

PAIN VALUATION SCALES IN NON-COMMUNICABLE CRITICAL PATIENTS: SYSTEMATIC REVIEW

ESCALAS DE VALORACIÓN DE DOLOR EN PACIENTES CRÍTICOS NO COMUNICATIVOS: REVISIÓN SISTEMÁTICA

ESCALAS DE VALORAÇÃO DE DOR EM PACIENTES CRÍTICOS NÃO COMUNICATIVOS: REVISÃO SISTÊMICA

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Abstract: The assessment of pain is perceived with difficulty when patients are in critical condition, since their condition makes self-report impossible. The objective was to determine the reliability of pain assessment scales in critical non-communicative patients (BPS, CPOT, NVPS, ESCID and Campbell scales). It was a systematic review in electronic databases: Pubmed, ScienceDirect, VHL, Scielo and Cochrane Library; consulting the electronic journals Nursing in Critical Care, Journal of Pain and Symptom Management, Pain Medicine, Pain Management Nursing, Critical Care, Acta Anaesthesiologica Scandinavica, Intensive Nursing, Intensive Care Medicine, International Journal of Nursing Studies, Archives of Trauma Research, Journal Brazilian Institute of Intensive Therapy and The Journal of Pain. Eligibility criteria applied: critical patients with inability to communicate verbally, in writing and / or through intentional gestures; over 18 years; of

both sexes; that the scales contain Cronbach's alpha psychometric property that measures both reliability (internal consistency) and criterion validity; that the articles are in their full version; in English, Portuguese and Spanish and updated, with less than ten years. The evaluation of the studies and summary of results, focused on: a) Database / Magazine, Sample, Design, Scale and Cronbach's α . b) Quality of included studies, c) Scottish Intercollegiate Guidelines Network evidence levels and quality of scientific evidence; Likewise, risk of bias has been assessed. Of 114 records, 13 articles were included in the review to finally select 4 studies of scale Behavioral Pain Scale that reached the highest reliability in a study conducted in the United States in which the Cronbach's Alpha fluctuated between 0.80 to 0.92. BPS showed greater reliability and criterion validity to assess pain in the patients under study. The strength of the results is the magnitude and relevance of the problem that gives rise to the need to continue developing high quality evidence (studies of greater methodological rigor) to respond to the needs of patients. Likewise, the results are essential components for decision-making, which should be reflected in the Clinical Guide for non-communicative patient management. It is concluded that it is necessary to continue fostering the development of research in this line, which evaluates a subject as sensitive as pain, which the Ministry of Health has cataloged as the fifth vital sign.

Keywords: Critical Care, Pain, Dimension of Pain, Pain threshold, Pain management.

Resumen: La valoración del dolor se percibe con dificultad cuando los pacientes se encuentran en estado crítico, ya que su condición imposibilita el autoinforme. El objetivo fue determinar fiabilidad de escalas de valoración del dolor en paciente crítico no comunicativo (escalas BPS, CPOT, NVPS, ESCID y Campbell). Se trató de una revisión sistemática en bases de datos electrónicas: Pubmed, ScienceDirect, BVS, Scielo y Biblioteca Cochrane; consultando a las revistas electrónicas Nursing in Critical Care, Journal of Pain and Symptom Management, Pain Medicine, Pain Management Nursing, Critical Care, Acta Anaesthesiologica Scandinavica, Enfermería Intensiva, Intensive Care Medicine, International Journal of Nursing Studies, Archives of Trauma Research, Revista Brasileña de Terapia Intensiva y The Journal of Pain. Los criterios de elegibilidad aplicados: pacientes críticos con incapacidad para comunicarse de manera verbal, escrita y/o a través de gesticulaciones intencionales; mayores de 18 años; de ambos sexos; que las escalas contengan la propiedad psicométrica alfa de Cronbach que mide tanto confiabilidad (consistencia interna) como validez de criterio; que los artículos se encuentren en su versión completa; en idioma inglés, portugués y español y actualizados, con menos de diez años. La evaluación de los estudios y resumen de resultados, se centró en: a) Base de Datos/ Revista, Muestra, Diseño, Escala y α de Cronbach. b) Calidad de los estudios incluidos, c) Niveles de evidencia Scottish Intercollegiate Guidelines Network y de calidad de la evidencia científica; asimismo se ha valorado Riesgo de sesgo. De 114 registros, 13 artículos fueron incluidos en la revisión para finalmente seleccionar 4 estudios de escala Behavioral Pain Scale que alcanzó la mayor fiabilidad en un estudio realizado en Estados Unidos en el cual el Alfa de Cronbach fluctúa entre 0,80 a 0,92. La BPS demostró tener mayor confiabilidad y validez de criterio para valorar el dolor en los pacientes en estudio. La fortaleza de los resultados es la magnitud y relevancia del

