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REVIEW

Use of pain assessment scales in non-communicative patients

Uso de escalas de evaluación del dolor en pacientes no comunicativos

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ABSTRACT

Introduction: adequate pain management in non-communicative patients represents a critical challenge in healthcare. Globally, approximately 50 % of non-communicative critically ill patients experience pain during their stay in intensive care units. However, the use of validated scales such as the Behavioral Pain Scale (BPS) and the Critical-Care Pain Observation Tool (CPOT) remains limited. In Ecuador, 87 % of medical staff do not use scales to assess pain, resulting in 66 % of patients not receiving an adequate assessment and 92 % experiencing ineffective pain management.
Objective: to analyze the clinical utility and application of validated scales for the assessment of pain in non-communicative patients in hospital settings.
Method: a systematic review was conducted with a qualitative-descriptive approach, using the PRISMA methodology. Twenty-seven articles published between 2020 and 2025, in English and Spanish, located in scientific databases such as PubMed, Scopus, and Scielo, were included.
Results: the Behavioral Pain Scale (BPS), the Pain Indicator Behavior Scale (ESCID), PAINAD, CPOT, and NCS-R were the most frequently used. These tools were found to have good validity and reliability for detecting pain in non-communicative critically ill patients and were effective in procedures such as tracheal aspiration and mobilization. New technologies have also shown advances in the automation of pain diagnosis, although with limitations in standardization.
Conclusions: adequate pain assessment in non-communicative patients is possible through validated behavioral scales, whose clinical application requires ongoing professional training and adaptation to the patient's context.

Keywords: Pain Measurement; Nonverbal Communication; Critical Care; Nursing Services; Patient Care.

RESUMEN

Introducción: el manejo adecuado del dolor en pacientes no comunicativos representa un desafío crítico en la atención sanitaria. A nivel global, aproximadamente el 50 % de los pacientes críticos no comunicativos experimentan dolor durante su estancia en unidades de cuidados intensivos. Sin embargo, la aplicación de escalas validadas como la Behavioral Pain Scale (BPS) y la Critical-Care Pain Observation Tool (CPOT) permanece limitada. En Ecuador, el 87 % del personal médico no utiliza escalas para evaluar el dolor, resultando en que el 66 % de los pacientes no recibe una valoración adecuada y el 92 % experimenta un manejo ineficaz del dolor.

Objetivo: analizar la utilidad clínica y aplicación de escalas validadas para la evaluación del dolor en pacientes no comunicativos en contextos hospitalarios.
Método: se realizó una revisión sistemática con enfoque cualitativo-descriptivo, empleando la metodología PRISMA. Se incluyeron 27 artículos publicados entre 2020 y 2025, en inglés y español, localizados en bases de datos científicas como PubMed, Scopus y Scielo.
Resultados: las escalas Behavioural Paín Scale (BPS), Escala de Conductas Indicadoras del Dolor (ESCID), PAINAD, CPOT y NCS-R fueron las más recurrentes. Se identificó que las herramientas presentan buena validez y confiabilidad para detectar el dolor en pacientes críticos no comunicativos, siendo eficaces en procedimientos como la aspiración traqueal o la movilización. Las nuevas tecnologías también mostraron avances en la automatización del diagnóstico del dolor, aunque con limitaciones de estandarización.
Conclusiones: la evaluación adecuada del dolor en pacientes no comunicativos es posible mediante escalas conductuales validadas, cuya aplicación clínica requiere de formación profesional constante y adaptación al contexto del paciente.

Palabras clave: Dimensión del Dolor; Comunicación no Verbal; Cuidados Críticos; Servicios de Enfermería; Atención al Paciente.

INTRODUCTION

Adequate pain management is an essential element in health care, especially for those patients who cannot verbally communicate their discomfort, such as those in critical condition, those with neurological alterations, or the youngest in the house. Faced with this problem, the use of observational scales becomes an indispensable tool to ensure an accurate assessment and timely intervention to improve their quality of healthy life.[1]

Pain is the most common reason for seeing a physician. Thanks to the Journal of the International Association for the Study of Pain, pain is described as "negative sensory and emotional experiences associated with tissue injury," negative sensory and emotional experiences associated with tissue trauma, which may be actual or potential. The type in which pain is perceived signifies a sensitive neural system (nociceptors) and afferent nerve pathways that respond to tissue surveillance stimuli; other mental, psychological, and physical factors may be affected.[2]

Globally, it is estimated that about 50 % of non-communicative critically ill patients suffer pain during their time in intensive care units (ICU). However, the application of validated scales for their assessment, such as the Behavioral Pain Scale (BPS) or the Critical Care Pain Observation Tool (CPOT), remains scarce. This is mainly due to the lack of training and the absence of standardized protocols. In Latin America, this problem is intensified by various cultural and educational barriers. For example, a study conducted at the Hospital Provincial General Latacunga in Ecuador revealed that 87 % of medical staff do not use scales to assess pain, resulting in 66 % of patients not receiving adequate assessment and 92 % experiencing ineffective pain management.[2,3]

Specifically in Ecuador, the available information about the use of pain assessment scales in patients who are unable to communicate is scarce. However, a recent study on severe chronic pain in Ecuadorian adults revealed that 61 % of patients felt that the effectiveness of their treatment was low. This indicates possible deficiencies in pain assessment and management.[2,3]

Parallel to this regional situation, the implementation of protocols for pain management and sedation has evidenced a decrease in the time patients spend on mechanical ventilation, the length of their stay in the Intensive Care Unit, hospital-acquired infections, as well as the frequency of episodes of pain and agitation. However, despite the recommendations of various scientific societies, adequate assessment of pain in the ICU is limited, and the use of validated instruments for this purpose is uncommon; what is notable is the tendency to underestimate the level of pain experienced by patients.[3]

In the Spanish context, Law 41/2002 on Patient Autonomy guarantees individuals their right to receive medical information and to be treated with respect. Likewise, the Spanish Society of Intensive Care Medicine (SEMICYUC) has published guidelines that stress the importance of assessing and treating pain in patients admitted to intensive care units, recommending the use of validated scales such as the Pain Indicator Behavior Scale (ESCID), Behavioral Pain Scale (BPS) and the Critical-Care Pain Observation Tool (CPOT).[4]

