

KNOWLEDGE AND ACCEPTANCE OF LARVAL THERAPY BY HEALTHCARE PROFESSIONALS AND PATIENTS WITH WOUNDS

CONHECIMENTO E ACEITAÇÃO DA TERAPIA LARVAL POR PROFISSIONAIS DE SAÚDE E PACIENTES COM FERIDAS

CONOCIMIENTO Y ACEPTACIÓN DE LA TERAPIA LARVAL POR PARTE DE LOS PROFESIONALES SANITARIOS Y LOS PACIENTES CON HERIDAS

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Objective: To evaluate the knowledge and acceptance of larval therapy by healthcare professionals and patients with difficult-to-heal wounds in the city of Maceió, Alagoas state. **Method:** The study was conducted at a reference medical care center for wound treatment. Semi-structured questionnaires were applied to healthcare professionals and patients, in addition to an analysis of medical records. Doubts and possible acceptance of the therapy were recorded. **Results:** 36 healthcare professionals and 24 patients participated in the study. The majority of professionals (88.46%) and patients (91.27%) were unaware of the therapy and its functioning. Among the professionals, doubts about contraindications and immunological risks stood out. Patients expressed apprehension about the presence of larvae in the body. Despite this, 70.83% of patients and 55.55% of professionals demonstrated acceptance of the therapy. **Conclusion:** The results point to the need for greater dissemination of larval therapy and its inclusion in the curricula of health science courses.

Descriptors: Wound Healing. Larval Debridement Therapy. Healthcare. Nursing Care.

Objetivo: avaliar o conhecimento e a aceitação da terapia larval por profissionais de saúde e pacientes com feridas de difícil cicatrização na cidade de Maceió, estado de Alagoas. **Método:** o estudo foi realizado em um Posto de Atendimento Médico de referência no tratamento de feridas. Foram aplicados questionários semiestruturados a profissionais de saúde e pacientes, além de análise dos prontuários. Dúvidas e possível aceitação da terapia foram registradas. **Resultados:** participaram do estudo 36 profissionais de saúde e 24 pacientes. A maioria dos profissionais (88,46%) e pacientes (91,27%) desconhecia a terapia e seu funcionamento. Entre os profissionais, destacaram-se dúvidas sobre contraindicações e riscos imunológicos. Pacientes demonstraram receio quanto à presença das larvas no corpo. Apesar disso, 70,83% dos pacientes e 55,55% dos profissionais demonstraram aceitação à terapia.

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Conclusão: os resultados apontam para a necessidade de maior divulgação da terapia larval e sua inserção nos currículos de cursos da área da saúde.

Descritores: Cicatrização de Feridas. Terapia de Desbridamento Larval. Atenção à Saúde. Cuidados de Enfermagem.

Objetivo: Evaluar el conocimiento y la aceptación de la terapia larval por parte de profesionales de la salud y pacientes con heridas de difícil cicatrización en la ciudad de Maceió, estado de Alagoas. Método: El estudio se realizó en un centro de referencia para el tratamiento de heridas. Se aplicaron cuestionarios semiestructurados a profesionales de la salud y pacientes, además de un análisis de historias clínicas. Se registraron las dudas y la posible aceptación de la terapia. Resultados: Participaron en el estudio 36 profesionales de la salud y 24 pacientes. La mayoría de los profesionales (88,46 %) y pacientes (91,27 %) desconocían la terapia y su funcionamiento. Entre los profesionales, destacaron las dudas sobre las contraindicaciones y los riesgos inmunológicos. Los pacientes expresaron desconfianza ante la presencia de larvas en el cuerpo. A pesar de ello, el 70,83 % de los pacientes y el 55,55 % de los profesionales mostraron aceptación de la terapia. Conclusión: Los resultados señalan la necesidad de una mayor difusión de la terapia larval y su inclusión en los planes de estudio de las carreras de ciencias de la salud.

Descriptores: Cicatrización de heridas. Terapia de desbridamiento larval. Atención sanitaria. Cuidados de enfermería.

Introduction

Difficult-to-heal wounds affect individuals with various clinical conditions, such as vascular diseases, diabetes mellitus (diabetic ulcers), and pressure injuries. Due to slow tissue regeneration, these lesions significantly increase therapeutic costs, increase morbidity, and negatively affect patients' quality of life. Several approaches have been employed in the management of these wounds, including surgical, chemical, mechanical, hydrosurgical, ultrasonic, enzymatic, and biological methods⁽¹⁾.

