

BETWEEN TEACHING AND CARE: EXTENSION EXPERIENCES IN WOUND MANAGEMENT

ENTRE O ENSINO E O CUIDADO: EXPERIÊNCIAS EXTENSIONISTAS NO MANEJO DE FERIDAS

ENTRE LA ENSEÑANZA Y EL CUIDADO: EXPERIENCIAS DE EXTENSIÓN EN EL MANEJO DE HERIDAS

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ABSTRACT

This study reports the experience of a university extension project aimed at providing comprehensive care to individuals with chronic wounds, developed within a multidisciplinary

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outpatient service. The project was registered with the Office of Extension of the Federal University of the Jequitinhonha and Mucuri Valleys (UFVJM) and was part of a research initiative funded by the Minas Gerais Research Support Foundation (FAPEMIG). Although the overall scope included the implementation of a randomized, controlled, double-blind clinical trial, the present study adopts a qualitative and descriptive approach, focusing on the systematization of the care and educational actions developed and their contributions to healthcare delivery and professional training. Individuals with chronic wounds referred by the Family Health Strategies of Diamantina and surrounding municipalities, or identified through medical and nursing triage, were assisted. Care was provided on an outpatient basis between April 2023 and May 2024, with the participation of undergraduate students supervised by a nurse. The interventions included clinical wound assessment, dressing procedures, laser therapy application, monitoring of wound progression, and guidance to patients and caregivers, with an emphasis on home-based self-care and the prevention of complications. To ensure continuity of care, individualized written care plans were developed and directed to patients, Family Health Strategy teams, and municipal health departments. In parallel, structured health education and professional training activities were carried out through monthly meetings with healthcare professionals, addressing wound assessment, selection of dressings, and the use of laser therapy in conjunction with conventional treatment. The experience demonstrated increased empowerment of patients and caregivers, leading to improved treatment adherence, as well as the development of technical, communication, and collaborative competencies among students. It is concluded that the integration of healthcare delivery, health education, and student training promotes more humanized and comprehensive care for individuals with chronic wounds and enhances professional education in health.

Keywords: Health Education. Multidisciplinary Team. Quality of Health Care. Wounds and Injuries. Experiential Learning.

RESUMO

Este estudo relata a experiência de um projeto de extensão universitária voltado ao cuidado integral de pessoas com feridas crônicas, desenvolvido em um serviço ambulatorial multidisciplinar. O projeto foi registrado na Pró-Reitoria de Extensão da Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM) e integrou pesquisa financiada pela Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG). Embora o escopo geral contemplasse a realização de um ensaio clínico randomizado, controlado e duplo-cego, o presente estudo assume abordagem qualitativa e descritiva, com foco na sistematização das ações assistenciais e educativas e em suas contribuições para o cuidado e a formação profissional. Foram atendidas pessoas com feridas crônicas encaminhadas pelas Estratégias de Saúde da Família de Diamantina e municípios da região ou identificadas em triagens médicas e de enfermagem. Os atendimentos ocorreram em regime ambulatorial, entre abril de 2023 e maio de 2024, com participação de estudantes de graduação supervisionados por enfermeiro. As ações incluíram avaliação clínica das feridas, curativos, aplicação de laserterapia, acompanhamento da evolução das lesões e orientações aos pacientes e cuidadores, com ênfase no autocuidado domiciliar e na prevenção de complicações. Para garantir a continuidade do tratamento, foram elaborados planos de cuidados individualizados, direcionados aos pacientes, às equipes das Estratégias de Saúde da Família e às secretarias municipais de saúde. Paralelamente, realizaram-se ações de educação em saúde e capacitação profissional, por meio de encontros mensais com profissionais da rede, abordando avaliação de feridas, escolha de coberturas e uso da laserterapia associada ao tratamento convencional. A experiência evidenciou maior empoderamento de pacientes e cuidadores, com ampliação da adesão ao tratamento, além do desenvolvimento de competências técnicas, comunicacionais e colaborativas pelos estudantes. Conclui-se que a integração entre assistência, educação em saúde e formação



discente favorece um cuidado mais humanizado e integral às pessoas com feridas crônicas e qualifica a formação em saúde.

Palavras-chave: Educação em Saúde. Equipe Multiprofissional. Qualidade da Assistência à Saúde. Ferimentos e Lesões. Aprendizado Baseado na Experiência.

