STRATEGIES FOR PAIN ASSESSMENT IN CRITICALLY ILL PATIENTS: A BIBLIOMETRIC STUDY

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ABSTRACT

This research had as objective studying pain assessment strategies used by nurses in critical ill patients. Pain was described by the American Pain Society as the 5th vital sign, making it essential to use pain measurement scales. The objective of this research was to identify online productions that address the strategies used by nurses to assess the pain in critically ill patients. This is a bibliometric study of descriptive nature. We analyzed 19 articles, mostly published in international journals, and especially in the American Journal of Critical Care. The results show that the highest frequency of scientific works was consolidated in 2011 and 2013 and the Critical Care Pain Observation Tool (CPOT) scale is the one most widely used by nurses for pain assessment in critically ill patients who are unable of self-report pain, and are under mechanical ventilation. The data seem to be incipient in view ofthe relevance of the theme, presenting gaps in knowledge production, especially with respect to the application of scales associated with nursing interventions and the reapplication after such interventions. It is necessary to systematize the assistance provided to the patients. Identifying the best scale according to the patients profile may be a good start to minimize the progress of pain and its consequences for critical patients, but interventions and assessments must be a priority.

Keywords: Pain measurement. Critical care, Nursing care. Clinical Protocols.

INTRODUCTION

This research hadas objective studying pain assessment strategies used by nurses in critical ill patients. Pain is one of the main causes of human suffering and can cause innumerable disabilities, poor quality of life, and psychosocial and economic repercussions, gaining important proportions in problems related to public health. National and international epidemiological studies have shown that approximately 80% of people's demand for health services is motivated by pain[1].

Based on information from the International Association for the Study of Pain (IASP), pain is defined as an unpleasant sensory and emotional experience, becoming something subjective expressed in different ways by people. Thus, the need to create an instrument with scales that measured the pain of each individual according to his particularities became evident, in order tomakesafe interventions possible, especially in health care settings[2].

In hospitalized patients, pain control and relief are responsibilities ofhealth professionals who often end up underestimating the pain of patientsdue to the concern with the adverse events caused by analgesics[4]. Methods of pain control and assessmentare extensive and involve acquisition of various information related to the onset of pain, location, intensity, duration and periodicity of pain episodes, the patients' sensory and affective qualities and also factors that initiate, increase or decrease pain intensity[3].

Among health professionals, a study carried out in 2010 highlighted the role of nurses in pain management, emphasizing activities such as: exploring and valuing pain complaints; collecting data on aggravating factors, and personal and family history; investigating the discomfort caused by pain; and applying instruments that can assist in painmeasurement and evaluation, effectively intervening in the quality of analgesia[1].

Regarding there cognition of the need for pain management, the Joint Commission Accreditation Healthcare Organization (JCAHO) calls attention for its mandatory nature in the hospital accreditation process. The JCHAO draws our attention to the benefits of pain care in hospital institutions, not only by minimizing and eliminating discomfort, but also

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by facilitating the recovery, avoiding related adverse effects, and promoting low-cost treatments. The adherence of this practice is directly related to the decrease in morbidity and length of hospitalization[4].

Patients admitted to Intensive Care Units (ICUs) have difficulties to express their pain, either due tothe number of sedatives or by the invasive devices that suppress speech[5]. In this context, intervention for pain relief using already existing verbal and nonverbal scales seems to contribute to the proper management and relief of the patient's pain.

Considering the abovebackground, this research aimed to identify online productions that approach the strategies used by nurses to evaluate criticallyill patients. For this, the studywas based on the following question: what scientific productions on the strategies used by nurses for pain assessmentin critically ill patients have been published in the last 5 years in online journals?

METHOD

This is a bibliometric study of descriptive nature. Bibliometry is a quantitative and statistical research technique that measures the production and dissemination rates of scientific knowledge. Such a method is used to objectively evaluate scientific production[6].

In order to reach the proposed goal, searches were performed at the Virtual Health Library-Bireme from April to September 2016, using the following databases: Nursing Database (BDENF), Latin American and Caribbean Literature on Health Sciences(LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE) and National Library of Medicine and National Institutes of Health (PUBMED).

Regarding the search in these databases, the following Health Sciences Descriptors (DeCS) were used: pain assessment; critical care; nursing care; and clinical protocols, with the use of the following Boolean operator: "AND". This set of descriptors was extensively revised to remove the largest number of studies possible that did not meet proposed criteria so asto focus on the selected theme.