problema que otorga fundamento a la necesidad de continuar desarrollando evidencia de alta calidad (estudios de mayor rigor metodológico) para responder a las necesidades de los pacientes. Asimismo, los resultados son componentes esenciales para la toma de decisiones, que deben verse reflejadas en Guía Clínica de manejo de pacientes no comunicativos. Se concluye que es necesario continuar fomentando el desarrollo de investigaciones en esta línea, que evalúan un tema tan sensible como el dolor, el cual el Ministerio de Salud lo ha catalogado como el quinto signo vital.

Palabras Clave: Cuidados Críticos, Dolor, Dimensión del Dolor, Umbral del Dolor, Manejo del Dolor.

Resumo: A avaliação da dor é percebida com dificuldade quando os pacientes estão em estado crítico, uma vez que sua condição torna o autorrelato impossível. O objetivo foi determinar a confiabilidade das escalas de avaliação da dor em pacientes críticos não comunicativos (escalas BPS, CPOT, NVPS, ESCID e Campbell). Revisão sistemática nas bases de dados eletrônicas: Pubmed, ScienceDirect, BVS, Scielo e Cochrane Library; Consulta de enfermagem revistas eletrônicas em Critical Care, Journal of Pain e Gestão Sintoma, Medicina da Dor, Enfermagem Pain Management, Critical Care, Acta anaesthesiologica Scandinavica, Enfermagem Intensiva, Medicina Intensiva, Jornal Internacional de Estudos de Enfermagem, Archives of Trauma Research, Journal Instituto Brasileiro de Terapia Intensiva e The Journal of Pain. Critérios de elegibilidade aplicados: pacientes críticos com incapacidade de se comunicar verbalmente, por escrito e / ou por meio de gestos intencionais; mais de 18 anos de idade; de ambos os sexos; que as escalas contêm a propriedade psicométrica alfa de Cronbach que mede tanto a confiabilidade (consistência interna) quanto a validade de critério; que os artigos estão em sua versão completa; em inglês, português e espanhol e atualizado, com menos de dez anos. A avaliação dos estudos e resumo dos resultados, teve como foco: a) Banco de Dados / Revista, Amostra, Design, Escala e α de Cronbach. b) Qualidade dos estudos incluídos, c) Diretrizes Intercolégiadas Escocesas Evidências da rede e qualidade das evidências científicas; Da mesma forma, o risco de viés foi avaliado. 114 registros, 13 itens foram incluídos na avaliação para seleccionar finalmente 4 estudos escala comportamental Escala de Dor que atingiram a mais elevada fiabilidade num estudo realizado nos EUA, em que a alfa de Cronbach variando 0,80-0,92. BPS mostrou maior confiabilidade e validade de critério para avaliar a dor nos pacientes em estudo. A força dos resultados é a magnitude e importância do problema que dá substância à necessidade de continuar a desenvolver evidência de alta qualidade (estudos de maior rigor metodológico) para atender as necessidades dos pacientes. Da mesma forma, os resultados são componentes essenciais para a tomada de decisões, que devem ser refletidos no Guia Clínico para o gerenciamento não comunicativo do paciente. Conclui-se que é necessário continuar a promover o desenvolvimento de pesquisas nesta linha, avaliando uma questão tão sensível como a dor, que o Ministério da Saúde tem listado como o quinto sinal vital.