RESUMEN

Este estudio relata la experiencia de un proyecto de extensión universitaria orientado al cuidado integral de personas con heridas crónicas, desarrollado en un servicio ambulatorio multidisciplinario. El proyecto fue registrado en la Prorectoría de Extensión de la Universidad Federal de los Valles del Jequitinhonha y Mucuri (UFVJM) y se integró a una investigación financiada por la Fundación de Apoyo a la Investigación del Estado de Minas Gerais (FAPEMIG). Aunque el alcance general contemplaba la realización de un ensayo clínico aleatorizado, controlado y doble ciego, el presente estudio adopta un enfoque cualitativo y descriptivo, con énfasis en la sistematización de las acciones asistenciales y educativas y en sus contribuciones al cuidado y a la formación profesional. Se atendió a personas con heridas crónicas derivadas por las Estrategias de Salud de la Familia de Diamantina y municipios de la región, o identificadas en triajes médicas y de enfermería. La atención se realizó de forma ambulatoria entre abril de 2023 y mayo de 2024, con la participación de estudiantes de grado supervisados por un enfermero. Las acciones incluyeron la evaluación clínica de las heridas, la realización de curaciones, la aplicación de láserterapia, el seguimiento de la evolución de las lesiones y la orientación a pacientes y cuidadores, con énfasis en el autocuidado domiciliario y la prevención de complicaciones. Para garantizar la continuidad del tratamiento, se elaboraron planes de cuidados individualizados dirigidos a los pacientes, a los equipos de las Estrategias de Salud de la Familia y a las secretarías municipales de salud. De manera paralela, se llevaron a cabo acciones de educación en salud y capacitación profesional mediante encuentros mensuales con profesionales de la red, abordando la evaluación de heridas, la selección de coberturas y el uso de la láserterapia asociada al tratamiento convencional. La experiencia evidenció un mayor empoderamiento de pacientes y cuidadores, con aumento de la adhesión al tratamiento, así como el desarrollo de competencias técnicas, comunicacionales y colaborativas por parte de los estudiantes. Se concluye que la integración entre asistencia, educación en salud y formación estudiantil favorece un cuidado más humanizado e integral de las personas con heridas crónicas y cualifica la formación en salud.

Palabras clave: Educación en Salud. Equipo Multiprofesional. Calidad de la Atención en Salud. Heridas y Lesiones. Aprendizaje Basado en la Experiencia.

1 INTRODUCTION

Chronic wounds can be defined as lesions that do not follow the expected physiological course of healing within a usual period, usually between 4 and 6 weeks, remaining in a prolonged inflammatory stage or presenting interruptions in the subsequent phases of tissue repair (Guo; DiPietro, 2010; Falanga, 2012; Cavalcante *et al.*, 2020). This deviation from the normal healing pattern is due to multiple systemic, local, and environmental factors, which makes these lesions an important clinical and public health problem. In addition, they have high recurrence rates and are usually associated with complications such as infection, necrosis, and limb amputations (Iqbal *et al.*, 2017; Ribeiro *et al.*, 2019).

From an epidemiological point of view, the prevalence of chronic wounds in the Brazilian adult population is not yet widely documented and tends to be underestimated, as many studies lack adequate population coverage. Global studies indicate that about 20 million people in the world live with these lesions, **it is estimated that chronic wounds affect 1% to 2% of the population in developed countries**, with increasing prevalence due to population aging, higher incidence of chronic diseases and the presence of comorbidities that compromise perfusion and skin integrity (Kössli; Setälä; Lepäntalo, 2020; Nussbaum *et al.*, 2018). **Venous ulcers** account for about 70% of leg ulcers; **diabetic ulcers** have an estimated prevalence between 4% and 10% among individuals with diabetes; and **pressure ulcers** have a high incidence in long-term care institutions and hospital services, especially among the elderly and people with reduced mobility (Armstrong; Boulton; Bus, 2017; Jaul; Barron, 2017).

According to the SBACV (Brazilian Society of Angiology and Vascular Surgery), based on data from the Ministry of Health, in the period from 2012 to May 2023, more than 282 thousand Brazilians suffered amputation of lower limbs (legs or feet) in the Unified Health System (SUS) and half of them happened in patients with diabetes. In 2022 alone, in the country, records reached the mark of 31,190 procedures performed, which means that, each day, at least 85 Brazilians had their feet or legs amputated in the public health network as a result of chronic wounds (SBACV, 2023).

