

# Odor scale for neoplastic wounds: construction and evidence of content validity

**RESUMO** | Objetivo: Construir e obter a evidência de validade de conteúdo da Escala de Avaliação do Odor de Feridas Neoplásicas. Método: Estudo conduzido em 2019 em duas etapas: construção da escala a partir de revisão de literatura e validação a partir da avaliação de 17 juízes que responderam a um questionário por meio de ferramenta online. Foi aplicado o cálculo de índice de Validade de Conteúdo (IVC) para a análise dos dados. Resultados: As principais mudanças indicadas foram: retirada do swab para avaliar a carga microbiana e a inclusão do exsudato sanguinolento como item relevante na avaliação do odor. O IVC da escala foi de 0,91, indicando que 91% dos juízes consideraram a escala um instrumento relevante para avaliar o odor das feridas neoplásicas. Conclusão: A escala desenvolvida foi aprovada como instrumento de análise clínica que poderá auxiliar os profissionais na avaliação mais consistente do odor das feridas neoplásicas.

**Palavras-Chave:** Enfermagem; Feridas; Neoplasias; Odor; Classificação; Escala.

**ABSTRACT** | Objective: To build and obtain evidence of content validity of the Neoplastic Wound Odor Rating Scale. Materials and method: Two-step study: construction of the scale based on a literature review and validation based on the evaluation of 17 judges who answered a questionnaire through an online tool. The Content Validity Index (CVI) calculation was applied for data analysis. Results: The main changes indicated were: removal of the swab to assess the microbial load and the inclusion of bloody exudate as a relevant item in the odor assessment. The scale's CVI was 0.91, indicating that 91% of the judges considered the scale a relevant instrument to assess the odor of neoplastic wounds. Conclusion: The developed scale was approved as a clinical analysis instrument that can help professionals to more consistently assess the odor of neoplastic wounds.

**Keywords:** Nursing; Wounds; Neoplasms; Odor; Classification; Scale.

**RESUMEN** | Objetivo: Construir y obtener evidencia de la validez de contenido de la Escala de calificación de olores de heridas neoplásicas. Materiales y método: Estudio de dos pasos: construcción de la escala a partir de una revisión de la literatura y validación a partir de la evaluación de 17 jueces que respondieron un cuestionario a través de una herramienta online. Se aplicó el cálculo del Índice de Validez de Contenido (IVC) para el análisis de datos. Resultados: Los principales cambios indicados fueron: extracción del hisopo para evaluar la carga microbiana y la inclusión de exudado sanguinolento como elemento relevante en la evaluación de olores. El CVI de la escala fue de 0,91, lo que indica que el 91% de los jueces consideró la escala un instrumento relevante para evaluar el olor de las heridas neoplásicas. Conclusión: La escala desarrollada fue aprobada como un instrumento de análisis clínico que puede ayudar a los profesionales a evaluar de manera más consistente el olor de las heridas neoplásicas.

**Palabras claves:** Enfermería; Heridas; Neoplasias; Olor; Clasificación; Escala.

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## INTRODUCTION

The odor of neoplastic wounds is attributed to three main factors, the proliferation of aerobic and anaerobic bacteria, devitalized tissue and exudate. It is one of the most complex symptoms to address in patients with neoplastic wounds due to its subjective nature, in addition to being characterized as one of the symptoms that most generate loss of quality of life, leading to social isolation, depression and lack of appetite. This scenario reflects the importance of adequately evaluating and treating this symptom. <sup>(1)</sup>

In Brazil, the most used scale to assess the odor of neoplastic wounds in clinical practice is that recommen-

ded by the National Cancer Institute (INCA - Instituto Nacional de Câncer) and is based on the "Odor Assessment Guide". (2) However, none of the instruments mentioned has validation and their evaluation criteria are based on the intensity of the odor based on the distance the patient is from the professional and whether the dressing is open or closed, providing a very subjective assessment of pain.