Larval Therapy (LT), also known as larval debridement therapy, is a biological method that involves applying fly larvae to wounds that are difficult to heal. Before application, these larvae are thoroughly disinfected to a high level⁽²⁾. Its main objective is to promote selective debridement of necrotic tissue, disinfect the wound, and stimulate the growth of healthy tissue⁽³⁾. The larvae are contained in appropriate dressings, which ensure their survival in the wound bed and allow them to feed, in a controlled and specific manner, on devitalized tissue⁽⁴⁾.

The mechanisms of action of the larvae include the mechanical removal of bacteria, caused by the marked increase in serous exudate, produced by the irritative effect of the larvae on healthy tissue; rapid proliferation of

granulation tissue; reduction of the bacterial load in the wound bed due to the production of allantoin, a substance with antibacterial action; alkalization of the environment due to the release of ammonia and calcium carbonate by the larvae; together inhibiting the proliferation of resistant bacteria and those capable of forming biofilms, such as *Pseudomonas aeruginosa* and *Staphylococcus aureus*⁽⁵⁾.

Larval therapy (LT) is considered a safe and economically viable alternative. Its costs are lower than those of conventional debridement methods. It can remain in place on the patient for 24 to 72 hours, requiring only the replacement of the secondary dressing. This aspect distinguishes LT from other methods, such as papain, which requires replacement every 12 hours, increasing the workload of the healthcare team⁽⁶⁾.

Historically, LT was used for centuries by Australian Aboriginal peoples and the Maya. However, its formal incorporation into medicine occurred only in 1931, by orthopedic surgeon William Baer at Johns Hopkins Hospital in the United States of America (USA). With the advent of antibiotics, its use became rare, re-emerging in the early 1980s due to bacterial resistance. Currently, wound treatment using larvae is performed regularly in European countries and

in the United States⁽²⁾. In the Brazilian context, its use remains limited.

The first application of LT in Brazil occurred in 2012 at the Onofre Lopes University Hospital (HUOL), affiliated with the Federal University of Rio Grande do Norte (UFRN). Rio Grande do Norte remains, to date, the only Brazilian state to use it in humans. Case studies conducted at HUOL have demonstrated the effectiveness of LT in complex diabetic ulcers, with significant reduction in wound area and replacement of necrotic tissue with granulation tissue⁽⁷⁾.

Despite the promising results, the limited dissemination of LT in Brazil suggests that healthcare professionals' knowledge of this therapeutic modality is still restricted, regarding both its mechanisms of action and its application protocols. This information gap contributes to the low adoption of the technique in clinical practice and to the persistence of negative perceptions associated with the use of larvae in wounds. These aspects highlight the need for studies investigating the level of knowledge and acceptance of LT among professionals and patients.

In light of the above, this study aimed to assess the knowledge and acceptance of larval therapy among healthcare professionals and patients with hard-to-heal wounds in the city of Maceió, in the state of Alagoas.

Method

This is a cross-sectional, descriptive study with a quantitative approach, conducted from August 2023 to June 2024 at the Medical Care Unit located in the city of Maceió, state of Alagoas, Northeast Region of Brazil. The unit is a reference center for wound treatment in the state.

The project was approved by the Research Ethics Committee of the State University of Health Sciences of Alagoas (UNCISAL), as per the substantiated opinion of the Certificate of Presentation of Ethical Appraisal (CAAE) number 71110423.0.0000.5011. The design and presentation of the results followed the recommendations of Strengthening the Reporting

of Observational Studies in Epidemiology (STROBE), which guide the standardization and transparency of observational studies. To preserve the confidentiality of the participants, all names mentioned are fictitious.

Initially, it was planned to include another reference unit for wound treatment in Maceió to expand the sample. However, the lack of institutional authorization made its participation impossible.

The sampling was non-probabilistic by convenience, including all patients undergoing wound treatment at the Medical Care Unit, as well as the unit's health professionals who were available and willing to participate during the study period. The sample size corresponded to the total number of individuals who met the inclusion criteria and agreed to participate in the research. The choice of this sample was justified by the descriptive nature of the design and the limited number of patients with difficult-to-heal wounds treated at the unit during the analyzed period. The number of participants will be specified in the results section. Patients with cognitive deficits and/or limitations in verbal communication that hindered the understanding of the questionnaire were excluded.