In this sense, these lesions go beyond the dermatological scope: **they are manifestations of systemic imbalances** and, therefore, are often associated with conditions such as arterial hypertension, long-term or poorly controlled diabetes mellitus, venous insufficiency, peripheral neuropathy, infectious events, and neoplastic processes



(Lindholm; Searle, 2016; Salomé *et al.*, 2021; Nunan; Hardin; Martin, 2014). Its persistence and complexity require **continued multidisciplinary follow-up**, guided by comprehensive evaluation, well-established protocols, and individualized therapeutic intervention. Understanding its pathophysiology and the clinical and social determinants involved is essential to develop effective care strategies, improve outcomes, and reduce complications.

Given the magnitude that the treatment of chronic wounds assumes, both due to clinical complexity and social and economic impact, it is essential to invest in innovative therapies that increase the effectiveness of care. Among these technologies, photobiomodulation stands out, recognized for its potential to modulate inflammation, stimulate tissue repair, favor collagen deposition, reduce bacterial load, and promote healing in different types of lesions. Recent studies reinforce its benefits as an adjunct in the management of complex wounds (Peplow *et al.*, 2019; Houston *et al.*, 2020; Yamashita *et al.*, 2021; Baracho *et al.*, 2021; Silva *et al.*, 2023), especially when integrated into well-structured protocols.

Although widely studied, chronic wounds remain a contemporary challenge, due to their high prevalence, therapeutic complexity, and significant impact on patients' quality of life. In addition, they demand high direct and indirect costs for health systems, which reinforces the need for integrated approaches, consistent public policies, and the incorporation of innovative technologies that can improve clinical outcomes and expand the problem-solving capacity of specialized care.

While innovative therapies represent important and proven effective advances in wound care, their benefits become limited when basic care is not adequately maintained. Advanced interventions do not achieve satisfactory results in the absence of a careful clinical evaluation, correct performance of local care, appropriate choice of dressings, and continuity of treatment. In this context, the importance of permanent training of health professionals and training of patients and caregivers is evidenced, aiming at strengthening self-care, therapeutic adherence and the effectiveness of advanced strategies in wound care.

2 OBJECTIVE

The objective of this report is to present a university extension project aimed at the **qualification of students and health professionals**, combined with the development of **health education actions aimed at patients and wound care**, using **photobiomodulation**

as an adjuvant resource to conventional treatment, resulting in the improvement of the healing process and the quality of care provided.

3 METHODOLOGY

The present work is configured as a descriptive study of the experience report type, addressing the execution of a university extension project aimed at the treatment of chronic wounds carried out in an institution of multidisciplinary outpatient service, entitled "Acting with the Polyclinic for the care of patients with chronic wounds", registered at the Dean of Extension of UFVJM under number 202203000376, in the public notice 032022. This project is part of a research project funded by FAPEMIG-Edital n°1/2022, process APQ-00726-22.

Although the project has contemplated, in its scope, the realization of a randomized, controlled and double-blind clinical trial, the present report assumes **a qualitative and descriptive character**, not aiming at the presentation or analysis of experimental results. The focus is on **the systematized description of the extension actions developed**, the **organizational processes** and **the care and educational strategies implemented**, with emphasis on **comprehensive care for people with wounds** and on the **practical and critical training of students in the health area**.

All procedures followed the ethical standards in force for research involving human beings (CNS Resolution No. 466/2012 and complementary), linked to the approval opinion of the Research Ethics Committee of the institution, under opinion number 5.331.786. Within the scope of the extension project, confidentiality, respect, free and informed consent and guarantee of continuity of care were ensured.

The population served was composed of patients with chronic wounds, referred by the Family Health Strategies (FHS) of the municipality of Diamantina and neighboring municipalities, as well as identified during medical and nursing screening actions. The consultations were carried out from Monday to Friday, in the morning and afternoon shifts, according to the weekly schedule in the period from April/2023 to May/2024, with the team consisting of three to four undergraduate students, under the supervision of a nurse. Each patient attended the service on two days of the week, and on the other days they performed the dressing at home or was monitored by the FHS.

