

# Nursing diagnoses and interventions for the person with venous ulcer

Diagnósticos e intervenções de enfermagem para a pessoa com úlcera venosa

Diagnóstico e intervenciones de enfermería para la persona con úlcera venosa

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Standardized nursing terminology; Nursing diagnosis; Nursing process; Varicose ulcer/ classification

## Descritores

Terminologia padronizada em enfermagem; Diagnóstico de enfermagem; Processo de enfermagem; Classificação; Úlcera varicosa/classificação

## Descriptores

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## Abstract

**Objective:** To develop and validate the terminological subset of ICNP® for the care of people with venous ulcer guided by Wanda Aguiar Horta's theory of Basic Human Needs.

**Methods:** Methodological study for the development terminological subsets of ICNP®. Initially, was conducted an integrative review in order to search for evidence in the literature for the nursing practice to people with venous ulcer, and answer the following question: What are the empirical evidences found in the person with venous ulcer? The accessed databases were the Medical Literature Analysis and Retrieval System Online (MEDLINE), the Latin American and Caribbean Literature on Health Sciences Information (LILACS), and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). Inclusion criteria were the following: abstracts available in Portuguese, English or Spanish; and published between 2012 and 2016. Exclusion criteria were case reports, theses, monographs, manuals and papers that did not present clinical manifestations of venous ulcer.

**Results:** A group of nurse judges experienced in the treatment of venous ulcer validated 84 nursing diagnoses and outcomes, and 306 interventions. Of the diagnoses developed, 62 are included in ICNP® and 23 are new diagnoses, not included.

**Conclusion:** The ICNP® has proved to be a taxonomy that can be compatible and applicable to nurses' clinic with potential for organization of the work process, whether in the outpatient or hospital setting.

## Resumo

**Objetivo:** Elaborar e validar o Subconjunto terminológico CIPE® para o cuidado à pessoa com úlcera venosa, orientado pela teoria das Necessidades Humanas Básicas de Wanda Aguiar Horta.

**Métodos:** Estudo metodológico para elaboração de subconjuntos terminológicos da CIPE®. Inicialmente, fez-se uma revisão integrativa, buscando evidências para a prática de enfermagem à pessoa com úlcera venosa dispostas na literatura, a fim de responder à seguinte pergunta: Quais as evidências empíricas apresentadas na pessoa com úlcera venosa? As bases acessadas foram o *Medical Literature Analysis and Retrieval System Online* (MEDLINE), a Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS), e também a *Cumulative Index to Nursing and Allied Health Literature* (CINAHL). Utilizaram-se os seguintes critérios de inclusão: ter resumo disponível nos idiomas português, inglês ou espanhol; e publicados entre 2012 e 2016. Como critérios de exclusão: relatos de casos, teses, monografias, manuais e trabalhos que não apresentavam manifestações clínicas da úlcera venosa.

**Resultados:** 84 diagnósticos, resultados de enfermagem e 306 intervenções foram validados por um grupo de juízes enfermeiros, especialistas em tratamento de úlcera venosa. Dos diagnósticos elaborados, 62 são constantes na CIPE® e 23 são novos diagnósticos, não constantes.

**Conclusão:** A CIPE® evidenciou-se como uma taxonomia que pode ser compatível e aplicável à clínica do enfermeiro, com potencial para a organização do processo de trabalho, seja no âmbito ambulatorial ou hospitalar.

## Resumen

**Objetivo:** Elaborar y validar el Subconjunto terminológico CIPE® para el cuidado de la persona con úlcera venosa, orientado por la teoría de las Necesidades Humanas Básicas de Wanda Aguiar Horta.

**Métodos:** Estudio metodológico para elaboración de subconjuntos terminológicos de CIPE®. Inicialmente, se realizó revisión integrativa, buscando evidencias de la práctica de enfermería a la persona con úlcera venosa dispuestas en la literatura, para responder la pregunta: ¿Cuáles son las evidencias empíricas presentadas en la persona con úlcera venosa? Se buscó en las bases *Medical Literature Analysis and Retrieval System Online* (MEDLINE), Literatura Latinoamericana y del Caribe en Ciencias de la Salud (LILACS) y *Cumulative Index to Nursing and Allied Health Literature* (CINAHL). Se utilizaron los siguientes criterios de inclusión: contar con resumen disponible en portugués, inglés o español; y publicación entre 2012 y 2016. Como criterios de exclusión: relatos de casos, tesis, monografías, manuales y trabajos que no expresaban manifestaciones clínicas de la úlcera venosa.

**Resultados:** 84 diagnósticos, resultados de enfermería y 306 intervenciones fueron validadas por un grupo de expertos enfermeros, especializados en tratamiento de úlcera venosa. De los diagnósticos elaborados, 62 constan en la CIPE® y 23 son nuevos.

**Conclusión:** La CIPE® se evidenció como taxonomía compatible y aplicable a la clínica del enfermero, con potencial para organización del proceso de trabajo, tanto en el ámbito ambulatorio como hospitalario.