At the international level, organizations such as the World Health Organization (WHO) emphasize the need to implement comprehensive pain management strategies, including the use of standardized assessment tools. These regulations aim to ensure that, even in patients who are unable to communicate, adequate pain control is guaranteed, thereby reducing their suffering and providing person-centered care. The use of scales such as the ESCID reinforces compliance with both legal and ethical obligations.[5]

The assessment of pain in critically ill patients who are unable to communicate represents a considerable challenge in clinical practice. Several studies have explored the validation and application of specific tools to

improve this process, including the validation and Comparison of Scales: CPOT vs. BPS. A systematic review confirmed the validity and reliability of the CPOT and BPS in intubated, nonverbal adult patients after cardiac surgery. However, it highlighted the need for further studies evaluating the usefulness of other tools, such as NVPS, in the patient population patient.[5]

Therefore, this research aims to analyze the clinical utility and application of validated scales for the assessment of pain in non-communicative patients in hospital settings, to provide practical and effective information to facilitate health professionals the selection and proper application of these scales, thus improving the accuracy in the assessment of pain in non-communicative patients and ensuring a more individualized and empathic treatment.

METHOD

This systematic review, employing a qualitative descriptive method, was conducted according to the guidelines outlined in the PRISMA 2020 Declaration to identify and evaluate the clinical utility, accuracy, and application of scales for assessing pain in patients unable to communicate in hospital settings.[6,7] A qualitative-descriptive approach was used, which facilitated the integration of relevant scientific evidence on observational instruments, physiological and behavioral behaviors, as well as the effect of their use on the quality of patient care.[8]

The research question was formulated according to the PICO model, where the Population includes adult hospitalized patients unable to verbally express their pain (e.g., those in the ICU, neurologically impaired or sedated); the Intervention refers to the use of observational scales such as the Pain Indicator Behavior Scale (PICS), Behavioral Pain Scale (BPS) and Critical-Care Pain Observation Tool (CPOT)(4); the Comparison was made with the lack of standardized tools or the sole use of unorganized clinical judgment; and the Outcome focused on the effectiveness in pain detection, the correct administration of analgesics and the reduction of risk events. Based on this, the following question was formulated: Which pain assessment scales are the most effective and accurate in assessing pain in patients who cannot communicate in various clinical contexts?.[9,10]

Search for evidence

For the search for evidence, five scientific databases were consulted: PubMed, SciELO, LILACS, Scopus, and Google Scholar. Controlled terms from DeCS and MeSH were used, combined using Boolean AND and OR operators. The primary descriptors used were: “pain assessment,” “nonverbal patients,” “critical care,” “pain measurement tools,” “Behavioral Pain Scale,” “Critical-Care Pain Observation Tool,” “pain in dementia,” and their Spanish equivalents.

Criteria were implemented to select papers published between 2020 and 2025 in English or Spanish that provided access to the full text. The search was conducted between February and April 2025. Inclusion requirements encompassed original research using qualitative, quantitative, or mixed methods, examining the use of validated scales in non-communicative patients, whether in intensive care, geriatrics, or neurology. Studies that focused only on communicative patients were excluded, as were editorials, letters to the editor, protocols, duplicate research, and articles lacking sufficient methodological detail.

Table 1 summarizes the search results, highlighting the number of items identified, selected, and excluded at each stage of the process. For the sake of clarity, duplicates were excluded and clearly defined, along with the relevant criteria:

Inclusion criteria

- Unpublished research examining nursing interventions in individuals prone to self-harm.
- Studies that address evidence-based protocols to identify warning signs and their management.
- Clinical trials, qualitative studies relevant to clinical and community practice.
- Summaries of literature, works and secondary studies.
- Articles that do not directly include nursing interventions.

Exclusion Criteria

- General literature reviews, books and secondary studies.
- Articles that do not directly include nursing intervention.

Selection process

The selection of articles was carried out autonomously by two reviewers. Titles and abstracts were analyzed to establish their relevance. In situations of disagreement, a third reviewer was responsible for clarifying differences through agreement. To ensure clarity, a methodological checklist based on the CASP tool standards for systematic reviews was used.

Search strategy

Table 1. Search strategies and results of the literature search

#	Database Search Engine Library	Search Algorithms	Search Results	Limits Inclusion and Exclusion Criteria	Retrieved Articles	Title Selection	Duplicate	Abstract Selection	Complete Reading	Scientific Rigor	Included Articles
1	PubMed	Non-verbal communication, AND Haptic communication *Pain assessment OR Pain scale *Non-verbal communication OR *Facial expressionpain assessment AND neurological disorders	320	Years 5 Scientific articles, originals. (Clinical trials) Free access. No language limit.	24	20	2	15	10	10	4
2	Scopus	Non-verbal communication, AND Haptic communication*pain assessment AND non-communicative patients AND non-verbal communication OR haptic communication NOT verbal communication*pain assessment AND non-communicative patients AND dementia*pain assessment AND unconscious patients AND non-verbal cues	1100	Years 5 Scientific articles, original (Clinical trials) Free access. No language limit.	22	18	2	14	11	11	4
3	Redalyc	*Non-verbal communication, AND Haptic communication*Pain assessment non-verbal patients pain assessment AND non-communicative patients AND dementia. *Pain assessment AND non-communicative patients AND non-verbal communication OR haptic communication NOT verbal communication.	300	Years 5 Language: English , Spanish, Portuguese Discipline: health and medicine Country: unlimited	10	8	1	6	5	5	3
4	Latindex	*Pain Measurement AND Haptic communication	250	Years 5 Language: English, Spanish, Portuguese Discipline: health and medicine Country: unlimited	8	6	1	5	4	4	1
5	Scielo	Haptic communication AND hospital care. *Non-verbal communication, AND Haptic communication. *Pain Measurement OR Pain assessment *Pain Measurement OR Pain assessment.	100	Years 5 Scientific articles, original (clinical trials). Free access. Language without limit.	7	15	1	12	9	9	2