Palavras-chave: Cuidados Críticos. Dor Dimensão da dor. Limiar de dor. Gestão da dor

INTRODUCTION

According to the International Association for the Study of Pain (IASP), pain is defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage” (1). Given that this experience is subjective, it varies between individuals and it is influenced by the patient’s beliefs and emotions, personal origins and meanings, being accepted by some and rejected by others (2). Hence, the most reliable way to quantify it is via the verbal expression of the patient (3).

However, there are patients whose state of health does not permit them to communicate verbally, such as patients hospitalized in intensive care units (ICUs), who may also be intubated or under sedation. This makes it difficult to measure pain, so other indicators or behaviors must be observed.

For this study, a patient is considered critical who is “hemodynamically unstable, who requires care, vasoactive drugs, mechanical ventilation, continuous monitoring and who cannot express the intensity of their pain verbally, in writing or with body language” (4).

According to Gélinas, physiological indicators, i.e., the vital signs, are non-specific to assess pain in such patients, since they can vary according to the state and diagnosis, so they must be used with caution (5). This is supported by a study conducted by Young, where the hemodynamic parameters increased regardless of whether the procedure performed was nociceptive or not (6). Thus, behavioral indicators are recommended for this purpose as they represent valid information about these patients (7,8)

There are various scales to assess these types of patients based on behavioral indicators, such as the Behavioral Pain Scale (BPS), the Critical Care Pain Observation Tool (CPOT), the Campbell scale, Validation of the Scale of Behavior Indicators of Pain (ESCID) and the Adult Nonverbal Pain Scale (NVPS) (9,10). However, in Chile there are no studies to validate such instruments. This is a clinical problem because studies confirm that the use of these instruments results in a reduction in the administration of analgesics and sedatives as they are useful in the evaluation of the effectiveness of pharmacological interventions, and these studies also contribute to these interventions being timely and appropriate for each individual patient (11).

From this perspective, the quality of care is included in the health goals set by the Chilean Ministry of Health for the period 2011-2020 (12). This takes on greater relevance in the context of ICUs, where decision-making must be rigorous in light of the patients’ unstable and critical condition, with pain being a frequent event in these services, with an incidence of up to 50% (13). Furthermore, its management must be considered a critical aspect, particularly in patients who have difficulty communicating, since its ineffective treatment can cause complications that aggravate their state of health, given that the physiological manifestations are varied, such as tachycardia, tachypnea, pallor or ruddiness of the skin, perspiration, hypertension, mydriasis, anxiety or depression, psychomotor restlessness and/or insomnia (14). According to Claret, untreated pain produces various complications at system level, such as cardiovascular, gastrointestinal and renal alterations (1). In addition, it reduces the patient’s mobility, which can cause deep venous thrombosis, pulmonary embolism and pneumonia. In this light, it is essential to offer a timely and

appropriate treatment to reduce the risk of complications, which involves decreasing the stay in the ICU and offering quality care (15).

According to the Ministry of Health, quality health care “is one that identifies the health needs of individuals or population completely and accurately, allocating the necessary resources (human and others) to these needs in a timely manner and as effectively as the current state of knowledge allows”. Carried over to the legal framework, Chile possesses a model of guarantees in health that incorporates quality assurance. From this, the decree with force of law N°1 of 2005 establishes the minimum standards that institutional health providers such as hospitals, clinics, doctor's offices and medical centers must fulfill in order to guarantee that the services reach the quality required for user safety (16). This is linked to the Code of Ethics of the International Council of Nurses (ICN) for the nursing profession, related to the practice, “to establish health care standards and a working context that promotes safety and quality care”. This is directly related to the study topic as it lies within the fulfillment of the professional role: being care managers involves the detection of the patients’ needs and suitable interventions to improve their quality of life (17). It also has the professional, ethical and legal responsibility to control pain and alleviate suffering.

The treatment of pain in the ICU requires knowledge of the impact of pain on the patient’s well-being as well as of the professional involvement for adequate pain control (2).

The general objective was: to determine better reliability in assessment scales of pain in non-communicative critical patients (BPS, CPOT, NVPS, ESCID and Campbell).

The specific objectives are to compile the available evidence by means of reproducible search strategies from different sources.