For each participant, the following procedures were carried out: reading, explanation, and signing of the Informed Consent Form (ICF); presentation of the structure of the questionnaire and its administration; and, finally, clarification of doubts regarding Larval Therapy.

The semi-structured questionnaire was developed by the researchers based on previous studies on the topic. The researchers in a private room within the facility administered it individually, both for patients and for the healthcare team responsible for the treatment. In both groups, sociodemographic variables were collected, such as place of birth, gender, educational level, marital status, and income. The variable "profession" was considered only for the healthcare team, as it is a multidisciplinary group. The variable "age group" was recorded only for patients.

All participants were asked about their prior knowledge of LT and how it works. When a participant stated that they did not know the technique, the questionnaire was temporarily paused so that the researchers could provide a standardized, brief, and neutral explanation of the procedure, ensuring minimal understanding and avoiding responses based on incorrect assumptions. After the explanation, the questionnaire was resumed with questions regarding the presence of doubts and the participant's willingness to accept the use of LT, either as a user (patients) or as a professional responsible for its application (healthcare team).

The clinical characterization of patients and their wounds was performed through the analysis of medical records. Information was collected on the type and location of the wound, presence of comorbidities, characteristics of the wound bed, presence or absence of biofilm, type of treatment used, and length of treatment.

Data were tabulated in Microsoft Excel® and analyzed using descriptive statistics, with presentation in absolute and relative frequencies (%). Open-ended responses were subjected to thematic content analysis to identify perceptions, doubts, and levels of acceptance of LT among participants.

Results

Twenty-nine nurses, ten nursing technicians, and two physical therapists were invited to participate in the research; however, five nurses refused to participate, citing lack of time or interest. Therefore, 36 questionnaires were administered. The majority of professionals were from the state of Alagoas, married, and had an income exceeding four minimum wages (MW). The female gender represented 91.67% of the sample. 80.55% of the professionals had completed higher education, and of these, 36.11% had graduate degrees (Table 1).

Table 1 – Characterization of health professionals at the Medical Care Post. Maceió, Alagoas, Brazil – Aug. 2023-Jun. 2024. (N=36)

Variables	n	%
Origin		
Alagoas	22	61.11
Other states	8	22.22
They did not respond.	6	16.67
Gender		
Male	3	8.33
Female	33	91.67
Education		
Technical Level	6	16.67
Incomplete University Education	1	2.78
Completed University Education	16	44.44
Graduate Specialization (lato sensu)	12	33.33
Master's Degree	1	2.78
Marital status		
Single	8	22.22
Married	23	63.89
Divorced	4	11.11
I do not wish to answer	1	2.78
Income		
Up to 2 minimum wages	5	13.89
Up to 4 minimum wages	11	30.56

Table 1 – Characterization of health professionals at the Medical Care Post. Maceió, Alagoas, Brazil – Aug. 2023-Jun. 2024. (N=36)

Variables	n	%
More than 4 minimum wages	13	36.11
I do not wish to answer.	7	19.44
Profession		
Nurse	24	66.67
Nursing Technician	10	27.77
Physical therapist	2	5.56

Source: Author's own elaboration.

When questioned about LT, 88.46% of professionals stated they had never heard of the technique during their undergraduate studies, and 83.33% declared they were unaware of its functioning, application, and benefits. The most frequent statements and doubts expressed by the professionals included assertions such as:

I know little about the processes used and the systematic application. (Maria and 28 others)

I have doubts about the contraindications. (Maria and 25 others)

I am concerned about larval infestation in patients with low immunity, since they are larvae. (Maria and 20 others).

One participant, when stating that she would not perform the procedure as a healthcare professional, justified herself by saying:

I would be afraid of having a larvae crawling on my body. (Maria).

After the clarifications and the time dedicated to explaining the doubts, 55.55% of the professionals stated that they were interested in performing wound care as healthcare professionals, if the practice were available in the Unified Health System (SUS) or in the private network.

Thirty-six ⁽³⁶⁾ patients were approached, of whom only 25 responded to the questionnaires. The reasons for refusal were: pain at the wound site, discomfort in answering, and lack of time. One patient was excluded from the study because he was administratively discharged from the unit before the analysis of his medical record, making his inclusion impossible. In the end, 24 patients comprised the research sample. Most patients were from the state of Alagoas, male, and 41.67% had, at most, completed elementary school. The age range of the participants was equal to or greater than 40 years, with 58.34% being older people (Table 2).