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6	BMJ Open	*Pain assessment non-verbal patients *Nonverbal Communication OR Nonverbal communication. *Nonverbal communication AND Scales. *Pain assessment non-verbal patients	211	Years 5 Original scientific articles (clinical trials) Free access. Language without limit.	1	1	1	8	6	6	4
7	Wiley Online Library	*Nonverbal Communication OR Nonverbal Communication*Non-communicative Patients OR NoncommunicativePatients*Behavioral Pain Scale OR Behavioral Pain Scale	60	Years 5 Original scientific articles (clinical trials) Free access. No language limit.	1	1	2	9	7	7	3
8	ScienceDirect	*Pain Measurement AND Pain Assessment AND Pain Assessment. Unconscious Patients OR Non-communicative Patients.Behavioral Pain Scale NOT communicative Patients	50	Years 5 Original scientific articles (clinical trials) Free access. No language limit.	1	1	1	1	1	1	1
9	Taylor & Francis Online	Pain Measurement AND Pain Assessment AND Pain Assessment*Unconscious Patients OR Unconscious Patients OR Non-communicative Patients* Pain Scales AND Nonverbal Patients*Pain Assessment NOT communicative Patients	40	Years 5 Original scientific articles (clinical trials) Free access. No language limit.	1	9	1	7	5	5	2
10	DOAJ	Behavioral Pain Scale OR FLACC Scale OR Abbey Pain Scale* Pain Scales OR Nociception Coma Scale*Pain Assessment NOT Communicative Patients OR Verbal Patients.Pain Scale Validation AND Nonverbal Patients	150	Years 5 Original scientific articles (clinical trials) Free access. No language limit.	100	80	10	50	30	30	3

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Qualitative Analysis

An integrative qualitative analysis approach was applied to examine and synthesize the findings of the selected articles. The data were coded using predefined categories related to inclusion criteria, thematic relevance and methodological quality. Aspects such as type of intervention, reported outcomes, and target population were analyzed.

Methodological limitations

Although the literature search was carried out systematically and in various recognized databases, possible limitations that could have influenced the results were identified:

- Exclusion of duplicate articles or without access to the full text.
- Heterogeneity in the methodological designs of the selected studies.
- Dependence on specific databases that may have limited the breadth of evidence available.

Ethical Considerations

The analysis was in accordance with the suggestions of the Declaration of Helsinki, so the authorization of a recognized ethics committee is not required, given that the population is included in previous research where the characteristics of the human being are not altered.[11]