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## Introduction

Venous ulcers are a serious public health problem, since they cause disability, suffering, social isolation and are costly because they consume resources for care and cause damages to the quality of life.<sup>(1,2)</sup> Furthermore, treatments are long and have recurrence of 70%.<sup>(3)</sup> Prevalence in the world population is around 1% to 1.5%<sup>(4,5)</sup> and in Brazil, approximately 3% of the population is affected by venous ulcers.<sup>(6)</sup>

The professional's conduct is fundamental for the evolution or not of the wound, and the care choices can contribute to the improvement or worsening of the clinical picture.<sup>(7)</sup> From its conception, Nursing has the care of people with wounds in its routine practice. In the search for qualifying the care provided, the nursing process should be used as a methodological and systematic tool for providing care to people with venous ulcer.<sup>(8)</sup>

For implementation of the nursing process, should be used classification systems that help in the identification of nursing diagnoses, outcomes and interventions. Among taxonomies, the International Classification for Nursing Practice (ICNP)<sup>®</sup> is appropriate especially when directed at a specific population or health priority, and represented by terminological subsets.<sup>(9)</sup>

Terminological subsets are sets of nursing diagnostic statements, outcomes and interventions directed to specific health conditions, specialties or care contexts, or nursing phenomena with the aim to facilitate the documentation of practice and simplify the use of the ICNP<sup>®</sup> classification.<sup>(10)</sup> There is a growing need for the development of terminological subsets, and seven subsets have been published so far, although none is targeted to people with venous ulcers yet.

The approach to venous ulcer patients needs to be holistic and integral, since the etiology is complex and has several associated factors that directly interfere in the quality of life of these people.<sup>(3,6)</sup> In this perspective, Wanda Aguiar Horta's Theory of Basic Human Needs is an adequate theoretical contribution in the organization of nursing care to people with venous ulcers, because according

to this theory, nursing respects and maintains uniqueness, authenticity and individuality of human beings.<sup>(11)</sup>

Hence the relevance of the present study with the aim to develop and validate the terminological subset of the ICNP<sup>®</sup> for the care of the person with venous ulcer guided by Wanda Aguiar Horta's Theory of Basic Human Needs.

## Methods

A methodological study based on the method of Nobrega et al<sup>(12)</sup> for the development terminological subsets of ICNP<sup>®</sup>. Initially, was conducted an integrative review in the literature searching for evidence for the practice of nursing for people with venous ulcer in order to answer the following question: What are the empirical evidences found in people with venous ulcer?

The databases accessed were the Medical Literature Analysis and Retrieval System Online (MEDLINE), the Latin American and Caribbean Literature on Health Sciences Information (LILACS), and the Cumulative Index to Nursing and Allied Health Literature (CINAHL).

The search was performed in the portal of the Coordination for the Improvement of Higher Level Personnel using the Health Science Descriptors (DeCS), and by crossing two by two with the Boolean operator AND, as follows: "*Úlcera Varicosa*", "*Enfermagem*" in Portuguese; "Varicose Ulcer", "Nursing" in English; and "*Úlcera Varicosa*", "*Enfermería*" in Spanish. For the search in CINAHL, were used the following Medical Subject Headings (MESH) terms: "Varicose Ulcer", "Nursing". The inclusion criteria were abstracts available in Portuguese, English or Spanish and publication period between 2012 and 2016. Exclusion criteria were all case reports, theses, monographs, manuals and papers that did not have clinical manifestations of venous ulcer.

The searches and analyzes of titles and abstracts were performed by two researchers. After selection, the articles were read by two researchers, which allowed the manual extraction of empirical evidence.

Then, three researchers performed a process of analysis, grouping and standardization of the initial list that resulted in 88 evidences.

In the next stage of the study, began the construction of diagnostic statements and nursing outcomes by cross-checking the empirical evidence with terms of the ICNP<sup>®</sup>, version 2015. For each empirical evidence, was selected a term of the Focus axis and a term of the Judgment axis with inclusion of additional terms when necessary, which resulted in 73 diagnoses and outcomes. Twenty-three new diagnoses and nursing outcomes were created, as they were not included in ICNP<sup>®</sup>, version 2015. The ISO 18.104: 2014 norm was also considered - Health informatics: categorical structures for representation of nursing diagnoses and nursing actions in terminological systems, in which a diagnosis can be expressed by focus and judgment or a clinical finding.<sup>(13)</sup> In this same stage, were constructed operational definitions for each diagnosis by using the definitions of ICNP<sup>®</sup> for the constant terms, and of scientific articles, manuals, Nursing textbooks and dictionaries for non-constant terms. The established definition used for this construction is formed by the 'term representing the object' + verb to be + 'definite or indefinite article' + 'class to which the object belongs' + 'characteristics of species'.<sup>(14)</sup>

For each diagnosis, was developed a block of statements of Nursing interventions by using a term of the Action axis and an ICNP<sup>®</sup> Target term, which may belong to any of the axes, except the Judgment axis. The ISO 18.104: 2014 was also considered with a descriptor for action and at least one descriptor for target, except when the target is the own subject of the record.<sup>(13)</sup> In addition to cross-mapping with the ICNP<sup>®</sup>, version 2015, were used reference books in the area of venous ulcer<sup>(4)</sup> and Nursing,<sup>(15,16)</sup> besides the researchers' experience.

The terminological subset was subjected to content validation by consensus with nurse judges, and criteria were to work in a Basic Health Unit of the Municipality of Vitória (state of Espírito Santo) and attend people with venous ulcer. Nurse judges were chosen by convenience, indication of researchers and the stomatherapist nurse, who is reference in

wounds and coordinator of the skin care group at the City Hall. For this stage, were invited 13 nurses by letter, in addition to the coordinator of the skin care group.

At the beginning of the meeting, was given orientation regarding the study, the Basic Human Needs Theory and ICNP<sup>®</sup>. Subsequently, nurses were given the subset, a questionnaire to characterize the judges, and the operational definitions of diagnoses. Nurses were asked to read the material and indicate agreements/disagreements with the subset. After that, were discussed only the items in which there was disagreement, and it was decided by consensus about the permanence, withdrawal or rewriting of the statement. Statements were considered valid when there was 100% consensus.

The validation meeting lasted three and a half hours. After that time, the proposed changes were written by the researcher, and shared with participants by email. Then, they had seven days to read and make comments about the writing.