Table 2 – Socioeconomic characteristics of patients undergoing wound treatment at a Medical Care Post. Maceió, Alagoas, Brazil – Aug. 2023–Jun. 2024. (N=24)

Variables	n	%
Origin		
Alagoas	20	83.33
Other states	4	16.67
Gender		
Male	13	54.17
Female	11	45.83
Age		
40-49	2	8.33
50-59	8	33.33
60-69	8	33.33
70-79	5	20.84
80-89	1	4.17
Education		

Table 2 – Socioeconomic characteristics of patients undergoing wound treatment at a Medical Care Post. Maceió, Alagoas, Brazil – Aug. 2023–Jun. 2024. (N=24)

Variables	n	%
Illiterate	1	4.17
Incomplete elementary education	8	33.33
Completed elementary education	1	4.17
Incomplete high school education	3	12.50
Completed high school education	6	25.00
Incomplete university education	2	8.33
Completed university education	1	4.17
I do not wish to answer	2	8.33
Marital status		
Single	7	29.16
Married	10	41.67
Divorced	4	16.66
Widowed	3	12.50
Income		
Up to 1 minimum wage	1	4.17
More than 1 minimum wage	5	20.83
I do not wish to answer	18	75.00

Source: Author's own elaboration.

Regarding clinical characteristics, 41.66% of the wounds were diagnosed as venous ulcers, followed by diabetic foot ulcers (37.50%). Necrosis and serosanguineous exudate were observed in the wound beds in 25% of the

patients. Hypertension and diabetes associated or not, were diagnosed in 79.17% of the patients (Table 3). Furthermore, the presence of biofilm was identified in more than 62.50% of the patients' wounds.

Table 3 – Clinical characterization of patients undergoing wound treatment at a Medical Care Unit. Maceió, Alagoas, Brazil – Aug. 2023–Jun. 2024. (N=24)

Variables	Category	n	%
Type of wound	Venous ulcer	10	41.66
	Mixed ulcer	1	4.17
	Diabetic foot	9	37.50
	Erysipelas bacteria	4	16.67
Wound location	Lower limbs	24	100.00
Wound bed	Granulation	16	66.67
	Epithelialization	2	8.33
	Foul odor/serosanguineous exudate	2	8.33
	Necrosis	4	16.67
Comorbidities	Diabetes	2	8.33
	Hypertension	4	16.67
	Diabetes and hypertension	13	54.17
	No comorbidities	5	20.83

Source: Author's own elaboration.

Table 4 summarizes the methods employed, individually or in combination, for wound

treatment, as well as the time of initiation and duration of treatment.

Table 4 – Methods used and treatment time for wounds in patients treated at a Medical Care Unit. Maceió, Alagoas, Brazil – Aug. 2023-Jun. 2024

Variables	Category	N	%
Tratamento	Polyhexamethylene Biguanide (1)	23	98.83
	Hydrogel	20	83.33
	Barrier Cream	16	66.67
	Collagenase	1	4.17
	Calcium Alginate Plate	5	20.83
	Hydrofiber	3	12.50
	Silver Care Plate	1	4.17
	Instrumental Debridement	3	12.50
Duration (in days)	0 – 29	3	12.50
	30 - 59	3	12.50
	60 - 89	6	25.00
	90 - 119	1	4.17
	120 - 364	2	8.33
	≥365 (2)	9	37.50

Source: Author's own elaboration.

Notes: (1) In the form of soap, foam, gel, or solution; (2) 1 to 5 years of treatment.

Of the 24 patients, only 8.33% reported knowing about LT and fully understanding how it works. Among the main concerns, the following stood out: *I am terrified of having larvae crawling on my body*.

After providing information and clarifications about LT, 70.83% of patients reported that they would accept undergoing the procedure if it were available through the SUS (Brazilian Public Health System). Among the reasons cited the following stand out: *improved health, improved treatment, improvement of the lesion, and faster healing*.

The results showed a predominance of lack of knowledge about LT among professionals and patients, with increased acceptance after clarification of doubts. A prevalence of venous ulcers and diabetic foot was also observed among patients, with associated comorbidities. These findings summarize the epidemiological profile and the level of knowledge of the participants regarding the investigated topic.