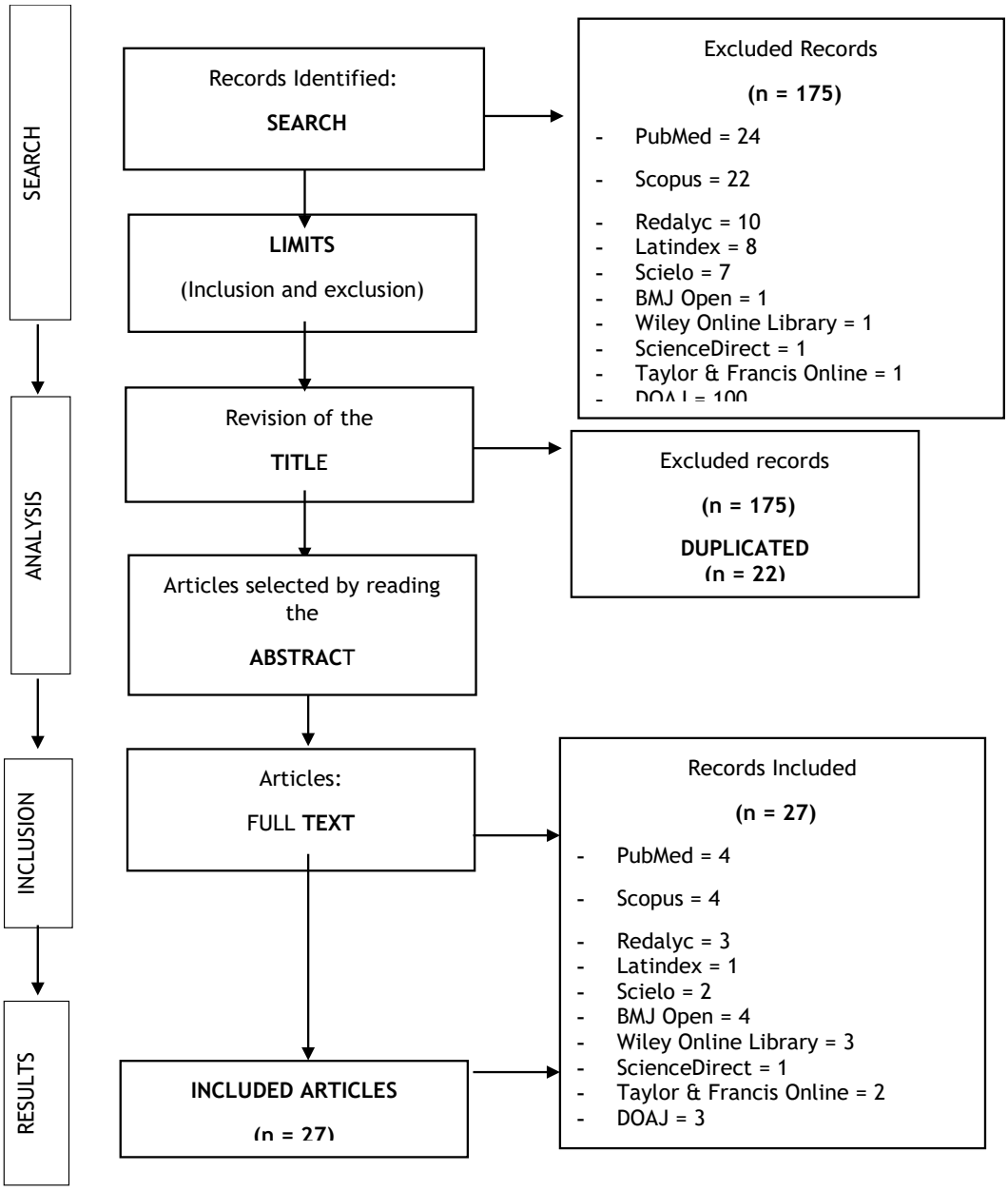

Figure 1. Flowchart of search strategy and results of the literature search

RESULTS

Table 2. PRISMA results

#	Search	Author	Original subject	Year	Type of study	Objective	Methodology	Results
1	*Non-verbal communication, AND Haptic communication *Pain assessment OR Pain scale *Non-verbal communication OR *Facial expressionpain assessment AND neurological disorders	Bellal M, Lelandais J, Chabin T, Heudron A, Gourmelon T, Bauduin P, et a	Calibration trial of an innovative medical device (NEVVA ©) for pain assessment in noncommunicating patients in the intensive care unit.[12]	2024	In this prospective pilot study	To evaluate the reliability of an automatic tool for pain assessment based on facial expressions in critically ill patients is an innovative and much needed medical device.	We conducted a prospective study enrolled 30 patients in the medical Intensive Care Unit (ICU) of the University Hospital. In this pilot study, all non-communicative adult patients over 18 years of age who were in a state of deep sedation, understood as a RASS score of -4 or lower, were included.	Thirty participants were enrolled between March and July 2022 with the aim of assessing acute severity of illness. During this process, Sequential Organ Failure Assessment (SOFA) and Simplified Acute Physiology Score (SAPS II) were recorded.
2		Emsden C, Schäfer UB, Denhaerynck K, Grossmann F, Frei IA, Kirsch M.	Validating a pain assessment tool in heterogeneous ICU patients: is it possible?[13]	2020	The feasibility of CPOT	The aim of this observational study was to test the German version of the Critical Care Pain Observation Tool (CPOT) in a heterogeneous population of adult ICU patients.	An evaluation was conducted using a questionnaire. In order to verify its validity and reliability, a comparison was made between the CPOT and the Behavioral Pain Scale (BPS), as well as with the self-report of 60 patients. This comparison was performed through 480 observations that were recorded simultaneously by two evaluators.	The results of the samples are homogeneous and demonstrate the feasibility of pain assessment and management in patients with delirium in the ICU.
3		Christian Waydhas, Christopher Ull, Oliver Cruciger, Uwe Hamsen, Thomas A Schildhauer, Robert Gaschler, Christina Weckwerth.	The behavioral pain scale may be unreliable in awake nonverbal intensive care patients: a case-control study.[14]	2024	Prospective cohort study.	The aim of the study was to compare the results of a behavioral-based pain assessment with those of self-reported pain in nonverbal, but awake, critically ill patients unable to use low-tech augmentative and alternative communication tools.	A prospective cohort study was conducted in adult patients who were intubated or tracheostomized and required ventilation. Participants had a Richmond Agitation and Sedation Scale (RASS) score between -1 and +1, as well as limited nonverbal communication skills. This study was conducted in a surgical intensive care unit of a referral university hospital.	Data were obtained from 75 patients. No correlation was observed between NRS or EQ-Pain with BPS ($r < 0,15$). However, the NRS and EQ-Pain showed a significant correlation ($r = 0,78$ $p < 0,001$), suggesting the reliability of self-reported pain in these patients.

4		Candelas López-López, Teresa Pérez-Pérez, Juan Vicente Beneit-Montesinos, José Luis García-Klepzig, Mercedes Virginia Martinez-Ureta, María Del Ara Murillo-Pérez, Silvia Ana Torrente-Vela, Mónica García-Iglesias	Pain assessment in severe trauma patients, mechanically ventilated and non-communicative.[15]	2020	Prospective longitudinal study	The aim of this study was to measure pain levels in non-communicative patients with severe trauma requiring tracheal suctioning and mobilization, and to evaluate the usefulness of the Scale of Behavioral Indicators of Pain (ESCID) in these cases.	A prospective study was conducted in which pain scores associated with tracheal suctioning and mobilization procedures were recorded during days 1, 3, and 6 of the patients' stay in the intensive care unit. Assessments were performed at three different times: before, during and after the performance of these procedures.	The results showed a significant increase ($p < 0,01$) in the ESCID score during the application of the procedures, indicating similar levels of pain. The Kappa coefficient value obtained for interobserver agreement of ESCID scores during the application of the care procedures was greater than 0,84, which is interpreted as near perfect agreement.
5	Non-verbal communication, AND Haptic communication*pain assessment AND non-communicative patients AND non-verbal communication OR haptic communication NOT verbal communication*pain assessment AND non-communicative patients AND dementia*pain assessment AND unconscious patients AND non-verbal cues	Latorre Marco I, Solís Muñoz M, Falero Ruiz T, Larrasquitu Sánchez A, Romay Pérez AB	Validation of the Pain Indicator Behavior Scale to assess pain in critically ill, non-communicative and mechanically ventilated patients: results of the ESCID project.[16]	2021	Observational study	To determine the reliability and validity of the Pain Indicator Behaviors Scale (ESCID) to assess pain in critical, non-communicative and mechanically ventilated (MV) patients.	The methodology of this article was carried out using a scale as a measurement instrument in patients over 18 years of age admitted to the ICU, who were under mechanical ventilation and unable to communicate. Pain was assessed by means of the Behavioural Pain Scale (BPS) and ESCID.	The results of this article show that 480 observations were made in 42 patients, 62 % of whom were male, with a mean age of 57 The most prevalent pathologies were infectious, which accounted for 36 %, and neurological, with 35 %.
6		Via-Clavero G, Frade-Mera MJ, Alonso-Crespo D, Castanera-Duro A, Gil-Castillejos D, Vallés-Fructuoso O, et al.	Future lines of research on the treatment of pain, sedation, restraints and delirium in the critically ill patient.[17]	2021	Observational study	To evaluate pain management in specific population groups.	The methodology of this article was carried out using a scale as a measurement instrument in patients over 18 years of age admitted to the ICU, who were under mechanical ventilation and unable to communicate. Pain was assessed using the Behavioural Pain Scale (BPS) and ESCID, simultaneously by two independent assessors, during the performance of two painful procedures: mobilization and secretion aspiration. Measurements were taken before, during and after each procedure.	The results of this article show that the Behavioral Pain Indicator Scale (BPS) has proven to be a valid and reliable tool for the assessment of pain in non-communicative critically ill patients.