The following inclusion criteria were adopted inthe sample selection: studies published in English, Spanish and Portuguese; available infull length in the database; having been published in the last 5 years (2011 to 2016); developed with adults over 19 years old; having as theme the use of protocols or strategies

for the pain assessment in critically ill patients; be classified as original article, experience report, or systematic review; be indexed in at least one of the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), SCOPUS, National Library of Medicine and National Institutes of Health (PUBMED), Cochrane, or Latin American and Caribbean Literature on Health Sciences (LILACS) and Medical Literature Analysis and Retrieval System Online (MEDLINE). The exclusion criteria were: articles repeated in the searched databases.

The following information was collected from the articles: qualis classification of the journal; author; publication date; thematic; journal; origin/country of publication; type of study; profissional area; database. Simple descriptive statistics (absolute frequencies and percentages) calculated in the Microsoft® Office Excel software version 2010were used for organization of the information extracted from the publications and data analysis.

A careful reading of abstracts and descriptors of allpublications was made and then the inclusion criteria were applied to the pre-selected studies.

RESULTS

In this section, we present the results obtained from the selected scientific publications, considering the bibliometric indicators. One hundred and thirty-four articles were found; after applying the selection criteria, the final sample was composed of 19 articles.

Fromthe 19 articles, 37% (n = 7) had beenpublished in 2011, 11% (n = 2) in 2012, 37% (n = 7) in 2013, 11% (n = 2) in 2014, 5% (n= 1) in 2015 and none in 2016. The artciles were published in 13 different journals. The largest number of articles was published from 2011 to 2013. The international journal with the greatest number of publications on the subject was the "American Journal of Critical Care", with 6 articles published from 2011 to 2016.

Graph 1 shows the Qualis or JCR classification of the 19 journals analyzed according to the Coordination of Improvement of Higher EducationPersonnel (CAPES). This classification is performed by areas of evaluation and goes through an annual update process. Nursing represents one of these areas, in which journals are classified into A1, A2, B1, B2, B3, B4, B5 and C, according to the main international impact factors, such as the ISI/JCR , Scopus/SJR and CUIDEN/RIC. Journals with the

maximum degree of international impact are classifed as Qualis A1 and journals with the lowest quality classification, as Qualis C.

Graph 1. Distribution of Qualis or JCR classification and journals whose classification was not found
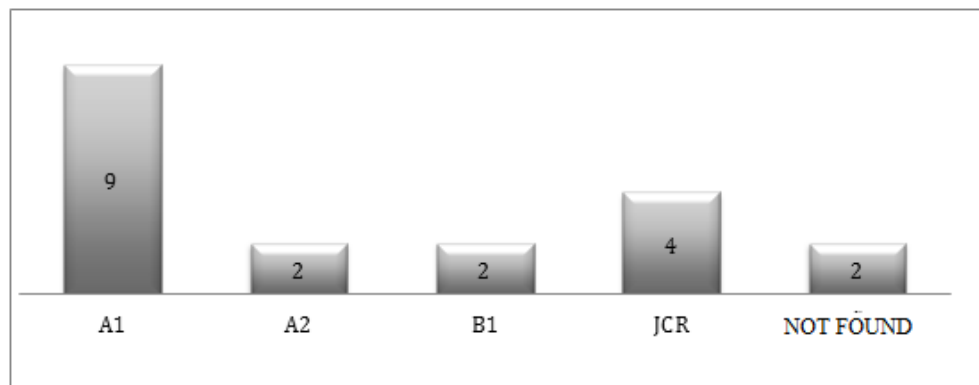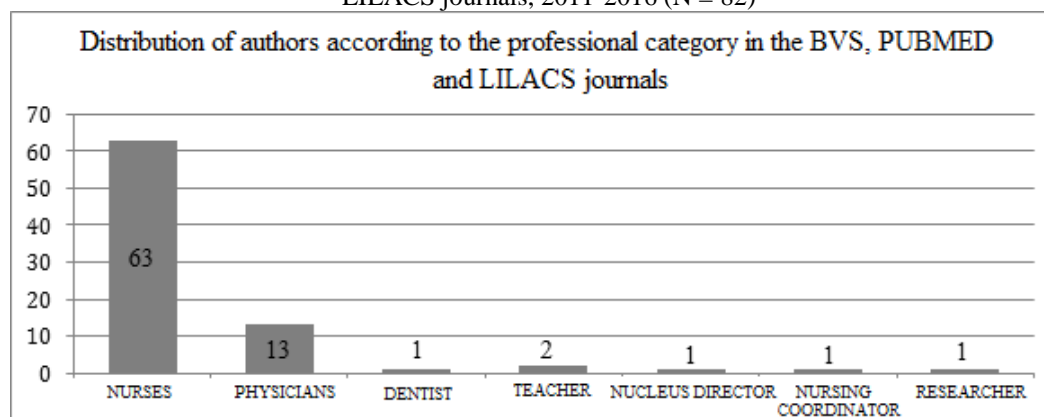

Source: SANTOS, 2016

Most of the journals analyzed in this study were classified as A1, with 9 publications (47.36%), confirming higher impact factors; then 4 publications were classified as JCR (21.07%). JCR is considered as one of the most important international impact factors. Two journals (10.52%) were found in the superior quality system A2, and the other two journals were found in intermediate stages B1 (10.52%). No classification records were found for two journals (10.52%).