Discussion

The distribution of professionals by gender and educational level is similar to the data found in a study that analyzed the perception of and willingness to use LT among a group of nurses specialized in the treatment of hard-to-heal wounds⁽⁸⁾. The work of the nursing team in caring for patients with wounds is regulated by Resolution number 567/2018 of the Federal Nursing Council (COFEN). Nurses are the professionals directly involved in this process, not only in performing dressings—an essential stage in treatment—but also in seeking strategies that promote improvements in patients' quality of life⁽⁹⁾.

The limited dissemination of innovative therapies in academic and professional settings is reflected in the results of this study, revealing the professionals' lack of knowledge about LT. This finding suggests weaknesses in the diffusion of new evidence in the field of nursing,

which restricts the adoption of alternative care technologies. The continuous professional development of the team, including the proposal of innovative treatment alternatives, is essential for health promotion⁽¹⁰⁾. Both the lack of knowledge about LT for hard-to-heal wounds and the lack of practical experience may lead professionals to avoid using or recommending this technique⁽⁸⁾. The reports obtained are consistent with the findings of a study that identified, among health professionals, insufficient knowledge about the use of larvae in wound healing, as well as feelings of disgust regarding its handling⁽¹¹⁾.

Larvae have a culturally negative image, often associated with poor hygiene and uncleanness, which contributes to the difficulty in accepting LT as a therapeutic method⁽⁴⁾. Among the participants in this study, this perception also appeared in statements linking the technique to the idea of dirt and disgust, showing that social stigma remains a significant barrier. In addition, the sight and odor of larvae in contact with the wound may provoke negative visual and olfactory impressions, especially in more sensitive individuals, due to the presence of decomposing tissue and the emotional discomfort associated with larvae feeding on necrotic tissue⁽⁸⁾.

The data obtained in this study, regarding the acceptance of professionals to perform LT after clarification of doubts, corroborate studies that also demonstrated that more than 50% of professionals would be willing to use this therapy as a form of treatment^(8,11). This demonstrates that, once the technique is understood, there is greater openness to its clinical application, highlighting the potential of educational actions as facilitators of professional adherence. This result reinforces the importance of disseminating information about LT among health professionals⁽⁴⁾.

Some patients refused to participate in the study due to reports of pain. This factor has been identified as a limitation for self-care in patients with chronic injuries⁽¹²⁾. The predominance of male patients is also consistent with the literature, which indicates that, although they need specialized care, men tend to resist seeking health services – a behavior historically associated with social constructs linked to the concepts of masculinity and virility⁽¹³⁾.

Low educational attainment highlights the need to adapt care guidelines according to patients' educational level in order to avoid complications, forgetfulness, and relapses in treatment⁽¹⁴⁾. The predominance of older individuals among the study participants confirms previous findings, which indicate a higher incidence of chronic skin lesions in this age group⁽¹³⁾. It was also observed that a large proportion of patients reported not having a partner, which may compromise the recovery process, since the presence of family members and caregivers is a fundamental factor in supporting treatment⁽¹²⁾.

Vascular ulcers are classified as venous, arterial, or mixed, and are often associated with peripheral neuropathies and systemic pathologies. Because they are chronic conditions, they are characterized by a high recurrence rate, primarily affecting the lower limbs and leading to increased healthcare costs for health systems⁽¹³⁾. In the present study, approximately 50% of the patients presented with vascular ulcers, all located on the lower limbs, reinforcing the epidemiological pattern described in the literature. Clinical evidence reports the successful use of LT in an older patient with a chronic vascular ulcer on a lower limb that was refractory to surgical and chemical debridement, as well as negative-pressure wound therapy, followed by tissue revascularization⁽¹⁵⁾. Additionally, the presence of biofilm was identified in the lesions, a factor that acts as a pathophysiological barrier to healing, inhibiting granulation tissue formation and prolonging the chronic inflammatory process.

The comorbidities arterial hypertension and diabetes mellitus, which were more prevalent among the patients in this study, interfere with the healing process of the lesions by causing vascular complications that compromise tissue perfusion⁽¹³⁾. Both chronic and degenerative in nature, and associated with the use of certain medications, they can impair blood flow and nutrient supply, making the tissue more vulnerable to the formation and persistence of wounds⁽¹⁶⁾. The literature also associates diabetes with delayed healing due to microvascular, neuropathic, and immunological alterations⁽¹⁷⁾.

LT therefore emerges as an effective complementary treatment for hard-to-heal ulcers

in individuals with diabetes. Clinical studies report significant improvement in wound characteristics after the use of larvae, with reduced necrotic tissue, stimulated granulation, and accelerated healing⁽¹⁸⁾.