7		López-De-Audícana-Jimenez-De-Aberasturi Y, Vallejo-De-La-Cueva A, Parraza-Diez N. Behavioral pain scales.	Behavioral pain scales, vital signs and pupillometry for pain assessment in the critically ill patient: a cross-sectional study.[18]	2024	Cross-sectional study	To assess pain in mechanically ventilated critically ill patients with the Behavioral Pain Scale (BPS), the Behavioral Pain Indicator Scale (BPS), pupillary dilation response (PDR) and vital signs.	The study was conducted between March and December 2019, involving patients presenting with a baseline BPS score of 3, an ESCID score of 0 and a RASS between -1 and -4. Patients with mobility limitations or alterations in pupillary reflexes were excluded. Throughout the study, pain was measured before and after non-painful stimulation (NPS), followed by the application of 10, 20, 30 and 40 mA stimuli, as well as endotracheal aspirates (ETA).	A total of thirty-one patients were included, and 183 measurements were recorded. The scales used showed minimal changes in the results. Approximately 30 % of the patients reported experiencing pain with a 30 mA stimulus, a figure that increased to more than 70 % after the application of ETA. The pain response rate (PDR) ranged from 2 % to 6-33 % during ATE, even in those patients reporting no pain; furthermore, the incidence of pain ranged from 70 % to 100 % for 40 mA and ATE stimuli.
8		Sen HN, Vannella KM, Wang Y, Chung J-Y, Kodati S, Ramelli SC, et al.	SARS-CoV-2 infects ocular tissue, but surprisingly, inflammation was absent in the eyes of patients who died from COVID-19.[19]	2023	Observational study	The aim of this study was to evaluate the changes and investigate the cellular localization of SARS-CoV-2 in ocular tissues during autopsy.	The investigators performed an evaluation of the eyes of 25 patients who died of COVID-19 during the autopsy process. In situ hybridization (ISH) was performed on eye tissue sections from four of these patients in order to identify the cellular location of SARS-CoV-2 spicule gene RNA. In addition, contralateral eyes of 21 patients were subjected to histopathologic examination.	The results were striking to note the absence of inflammation, a fact that contrasts sharply with what is observed in other ocular viral infections, such as those caused by herpesvirus, where infection usually involves considerable inflammation and tissue damage. This study provides important new insights into the ocular pathogenesis of SARS-CoV-2.
9	*Non-verbal communication, AND Haptic communication. *Pain assessment non-verbal patients pain assessment AND non-communicative patients AND dementia. *Pain assessment AND non-communicative patients AND non-verbal communication OR haptic communication NOT verbal communication.	María Adela Goldberg	Pain assessment in critically ill adult patients.[20]	2024	Observational, retrospective and descriptive study.	The aim of this step-by-step study is to describe the assessment of pain in critically ill adult patients.	Quantitative method study where numerical data are collected and analyzed in order to evaluate the pain scale in older adult patients.	A total of 151 kinesic records were analyzed. Of these, 15 subjects (9,9 %) developed postoperative complications (POC). In this group, the median number of days elapsed between the surgical procedure and the start of kinesic care was 8 days.

10		Yerlin Andrés Colina Vargas, Esteban Vallejo Agudelo. Ayda Rodríguez Polo	Pain in hospitalized patients in a high complexity institution. [21]	2022	Longitudinal descriptive observational study.	The objective of this study is to describe the prevalence, evaluation and management of pain in hospitalized patients in a high complexity institution.	The analysis of the information was carried out applying descriptive methods with the purpose of evaluating the scale of pain management in high complexity in chronic non-communicative patients.	The results of the evaluation of the pain management scale of 655 patients hospitalized in the ICU with an intermediate range of 2 to 8 days, by means of the pain evaluation register in a percentage of 1 for every 4 vital signs taken.
11		Sebastián Martín Pérez, Diego Zárate de Lupgens, Marcos Carrillo Pagés, Juan José Gómez Santaella, José Luis Alonso Pérez	Association of pain intensity and psychological factors among patients with chronic low back pain (CLBP). A cross-sectional correlational study. [22]	2022	cross-sectional study	The main objective of the study was to quantify the association between pain intensity and psychological variables in patients with chronic low back pain (CLBP). The researchers started from the hypothesis that psychological factors play an important role in the perception of pain and in the recovery of these patients.	Regarding the methodology, a cross-sectional study of a correlational nature was carried out, using convenience sampling. This research took place at the European University of the Canary Islands, between January 24 and June 10, 2022.	In the results, a total of 146 participants were recruited, of which 58,3 % were women and 41,7 % men, with a mean age of 50,4 years. The patients reported experiencing moderate pain intensity, with an average of 7,02 on a scale of 1 to 10, as well as varying levels of kinesiophobia, catastrophizing and anxiety. Also, a moderate negative correlation was observed between pain intensity and physical perception of pain.
12	Non-verbal communication, AND Haptic communication.* Non-verbal communication, AND Haptic communication *Pain assessment OR Pain scale *Non-verbal communication OR *Facial expressionpain assessment AND neurological disorders.	Robleda G, Roche-Campo F, Membrilla-Martínez L, Fernández-Lucio A, Villamor-Vázquez M, Merten A, et al.	Assessment of pain during mobilization and endotracheal suctioning in critically ill patients. [23]	2020	Prospective, observational and analytical study	To assess the prevalence of pain during 2 nursing procedures.	The anatilic observational approach focusing on the procedure that evaluates endotracheal suctioning and mobilization in order to assess pain, the Behavioral Scale was used, considering painful those values that reached or exceeded 3. Also, various physiological signs and bispectral index (BIS) values were recorded. Any percentage variation greater than 10 % was considered clinically relevant.	A study of 146 procedures was carried out in 70 patients. It was found that 94 % of them experienced pain during the procedures. In addition, there was a significant increase in vital signs and Bispectral Index (BIS) values compared to resting levels; however, only the BIS variation reached noticeable levels.
13	*Non-verbal communication, AND Haptic communication. *Pain Measurement OR Pain assessment *Pain Measurement OR Pain assessment.	Diaz Diaz J, Uriarte Mendez AE, Sanchez Acosta Z, Mora Perez Y, Rodriguez Solis F	Validity and reliability of pain assessment scales. Pediatric Intensive Care Unit. Cienfuegos 2023. [24]	2023	An instrument validation study was conducted	To determine the validity and reliability of the scales for pain assessment in the Intensive Care Unit of the Paquito Gonzalez Cueto University Pediatric Hospital	The methodology of this article states that the scales chosen to assess pain in the Intensive Care Units (ICU) include the Wong Baker scale, the visual	An instrument validation study was carried out in the Intensive Care Unit of the Paquito González Cueto University Pediatric Hospital. In this study, the