In the absence of disagreement, the subset was restructured according to recommendations of the International Council of Nurses and guided by the theoretical framework of Basic Human Needs.

The study was approved by the Research Ethics Committee of the Universidade Federal do Espírito Santo under number CAAE 61423516.7.0000.5060.

## Results

In the integrative literature review, were found 43 articles in LILACS, 56 in MEDLINE and one in CINAHL, the total of 100 articles. Of these, six were excluded because the abstracts were not available, and seven were excluded because they were repeated. After reading the 87 abstracts, 66 articles were excluded following the exclusion criteria. Finally, 21 articles were selected for reading in full (Figure 1).

Of these articles, 88 evidences were manually extracted. Besides the 'venous ulcer' term that was present in all articles, the most cited was 'pain', in

71.4% of publications, followed by terms related to venous insufficiency with 66.6%. The reduction of functional mobility was present in 61.9% of articles, and 'exudate', 'infection' and 'social isolation' were in 52.3% each; 'odor' in 42.8%; 'healing', 'hyperglycemia' and 'edema' in 38.9%. 'Decreased rest' and 'decreased ability to work' were in 33.3% of publications, 'necrosis', 'relapse', 'changes in sleep pattern' and 'low self-esteem' were cited in 28.5%. Other terms had five or fewer citations and, despite this fact, they were considered for the creation of diagnoses.

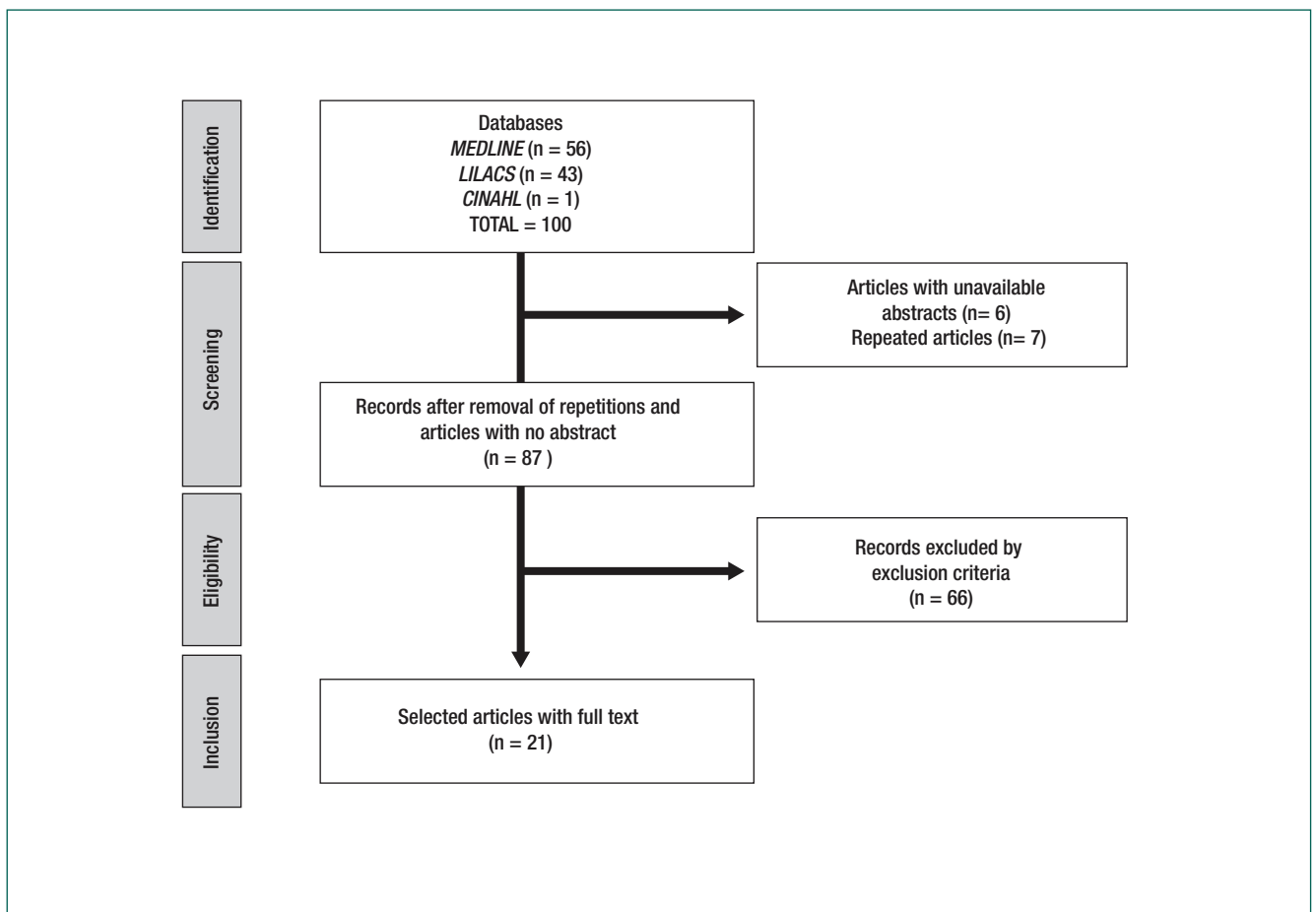
By means of cross-referencing the evidences extracted with terms included in the Focus axis of ICNP<sup>®</sup>, version 2015, were developed 73 nursing diagnoses and outcomes. In addition, were created 23 new diagnoses and nursing outcomes, as these evidences were not found in ICNP<sup>®</sup>, version 2015. There were 96 nursing diagnoses and outcomes in

total, and operational definitions for each diagnosis were also provided.