The literature demonstrates that an assessment instrument is only capable of measuring its object of interest when it has adequate psychometric properties, such as reliability and validity. (3) Reliability refers to the instrument's ability to consistently reproduce a result even when applied by different observers, that is, it reflects the instrument's stability and coherence. Validity refers to the instrument's ability to measure exactly what it purports to measure. The evidence of content validity in the validation process of new instruments is highlighted, since this determines the degree to which the content of the same reflects the phenomenon being measured. (3)

In view of the pressing need for a more reliable assessment of the odor of neoplastic wounds through a validated instrument based on scientific evidence, a new assessment scale was created based on an integrative review<sup>(1)</sup> previously performed, as well as the professional experience of the authors. Thus, this study aimed to build and analyze the evidence of content validity of a scale for assessing the odor of neoplastic wounds. The first version of the scale was characterized by three domains: bacterial load, exudate and devitalized tissue.

## METHOD

This is a study with a quantitative approach, type methodological research. (4) The research was conducted in two stages: construction and partial va-

lidation of the Neoplastic Wound Odor Assessment Scale by obtaining evidence of content validity.

## Population

Evidence of the scale's content validity was performed by 17 invited judges, (5) selected based on the expert scoring system, (6) having been established as minimum criteria for selection, being a nurse and having a clinical practice of at least one year in the area of nursing in oncology/palliative care and specialization in the area of oncology and/or stomatherapy.

## Data Collect

Through an online tool (surveygizmo), the invited judges accessed the Neoplastic Wound Odor Assessment Scale (version 1) and the assessment questionnaire containing the scale items with a brief theoretical explanation and respective sub-items with response options through Likert scale with scores from 1 to 3. At the end of the evaluation of each item, there was a space for the judge to indicate his opinion, if necessary. This step was carried out in the first half of 2019.

## Data Analysis and Treatment

To calculate the Content Validity Index (CVI), the sum of the number of responses of the sub-items marked with 1 (agree) and 2 (neither agree nor disagree) of all items in the scale was adopted, divided by the total number of answers given by the judges. (3) A value of not less than 0,80 was adopted as the minimum agreement rate for the CVI calculated for each item, and 0,9 for the instrument's CVI. (4)

## Ethical aspects

To conduct the study, the research project was approved by the Research Ethics Committee (Protocol No. 2.415.214), according to Resolution 466/12, and all participants signed the Informed Consent Form.

## RESULTS

Among the 17 participating judges, 16 (94,1%) were female. Eight were from Rio de Janeiro (47%); two (11,7%) from the state of São Paulo; two (11,7%) from Rio Grande do Sul, one (5,8%) from Goiás, one (5,8%) from Amazonas, one (5,8%) from Pernambuco and one (5,8%) of Minas Gerais. All judges were specialists in oncology, four (23,5%) were also specialists in stomatherapy, four (23,5%) had specialization in Palliative Care; seven (41,2%) had a master's degree in the area of Oncology/Palliative Care/Stomatherapy and one (5,8%) had a doctorate in the area of Oncology/Palliative Care. Sixteen (94,1%) worked in assistance and three (17,6%) were professors.

The Content Validity Indices (CVI) calculated for the items and subitems of the Neoplastic Wound Odor Assessment Scale were: identification of mixed flora (0,94); identification of anaerobic flora (0,88); identification of aerobic flora (0,76); very saturated dressing (0,94); moderately saturated dressing (1); low saturated dressing (0,94); purulent exudate (0,88); serous exudate (0,88); more than 50% of the wound area with devitalized tissue (0,94); 50% of the wound area with devitalized tissue (0,94); less than 50% of the wound area with devitalized tissue (0,88); presence of liquefaction necrosis (0,94); presence of coagulation necrosis (0,94).

The calculated CVI for all the judges' answers was 0,91, indicating that 91% of the evaluators considered the Neoplastic Wound Odor Rating Scale (version 1) as a relevant instrument to assess the odor in these wounds. Two judges (11,8%) suggested reviewing swab collection for bacterial identification; four judges (23,5%) suggested adding bloody exudate as a sub-item and one judge (5,9%) recommended including the patient's odor assessment. All

Figure 1 - Neoplastic Wound Odor Rating Scale (version 2). Viçosa, MG, Brazil, 2019.