						of Cienfuegos.	analog scale (VAS) and the face, legs, activity, crying and comfort scales.	scales selected for pain assessment in the ICU were evaluated, including the Wong Baker scale and the visual analog scale (VAS).
14		Moreno Palacios JA, García Delgado MI, Casallo Cerezo M, Gómez González L, Cortina Barranco M, Moreno Martínez I.	Study of pain in rehabilitation treatments.[25]	2020	Cross-sectional observational descriptive study	To describe the prevalence of pain and its intensity in adult patients attending rehabilitation treatment in our hospital.	A cross-sectional observational descriptive study of cross-sectional design was carried out. The sample consisted of 318 patients who received rehabilitation treatment on a day in February 2019. Various aspects were analyzed in this study, such as diagnosis, presence and intensity of pain in the last 24 hours, as well as pain experienced during treatment, its characteristics and the analgesic treatment administered.	Out of a total of 318 patients, 94,9 % of them experienced pain, with a mean age of 58,7 years and 67,4 % of them were women. Musculoskeletal pathologies were the most common cause, affecting 88,4 % of the cases, and nociceptive pain was identified as the most frequent type, occurring chronically and discontinuously. The mean intensity of maximum perceived pain, measured on a numerical rating scale (NRS), was 5,7, while during treatment this figure decreased to 4,0.
15	*Pain assessment non-verbal patients *Nonverbal Communication OR Nonverbal communication. *Nonverbal communication AND Scales. *Pain assessment non-verbal patients	Robinson OC, Pini S, Flemming K, Campling N, Fallon M, Richards SH, et al.	Exploring how pain is assessed and managed in oncology patients seen in outpatient services by health care professionals: a qualitative study.[26]	2022	Qualitative study	The main purpose of this research was to understand how health professionals assess and manage pain in cancer patients attending outpatient consultations. In addition, they sought to identify what obstacles hinder pain management and what aspects could help to improve it more uniformly.	A qualitative study was conducted in which semi-structured interviews were conducted with 20 professionals from various disciplines in the field of oncology, including medical oncologists and nurses. The interviews were recorded and subsequently transcribed for analysis by means of thematic analysis.	The results obtained Nurses were identified as key figures in supporting pain control in patients. However, it was found that the lack of effective integration of multidisciplinary teams restricts continuity in pain management after consultation
16		Rose L, Agar M, Burry LD, Campbell N, Clarke M, Lee J, et al.	Development of core outcome sets for efficacy trials of interventions to prevent and/or treat delirium (Del-COrS): study protocol.[27]	2020	systematic review	Our aim is to develop an international consensus on two core outcome sets for trials of interventions to prevent and/or treat delirium, regardless of study population.	Nurses were identified as pivotal figures in supporting pain management in patients. However, the lack of effective integration of multidisciplinary teams was found to restrict continuity in pain management after consultation.	The result will be presented both from the critical perspective and through group mean responses. To define the final results for inclusion, we will organize a consensus meeting using the nominal group technique.

17		Cantón-Habas V, Carrera-González MDP, Moreno-Casbas MT, Rich-Ruiz M.	Spanish adaptation and validation of the Pain Assessment in Advanced Dementia Scale (PAINAD) in patients with dementia and altered verbal communication: a cross-sectional study.[28]	2021	Cross-sectional observational study.	The aim of this study was to adapt and validate the Pain Assessment in Advanced Dementia (PAINAD) scale to Spanish.	The psychometric properties of the scale were evaluated, including content validity, construct validity, and reliability.	The overall Item Content Validity Index (ICC) was found to be excellent, reaching a value of 0,95. Regarding construct validity, it was confirmed that lower analgesic use is related to lower scores on the PAINAD scale.
18		Yada H, Odachi R, Adachi K, Abe H, Yonemoto F, Fujiki T, et al.	Validity and reliability of the Psychiatric Nursing Self-Efficacy Scales: a cross-sectional study.[29]	2020	The study measured the reliability and validity of the scales.	To develop the Psychiatric Nursing Self-Efficacy Scales and examine their reliability and validity.	We developed the Enhanced Self-Efficacy Scale (ISES) and the Diminished Self-Efficacy Scale (DSES) based on existing evidence. To assess their reliability and validity, we conducted a statistical analysis of the data obtained.	The ISES consists of two factors: 'Positive changes in the patient' and 'Perspective of continuing in psychiatric nursing'. For its part, the DSES is composed of three factors: 'Devaluation of own role as a psychiatric nurse', 'Decrease in nursing capacity due to overload' and 'Difficulty in seeing results in psychiatric nursing'.
19	*Nonverbal Communication OR Nonverbal Communication*Non-communicative Patients OR Non-communicative Patients*Behavioral Pain Scale OR Behavioral Pain Scale*Pain Scales AND Behavioral Pain Scale	Latorre-Marco I, Solís-Muñoz M, Acevedo-Nuevo M, Hernández-Sánchez ML, López-López C, Sánchez-Sánchez M del M, et al.	Validation of the ESCID Pain Behavioral Indicators Scale for pain assessment in non-communicative and mechanically ventilated critically ill patients: a research protocol.[30]	2020	A multicenter prospective observational design.	To investigate the validity and reliability of the Behavioral Indicators of Pain Scale (ESCID) in medically and surgically non-communicative and mechanically ventilated critically ill patients.	Observation of 300 non-communicative critically ill patients on mechanical ventilation will be conducted. These patients come from 20 different intensive care units and will be studied for 5 minutes before, during and 15 minutes after surgery.	The ESCID scale, which has been previously validated, uses a score range from 0 to 10, which can facilitate the detection and assessment of pain in critically ill patients who cannot communicate and are under mechanical ventilation.
20		Vaidya S, Friedner M.	Discerning personhood through Lena-Dena: disability professionals, ethics, and communication.[31]	2024	Observational study.	Its aim focused on the caring, categorizing and communication relationships that emerged between special educators and young adults with intellectual disabilities in different vocational and recreational programs and schools.	Its observational study methodology during the conduct of research at LF, an organization dedicated to providing early intervention, education, vocational training, social services and support to children and adults with intellectual disabilities, as well as their families.	The results obtained from the observational study in order to discern the communicative signals, both linguistic and non-linguistic, of people with disabilities.

