. ® O estudo foi realizado em Vila Nova de Gaia, Portugal, de 2022 a 2023.

Resultados: Emergiram cinco categorias: (1) necessidades/dificuldades dos amputados, (2) preparação para a alta, (3) retorno para casa, (4) estratégias de empoderamento para amputados e (5) impacto da amputação.

Conclusões finais: Os desafios enfrentados por indivíduos com amputação maior de membros inferiores de causa vascular ao retornarem para casa incluem limitações funcionais, comorbidades, barreiras físicas, emocionais e sociais, destacando a importância de cuidados centrados na pessoa e na família.

Descritores: Atividades cotidianas; Amputação; Pessoas com deficiência; Membro inferior; Autocuidado; Doenças vasculares.

RESUMEN

Objetivo: Comprender la experiencia de personas con amputación mayor de miembro inferior de etiología disvascular a lo largo del proceso de transición salud/enfermedad, con énfasis en sus necesidades, desafíos y percepciones durante la transición del hospital al hogar, incluida la preparación para el alta hospitalaria y las estrategias que promueven el

[a] Universidade do Porto, Faculdade de Medicina, RISE-Health, Porto, Portugal.
[b] Universidade do Porto, Instituto de Ciências Biomédicas Abel Salazar, Porto, Portugal.
[c] Escola Superior de Enfermagem do Porto, Porto, Portugal.

empoderamiento en su regreso a la vida diaria.
Método: Estudio exploratorio con enfoque cualitativo. Se realizaron entrevistas semiestructuradas a 40 individuos con amputación maior de miembros inferiores de causa vascular que vivían en sus hogares. Los datos se analizaron mediante la metodología de análisis de contenido de Bardin, con el apoyo del software ATLAS.ti. ® El estudio se llevó a cabo en Vila Nova de Gaia, Portugal, de 2022 a 2023.
Resultados: Surgieron cinco categorías: (1) necesidades y dificultades de los amputados, (2) preparación para el alta, (3) regreso a casa, (4) estrategias de empoderamiento para amputados y (5) impacto de la amputación.
Consideraciones finales: Los desafíos de personas con amputación mayor de miembros inferiores de causa vascular al regresar a casa incluyen limitaciones funcionales, comorbilidades, barreras físicas, emocionales y sociales, destacando la importancia de cuidados centrados en la persona y la familia.
Descriptores: Actividades cotidianas; Amputación; Persona con discapacidad; Miembro inferior; Autocuidado; Enfermedades vasculares.

INTRODUCTION

Lower limb amputation (LLA) profoundly affects both individuals and their families, often resulting in functional impairments, social isolation, diminished quality of life, and a heightened risk of unemployment[1]. The leading causes of LLA are vascular-related conditions, particularly peripheral arterial disease (PAD) and diabetes, which frequently coexist. PAD is often asymptomatic, with an estimated prevalence of 10–20%[2], and is associated with significant health challenges, including pain, functional limitations, an increased risk of amputation, and higher mortality rates[2]. Individuals with diabetes are more likely to undergo lower limb revascularization and face an elevated risk of amputation due to the high prevalence of both PAD and peripheral neuropathy within this population[3].

Moreover, individuals undergoing LLA due to dysvascular causes face an increased risk of cognitive decline[4] and often contend with multiple comorbidities, such as hypertension, phantom limb pain, and musculoskeletal discomfort, which further compromise their health and quality of life[5]. Barriers to physical activity following amputation include challenges related to prosthetic use, fear of falling, and limited access to community resources[6], all of which impede rehabilitation and restrict social participation.

Employment status and self-confidence are critical factors in functional recovery, as individuals who are not employed full-time generally exhibit reduced mobility and participation in daily activities[7]. The effectiveness of amputation surgery is closely associated with prosthesis use; however, only 40% of individuals who have undergone major lower limb amputation (LLA) utilize a prosthetic limb[4]. Developing interventions that address physical limitations and target modifiable psychosocial factors may enhance physical activity outcomes in individuals following vascular-related LLA[5].

Dysvascular lower limb amputation significantly affects individuals' mobility, daily routines, social roles, and mental health[8]. One of the main challenges after LLA is limited independent mobility, which often results in increased dependence and challenges in accessing employment, education, social engagement, and managing daily tasks[9]. A decline in functional mobility is a common outcome, with many amputees performing basic activities such as bathing or dressing at a slower pace or adapting the way these tasks are performed[8]. Limb loss also creates substantial barriers to employment and engagement in meaningful activities, which can adversely affect overall wellbeing. Additionally, individuals with dysvascular LLA often experience less favorable results with prosthetic use[7].