METHODOLOGY

A systematic review to answer the research question: Which pain assessment scales for non-communicative critical patients (BPS, CPOT, NVPS, ESCID and Campbell) has the best reliability?

Search strategy and data collection. Two independent reviewers (the principal investigator and a third party with training in bibliographical searches) identified articles with information on the topic according to the previously defined eligibility criteria using the title and abstract. The articles were classified in the categories “included”, “excluded” and “doubtful”. For the doubtful ones, their methodology was read to re-classify them as included or excluded. Then, the reviewers opened their classifications and the degree of agreement was studied. Non-agreement about an article was resolved by consensus between the two reviewers.

Location and selection of studies. The following electronic databases were used: Pubmed, ScienceDirect, CINHAI, BVS, Scielo, Biblioteca Cochrane and ISI Web of Science.

Additionally, the following electronic journals were consulted: Nursing in Critical Care, Journal of Pain and Symptom Management, Pain Medicine, Pain Management Nursing, Critical Care, Acta Anaesthesiologica Scandinavica, Enfermería Intensiva, Intensive Care Medicine, International Journal of Nursing Studies, Archives of Trauma Research, Revista

Brasileña de Terapia Intensiva and The Journal of Pain.

Controlled descriptors extracted from the Medical Subject Headings (MeSH) were used. Also, uncontrolled words were used extracted from the key words of the selected articles that addressed all the terms of the PICoR question.

Two searches were performed; the first to identify the number of pain assessment scales for non-communicative ICU patients available and the second a search for each scale to determine its reliability.

The study sets out the results of primary studies in relation to the analysis of the Cronbach's alpha coefficient of the pain assessment scales for non-communicative ICU patients (18)

Data collection:

For the data extraction, templates designed for the study were used. Primary studies were considered related articles.

In the first search the terms “Pain scale and uncommunicative critical patient” were used; initially, all the studies selected were related to the research question. When the title was unclear, the abstract and finally the entire article were used to evaluate the relevance of the study. A total of 35 articles were identified, and the scales: the Behavioral Pain Scale (BPS), the Critical Care Pain Observation Tool (CPOT), the Adult Nonverbal Pain Scale (NVPS), the Campbell scale and the Validation of the Scale of Behavior Indicators of Pain (ESCID).

The second search concentrated on the psychometric properties of reliability and validity of each scale. The terms used were “Behavioral Pain Scale” for the BPS, “Critical-Care Pain Observation Tool” for the CPOT, “Pain Scale in Non-Communicative Adult” for the NVPS, and finally “Scale of Behavior Indicators of Pain” for the ESCID.

The table shows the search results according to the databases and combinations of descriptors.

Table 1: Searches according to the databases and combinations of descriptors.

<i>Combination Descriptors</i>	<i>ESCI D</i>	<i>BPS</i>	<i>NVPS</i>	<i>CPOT</i>	<i>ESCI D</i>	<i>Total</i>
<i>Databases</i>						
<i>Pubmed</i>	25	10	29	3	1	68
<i>Science Direct</i>	9	10	3	0	0	22
<i>BVS</i>	1	6	16	0	0	23
<i>Scielo</i>	0	1	0	0	0	1
<i>Cochrane Library</i>	0	0	0	0	0	0
<i>Total</i>	35	27	48	3	1	114

Source: Personal Collection (2017)

All the articles found are international, with the main countries being Canada, Brazil, the US and China.

From these results, the studies that fulfilled the following inclusion criteria were selected:
Applied to critical patients unable to communicate verbally, in writing and/or through intentional gestures.

They contain the psychometric property of Cronbach's alpha, which measures both reliability (internal consistency) and criterion validity.

They are in their complete version.

Conducted on patients over 18 years of age.

Performed on patients of both sexes.

In English, Portuguese and Spanish.

Updated in less than 10 years.

The articles were selected according to inclusion and exclusion criteria based on the study objectives.

The assessment of the validity of the studies identified in the search focused on: Database / Journal, Sample, Design, Scale and Cronbach's α .

Possible biases

It is worth noting that there are studies in which the psychometric properties of more than one scale are analyzed and that they are therefore repeated. This is why the total number of selected articles is 13.

Table 2: Characteristics of the selected articles.