21		Aijón Oliva ,MA, Christofer B	Grammatical coding and the discursive construction of participants: Spanish passive voices in the informative discourse of the written press.[32]	2020	Observational study	Main objective To code participants' discursive construction: Spanish passive voices in the informative discourse of the written press	for the functional and cognitive analysis of grammar, since it involves a change in the way of conceiving a transitive event and in the relative status of its participants.	The results present significant differences in the degree of transitivity they grant to the conceptualization of the event. In this sense, Delbecque (2014: 227-228) considers that the passive voice acts as a constructive model, since it focuses on the affect of the main participant.
22	*Pain Measurement AND Pain Assessment AND *Pain Assessment. Unconscious Patients OR Non-communicative Patients. *Behavioral Pain Scale NOT communicative Patients.	López-López C, Robleda-Font G, Arranz-Esteban A, Pérez-Pérez T, Solís-Muñoz M, Sarabia-Cobo MC, et al.	Development and psychometric validation of the Behavioral Indicators of Pain Scale-Brain Injury (ESCID-DC) for the assessment of pain in critically ill patients with acquired brain injury, incapable of self-report and with artificial airway[33]	2025	Multicenter study	The aim of this study was to develop and validate the adaptation of the behavioral indicators of pain (ESCID) scale for patients with acquired brain injury (ESCID-DC), unable to self-report and with artificial airway.	A multicenter study was conducted in two phases: first, the development of the scale and second, the evaluation of its psychometric properties. Two blinded observers simultaneously assessed pain-associated behaviors using two scales: the ESCID-DC and the Nociceptive Coma Scale, in its revised and adapted version for intubated patients (NCS-RI).	A total of 4,152 pain assessments were performed in 346 patients, 70 % of whom were male, with a mean age of 56 years (SD = 16. 4). The most common causes of brain damage identified were of vascular origin, with 155 cases (44,8 %), and traumatic, with 144 cases (41,6 %).
23	Pain Measurement AND Pain Assessment AND Pain Assessment*Unconscious Patients OR Unconscious Patients OR Non-communicative Patients* Pain Scales AND Nonverbal Patients*Pain Assessment NOT communicative Patients.	R. Formisano, M. Contracted, M. Aloisi, G. Ferri, S.Schiattone, M. Iosa	Nociceptive coma scale with pain stimulation stimulation versus standard stimulus in stimulus in noncommunicative patients with consciousness disorders. of consciousness.[34]	2020	Comparative and observational	The main objective of this study was to compare the indicators of patients with disorders of consciousness (DOC) obtained in the ComaCicom Coma Scale-Revision (NCS-R) using two types of stimuli: a standard stimulus (pressing a nail base called standard stimulus, SS) and personalized stimulus (personal stimulus, PS).	The study involved 21 patients diagnosed with disorders of consciousness. Both the recovery scales (CRS-R) and the scale review coma (NCS-R) were used to assess patient's pain reactions and perceptions. Two types of painful stimuli: the standard stimulus (press the nail base) and the personal stimulus.	The results showed that 42,8 % of the patients (9 out of 21 years) showed a higher score during hospitalization responding to the personalized stimulus (NCS-R-P) compared to the standard stimulus (NCS-R-SS). In addition, a significant correlation was found between NCS-R and CRS-R rates, standard and personal stimulus was found. Specifically, the correlation NCS-R-SS R = 0,701 (P = 0,008), whereas NCS-R-PS was R = 0,564 (P = 0,045).

24		Nai-Huan Hsiung, Yen Yang, Ming Shinn Lee, Koustuv Dalal, and Graeme D. Smith	Translation, adaptation and validation of the behavioral pain scale and the behavioral pain scale and critical care pain pain observation tool in critical care in Taiwan.[35]	2020	Translation study, cultural adaptation and validation.	To translate, culturally adapt and validate the Behavioral Pain Scale (BPS) and Critical-Care Pain Observation Tool (CPOT) for use in the Taiwanese context, ensuring their applicability and accuracy in critically ill patients who cannot communicate verbally.	A translation-retrotranslation process of the scales was carried out, followed by content and construct validation in a sample of critically ill patients in Taiwan. Internal reliability and inter-observer consistency were assessed using appropriate statistical methods.	The Taiwanese versions of the Behavioral Pain Scale and the Critical-Care Pain Observation Tool demonstrated high validity and reliability. It was concluded that these scales are valid and reliable tools for assessing pain in unconscious critically ill patients in the Taiwanese cultural context.
25	Behavioral Pain Scale OR FLACC Scale OR Abbey Pain Scale* Pain Scales OR Nociception Coma Scale*Pain Assessment NOT Communicative Patients OR Verbal Patients.Pain Scale Validation AND Nonverbal Patients	Shin Hashizume, Masako Nakano, Chihiro Ikehata, Nobuaki Himuro, Kanna Nagaishi and Mineko Fujimiya.	Patterns o self-suppression and depressive traits aggravate chronic pain: Assessment of psychological of psychological traits using the the structured association technique.[36]	2024	An observational and correlational study was conducted.	The study sought to understand how self-suppressive behaviors and depressive feelings are linked to greater chronic pain. In addition, it explored whether maternal attachment experiences during childhood could influence the development of these psychological traits.	We worked with 105 older people (23 men and 82 women) with an average age of 80 years who were receiving rehabilitation. Pain intensity was measured using a numerical scale and psychological traits were assessed with the Structured Association Technique (SAT). Information was also collected on maternal attachment experiences during their childhood. Statistical analyses were used to identify relationships between pain, psychological traits and early life experiences. life experiences.	The study revealed that people with a tendency to repress emotions and depressive traits have higher levels of chronic pain, especially those with both factors. In addition, those with maternal attachment difficulties in childhood develop feelings of self-denial that aggravate pain. The authors highlight the importance of considering these psychological aspects in pain management and suggest that SAT therapy may be useful in addressing both pain and associated emotions. However, further studies are required to validate these findings in other cultures.
26		Ajan Subramanian, Rui Cao, Emad Kasaeyan Naeini, Seyed Amir Hossein Aqajari, Thomas D. Hughes, Michael-David Calderon, Kai Zheng, Nikil Dutt, Pasi Liljeberg, Sanna Salanterä,	Multimodal Recognition of Pain in Postoperative Patients: A Machine Learning Approach.[37]	2025	Observational and descriptive, with a quantitative approach	The study sought to develop an intelligent system that can assess pain in postoperative patients objectively, using physiological data such as electrocardiogram, electromyography, electrodermal activity and respiratory rate.	We worked with 25 post-surgical patients, recording their biosignals during light activities and comparing them with their reports of pain. Subsequently, the data were processed and several machine learning models were trained to classify pain into four levels. to classify pain into four levels of intensity.	The models achieved more than 80 % accuracy in identifying pain levels. Respiratory rate stood out for detecting mild pain, while facial muscle activity was more effective for severe pain. Although in some cases the single-signal models were better, the multimodal approach provided superior results