For an easier clinical reasoning, diagnoses were organized within the fields of Basic Human Needs described by Wanda Aguiar Horta. For each nursing diagnosis, was developed a block of statements of nursing interventions (total of 306) by considering the 7 Axes Model of the ICNP<sup>®</sup>, version 2015.

The statements underwent content validation by consensus of 13 nurses, and 84 diagnoses and nursing outcomes were considered valid by 100% of judges. Of the 23 diagnoses not included in ICNP<sup>®</sup>, 16 remained unchanged, three were excluded, and four were changed in the writing of the statement. There were suggestions for changes and adjustments in some interventions. Thus, the final configuration of the subset is described in chart 1.

The distribution of nursing diagnoses and interventions by basic human needs is shown in chart 2.



**Figure 1.** PRISMA flowchart of the search and selection process of studies included in the integrative review

**Chart 1.** ICNP® terminological subset for care of the person with venous ulcer

Psychobiological needs	
Psychobiological needs - skin and mucosal integrity	
Nursing diagnosis/outcomes	
Allergy White atrophy Irregular wound edges Regular wound edges Cellulitis Strange body in the wound Wound scab Desquamation of skin Eczema Epithelialization at wound edges Erythema Wound with slough Partial thickness wound	Full thickness wound Hyperemia Hypergranulation in wound Infiltration at wound edges Impaired tissues integrity Maceration at wound edges Necrosis Hyperpigmented skin Dry perilesional skin Granulation tissue Scar tissue Recurrent ulcer Venous ulcer
Nursing interventions	
<ul style="list-style-type: none"> <li>Applying compression/contention bandage.</li> <li>Applying wound bandage.</li> <li>Applying wound bandage that exerts slight pressure on wound.</li> <li>Applying bandage.</li> <li>Applying skin moisturizer.</li> <li>Applying silver nitrate.</li> <li>Evaluating wound healing.</li> <li>Evaluating venous ulcer healing.</li> <li>Evaluating wound in patient's return.</li> <li>Evaluating wound for decision making regarding dressing.</li> <li>Evaluating infection.</li> <li>Evaluating need for antibiotics administration.</li> <li>Evaluating need for protective dressing.</li> <li>Evaluating need for wound debridement.</li> <li>Evaluating Blood Pressure.</li> <li>Evaluating skin temperature.</li> <li>Evaluating skin turgor.</li> <li>Evaluating ulcer for decision making regarding dressing.</li> <li>Confirming allergy.</li> <li>Describing wound characteristics.</li> <li>Describing ulcer characteristics.</li> <li>Describing wound size and depth.</li> <li>Documenting ulcer history.</li> <li>Referring to medical care.</li> <li>Stimulating the establishment of daily habits of body and environmental hygiene.</li> <li>Examining skin condition.</li> <li>Performing debridement.</li> <li>Measuring ankle-brachial index (ABI) in both legs by hand Doppler.</li> <li>Identifying eczema-causing mechanism.</li> <li>Identifying erythema-causing mechanism.</li> </ul>	<ul style="list-style-type: none"> <li>Identifying hyperemia-causing mechanism.</li> <li>Identifying the onset of allergic reactions resulting from topical treatment implemented.</li> <li>Encouraging increased fluid intake.</li> <li>Teaching about skin care.</li> <li>Teaching about wound care.</li> <li>Keeping the wound moist.</li> <li>Monitoring skin condition.</li> <li>Monitoring the appearance of edges.</li> <li>Monitoring skin color.</li> <li>Monitoring skin color, temperature, humidity and appearance.</li> <li>Monitoring edema and moisture on edges.</li> <li>Monitoring the infection.</li> <li>Monitoring signs and symptoms of wound infection.</li> <li>Monitoring signs and symptoms of ulcer infection.</li> <li>Monitoring humidity at edges.</li> <li>Guiding hygiene and restricted use of aggressive soaps to the skin.</li> <li>Guiding the patient about making the dressing at home.</li> <li>Guiding the patient about care for preventing ulcer recurrence.</li> <li>Guiding regarding the risk of infection.</li> <li>Guiding regarding the importance of raising legs at constant intervals.</li> <li>Guiding regarding the use of moisturizers.</li> <li>Guiding regarding allergic reaction.</li> <li>Prescribing the use of perilesional skin moisturizer.</li> <li>Prescribing the use of skin moisturizer.</li> <li>Removing strange body from the wound bed.</li> <li>Removing wound debris with water spray or saline solution.</li> <li>Requesting laboratory tests for evaluation.</li> <li>Suspending use of possible allergen.</li> <li>Treating allergic reaction.</li> </ul>
Psychobiological Needs - nutrition	
Nursing diagnosis/outcomes	
Impaired nutritional status Hyperlipidemia status Obesity status Hyperglycemia	Insufficient food intake Excessive food intake Risk of nutritional deficit
Nursing interventions	
<ul style="list-style-type: none"> <li>Evaluating the need to change eating habits.</li> <li>Assisting patient to receive help from appropriate nutritional programs of the community.</li> <li>Evaluating the need to change eating habits.</li> <li>Evaluating food acceptance.</li> <li>Calculating Body Mass Index for nutritional status evaluation.</li> <li>Discussing with patient a plan to change eating habits.</li> <li>Referring for medical care.</li> <li>Encouraging adherence to diet.</li> <li>Encouraging adherence to a physical activity plan.</li> <li>Encouraging adherence to a plan for changing eating habits.</li> <li>Encouraging intake according to nutritional needs and food preferences.</li> <li>Establishing a goal for weight control.</li> <li>Identifying possible causes of hyperglycemia.</li> <li>Identifying possible causes of hyperlipidemia.</li> <li>Informing the patient about the importance of the plan for changing eating habits for glycemic control.</li> </ul>	<ul style="list-style-type: none"> <li>Informing the patient about the importance of the plan for changing eating habits for lipemic control.</li> <li>Investigating possible causes of obesity.</li> <li>Investigating food preferences.</li> <li>Measuring patient's height.</li> <li>Monitoring nutritional status.</li> <li>Monitoring capillary glycemia.</li> <li>Monitoring weight.</li> <li>Guiding the patient about response to medication.</li> <li>Guiding the patient about possible complications of hyperglycemia.</li> <li>Guiding the patient about possible complications of hyperlipidemia.</li> <li>Guiding the patient about expected positive results of joining the plan of change of eating habits in the short, medium and long term.</li> <li>Weighing the patient.</li> <li>Requesting laboratory tests for evaluation.</li> </ul>