<i>Publication, year and place</i>	<i>Database / Journal</i>	<i>Sample</i>	<i>Design</i>	<i>Scale</i>	<i>Cronbach's α</i>
Cultural adaptation and psychometric properties of the Portuguese version of the scale Behavioral Pain Scale – intubated patients (BPS-IP / PT). 2013. Coimbra (21)	Scielo/ Enfermagem Referencia FI: 1.082	60 patients on mechanical ventilation and unable to self-report about pain	Observational with translation and analysis of validity	BPS	0.65 -0.73
Validation of the Brazilian version of Behavioral Pain Scale in adult sedated and mechanically ventilated patients. 2015. Brazil (22)	Science Direct/ The Journal of pain FI: 4.463	35 adult patients sedated or unconscious on mechanical ventilation	Cross-sectional	BPS	0.80
Use of a Behavioural Pain Scale to assess pain in ventilated, unconscious and/or sedated patients. 2006. Australia (6)	Science Direct/ Enfermería de Cuidados Intensivos y Críticos FI: 0.462	44 patients.	Prospective	BPS	0.64
Reliability and validity of the Chinese version of the behavioral pain scale in intubated and non-intubated critically ill patients: Two cross-sectional studies. 2016. Beijing (23)	Pubmed, Science Direct/ International Journal of Nursing Studies FI: 3.561	Study 1: 129 patients (53 intubated and 76 not intubated). Study 2: 83 patients (43 intubated and 40 not intubated).	Cross-sectional	BPS	0.724 to 0.743
Validity and sensitivity of 6 pain scales in critically ill, intubated adults. 2015. United States (24)	Pubmed/ American Journal of Critical Care. FI: 1.870	150 ICU patients on mechanical ventilation: 50 communicative and 100 non-communicative	Observation	BPS	0.80 to 0.92.
Psychometric Analysis of Behavioral Pain Scale Brazilian Version in Sedated and Mechanically Ventilated	Portal Regional de la BVS/Pain Practice FI:2.317	15 neurological patients, sedated and on mechanical ventilation.	Cross-sectional	BPS	R: 0.42 EW: 0.53 ETA: 0.57

<i>Scale name</i>	<i>Scale</i>	<i>Cronbach's α</i>
Scale Behavioral Pain Scale (BPS). 2013. Coimbra (22)	BPS	0.65 -0.73
Behavioral Pain Scale 2015. Brazil (23)	BPS	0.80
Behavioural Pain Scale 2006. Australia (6)	BPS	0.64
Behavioral Pain scale. 2016. Beijing (24)	BPS	0.724 a 0.743
Behavioral Pain scale 2015. United States (25)	BPS	0.80 a 0.92.
Behavioral Pain Scale 2015. Brazil (26)	BPS	R: 0.42 EW: 0.53 ETA: 0.57
Behavioral Pain Scale. 2014. Brasil (27)	BPS	De 0.501.
Behavior Indicators of Pain (ESCID) 2011. Madrid, Spain (9)	ESCID	Varied between 0.70-0.80
Critical care patients. 2011. United States (28)	CPOT	0.76.
Critical-care pain observation. 2011. Stockholm, Sweden (29)	CPOT	From 0.31 to 0.81.
Pain Assessment Tool in the Critically ill Post-Open Heart Surgery Patient Population. 2010. New Jersey (30)	CPOT and BPS	BPS: 0.70 CPOT:0.71
Comparison of three behavioral scales for the assessment of pain in critically ill patients unable to self-report. 2014. Chicago (31)	CPOT, BPS and NVPS	BPS: 0.80 CPOT:0.81 NVPS: 0.76.
Pain measurement in mechanically ventilated critically ill patients: Behavioral Pain Scale versus Critical-Care Pain Observation Tool. 2015. Amsterdam, Netherlands (32)	BPS and CPOT	BPS: 0.70 CPOT:0.71

Source: Personal Collection (2017)