	Ariana M. Nelson and Amir M. Rahmani						to previous studies.
27	Agnes K. Pace, Melanio Bruceta, John Donovan, Sonia J. Vaida, and Jill M. Eckert. Jill M. Eckert	An Objective Pain Scale for Chronic Pain Clinic Patients.[38]	2021	Observational, cross-sectional, quantitative and quantitative.	The study sought to assess the reliability and validity of an objective pain scale, called the Chronic Pain Behavioral Pain Scale for Adults (CBPS), compared with the traditional numerical rating scale (NRS), in adult chronic pain patients seen in outpatient clinics.	A cross-sectional study was conducted in which patients were evaluated before and after an interventional pain procedure. interventional procedure for pain. Both a researcher and a nurse administered the two scales (CBPS and NRS). Inter-rater reliability, concurrent validity and construct validity were analyzed.	The CBPS scale showed good inter-rater reliability and moderate validity after the procedure. Both scales (CBPS and NRS) detected a significant decrease in pain after the intervention. However, more research is needed is needed to confirm whether the CBPS is better than other scales in the long term.

DISCUSSION

The studies included in this review evidence a growing trend towards the development and validation of tools for pain assessment in non-communicative patients. Bellal et al.[12] introduced an automatic device based on facial recognition (NEVVA), which showed promising results in patients with deep sedation, as measured by the SOFA and SAPS II scores. However, although technologically innovative, it still requires direct comparison with traditional scales such as CPOT or BPS to establish its clinical applicability.

In contrast, Emsden et al.[13] and Latorre Marco et al.[30] highlight the reliability of using validated scales, such as the Critical-Care Pain Observation Tool (CPOT) and the Pain Indicator Behavior Scale (ESCID), respectively. Both studies reported good inter-rater agreement and concurrent validity with subjective scales such as BPS and self-reports, which highlights the usefulness of these tools in intubated critically ill patients.

However, there are discrepancies regarding the applicability of the BPS. Waydhas et al.[14] reported that this scale may not be reliable in awake, nonverbal patients, as it does not correlate with the NRS or the EQ-Pain. This observation raises doubts about its usefulness in situations where the patient retains a certain level of consciousness and can exhibit physiological responses that are not evident in observable behavior.

Other authors, such as López-López et al.[15] and Via-Clavero et al.[17], specifically evaluated the response to pain during invasive procedures, including tracheal suctioning and mobilization, confirming that ESCID is sensitive to physiological changes associated with pain. The high Kappa values (>0,84) obtained in both studies support the inter-rater reliability of the ESCID in intensive settings.

López-De-Audícana et al.[18] complement these findings by incorporating physiological parameters, such as pupillary dilation (PDR) and bispectral index (BIS), showing that these measures can complement traditional behavioral scales. The simultaneous use of BPS and ESCID allowed the detection of pain even in patients with limited motor responses, which is crucial for populations with severe neurological impairment.

Regarding specific contexts, such as geriatrics and pediatrics, Díaz Díaz et al.[24] validated scales like FLACC and the Wong-Baker, confirming their usefulness in pediatric intensive care units. In parallel, Cantón-Habas et al.[28] adapted the PAINAD scale for advanced dementia in older adults, demonstrating excellent content validity, which broadens the age range in which these scales can be effectively applied.

Finally, studies such as those by Formisano et al.[34] and Hsiung et al.[35] demonstrate the importance of adapting scales to specific clinical conditions and cultural contexts. While Formisano introduced nociceptive stimulus customization in the NCS-R, Hsiung validated the CPOT and BPS for Taiwanese critically ill patients. Both contributions emphasize the importance of validating scales according to the population profile, language, and clinical environment of the application.

CONCLUSIONS

In conclusion, the systematic review enabled us to identify and analyze the applicability, validity, and reliability of various pain assessment scales in non-communicative patients, particularly in critical care settings. The findings reflect a wide range of instruments, including the BPS, CPOT, ESCID, PAINAD, and NCS-R, each with different levels of accuracy and appropriateness according to the patient and clinical setting. The methodological and population heterogeneity in the analyzed studies highlights the need to unify clinical criteria for assessing pain, promoting the use of validated scales that facilitate effective, ethical, and patient-centered interventions. This confirms the urgency of reinforcing the training of healthcare personnel in the correct use of these instruments, as well as the implementation of integrated assessment strategies that combine behavioral, physiological, and technological aspects.

Finally, it is evident that most behavioral pain assessment scales, such as the BPS and ESCID, present adequate levels of reliability and validity, particularly in critically ill patients under mechanical ventilation. However, their use should be accompanied by proper staff training to avoid underestimation of pain. Secondly, it was observed that automated tools based on artificial intelligence and physiological biomarkers emerge as promising strategies, although they still require further studies to validate their clinical efficacy. It is established that the systematic implementation of validated scales enhances the detection of pain and its therapeutic approach, which has a direct impact on the patient's quality of life and informs better clinical decisions.

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