Graph 2. Distribution of authors according to the professional category in the MEDLINE, PUBMED and LILACS journals, 2011-2016 (N = 82)

Source: SANTOS, 2016.

The participation ofnurses was foundin 16 of the 19 articles(84.2%), with 63 professionals involved. Physicians participated in 4 articles (21.05%) and the presence of other professionals (dentist, teacher, core director and nursing coordinator) was seen in 3 publications (15.78%).

As for the data concerning the strategies used for pain assessment (Table 3), we verified that more than one strategy was used per article. A total of 06 strategies were identified, demonstrating the existence of validated instruments and protocols for pain assessment in critically ill patients. It was noted that an expressive number of professionals (n = 15; 79%) used the Critical-Care Pain Observation Tool (CPOT) as pain assessment tool. Other scales and tools for assessing pain werealso identified, such as the Pain Assessment in Advanced Dementia (PAINAD), Behavioral Pain Scale (BPS), Bispectral Index (BIS), Numerical Rating Scale (NRS) and Nonverbal Pain Scale (NVPS-R).

Table 3. Distribution of articles according to the use of pain assessment strategies, MEDLINE, PUBMED and LILACS, 2011-2016. (N = 19)

Strategies used	N*	%
CPOT Scale	15	79
PAINAD Scale	02	10.5
BPS Scale	02	10.5
BIS Scale	01	5.3
NRS Scale	01	5.3
NVPS-R Scale	01	5.3

Souce: SANTOS, 2016

Note: *Number of articles that cited these strategies.

DISCUSSION

Regarding the number of articles published in the last 5 years on the theme,a decrease of publications was evidentin 2015 and 2016. This decrease can be related to the rigor adopted by journals for acceptance of the articles, difficulty to disclosure of the productions by authors/journals, less possibilities to carry out research related to the theme, among others.

Among the most relevant journals and with the greatest number of publications on the topic was the "American Journal of Critical Care", classified as Qualis A1. This is one of the journals most widely read in the area of critical nursing care. As fornational journals, only 01 article was found in the "Revista de Enfermagem Gaúcha". We observed that the national production, in general, presents great challenges, as evidenced by the little production on the topic. Although Brazil is among the 25 best-ranked countries in publication of scientific articles, it can be seen that translational studies (from laboratory bench to bedside) related to the issue of pain still need to be explored[7].

A retrospective cohort study that evaluated 348 papers presented at the 9th Brazilian Congress of Pain identified that only 31 had beenpublished (8.9%) and mostly in national journals (64.5%). Thus, this author emphasizes the need to encourage professionals working in the field of pain to publish their works, for this is the best way to expose their ideas and experiences to the scientific world[8].

Among the publications found, there is a predominance of studies related to the knowledge of the nursing team about pain assessment, present in most publications. This aspect reflects a concern about how nurses should be preparedto deal with critically ill patients who need appropriate care and interventions for their clinical conditions.

Inadequate pain assessment and lack of knowledge about the strategies available for its control are factors that may hinder the recognition and management of this symptom, which reinforces the need for nursing professionals to recognize pain signals and then correctly intervene in the relief. In this sense, the knowledge of nursing professionals is essential for them to be able to provide adequate evaluation and propose the necessary relief of pain[9].

Regarding the area ofknowledge, the majority of publications came from nursing journals (n = 6), and the rest come from medical articles and multidisciplinary intensive therapy journals. The fact that nursing is the dominant category in the theme evidences that this type of care (pain assessment) has called theattention ofresearchers and demonstratedpositive probabilities of contributing to the management of pain at the bedside by nurses who provide care forcritically ill patients.

Considering that this study involves a bibliometric analysis of the scientific production about pain protocols, the predominance of nursing articlesis understandable. However, other professional categories may be involved in pain management, especially because this finding may influence, for example, the length of of hospitalization of patients.

The present findings may help researchers who want topublish their papersin more respected journals, insofar as it suggests factors that mustbe better investigated before preparinga research project and articles to seek publication[10].

As to the design of the studies, there was a predominance and exclusivity of original articles (100%) among the 19 publications. This shows the interest in theresearch fieldrelated to the collection of information relevant to the nursing and health area, having a direct characteristic between the researcher and the subjects studied. The originality of a study determines scientific progress by disseminating research results that enhance the understanding on a given topic, demonstrating interest in deepening the issue of pain management.