The loss of physical independence following lower limb amputation (LLA) compromises individuals' ability to perform activities of daily living (ADLs) autonomously, thereby affecting their capacity for self-care and increasing reliance on others for support. Orem's Self-Care Theory underscores the significance of an individual's ability to engage in self-care as essential for maintaining health[10]. According to Orem's self-care deficit theory, a self-care deficit occurs when an individual's need for care exceeds their ability to meet those needs independently[10]. Adapting to the challenges of performing activities of daily living (ADLs) is essential for individuals undergoing lower limb amputation (LLA). Successful adjustment entails acquiring the knowledge and skills necessary to carry out ADLs post-discharge, thereby facilitating a smooth transition to the home environment and supporting reintegration into the community.

Adjusting to life after LLA presents significant challenges, particularly when performing ADLs. Research indicates that individuals with LLA expend more energy and experience greater physical effort during ADLs than able-bodied individuals, which negatively affects their community participation and overall quality of life[11]. Psychological adjustment, especially the management of depression and anxiety, plays a crucial role in the rehabilitation outcomes and overall well-being of patients with LLA [12]. Barriers to social and community participation include environmental inaccessibility and physical limitations, whereas key facilitators include peer support networks, community groups, and positive personal attitudes[13].

Nurses play a pivotal role in developing strategies and interventions that empower individuals with amputations and promote their independence in daily activities. Actively engaged in all stages of the multidimensional rehabilitation process, nurses often form long-term relationships with patients and their families, providing them with unique insight into personal and contextual factors[14]. Their contributions are critical to enhancing patients' functional autonomy, preventing harm, and upholding dignity through education, coaching, care coordination, and advocacy[15]. Furthermore, nurses serve as a vital liaison between patients and the multidisciplinary team, facilitating a clearer understanding of the rehabilitation process and encouraging patients to take an active role in setting and pursuing their treatment goals[16].

This study, which is part of a broader doctoral research project focusing on family caregivers of people with dysvascular major lower-limb amputation, aims to understand the experience of individuals with dysvascular major lower-limb amputation throughout the health/disease transition process, focusing on their needs, challenges, and perceptions during the hospital-to-home transition, including hospital discharge preparation, the health and reintegration process, and strategies they identify that promote empowerment in their return to daily life.

By addressing these dimensions from the perspectives of amputees themselves, this study contributes to enhancing support systems and informing inclusive hospital discharge planning and post-discharge interventions. Ultimately, it supports the development of programs and strategies that promote empowerment, quality of life, and well-being for both amputees and their family caregivers.

METHOD

Study design

This exploratory qualitative study was conducted in a vascular surgery unit at a hospital in northern Portugal. The research adhered to rigorous methodological standards and complied with the Consolidated Criteria for Reporting Qualitative Research (COREQ). Accordingly, the study was guided by clear, specific objective rather than a central research question. This approach was intended to allow greater flexibility in exploring the topic, enabling the data to inform the identification of emerging themes. Given the study's exploratory nature, the absence of a predetermined research question supported an open-ended approach to data collection and analysis, ensuring that all relevant dimensions of the phenomenon were captured. This methodological choice did not compromise the rigor of the study, as the defined objective provided a structured framework to address the research focus. The data were subsequently subjected to thematic content analysis based on Bardin's methodological framework[17].

Participants and recruitment

Participants were selected from among patients with dysvascular lower limb amputations who were receiving follow-up care at the vascular disease hemodynamic consultation in a vascular surgery unit at a hospital in northern Portugal. The inclusion criteria were: (1) amputees aged 18 years or older; (2) those who had undergone a major lower limb amputation due to vascular causes; (3) living at home; (4) receiving assistance with activities of daily living (ADLs) from a family caregiver; (5) adequate cognitive and comprehension abilities; and (6) amputees for at least six months. The exclusion criteria were: (1) refusal to sign the informed consent form; (2) being independent in all ADLs; (3) Living at nursing homes and institutions.

This exploratory qualitative study was conducted as part of a thesis by publication, which also includes a separate quantitative study that assessed self-care dependency in individuals with dysvascular major lower limb amputation (LLA) due to peripheral arterial disease (PAD). This qualitative study aims to explore patients lived experiences and their perceived self-care needs, providing a deeper understanding of their daily challenges and adaptive strategies.

Sampling was guided by the principle of data saturation, defined as the point at which no new insights emerge from additional interviews, indicating adequate depth of understanding. Data collection occurred between May 2022 and June 2023 and was carried out by an experienced researcher skilled in qualitative interviewing and independent of the unit's staff. All participants had previously provided informed consent and were interviewed after completing the quantitative phase of the study. A total of 40 patients living in a home setting were included, with interviews scheduled based on participant availability. Data collection, spanning 13 months, aimed to involve all accessible individuals with dysvascular lower limb amputation who were attending follow-up consultations within the hospital's catchment area, facilitating an in-depth exploration of their self-care needs and lived experiences.