The participants in this study used various therapeutic methods for wound treatment, ranging from the application of topical products and/or dressings to instrumental debridement. Recent evidence from Asian and European studies indicates that LT does not exclude conventional methods, but can be used in conjunction with them, enhancing healing, controlling infections, and reducing secondary complications⁽¹⁹⁻²²⁾.

Regarding the time of onset and duration of treatment, it was observed that there were patients with wounds under treatment for more than a year, in some cases extending up to five years. Clinical reports on the use of LT in difficult-to-heal wounds demonstrate favorable evolution, characterized by the effective removal of necrotic tissue and reduction of bacterial contamination. Commonly adopted protocols include two cycles of larval application, lasting approximately three days each, totaling about one week of treatment⁽¹⁵⁾. Other studies describe extended protocols, with four cycles and an approximate duration of two weeks, also with good results⁽¹⁸⁻²²⁾.

Patients' apprehensions regarding LT reflect the fear of the new and resistance to the unknown, especially when it involves contact of their own body with socially stigmatized living organisms⁽¹¹⁾. This negative perception, frequently associated with opportunistic myiasis, constitutes an important factor in rejection. During data collection, some participants verbalized fear and disgust, even after receiving explanations about the procedure, revealing that the symbolic impact of the therapy is still significant.

A study conducted with patients with difficult-to-heal wounds, before the implementation of LT, showed negative emotional reactions, with more than half of the participants considering the therapy disgusting. These responses are associated with culturally charged elements with negative connotations, such as foul odors, images of decomposing carcasses, animal excrement,

and putrefying organic matter. The authors observed that the degree of aversion triggered by the presence of larvae exceeded that caused by photographs of vascular and neuropathic wounds. Among the barriers identified on the patient's side, the lack of adequate education about the technique and the need for a gradual desensitization process in the face of fears and prejudices stand out⁽²³⁾. The suggestion, trust, and authority of the health team are crucial factors for the acceptance of LT⁽²⁴⁾.

The motivations reported by patients for accepting LT, related to the expectation of healing and obtaining a faster treatment, have been documented in previous studies, especially after the procedure was explained⁽²⁵⁾. In the present study, this same expectation was evident in the patients' reports, as they expressed hope in the effectiveness of the technique, particularly when facing longstanding wounds that were resistant to conventional treatments.

This study presented some limitations that should be considered when interpreting the results. The small sample size and the predominance of certain sociodemographic profiles may limit the generalization of the findings. Moreover, conducting the research in a single institution restricts the extrapolation of the results to other settings. Some patients refused to participate in the study due to pain or discomfort, which may have influenced the diversity of the perceptions collected. Although the study was conducted ethically and in a controlled manner, it is acknowledged that the prior explanation about LT during the questionnaire administration may have influenced the level of acceptance.

In short, the results reinforce that limited knowledge and cultural barriers still pose obstacles to the adoption of LT in clinical practice. It is observed, however, that acceptance tends to increase when there is adequate understanding of the method and recognition of its therapeutic benefits. These findings corroborate evidence from other national and international contexts, indicating that the expansion of LT depends less on structural factors and more on educational and attitudinal aspects. Thus, this research contributes to expanding knowledge about the

technique among professionals and patients and represents an essential stage toward its consolidation as a safe and effective resource in the care of hard-to-heal wounds.

Conclusion

Larval therapy is still not widely used in Brazil, and this is the first study conducted in the state of Alagoas on this topic. The findings highlight the need to expand the dissemination of the technique among health professionals and patients, in order to promote a more favorable attitude towards its adoption and, consequently, enable its incorporation into public health services.

It is recommended to implement strategies such as ongoing educational activities and the inclusion of the topic in the curricula of health-related courses, especially Nursing, at the undergraduate and graduate levels, contributing to the training of more qualified professionals who are receptive to innovative therapies based on scientific evidence.

Collaborations:

1 – Project conception and planning: Alyce Vitória Costa Tavares and Flaviana Santos Wanderley;

2 – Data analysis and interpretation: Alyce Vitória Costa Tavares and Ewerton Amorim Santos;

3 – Writing and/or critical review: Alyce Vitória Costa Tavares and Flaviana Santos Wanderley;

4 – Approval of the final version: Alyce Vitória Costa Tavares, Ewerton Amorim Santos, and Flaviana Santos Wanderley.

Conflicts of interest

There are no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available in the article itself.

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