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Psychobiological needs - regulation	
Nursing diagnosis/outcomes	
Impaired wound healing Peripheral edema Large/moderate/low volume exudate Purulent exudate Bloody exudate	Serous exudate Serous-bloody exudate Infection Lipodermatosclerosis Impaired vascular process Risk of fall
Nursing interventions	
<ul style="list-style-type: none"> <li>Applying wound dressing.</li> <li>Evaluating evolution of wound healing.</li> <li>Evaluating the wound on patient's return.</li> <li>Evaluating the wound for decision making regarding the dressing.</li> <li>Evaluating the need for antibiotics.</li> <li>Evaluating the need for wound debridement.</li> <li>Evaluating the occurrence of trauma.</li> <li>Evaluating peripheral Tissue Perfusion.</li> <li>Evaluating the presence of edema.</li> <li>Evaluating the presence of pulse.</li> <li>Evaluating the risk of ineffective capillary perfusion.</li> <li>Evaluating tactile, thermal and painful sensitivity in lower limbs.</li> <li>Describing wound characteristics.</li> <li>Discussing possible domestic accidents.</li> <li>Documenting the history of the wound.</li> <li>Referring patient for medical consultation.</li> <li>Referring for medical care.</li> <li>Measuring ankle-brachial index in both legs by hand Doppler.</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging the use of assistive aid devices for ambulation (cane, walker, wheelchair).</li> <li>Inspecting legs regarding integrity, hydration and color.</li> <li>Teaching about wound care.</li> <li>Keeping the wound moist.</li> <li>Monitoring the infection.</li> <li>Monitoring signs and symptoms of wound infection.</li> <li>Monitoring signs and symptoms of infection.</li> <li>Monitoring body temperature.</li> <li>Guiding the organization of domestic environment.</li> <li>Guiding the patient regarding care for preventing ulcer recurrence.</li> <li>Guiding the patient on the importance of raising legs at constant intervals.</li> <li>Prescribing leg elevation at constant intervals.</li> <li>Prescribing the use of compressive therapy.</li> <li>Tracking the risk of falls and other accidents.</li> <li>Removing wound debris with water spray or saline solution.</li> <li>Requesting laboratory tests for evaluation.</li> <li>Suggesting safe shoes that make walking easier.</li> <li>Using absorbent cover in dressing.</li> <li>Checking possible causes of edema.</li> </ul>
Psychobiological needs - perception	
Nursing diagnosis/outcomes	
Mild/moderate/severe pain Mild/moderate/severe wound pain Mild/moderate/severe fetid odor	Impaired tactile perception Mild/moderate/severe pruritus Risk of impaired peripheral neurovascular function
Nursing interventions	
<ul style="list-style-type: none"> <li>Administering pain medication before wound care.</li> <li>Applying wound dressing.</li> <li>Evaluating need for debridement.</li> <li>Evaluating wound for decision making regarding dressing.</li> <li>Evaluating pain intensity.</li> <li>Evaluating response to pain management.</li> <li>Evaluating tactile, thermal and painful sensitivity in lower limbs.</li> <li>Describing wound characteristics.</li> <li>Referring patient for medical evaluation in case of peripheral vascular changes.</li> <li>Encouraging patients to discuss their pain experience.</li> <li>Encouraging patients to monitor their own pain and interfere properly.</li> <li>Examining the integrity of skin.</li> <li>Examining feet and legs at each return: inspection and palpation of skin, nails, subcutaneous and structure, palpation of arterial pulse and evaluation of plantar protective sensation.</li> <li>Explaining causes of pain.</li> <li>Measuring ankle-brachial index in both legs by hand Doppler.</li> <li>Managing wound odor control.</li> <li>Identifying the cause of pruritus.</li> <li>Encouraging participation of family and patient in pain control.</li> <li>Indicating the use of compressive therapy.</li> </ul>	<ul style="list-style-type: none"> <li>Teaching about wound care.</li> <li>Investigating factors that increase pain.</li> <li>Keeping the wound moist.</li> <li>Wetting the dressing with saline solution or water before removal.</li> <li>Monitoring response to analgesic.</li> <li>Monitoring signs and symptoms of infection.</li> <li>Guiding the patient regarding moisturizer application.</li> <li>Guiding the patient to apply cold compresses for relief of irritation.</li> <li>Guiding the patient to report changes of sensitivity and the appearance of any injury.</li> <li>Guiding the patient to favor adequate rest/sleep for pain relief.</li> <li>Guiding the patient to keep nails trimmed and not scratch the skin.</li> <li>Guiding the patient not to use abrasive products on the skin.</li> <li>Guiding the patient with feet changes regarding adjustments on the type of shoes, physical activity and use of assistive aid devices for ambulation (cane, walker, wheelchair)</li> <li>Guiding the patient regarding body hygiene of the affected area.</li> <li>Guiding the patient regarding hygiene habits.</li> <li>Prescribing analgesy.</li> <li>Providing alternative methods of pain relief.</li> <li>Removing wound debris with water spray or saline solution.</li> </ul>
Psychobiological needs – sleep and rest	
Nursing diagnosis/outcomes	
Impaired rest behavior	Impaired sleep
Nursing interventions	
<ul style="list-style-type: none"> <li>Evaluating the cause of altered sleep pattern.</li> <li>Encouraging rest.</li> <li>Teaching the patient about relaxation techniques.</li> <li>Stimulating the patient to maintain adequate sleep pattern.</li> <li>Alleviating pain.</li> <li>Organizing activities of daily life in order to allow rest periods during the day.</li> </ul>	<ul style="list-style-type: none"> <li>Guiding to keep the ulcerated leg elevated when at rest.</li> <li>Guiding the patient to make changes in the environment (reduce lighting, noises, check bed and pillow conditions, check ventilation conditions).</li> <li>Guiding the patient to plan medication schedule in order not to interrupt the sleep.</li> <li>Guiding the patient regarding factors interfering in the sleep.</li> <li>Planning rest/activity periods with the patient.</li> </ul>
Psychobiological needs - sexuality	
Nursing diagnosis/outcomes	
Impaired sexual behavior	
Nursing interventions	
<ul style="list-style-type: none"> <li>Evaluating the patient's knowledge of his/her sexuality pattern.</li> <li>Encouraging the patient's ability to adjust to his/her state of health.</li> <li>Encouraging the patient to share his/her feelings about sexuality.</li> <li>Stimulating the dialogue about the situation with the partner.</li> </ul>	<ul style="list-style-type: none"> <li>Identifying determinants of unsatisfactory sexual activity.</li> <li>Guiding regarding contraceptive methods.</li> <li>Promoting the practice of safe sex with use of condoms.</li> <li>Providing counselling by considering cultural and social aspects, myths and taboos.</li> </ul>