To mitigate potential bias, several strategies were implemented. Efforts were made to ensure a diverse sample in terms of age, gender, and time since amputation, thereby capturing a broader range of experiences. Additionally, open-ended questions were used during interviews to minimize response bias, and a supportive environment was fostered to encourage participants to share their perspectives freely.

Data collection instruments and procedures

Data were collected using a researcher-developed questionnaire that addressed sociodemographic and clinical variables. The sociodemographic section included items on sex, age, education, employment status at the time of surgery, household composition, post-discharge destination, and support system. The clinical section covered the date of surgery, level of amputation, discharge date, any previous contralateral amputations, and mobility resources at various points: before surgery, at discharge, six months post-discharge, and at the time of the study.

The research team developed and validated a semi-structured interview script designed to explore the experiences, needs, and challenges of individuals with major lower limb amputation due to vascular causes during their transition back home (Chart 1). All interviews were conducted individually by a trained interviewer with a nursing background and experience working with lower limb amputees, which contributed to establishing rapport and encouraging rich, meaningful narratives. After obtaining informed consent, interviews were scheduled based on participant availability and took place in the participants' homes. Each session lasted approximately 20–25 minutes. All interviews were audio-recorded using a digital voice recorder to ensure accurate data capture and were later transcribed verbatim using Microsoft Word. The transcriptions were thoroughly reviewed to ensure fidelity to the original recordings (Chart 1).

To ensure methodological rigor, the study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ). Data saturation was used as a criterion for concluding data collection, indicating that after analyzing interviews observations, no new information or relevant patterns emerged, confirming that the amount of data collected was sufficient to thoroughly address the study objectives. The researcher maintained a reflexive stance throughout the process, remaining aware of personal biases and ensuring neutrality during the interviews and initial analysis. Furthermore, the coding and thematic categorization were carefully reviewed by two researchers to enhance analytical reliability and support the trustworthiness of the findings.

Chart 1. Script for questions - Vila Nova de Gaia, VNG, Portugal, 2022-2023.

– How were you prepared for your return home, particularly regarding the dependency you started to experience?
– What were the main difficulties you faced when you returned home?
– Upon returning home, who helped you overcome the difficulties you faced?
– Do you think the preparation during your hospitalization was enough, or would you have preferred another type of preparation?
– What do you consider important and what should be improved to help people in your situation overcome the difficulties you have faced upon returning home?

Data analysis and treatment

Qualitative content analysis was carried out using Bardin's methodology [17] along with ATLAS.ti. ® 23.3.4. To maintain participant confidentiality, a coding system was applied, where each participant was assigned, a code consisting of a letter and number. The analysis follows a three-phase process. Specifically, participants were identified using the letter "A" (A = Amputee), followed by a sequential number assigned to each interview.

In the pre-analysis phase, two researchers conducted a floating reading of the transcripts to obtain a general sense of the material and identify initial units of meaning. This stage allowed for the emergence of preliminary categories and hypotheses, which were documented within ATLAS.ti® to ensure transparency and support subsequent analytical steps, in accordance with Bardin's framework[17].

The material exploration involved organizing the interview data within ATLAS.ti®, where researchers developed codes representing units of meaning and grouped them into thematic categories, as proposed by Bardin[17]. The software supported the systematic coding process and facilitated the visualization of relationships between themes and the frequency of coded segments, enhancing the understanding of the participants' narratives. As the study was based exclusively on interview data, all codes and categories emerged directly from participants' accounts.

In the treatment of results and interpretation phase, the researchers conducted inferences based on the thematic categories previously established, seeking to interpret the latent content of the participants' narratives in light of the study's theoretical framework. Each phase of the analysis was independently carried out by two researchers, with a third involved to resolve any disagreements. Consensus was achieved through analytical discussion. The integration of Bardin's methodological framework[17] with the use of ATLAS.ti® ensured a systematic, transparent, and rigorous process, resulting in well-grounded and meaningful findings.

Ethical considerations

The study adhered to the fundamental ethical principles outlined in the Declaration of Helsinki for research involving human participants. The study was approved by the Ethics Committee of the institution in which it was conducted (Ethics Committee approval number: 13/2022-1).

RESULTS AND DISCUSSION

The study included 40 participants with dysvascular major lower limb amputation, of whom 80% were male and 20% female. The majority were over 65 years old (72.5%), with the largest subgroup aged between 75 and 80 years, representing 27.5% of the sample. A substantial proportion of participants had a low educational level, as 70% had completed only four years of basic education. At the time of surgery, 52.5% were retired, while only 5% remained employed. Regarding living arrangements, 70% resided in a household with at least one other person, whereas 5% lived alone. Following discharge, 82.5% returned home, with 60%

receiving support from their spouse or partner. All participants were diagnosed with peripheral arterial disease (PAD), and 57.5% also had diabetes. Additionally, 55% had more than two associated comorbidities. Concerning the type of amputation, 77.5% underwent transfemoral (above-the-knee) amputation. Older age, greater comorbidity burden, reduced independence, and lack of referral for rehabilitation were associated with lower rates of prosthetic prescription and diminished functional mobility among individuals with dysvascular lower limb amputation[18].