The method of internal consistency based on Cronbach's alpha makes it possible to estimate the reliability of a measuring instrument through a set of items expected to measure the same construct or theoretical dimension. The reliability of the internal consistency of the instrument can be estimated with Cronbach's alpha. The measurement of the reliability using Cronbach's alpha assumes that the items (measured on a Likert scale) measure the same construct and that they are highly correlated (Welch & Comer) (19). The closer the alpha is to 1, the greater the internal consistency of the analyzed items. The reliability of the scale must always be obtained with the data from each sample to guarantee the reliable measurement of the construct in the concrete study sample. As a general criterion, George and Mallery suggest the following recommendations to evaluate the Cronbach's alpha coefficients: -Alpha coefficient >.9 is excellent - Alpha coefficient >.8 is good - Alpha coefficient >.7 is acceptable - Alpha coefficient >.6 is questionable - Alpha coefficient >.5 is poor (20).

Risk of bias: A list of stimuli was applied to each study so the potential risk of bias could be assessed, evaluating the sample (small samples), randomization, control group, design,

inconsistency in the results and vagueness (referring to whether the confidence intervals are wide).

Of the 13 selected, 4 studies do not mention the type of design; all are published in Science Direct indexed journals with a good impact factor.

In terms of sample, there is variability in their power (range from 15 to 100 patients included). Eight studies mention patients on mechanical ventilation, sedated and unconscious and 5 describe patients.

The validity of the selected studies has been adequately assessed. The populations are similar, with the Cronbach's alpha values being recorded in all of them.

Quality of the studies included. Of the studies described as "included" (independently or by consensus), the reviewers independently evaluated the quality of each selected article.

With respect to discrepancies in the assessment of the methodological quality, the raters reached an agreement; where there was no agreement, one expert acted as the referee to decide the methodological quality of the article at issue.

Levels of scientific evidence (AATM)

According to the Agència d'Avaluació de Tecnologia Mèdica (AATM) scale, the classification considers, in addition to the study design, a specific assessment of its quality, in this case of observational and prospective studies, which corresponds in quality to: VI (Average), Cohort studies Multicenter Matching; VII (Average) Case-control studies Multicenter Study quality, and VIII (Poor) Descriptive Studies.

Scottish Intercollegiate Guidelines Network (SIGN) levels of evidence

The SIGN scale adds value (2+) to well-conducted cohort and case-control studies, with a low risk of confounding, bias or randomness, and a moderate likelihood that the relationship is causal.

In research, the subjects correspond to previously conducted studies publicly available on the Internet; therefore, it is exempt from the federal regulations enforced by the Clinical Research Ethics Committee (CREC), and it should be noted that in these studies the patient's privacy is protected in such a way that it is impossible to know their identities. The informed consent was not used since a secondary data analysis was conducted without patients acting as participants. Nevertheless, the methodological rigor was taken into account. This is supported through the Common Rule and the Health Insurance Portability and Accountability Act (HIPAA) that authorizes this as long as the data do not contain specific identifiers of the participants (22).

RESULTS

Initially 114 articles were identified, from which 13 articles (11.4%) were selected, belonging to up-to-date articles where more than 84% have been published in the last five years.

In the first stage, 4 scales were compared (BPS, ESCID, CPOT, NVPS) that assess pain in this type of patients. The results are shown in Table 2.

Table 3: BPS, ESCID, CPOT, NVPS scales and Cronbach's α .

<i>Scale name</i>	<i>Scale</i>	<i>Cronbach's α</i>
Scale Behavioral Pain Scale (BPS). 2013. Coimbra (22)	BPS	0.65 -0.73
Behavioral Pain Scale 2015. Brazil (23)	BPS	0.80
Behavioural Pain Scale 2006. Australia (6)	BPS	0.64
Behavioral Pain scale. 2016. Beijing (24)	BPS	0.724 a 0.743
Behavioral Pain scale 2015. United States (25)	BPS	0.80 a 0.92.
Behavioral Pain Scale 2015. Brazil (26)	BPS	R: 0.42 EW: 0.53 ETA: 0.57
Behavioral Pain Scale. 2014. Brasil (27)	BPS	De 0.501.
Behavior Indicators of Pain (ESCID) 2011. Madrid, Spain (9)	ESCID	Varied between 0.70-0.80
Critical care patients. 2011. United States (28)	CPOT	0.76.
Critical-care pain observation. 2011. Stockholm, Sweden (29)	CPOT	From 0.31 to 0.81.
Pain Assessment Tool in the Critically ill Post-Open Heart Surgery Patient Population. 2010. New Jersey (30)	CPOT and BPS	BPS: 0.70 CPOT:0.71
Comparison of three behavioral scales for the assessment of pain in critically ill patients unable to self-report. 2014. Chicago (31)	CPOT, BPS and NVPS	BPS: 0.80 CPOT:0.81 NVPS: 0.76.
Pain measurement in mechanically ventilated critically ill patients: Behavioral Pain Scale versus Critical-Care Pain Observation Tool. 2015. Amsterdam, Netherlands (32)	BPS and CPOT	BPS: 0.70 CPOT:0.71