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<b>Psychobiological needs – physical activity</b>	
<b>Nursing diagnosis/outcomes</b>	
Low physical exercise	Impaired mobility
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Evaluating adherence to the proposed exercise plan.</li> <li>Evaluating patient's ability to perform activities of daily life.</li> <li>Evaluating the need for ambulation assistive devices.</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging the patient to perform preferred physical activity within safe limits according to his/her condition regarding the venous ulcer.</li> <li>Planning rest/activity periods with the patient.</li> </ul>
<b>Psychobiological needs - hydration</b>	
<b>Nursing diagnosis/outcomes</b>	
Impaired self-care in fluid intake	Inadequate fluid intake
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Evaluating patient's knowledge about his/her need of fluid intake.</li> <li>Encouraging self-care.</li> <li>Encouraging the patient to inspect skin during the shower.</li> <li>Stimulating the establishment of daily habits of body and environmental hygiene.</li> <li>Monitoring hydration indicators.</li> </ul>	<ul style="list-style-type: none"> <li>Guiding the patient regarding the need of fluid intake.</li> <li>Guiding regarding hygiene care by considering cultural and social aspects, myths and taboos.</li> <li>Planning a scheme for stimulation of fluid intake by considering specificities of the case.</li> <li>Recording fluid intake.</li> </ul>
<b>Psychobiological needs – body care</b>	
<b>Nursing diagnosis/outcomes</b>	
Impaired ability to perform hygiene Inadequate hygiene	Impaired self-care in hygiene
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Evaluating self-care.</li> <li>Evaluating family hygiene conditions in the home environment.</li> <li>Encouraging bathing before the visit to perform the dressing.</li> <li>Encouraging hygiene habits by considering cultural and social aspects, myths and taboos.</li> <li>Encouraging the patient to bathe.</li> </ul>	<ul style="list-style-type: none"> <li>Stimulating the establishment of daily habits of body and environmental hygiene.</li> <li>Encouraging the patient to inspect skin during the shower.</li> <li>Guiding family/caregiver regarding personal hygiene care.</li> <li>Guiding regarding hygiene care by considering cultural and social aspects, myths and taboos.</li> </ul>
<b>Psychobiological needs – physical security</b>	
<b>Nursing diagnosis/outcomes</b>	
Alcohol abuse	Smoking
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Assisting patient in establishing a goal plan for reducing alcohol abuse.</li> <li>Assisting patient in establishing a goal plan for reducing smoking.</li> <li>Assisting patient in identifying triggers related to the desire and act of smoking and the way to overcome them.</li> <li>Assisting patient in identifying the moments and attitudes related to the desire to drink and the way to overcome them.</li> <li>Evaluating lifestyle and its relation with alcohol abuse.</li> <li>Evaluating lifestyle and its relation with tobacco abuse.</li> <li>Referring to a self-help group.</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging search for a self-help group.</li> <li>Identifying the family and community support network.</li> <li>Identifying the desire to quit smoking.</li> <li>Providing support for times related to abstinence.</li> <li>Guiding regarding the possibility of relapses and how to overcome them.</li> <li>Guiding regarding abstinence crisis.</li> <li>Guiding regarding doubts related to use together with drugs.</li> <li>Guiding regarding harm caused by smoking.</li> </ul>
<b>Psychosocial needs</b>	
<b>Psychosocial needs – freedom and participation</b>	
<b>Nursing diagnosis/outcomes</b>	
Impaired social condition Impaired family coping	Impaired work role
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Helping with identification of positive personal attributes.</li> <li>Evaluating social support and support network (work, church, family, friends).</li> <li>Discussing with the family and patient about co-responsibility in treatment and adverse reactions during treatment.</li> <li>Referring family and patient to self-help groups and/or psychological care.</li> <li>Referring to multiprofessional team if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Encouraging the patient to identify his/her strengths and abilities.</li> <li>Indicating community social equipments for recreation and leisure.</li> <li>Investigating the family's level of understanding and acceptance of the patient's current state of health.</li> <li>Guiding regarding patient's current state of health.</li> <li>Scheduling a home visit.</li> <li>Reinforcing to the family about treatment adherence.</li> </ul>
<b>Psychosocial needs – emotional security, self-esteem</b>	
<b>Nursing diagnosis/outcomes</b>	
Anguish Anxiety Low self-esteem Stress	Fear Risk of low self-esteem Sadness
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Embrace of the patient according to his/her needs.</li> <li>Helping with identification of positive personal attributes.</li> <li>Evaluating attitudes towards therapeutic regimen.</li> <li>Referring to psychological care if necessary.</li> <li>Referring to multiprofessional team if necessary.</li> <li>Encouraging the expression of perceptions, feelings and fear.</li> <li>Encouraging the patient to explain his/her doubts, desires and difficulties.</li> <li>Encouraging the patient to identify his/her strengths and abilities.</li> <li>Encouraging the patient to verbalize feelings, perceptions and fear.</li> <li>Encouraging participation in recreational activities.</li> <li>Establishing a relationship of trust with the patient.</li> </ul>	<ul style="list-style-type: none"> <li>Identifying determinants of Anguish.</li> <li>Identifying determinants of Anxiety.</li> <li>Identifying determinants of Sadness.</li> <li>Encouraging activities that promote their well-being.</li> <li>Investigating patient's socio-familial context.</li> <li>Motivating patient for self-care at home.</li> <li>Guiding regarding stress management actions.</li> <li>Promoting patient's confidence in the care provided.</li> <li>Recognizing the different moments experienced by patient when receiving new treatment guidelines.</li> <li>Checking with patient and caregiver the factors causing fear.</li> </ul>