At the time of the study, 15% of participants had undergone amputation within the last year, 50% between one and five years earlier, and 14% more than five years prior. Before amputation, 45% did not require mobility aids, while 2.5% already used a wheelchair. At discharge, 77.5% were wheelchair-dependent, and 10% were bedridden. Six months post-discharge, 67.5% of patients still relied on a wheelchair. By the time of the study, 72.5% exclusively used a wheelchair for mobility, 10% used both a prosthesis and a wheelchair, 7.5% relied on a prosthesis with crutches, 5% depended solely on a prosthesis, and another 5% used both a wheelchair and crutches. Dysvascular amputees encounter considerable challenges in functional recovery and prosthetic use when compared to non-vascular amputees. These patients often experience poor mobility outcomes and are less likely to adopt long-term use of prosthetics[19].

Thematic content analysis of the interviews identified five main categories: (1) amputee needs/challenges, (2) discharge preparation, (3) returning home, (4) strategies for promoting empowerment in amputees, and (5) the impact of amputation. Each category and its subcategories are represented in five separate charts corresponding to the respective themes.

Category 1 - Needs/challenges of amputees

This category highlights the difficulties of dysvascular major lower limb amputation, such as balance issues, prosthesis adaptation, and self-care, which affect patient autonomy. Ongoing medical care is vital to prevent complications and support recovery (Chart 2).

Following dysvascular major lower limb amputation, participants in our study emphasized the specific needs and challenges faced by amputees. These include difficulties with postural balance, prosthetic fitting and adjustment, as well as the maintenance of self-care, which are critical since impairments in these areas contribute to the loss of autonomy and mobility. Falls represent a significant concern for individuals with lower limb amputation, with advancing age frequently identified as a primary risk factor. Those with amputations resulting from diabetes or peripheral vascular disease are at an increased risk, as balance impairments associated with these conditions further exacerbate susceptibility to falls[20]. Notably, among lower limb prosthesis users with transfemoral amputations or knee disarticulations due to diabetes or vascular disease, 15% experienced an injurious fall within a six-month period. This high incidence of falls highlights the compounded effect of above-the-knee amputations and underlying conditions such as diabetes and vascular disease, both recognized as established risk factors for falls[20].

Another difficulty that emerged was the fitting of prostheses. Residual limb pain and poor prosthetic fit hinders the embodiment of the prosthesis, underscoring the need for good stump health and proper fit to enhance psychological acceptance[21]. Maintaining self-care activities was also identified as a challenge for study participants. Individuals who have undergone dysvascular major lower limb amputation often become more dependent on assistance with tasks such as bathing, using the toilet, walking, and making bed-to-chair transfers. This dependency increases significantly with age[20].

Architectural barriers, such as inaccessible buildings and inadequate facilities, further restrict the mobility and independence of lower limb amputees. Home environment can strongly impact the ADLs of individuals with dysvascular lower limb amputation. Home accessibility can act as a barrier, limiting mobility and independence or as a facilitator of ADLs[6]. All these factors can lead to a loss of autonomy and mobility. Dysvascular lower limb amputation alters mobility, affecting both functional mobility and ambulation , resulting in a diminished capacity to perform physical tasks, such as walking and other activities[6].

Chart 2. Category 1 – Needs/difficulties of amputees – Vila Nova de Gaia, VNG, Portugal, 2022-2023.