The health education activities developed in the project included the clinical evaluation of wounds, application of laser therapy, dressings, monitoring of the evolution of lesions and continuous guidance to patients and caregivers, with an emphasis on self-care and

prevention of complications. Considering the limitations of travel of part of the patients, the team developed written and individualized care plans, directed to patients, municipal health departments, and ESFs for counter-referral purposes. These plans contained standardized guidelines on wound hygiene, choice and change of dressings, according to the clinical evaluation of the lesions, in order to ensure the continuity and safety of treatment.

In addition, the project included structured professional training actions, with the extension action "Is it possible to uncomplicate clinical and practical care in wound care?", linked to the CNPq Group "Adverse events associated with health care establishments". Through this action, monthly training was carried out with health professionals from the municipalities involved, including nurses, nursing technicians, community health agents and managers, with a total workload of four hours. The training took place in the municipalities of Diamantina, Couto Magalhães, São Gonçalo do Rio Preto, Datas and Gouveia, addressing the theme "Laser therapy associated with conventional dressing treatment: challenges and applications in chronic wounds of the lower limbs". In these activities, clinical aspects of the wounds were discussed, such as the type of tissue present, exudate, odor, edema, pain, types of borders and criteria for choosing dressings, strengthening the standardization and quality of care provided in the network.

In this way, the methodology built throughout the project allowed the integration of the scientific rigor of the clinical trial with the extension practice, expanding the view beyond the therapeutic intervention, by incorporating health education, student training and network articulation, promoting a more comprehensive, humanized and effective care for the participants.

4 RESULTS AND DISCUSSION

The extension action had a multiprofessional team composed of an angiologist, three professors, three clinical nurses and students from the Graduate Program in Health Sciences, in addition to 38 undergraduate students, 8 of whom were students from the Physiotherapy course and 30 from the Nursing course, all linked to UFVJM. In all, more than 45 professionals and students were directly involved in the assistance, educational and training activities developed in the project.

With regard to care for the population, 88 patients were treated, from nine municipalities in the macro-region of Vale do Jequitinhonha — Datas, Gouveia, Pedro Lessa, Senador Modestino Gonçalves, Sabinópolis, Couto Magalhães, Santo Antônio do Itambé,



Materlândia and Itamarandiba — evidencing the territorial scope of the action and its role as a reference service in secondary care for the care of people with chronic wounds in the macro-region of Diamantina.

In order to ensure the uniformity of care and continuity of care, the members of the extension project promoted systematic training actions aimed at health professionals who worked directly in patient care, including nurses, nursing technicians, community health agents and municipal health managers/secretaries. These training sessions included professionals from the municipalities of Diamantina, Couto Magalhães, São Gonçalo do Rio Preto, Datas and Gouveia, strengthening the standardization of clinical conducts and the articulation between the different levels of health care.

The dimension of the extension project is evidenced by its direct articulation with a structured research project, which resulted in expressive scientific production. As a result, a doctoral thesis, five Course Completion Papers (TCCs), three published scientific articles and one article accepted for publication were developed, in addition to the production of a book chapter.

In addition to the formal productions, the main findings of the study were widely disseminated in scientific events, through the presentation of eleven abstracts, distributed among the poster and oral presentation modalities. Participation in regional, national and international congresses enabled not only the socialization of scientific evidence about the efficacy of photobiomodulation in the treatment of chronic wounds, but also fostered critical reflections on clinical practice, contributed to the academic training of those involved and stimulated the establishment of new interinstitutional collaborations, expanding the social, scientific and formative impact of the project.

Figure 1

Presentation of the results of the Project "Working with the Polyclinic for the care of patients with chronic wounds" at the II Congress of Health Sciences of UFVJM, by the Faculty of Medicine and at the IX Week of Integration Teaching, Research and Extension of UFVJM, in the year 2023



Source: Authors.

The significant demand for care observed throughout the execution of the project shows the existence of a repressed demand for specialized care for chronic wounds, especially in municipalities with less supply of specialized services. In addition, the integration between care, teaching and extension made it possible not only to expand patients' access to innovative therapeutic technologies, such as laser therapy, but also the technical and clinical qualification of students and health professionals, contributing to the strengthening of multiprofessional action and comprehensive care for people with wounds.