Continue...

Continuation.

<b>Psychosocial needs – self-image</b>	
<b>Nursing diagnosis/outcomes</b>	
Impaired body image	
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Discussing body image changes with patient.</li> <li>Referring to multiprofessional team if necessary.</li> <li>Identifying with the patient the factors interfering with his/her self-image.</li> </ul>	<ul style="list-style-type: none"> <li>Guiding patient, caregiver and families regarding possible predictable physical changes during treatment (use of bandages, large dressings, etc).</li> <li>Strengthening self-care.</li> </ul>
<b>Psychosocial needs – gregarious and leisure</b>	
<b>Nursing diagnosis/outcomes</b>	
Impaired ability to perform leisure activities	Social isolation Risk of social isolation
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Embracement of the patient according to his/her needs.</li> <li>Evaluating family and social context.</li> <li>Referring to multiprofessional team if necessary.</li> <li>Encouraging participation in recreational activities.</li> <li>Identifying with the patient the determinants for social isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Identifying community social equipments for recreation and leisure.</li> <li>Encouraging participation in social and community groups.</li> <li>Planning a simple daily routine by including recreation and leisure concrete activities.</li> <li>Scheduling a home visit.</li> </ul>
<b>Psychosocial needs - love and acceptance</b>	
<b>Nursing diagnosis/outcomes</b>	
Lack of family support Lack of social support	Impaired affective bonding
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Embracement of the patient according to his/her needs.</li> <li>Embracement of patient, caregiver and family in their needs.</li> <li>Evaluating family and social context.</li> <li>Evaluating social support.</li> <li>Discussing with the family and patient about co-responsibility in treatment and adverse reactions during treatment.</li> <li>Referring the family to self-help groups or psychological care.</li> <li>Referring to psychological care if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Referring to multiprofessional team if necessary.</li> <li>Encouraging the verbalization of feelings, perceptions and fears.</li> <li>Identifying with patient the determinants for lack of social support.</li> <li>Encouraging participation in social and community groups.</li> <li>Investigating the family's level of understanding and acceptance of the patient's current state of health.</li> <li>Guiding regarding the patient's current state of health.</li> <li>Scheduling a home visit.</li> <li>Reinforcing to the family about treatment adherence.</li> </ul>
<b>Psychosocial needs – self-achievement</b>	
<b>Nursing diagnosis/outcomes</b>	
Disposition for coping	
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Evaluating coping ability.</li> <li>Providing pertinent information to the current state of health.</li> <li>Referring to multiprofessional team if necessary.</li> </ul>	<ul style="list-style-type: none"> <li>Guiding regarding the need of adaptation.</li> <li>Scheduling a home visit.</li> </ul>
<b>Psychosocial needs - apprenticeship</b>	
<b>Nursing diagnosis/outcomes</b>	
Low health knowledge Impaired communication between nurse and patient	Non-adherence to therapy
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Adjusting therapeutic regimen to social and leisure activities.</li> <li>Evaluating patient's tension.</li> <li>Evaluating response to prescribed medication.</li> <li>Describing therapeutic plan to patient in writing.</li> <li>Providing pertinent information to the current state of health.</li> <li>Establishing active listening.</li> <li>Stimulating self-care.</li> <li>Explaining actions and possible adverse effects of medication.</li> <li>Facilitate access to treatment (scheduling appointments/return, adjusting inputs and available medications).</li> </ul>	<ul style="list-style-type: none"> <li>Speaking calmly with short sentences of easy understanding.</li> <li>Identifying the side effect of therapeutic regimen.</li> <li>Encouraging treatment adherence.</li> <li>Guiding regarding use of medication.</li> <li>Guiding regarding doubts related to prescribed treatment.</li> <li>Scheduling home monitoring with the nursing team.</li> <li>Providing a calm environment (office or home).</li> <li>Using a calm and safe approach.</li> <li>Checking if patient understood the guidelines provided.</li> </ul>
<b>Psychospiritual needs</b>	
<b>Psychospiritual needs - religious</b>	
<b>Nursing diagnosis/outcomes</b>	
Conflictual religious belief	
<b>Nursing interventions</b>	
<ul style="list-style-type: none"> <li>Supporting the person's spiritual practices.</li> <li>Encouraging attendance at religious ceremonies.</li> </ul>	<ul style="list-style-type: none"> <li>Identifying spiritual beliefs.</li> <li>Respecting food restrictions related to religious beliefs.</li> </ul>