NEOPLASTIC WOUND ODOR ASSESSMENT SCALE	
The presence of the odor is: ( ) Constant ( ) Ocasional (only during dressing change)	
FACTORS	PUNCTUATION
<b>EXUDATE</b>	
<b>Amount</b>	
✓ Dressing too saturated (visible saturation with the dressing closed)	3
✓ Moderately saturated dressing (visible saturation when removing the secondary dressing coverage)	2
✓ Low saturated dressing (saturation in small amounts, restricted to a gauze) or unsaturated (absence of exudate)	1
<b>Aspect</b>	
✓ Purulent (greenish yellow color)	3
✓ Bloody	2
✓ Serous	1
<b>DEVITALIZED TISSUE</b>	
<b>Amount</b>	
✓ More than 50% of the wound area	3
✓ 50% of the wound area	2
✓ Less than 50% of the wound area or absent	1
<b>Aspect</b>	
✓ Liquefaction necrosis (softened yellowish tissue)	2
✓ Coagulation necrosis (stiffened, dry and black tissue)	1
<b>TOTAL SCORE</b>	
Odor classification	
( ) Intense odor: 11 to 9	
( ) Moderated odor: 8 to 6	
( ) Light odor: 5 to 1	

Source: the authors, 2019.

suggestions given by the judges were accepted, except for the inclusion of the patient's perception of odor. After the face and content validation stage, version 2 of the Neoplastic Wound Odor Assessment Scale emerged, consisting of two domains, both consisting of two items, each with its respective sub-items. The score for each sub-item ranges from one to three. A score of 11 to 9 classifies the odor as intense; a score of 8 to 6 classifies odor as moderate and a score of 5 to 1 classifies odor as mild (Figure 1).

## DISCUSSION

The first version of the Neoplastic Wound Odor Assessment Scale contained the bacterial load domain with the guidance to perform the swab to identify the wound microbiota, however, the use of the swab was questioned as a method to identify anaerobic microorganisms because it was restricted to superficial colonization.<sup>(7)</sup> In this case, the most indicated would be to perform a tissue biopsy, considered as the "gold standard" to obtain a sample of cultures in wounds,<sup>(7)</sup> however, it is very costly. Therefore, it was decided to remove the microbial load assessment from the

scale. In addition, only one antibiotic is recommended in clinical practice to control odor in neoplastic wounds,<sup>(8)</sup> which does not justify the need to identify the bacterial flora present in the neoplastic wound.

We chose to include bloody exudate in the scale, as the literature associates hemopurulent and hemorrhagic exudate with neoplastic wounds with infection.<sup>(9,10)</sup> The presence of bloody exudate without signs of infection is also associated with odor generation.<sup>(11)</sup> This correlation is also observed in clinical practice, as observed by the significant number of judges who made this observation.

The patient's own assessment of odor was not included in version 2 of the scale, as the literature demonstrates that patients with neoplastic wounds live with a series of negative conflicts<sup>(4)</sup> that can repress or exacerbate your ability to assess wound odor.<sup>(12)</sup> However, it emphasizes the importance of stimulating the expression of anxieties and conflicts related to the wound, experienced by patients and their families. In summary, the study had the limitation of not computing the degree of odor intensity in the perception of health professionals or the patients' family caregivers.

## CONCLUSION

The Neoplastic Wound Odor Assessment Scale proved to be a relevant instrument in the assessment of neoplastic wound odor in this study. It is suggested that this may become another instrument that collaborates with clinical reasoning regarding the best conduct for the management of this symptom, since it proposes a systematized and standardized method for odor assessment, reducing biases built into the evaluation processes. As the next stage of the study, it is intended to carry out the analysis of the reliability and external validation of the scale. 🌱

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