Subcategories	Unit of analysis
Self-care	*I had to learn everything from scratch as if I were a baby learning to walk. I had trouble with everything, going to the bathroom, going to bed, going to the sofa, taking a bath, my wife has even given me food on a tray on the sofa so I could be there because I didn't know how I was going to manage.* (A5). *The first few times, the first few weeks, it was my children or my daughter-in-law who took a basin and bathed me because I couldn't do that when I got home.* (A29)
Loss of autonomy and mobility	*I started building muscle mass because there were certain movements I just couldn't do anymore. I had lost a lot of weight and spent almost two months in bed. But through physiotherapy, I managed to get past that.* (A16). *Everything was difficult because I couldn't do anything; I could only lie down. Even walking, just going from the bed to the lounge chair, was hard. I had difficulty walking, and when I needed to go to the bathroom, my son had to carry me.* (A17)
Loss of postural balance	*One difficulty was balancing, because I couldn't balance, I always had to hold on to something, the hardest thing for me was moving around, that was the hardest thing. I lacked balance.* (A30). *I wanted to go to the bathroom and didn't remember that I no longer had my leg. I grabbed the crutches, as I usually did, and ended up hitting my head on the floor.* (A22).
Fitting the prosthesis	*I wore a prosthesis for a while, and then I did not walk well, so I changed to a lighter prosthesis. Then I began to reject the prosthesis, I started wearing it less and less every day until I stopped walking with it.* (A1). *After two years, the prosthesis started causing problems. The first one I got was at the hospital, right after I was discharged, and I used it for over two years. Then I got another one, which is the one I have at home now, but I couldn't adapt to it.* (A39)
Architectural barriers	[...] *I had more trouble getting out of the kitchen because there were four steps and it was narrow and that was the only thing I had fixed, now I can get through all the doors with the chair without difficulty.* (A9). *The bathroom was my biggest difficulty because the door wasn't wide enough to get in even with the chair, and even with the walker, sometimes the springs would pop out because they would hit the door when I tried to enter.* (A25).
Need for follow-up after discharge	*It's important for people to have support when they go home, especially if they don't have a lot of support like I did, if they don't have a lot of support like I did, it's extremely important to help them prepare here in hospital and then at home.* (A8). *I really wished I had more support from the hospital, with nurses, because I was at home without any help. I even thought I would go to a clinic to learn to walk, but I didn't receive that kind of assistance.* (A27).

Source: Created by the authors

Study participants also emphasized the need for comprehensive post-discharge follow-up. Individuals with dysvascular major lower limb amputation often present with multiple comorbidities, requiring coordinated attention from various healthcare professionals. Due to the complexity of their needs, these patients are especially vulnerable during care transitions and stand to benefit from integrated care models[22].

Category 2 - Discharge preparation

This category explores patients' experiences with discharge preparation after major dysvascular lower limb amputation. Effective planning is essential for training in mobility aids, self-care education, and preparation for home management (Chart 3).

Participants described their experiences regarding preparation for discharge following a dysvascular major lower limb amputation, mentioning functional training for amputees, self-care training, and referrals to physical medicine and rehabilitation as integral components of their discharge planning. Early postoperative care and rehabilitation play a pivotal role in promoting independence in transfers, activities of daily living (ADLs), and mobility following major lower limb amputation. Depending on an individual's condition and recovery progress, a prosthesis may be introduced during the early stages of rehabilitation. Alternatively, an immediate postoperative prosthesis can be used to support stump maturation and facilitate the transition to prosthetic use[23]. These early interventions are essential for laying the foundation for functional recovery and improving quality of life.

Training for ADLs is vital for individuals with major lower limb amputations to maximize independence in basic tasks and to develop mobility skills without a prosthesis. This training is especially important for those who are not suited for prosthetic rehabilitation because it enhances the overall functional independence[24]. Physiatrists play a crucial role in coordinating with the multidisciplinary team, optimizing the rehabilitation plan, monitoring adverse effects, and overseeing prosthetic restoration[25]. Early physical therapy evaluation and discharge to rehabilitation facilities can reduce postoperative hospital stays and accelerate the time to ambulation[26].

Category 3 - Returning Home

The experiences of participants transitioning home after a dysvascular lower limb amputation are emphasized in this category, focusing on their adaptation to a new reality and the coping strategies they employed (Chart 4).

Participants shared their experiences of returning home after a dysvascular major lower limb amputation, emphasizing how they adapted to their new circumstances and managed the challenges of living with amputation. They highlighted the importance of functional training and rehabilitation for prosthesis adaptation. Combining resistance training with other exercises can benefit lower limb amputees by improving strength, reducing fall risk, stabilizing gait, and alleviating chronic back pain[27]. In the post-prosthetic phase of lower limb amputee rehabilitation, the goal is to restore functionality and independence through training in prosthesis use and natural walking techniques[28].

During the transition from hospital to home, the participants emphasized the significance of support from family, friends, and healthcare professionals. Individuals with dysvascular lower limb amputations face substantial challenges in regaining physical functionality, mobility, and autonomy. Support from family and health care professionals is crucial for managing emotions, expectations, and uncertainties. Being included in decision-making and well-informed by professionals is essential for their adaptation[29].

Chart 3. Category 2 – Discharge preparation – Vila Nova de Gaia, VNG, Portugal, 2022-2023.

Subcategories	Unit of analysis
Amputee functional training	*At the hospital they gave me a walker and taught me, so that I could get used to it and I got used to it well, and then after a while they put the crutches on me so that I could get used to it too and I practiced.* (A15). *After the surgery, a day or two later, they had a therapist with a walker help me walk.* (A37)
Self-care training	*They taught me to move from the bed to the chair and from the chair to the bed, so I could go to the bathroom. And they taught me how to shower.* (A19). *I had a nurse who taught me how to take a shower and the basics of moving around, like how to turn myself and when not to.* (A31).
Physical medicine and rehabilitation referral	*[…] in the short term, I'm going to have a physiotherapy appointment at the hospital when I'm discharged, so that they can see how it is and isn't.* (A34). *I was given a letter to see the prosthetic specialist for an evaluation to determine if I could use the prosthesis. When I spoke with the doctor, she told me I couldn't use it yet that I needed rehabilitation before I could use it.* (A7).