The educational strategies in health developed in the extension were fundamental for the qualification of the care of people with chronic wounds, promoting the empowerment of patients and caregivers and the practical learning of students. Held in monthly educational meetings, the training for professionals included the theoretical conceptualization, through expository presentations on wounds, associated with practice with technical demonstration

of the procedures and the appropriate use of therapeutic dressings, as shown in figure 1. For the patients, didactic and practical resources were used, such as illustrative posters, signs simulating wounds and dressing materials (gauze, gloves, 0.9% saline solution and dressings), in addition to the distribution of individualized booklets. The activities included conversation circles with a draw of questions about wound care, ensuring autonomy to the participants and favoring the exchange of knowledge and the articulation between theory and practice, as illustrated in Figure 2.

Figure 2

Extension Action "Is it possible to simplify clinical and practical care in wound care?", from UFVJM, with health professionals from municipalities participating in the project, Diamantina, MG. A) Theoretical training. B) Practical demonstration of dressing



Source: Authors.

Figure 3

Action of the Extension Project "Acting with the Polyclinic for the care of patients with chronic wounds" at UFVJM, with patients and caregivers participating in the project, Diamantina, MG.



Source: Authors.

The empowerment and autonomy of the participants, especially patients and caregivers, were expressive results of the educational actions. By better understanding the healing process, the signs of complications and the importance of adherence to therapeutic guidelines, users began to assume greater responsibility for self-care in the home environment. This finding corroborates the literature, which points to health education as a central strategy to promote self-care, reduce complications, and favor better clinical outcomes in people with chronic wounds (BRASIL, 2016; WORLD HEALTH ORGANIZATION, 2009).

With regard to home care, health education proved to be fundamental to guide safe practices, such as correct wound hygiene, the appropriate use of dressings, the observation of signs of infection, and the importance of continuous monitoring by health services. Studies indicate that well-oriented patients tend to have greater adherence to treatment and a lower incidence of infections and recurrences, reinforcing the role of nursing and the multidisciplinary team as mediators of knowledge and shared care (SANTOS *et al.*, 2018; SILVA; CALIRI, 2020).

The development of the project was based on an **interdisciplinary and interprofessional approach**, integrating knowledge from nursing, physiotherapy, vascular medicine, microbiology and health education, necessary to understand the healing process as a multifactorial phenomenon. Even when the direct action of different professionals did not occur simultaneously, the knowledge from these areas supported the clinical evaluation of wounds, the choice of topical therapies, guidance on mobility, physical activity, diet and infection prevention, strengthening collaborative practices in health care.

At the same time, the experience contributed significantly to the development of the autonomy of the students involved. The practical experience in wound care enabled the improvement of technical, scientific and communicational skills, in addition to strengthening supervised clinical decision-making. Active participation in educational actions, in the organization of scientific activities and in direct contact with the community favored professional maturity, a sense of responsibility and an understanding of comprehensive and humanized care. These results are in line with the National Curriculum Guidelines, which emphasize the training of critical, reflective professionals capable of acting autonomously and ethically at different levels of health care (BRASIL, 2014).

The extension work and training developed in real health service environments favor the encounter of diverse knowledge and stimulate, in students, the development of



fundamental skills, such as empathy, effective communication, active listening and shared decision-making with other professionals and the community. These practical experiences broaden the understanding of comprehensive care and strengthen the capacity for collaborative action, essential aspects for the qualification of health care (SILVA; FERREIRA, 2022; SOUZA *et al.*, 2021).

The inseparability between teaching, research and extension was evidenced by the integration of extension actions to a research project on the care of chronic wounds and the use of therapeutic technologies, allowing the demands of practice to subsidize scientific production and guide educational activities. The participation of students in the process favored the development of technical, ethical and communicational skills, through experiential learning and evidence-based decision-making. In addition, the project promoted social impact by expanding access to qualified information, strengthening the autonomy of patients and caregivers, and qualifying home care practices.

5 CONCLUSION

Health education and university extension actions focused on wound care proved to be relevant for strengthening self-care at home, by promoting the empowerment of patients and caregivers and favoring greater adherence to therapeutic guidelines. The active participation of users, combined with the exchange of knowledge and the clarification of doubts, contributed to the construction of significant knowledge, expanding the responsibility of individuals for wound management and reinforcing safer practices in daily care.

In the field of health education, the experiences developed in real scenarios enabled the development of students' autonomy and the improvement of technical, communicational and relational skills, which are fundamental for professional practice. The performance in a multiprofessional team stood out as a central element of this process, as it favored the integration of knowledge and shared care, contributing to the formation of more critical, humanized and socially committed professionals, aligned with the principles of integrality and attention centered on the needs of the people served.

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