**Chart 2.** Distribution of diagnoses and interventions by basic human needs

Needs	Diagnoses	Interventions
<b>Psychobiological needs</b>		
Skin and mucosal integrity	26	59
Nutrition	07	28
Regulation	11	37
Perception	06	37
Sleep and rest	02	11
Sexuality	01	08
Physical activity	02	05
Hydration	02	09
Body care	03	09
Physical security	02	15
TOTAL	62	220
<b>Psychosocial needs</b>		
Freedom and participation	03	11
Emotional security, self-esteem	07	21
Self-image	01	05
Gregarious and leisure	03	09
Love and acceptance	03	15
Self-achievement	01	05
Apprenticeship	03	18
Total	21	84
<b>Psychospiritual needs</b>		
Religious	01	04
Total	01	04
Grand total	84	306

Discussion

Since the care of people with venous ulcer is complex, nurses must rely on a holistic perspective for a full approach to individuals, especially when considering they are particularly weakened and biopsychosocially impacted.<sup>(17)</sup> This fact corroborates the pertinence of choosing the Basic Human Needs Theory by demonstrating its applicability to meet the needs of this population and contributes to the organization of diagnoses in an integral and comprehensive way.

Most diagnoses were included in psychobiological needs with focus on skin and mucosal integrity. After all, venous ulcer is commonly characterized by its location in the lower part of the leg, of superficial depth or partial thickness, reaching only the epidermis and dermis, with granulation tissue in its bed, irregular edges, and medium to large amount of exudate of serous or serous bloody aspect.<sup>(6,18,19)</sup> The estimated recurrence rate for improved venous ulcers is about 70%.<sup>(3,20)</sup>

The main etiology of venous ulcer is Chronic Venous Insufficiency (CVI), which is the most

prevalent of venous diseases and affects 2% of the western population.<sup>(21)</sup> Thus, in the psychobiological need for regulation, the venous stasis caused by CVI results in skin and microcirculation changes that cause edema, lipodermatosclerosis, varicose veins, hyperpigmentation, eczema, dermatitis and cellulitis or erysipelas, which will culminate in ulceration.<sup>(4,5)</sup>

In the psychobiological need for perception, pain is a frequent symptom in people with venous ulcer, and prevalence of around 80% in this population.<sup>(18,22,23)</sup> Its chronic condition bears a close relation to decreased functional and working capacity, sleep pattern disturbances, increased wound healing time and even social isolation, which significantly reduce the quality of life of these people.<sup>(3,18,22)</sup>

Regarding psychosocial needs, the presence of ulcers affects the body self-image, self-esteem, social and family life, the ability for work and daily activities, and causes important damages to those affected.<sup>(1,24)</sup>

Most of the evidence refers to psychobiological needs with a focus on the injury. Thus, it will be the nurses's role in the exercise of care to turn this thread of their practice (this subset) from a hard technology into a light technology by using criticality and mediation through dialogue with patients, and by considering people as subjects of learning for their self-care, understanding them as historical and autonomous subjects.

The validation of the nursing diagnoses allows the perfection and legitimization of the taxonomy, and enables the generalization and increase of its prediction.<sup>(25)</sup> A methodological proposal for validation of the subsets has not been defined by the ICN.<sup>(12)</sup>

The validation by consensus allows an exhaustive discussion in a potential group, the deepening of knowledge about it and greater use of the classification.<sup>(26)</sup> All nurses participated in the discussions about the permanence or withdrawal of some diagnoses and interventions, such as changing the writing of items of the subset in order to fit the professional practice.

The ICNP® subset for people with venous ulcer that was validated in the present study can qualify

nursing care for these people. Since this is a documentation instrument, it supports and improves clinical practice, and facilitates the incorporation of the ICNP® in nurses' practice. However, it is noteworthy that catalogs do not replace nurses' clinical judgment in decision making for individualized care.<sup>(12)</sup>

Despite the evident importance of the subset, some points must be considered: the validation process occurred in a small group of specific population, which may limit its applicability in other scenarios. Nonetheless, the scientific basis for its construction emerged from studies and national and international clinical guidelines published in indexed journals. Submitting this subset to clinical validation, as well as external validation that considers several cultural scenarios and extracts can improve its sensitivity and specificity.

## Conclusion

The study allowed the development and validation of a terminological subset with 84 nursing diagnoses and outcomes, and 306 interventions for care of the person with venous ulcer from the ICNP®, and structured on the Basic Human Needs Theory. Besides supporting the organization of the subset, this theory provided theoretical-conceptual contribution to the study. The ICNP® proved to be a taxonomy compatible with nurses' clinical practice given its usual vocabulary in professional practice. This terminology has perceptible potential for the organization of nurses' work process both in the outpatient and hospital setting. The proposed instrument is expected to be the subject of further studies for its inclusion in the professional practice of nurses caring for people with venous ulcer in order to be a mechanism for improvement of the care provided.

## Collaborations

Grasse AP, Bicudo SDS, Primo CC, Zucolotti C, Belonia CSFO, Bringuento MEO, Araújo TM

and Prado TN contributed with conception of the study, analysis and interpretation of data, relevant critical revision of intellectual content and approval of the final version to be published.

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