Source: Created by the authors

Chart 4. Category 3 – Returning home – Vila Nova de Gaia, VNG, Portugal, 2022-2023.

Subcategories	Unit of analysis
Family and friends support	*My husband was my support. The neighbors helped, my children did what they could, my daughter even went there and took a few days off...* (A33). *When I came back home, it was my sister; it was always my sister who helped me because I live with her. And she helped me by talking to me, making me move, and going to the bathroom.* (A2).
Functional rehabilitation for prosthesis adaptation	*After leaving hospital, I went to physiotherapy on my own and started training to walk with the prosthesis.* (A11) *I went home with the wheelchair. But then I went to physical therapy at a clinic so I could walk with the prosthesis; I walked there with the prosthesis.* (A23).

Chart 4. Cont.

Subcategories	Unit of analysis
Health professionals support	*About two years after my amputation, I started doing physiotherapy and then I met a therapist and he started asking me certain questions, certain things and saying it has to be like this and it helped me.* (A9) *I didn't have any problems, both at the hospital and with my physical therapist afterward. Everyone, including the physical therapists outside the hospital, supported and helped.* (A40).
Amputee functional training	*After I got out of hospital, I went to physiotherapy, they did a bit of gymnastics and tried to teach me how to walk with a walker, they did some strength tests.* (A14) *Once the wound had healed, I began walking and started physical therapy. I completed 60 private sessions to build strength and improve my ability to use the prosthesis*. (A36).

Source: Created by the authors

Category 4 - Strategies to promote empowerment in amputees

Participants' perspectives on strategies for developing interventions and programs to empower amputees during their transition home after a major dysvascular lower limb amputation are highlighted in this category (Chart 5).

Promoting empowerment among individuals with dysvascular lower limb amputation is vital for facilitating a healthy transition from hospital to home. The participants emphasized the importance of strategies such as functional training, extended training sessions, self-care education, preparing home accessibility, and having a dedicated rehabilitation room in the vascular unit to support this process. These strategies not only support physical recovery but also foster a sense of control, independence, and confidence — key elements of empowerment. Regular exercise improves physical fitness, including balance and mobility, in adults with lower limb amputation. Participating in one to three weekly sessions of 20 to 60 minutes can enhance balance, gait speed, endurance, and transferability[30], which are essential for daily functioning and community reintegration. Early intervention in activities of daily living (ADLs) during subacute rehabilitation promotes functional recovery and improves basic ADLs. Providing advice on adaptations to make homes more accessible and to facilitate daily tasks is essential[24], providing for a safer and smoother transition process from hospital to home, reducing dependency and enhancing self-efficacy. Collectively, these strategies reflect a patient-centered approach that empowers individuals while ensuring continuity of care during the transition period.

Participants in the study also suggested additional strategies, such as improved coordination between hospital and community services, home visits, psychological and mental health support, access to technical aids, the establishment of an alert system, the formation of a multidisciplinary support team, and consultations for both amputees and their caregivers. These strategies reflect a need for structured transitional care and reinforce the importance of empowering patients by ensuring that they are supported, informed, and actively involved in their recovery process.

Chart 5. Category 4 – Strategies to promote empowerment in amputees – Vila Nova de Gaia, VNG, Portugal, 2022-2023.

Subcategories	Unit of analysis
Psychological and mental health support	*In my opinion, what should be improved is having a psychologist talk to people, to prepare us, it should be before the amputation, after the amputation.* (A39). *We should have support for these things, because many people are psychologically affected. When someone loses a leg, they never fully recover; there's always some psychological impact, and support is essential.* (A11).
Amputee functional training	*When you leave the hospital, it was important to have someone to guide you on how to maneuver the chair, to explain how to maneuver the chair.* (A9). *I wish I had the physical therapy I'm doing now before leaving the hospital. It's been crucial for building muscle mass, which I believe is key for recovery.* (A39).
Coordination between hospital and community	*My idea was that when the patient leaves the hospital, the doctor or someone who is involved calls the health center to tell them that the patient is leaving and that they need to continue home.* (A21)
Home visit	*Having face-to-face support, for example once a week or once every two weeks someone going to the house, […] and dealing with a bit of everything.* (A17). *I believe healthcare providers should visit patients' homes to assess the conditions and offer guidance on how to help, without making all the decisions, but supporting both the patient and the family.* (A14).
More training time	*There should be more training, to learn how to do things.* (A16). *I should learn more, I should learn more things here at the hospital they should also have more technicians, I would like to learn more things, train.* (A7)
Phone support	*They should have a place for us to call, a place that would boost our morale to talk to us...* (A7). *Someone should call the house to check what is needed, even if it doesn't help much, it always makes a difference.* (A3).
Self-care training	*They should teach him how to go to the toilet, and how to use his wheelchair to go to the toilet. I needed other support, to explain things to do at home.* (A16). *It would be important if someone explained how to take a shower at home, because it's very difficult for me to shower.* (A4).
Prepare home accessibility	*They could come to the house and tell us how to change the bathroom, here we should put it like this, there we should put it like this so we can go to the bathroom, have somewhere to hold on to so we can go to the toilet.* (A14)
Social and economic support	*There should be some kind of support, so that you can at least go for a walk to distract your mind.* (A38). *[…] I'm on sick leave and it's been almost another year, I don't know if I can go to early retirement, or disability, if I can or can't or how much I'm going to earn. And I needed support, which could help me with this.* (A17)