Source: Personal Collection (2017)

In the second stage, the BPS was classified according to reliability; the main finding was a study conducted in the United States that assessed pain during 4 phases: before the physical examination, during the physical examination, before the endotracheal suctioning and finally during the endotracheal suctioning. The article is in the Pubmed database, from 2015, published in a journal with an impact factor of 1.870; it mentions the design as observational, and has power in the sample and the control group (150 ICU patients: 50 communicative and 100 non-communicative on mechanical ventilation). It presents a Cronbach's alpha coefficient from 0.80 to 0.92, which gives it, among the articles selected, the greatest reliability and criterion validity through this statistic on the BPS.

Tabla N°4 Behavioral Pain Scale and reliability index

Nombre escala	Escala	α de Cronbach
Behavioral Pain Scale 2015. Brasil (23)	BPS	0,80
Behavioral Pain scale. 2016. Beijing (24)	BPS	0,724 a 0,743
Behavioral Pain scale 2015. Estados Unidos (25)	BPS	0,80 a 0,92.
Comparison of three behavioural scales for the assessment of pain in critically ill patients unable to self-report.2014. Chicago (31)	BPS	BPS: 0,80

Source: Personal Collection (2017)

In order to establish a precedent that will make it possible in future to standardize care with respect to the use of these instruments and ultimately increase the users' quality of life, research in this line and validation of the respective scales are needed.

DISCUSSION

As pain is a frequent event in hospitalized patients, it becomes a fundamental aspect; however, this is difficult for those who cannot express it verbally. Yet in Chile, despite the existence of international scales to perform this fundamental work based on behaviors and independent physiological responses of the patient's verbalization, this is not done, remaining completely subjective according to the perception of the nursing professional, and this changes significantly according to each one's criterion.

The aim of this study is to identify which scale has the greatest reliability, which was done via a systematic review in several databases, and it was found that all the scales are valid and reliable according to the Cronbach's alpha statistic.

After this came the concern as to why none of these scales is implemented in Chile, preferably the one with the highest Cronbach's alpha in order to objectively assess and reduce the current amount of pain in non-communicative critical patients, which represent 50% of the ICU admissions.

One of the strengths of the results is the magnitude and relevance of the issue, which lends support for the need to continue developing high-quality evidence (studies of greater methodological rigor) to respond to patients' needs.

In addition, the results are essential elements for decision-making, which must be reflected in the Clinical Guide on managing non-communicative patients.

The limitations were in the search, where copyrighted articles were found, and it was not possible to be obtain the studies in their full version; therefore, they were discarded using the exclusion and inclusion criteria, limiting the selection. Jointly, a study in Korean was identified, the use of which difficult due to the limitation of its translation.

CONCLUSIONS

The BPS proved to be the scale with the greatest reliability and criterion validity to assess pain in non-communicative critical patients, categorized from good to excellent according to the Cronbach's alpha coefficient.

It is necessary to continue developing research in this line, which evaluates a topic as sensitive as pain, which the Ministry of Health has designated as the fifth vital sign, underscoring the importance of its assessment and contributing to reinforcing the ethical practices of health care professionals, aimed at applying reliable and validated instruments that can assess pain particularly in patients with communication problems (33). Added to this are the hospital environment and the patient's condition, which aggravates the pain experienced due to the anxiety, fear and discomfort of the patient and his/her relatives, which is why it is essential to evaluate the condition with the best evidence available.

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