Chart 5. Cont.

Subcategories	Unit of analysis
Rehabilitation room in vascular unit	*A hospital unit such as vascular surgery has no support from a physiatric room, no matter how small, to initiate support, and it should have.* (A34)
Technical aids	*When people go home, they should be entitled to a wheelchair, a pair of crutches and a prosthesis* [...]. (A19). *There should be people who guide and assist individuals, ensuring they have access to a prosthesis.* (A28).
Alert system	*When we are alone [...] there should be something like a panic button to press and call for help, to communicate with someone from the police.* (A11)
Multidisciplinary support team	*The hospital needed to have a multidisciplinary team, to deal with this and to do the subsequent follow-up both in direct non-physical terms, but in terms of the place we are working, to give some follow-up for what may be a prosthesis.* (A34) *Having a team come to the house in the first few days, a team with a nurse, doctor, and people knowledgeable in exercises to help a person recover.* (A27).
Consultation of amputees and caregivers	*At the hospital there should be a consultation, to find out if we have improved or not, [...], it should be for example from month to month or something like that to know how we are doing.* (A21)

Source: Created by the authors

An integrated care model with multidisciplinary teams and home visits can improve continuity of care and patient safety for major lower limb amputees transitioning from hospital to home[22]. Such coordinated approaches not only help avoid care fragmentation but also enhance patients' confidence in managing their condition outside the hospital setting. Ensuring the reintegration of individuals with lower limb amputation into their communities is crucial for promoting healthy adaptation, as it represents a key indicator of both empowerment and successful transition by requiring individuals to reclaim their roles, routines, and relationships. Mitigating the social and psychological implications of amputation is essential for enabling amputees to achieve independence and social inclusion. To this end, adequate logistical support and involvement of both healthcare professionals and families are necessary to meet the needs of amputees[31].

Rehabilitation strategies aimed at functional reintegration should consider not only physical capacity but also emotional resilience and social engagement. To enhance outcomes, rehabilitation should focus on preparing individuals for meaningful tasks at home and in the community, while ensuring that access to ongoing practical and emotional support can ease the challenges of transitioning home for major lower limb amputees[32].

Category 5 - Impact of amputation

Dysvascular major lower limb amputation is a transformative event that significantly impacts an amputee's life, marking a crucial transition in health and well-being, as highlighted in this category (Chart 6).

Chart 6. Category 5 – Impact of amputation – Vila Nova de Gaia, VNG, Portugal, 2022-2023.

Subcategories	Unit of analysis
Awareness of health condition	*When I was told, I was going to have an amputation, I thought, it has to be, it has to be and I have to live with it, and I've been adapting.* (A25) *It wasn't easy when I was discharged and had to adjust to my life. I was very active, very dynamic, and all of a sudden, to be like this, without a leg, it's not easy. I had to have incredible self-control.* (A26).
Phantom pain	*It feels like a phantom pain, which is terrible. On the side of my leg that I don't have, at night I wake up to move my foot and I don't have a foot* [...] (A24)
Social isolation	*As I only use a wheelchair, it's been 3 years, 3 years and so on that I don't come to the street, I don't come outside, I can't.* (A23). *Since this happened to me, I don't go outside. It's my daughter who forces me to go out, because I don't feel like it.* (A1).
Psychological impact of amputation	*I don't know how to explain it, anything that can come help, psychologically you get very down, very bad, no appetite for food, no appetite for anything, you just want to cry, sleep, it's very desperate now that I'm going through this phase.* (A31). *My neighbor called, and I told her I was without my leg. I cried and screamed because I lost my leg. Then I screamed a lot at home, but no one ever saw it. But when I was around others, I always kept up the appearance. I would say I was fine and that I was going to get a new leg, but inside...*(A33).

Source: Created by the authors

The impact of amputation encompasses individuals' experiences of the physical, psychological, and social changes that accompany limb loss. This includes alterations in body image that can profoundly affect personal lives. Additionally, increased awareness of health conditions, experiences of phantom pain, social isolation, and the psychological impact of amputation contribute to the complexity of individual adjustment and well-being. Major lower limb amputation has a significant psychosocial impact on patients and caregivers. Amputees often experience negative emotions, social isolation, role limitations, phantom pain, and the need for emotional balance[33]. Rehabilitation for individuals with lower limb amputation should address both physical and psychosocial impacts by adopting a comprehensive approach that includes psychosocial education and emotional support[34]. This approach promotes healthy adaptation, social inclusion, and the development of a new positive identity[34]. Social isolation and perceived social isolation negatively impact mental health and life satisfaction in adults with dysvascular lower limb amputation[35]. Given the common issues of depression, poor quality of life, and social phobia among these individuals, psychiatric support for counseling and treatment is essential[36].

The present study on individuals with dysvascular major lower limb amputation (LLA) has some limitations. The sample, focusing solely on patients from a vascular surgery unit in a single hospital in northern Portugal, may restrict the generalizability of the findings to a broader population. Expanding the participant pool to include various socioeconomic backgrounds and health conditions would further strengthen the evidence and broaden the relevance of our findings. Additionally, the cross-sectional design captures experiences at a single point in time, potentially missing changes in outcomes, or patient experiences in the long term. Future studies should consider multicenter and longitudinal designs to capture diverse contexts and evolving outcomes, thereby improving the applicability and impact of the findings. Recognizing these limitations can inform future research and improve the support and empowerment strategies for amputees.

Additionally, this study can advance nursing practice by offering insights that can inform the development of interventions and family-centered empowerment programs for individuals with major lower limb amputations and their family caregivers as they transition from hospital to home and community settings. The findings support the development of evidence-based, family-centered nursing interventions that address not only the physical and functional needs of the lower limb amputee, but also the emotional, educational, and logistical demands experienced by both patients and caregivers. In practice, this includes proactive discharge planning, tailored health education, emotional support, home-care preparation, and ongoing follow-up. By fostering continuity of care and empowering families in this critical phase, nurses can play a key role in promoting a smoother reintegration into home and community life, enhancing autonomy, and reducing the risk of complications or caregiver burden.

FINAL CONSIDERATIONS

The findings of this qualitative study underscore the multifaceted challenges encountered by individuals with dysvascular major lower limb amputations as they transition back to home life, highlighting the impact of functional limitations, associated comorbidities, and the persistent need for support. Participants' lived experiences reveal not only physical difficulties—such as challenges in performing daily tasks like bathing, dressing, and eating, which necessitate significant adjustments to daily routines—but also emotional, social, and contextual barriers that affect both amputees and their family caregivers during this period. Common struggles include feelings of isolation and frustration arising from the inability to resume prior social and professional activities, insecurity related to mobility, and dependence on others for basic tasks.

From a nursing practice perspective, these findings emphasize the importance of continuous, person-centered support throughout the hospital-to-home transition. Nurses play a critical role in facilitating individualized care planning, delivering self-care education and mobility training (including wheelchair skills for non-prosthetic users), guiding the management of comorbidities, and preventing complications. The early and active involvement of family caregivers in the care process is essential to fostering a supportive environment through family-centered programs and interventions that promote patient autonomy and well-being.

In terms of research implications, this study contributes to identifying gaps in transitional care and underscores the necessity of designing evidence-based nursing interventions that empower both amputees and their caregivers. Future research should focus on developing and evaluating structured discharge planning, community-based support networks, and follow-up protocols tailored to this population's needs, including psychological and social support programs addressing both amputees and their family caregivers.

In summary, the findings reaffirm the central role of nursing in delivering integrated and compassionate care, while highlighting the need for strategies that address not only physical recovery but also the emotional and social dimensions of life following limb loss. Empowering both patients and their caregivers is vital for fostering resilience and enhancing quality of life during the complex process of reintegration into the home environment.

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Data Availability

The dataset may be accessed upon request to the corresponding author.

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Author Contributions

Conceptualization: Diana Fonseca Rodrigues, António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Methodology: Diana Fonseca Rodrigues, António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Software: Diana Fonseca Rodrigues, António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Validation: António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Investigation: Diana Fonseca Rodrigues, António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Data curation: Diana Fonseca Rodrigues, António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Writing – original draft preparation: Diana Fonseca Rodrigues.
Writing – review and editing: António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.
Supervision: António Luís Rodrigues Faria de Carvalho, Cristina Maria Correia Barroso Pinto.

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Corresponding author:

Diana Fonseca Rodrigues (D.R.)
E-mail: dianfr@gmail.com

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Taline Bavaresco

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João Lucas Campos de Oliveira

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