Regarding the strategies used by nurses for painassessment, the most cited in the articles was the Critical Care Pain Observation Tool (CPOT). The CPOT is a behavioral pain scale that was created for

critical adult patients,under mechanical ventilation or not, who are unable of communicating verbally[11]. The scaleincludes four behaviors classified on a 0-2 scale for a possible total score ranging from 0 to 8 and uses four domains of observation: facial expression, body behaviors, muscle tension and ventilation. Each behavior is evaluated based on the intensity of the observed reaction. So far, the CPOT has been tested in a total of 255 ICU patients inpostoperative, medical diagnosis or trauma[11-15].

The CPOT is a behavioral scale, but its use requires training and experience, and its handling becomes easy and quick if applied by trained professionals, besides beinguseful in clinical practice. The limitation of using this scale in Brazil is its validation. This can also be the justification for the number of international articles that cited this modality.

The PAINAD scale is based on the evaluation of the physiological state and behaviors such as breathing, vocalization, facial expression, body language and consolability with scores ranging from 0 to 2 for each of the five areas evaluated and total score varyingfrom 0 to 10, being interpreted as follows: 1 to 3 points - mild pain; 4 to 6 - moderate pain; and 7 to 10 - severe pain[12].

In a study published in 2014, the authors made the culturaladaptation of the PAINAD to Brazil and concluded that the PAINAD-Br version hadsemantic, idiomatic, conceptual and cultural equivalence according to the commission of health professional evaluators, confirming the validity of face and content of the instrument. Although the PAINAD-Br is not a specific scale for critical patients, we must take into accountthat patients with dementia may be admitted to intensive care units and, therefore, the evaluation of pain should be better performed through a specific scale for adequate pain management[13].

The Behavioral Pain Scale (BPS), which was foundin 10.5% of the analyzed articles, is an observational instrument for assessing pain in mechanically ventilated patients. The intrument is composed of three behavioral domains: facial expression, upper limb movements, and compliance with the mechanical ventilator. Each domain is scoresfrom 1-4 points and thetotal score ranges from 3 (no pain) to 12 points (maximum pain). The BPS is the only one of the scales that hasundergone the validation process in Brazilto date, and has been called the Escala Comportamental de Dor (ECD)(14).

A recent article on the validation of scale in Brazil aimed to analyze the reliability, responsiveness and validity of the BPS translated into Brazilian Portuguese and concluded that the scale presented internal consistency, reliability among evaluators, responsiveness and validity, being suitableas a valid instrument for use in sedated and mechanically ventilated patients in Brazil(15). In view of this finding, we emphasize the importance of the applicability of this instrument for the assessmentof the most present painin national intensive care units and for that reason we suggest to incentivatenew researches in order to confirm its effectiveness.

Despite cited in only one of the selected articles, the Bispectral Index (BIS) scale is considered a multifactorial parameter derived from electroencephalograms that allows the monitoring of the hypnotic component of anesthesia. It is, therefore, a monitoring methodof the degree of sedation caused by anesthesia, and is not specific for pain assessment[16].

Another scale was the Numerical Rating Scale (NRS), cited in 2 articles. This scale is commonly known as a numerical estimate of pain ranging from zero to ten, where zero corresponds to no pain and 10 corresponds to "worst pain imaginable". In Brazil, the use of the AVS (analogical visual scale) replaces the NRS, in which the unidimensional instrument for the evaluation of pain intensity is a line with the extremities numbered from0 to 10. "No pain" is marked at one end of the line, and the "worst pain imaginable" at the other end. Patientsare then asked to evaluate and mark on the line the pain they feel at that moment[17,18].

As for the revised Nonverbal Pain Scale (NVPS-R) was cited in onlyone article. We highlight that a comparative study analyzed through a review survey didnot recommend this strategy for assessing pain in adult patients who are unable tospeak. The scale has limited content validity and reliability as a measure of pain for non-virtual ICU patients. Some limitations are worth mentioning: certain behavioral descriptors (such as smiling or being in the normal position) cannot be equated toa non-painful state. Furthermore, measurements of some physiological indicators (e.g., pupil dilation and sweating) have not been defined or standardized.

Authors do not yet describe the reasoning for selectingvital signs parameters for pain (for example, respiratory rate increased by 10 breaths per minute in 4 hours and systolic blood pressure increased by 20 mm Hg for 4 hours). In this sense, the literature suggests that there are simpler ways to assess physiological changes associated with pain. Moreover, a gradual increase in a vital signal over a period of time contradicts previous findings that have shown that acute pain induces an

immediate increase in the heart rate of blood pressure[14].

Finally, the construct validity of the NVPS could not be inferred because differences in NVPS scores during a painful and unintentional procedure were not provided in the report. The only study citing the NVPS does not provide adequate evidence to support its validity and reliability as an objective non-verbal measure of pain in ICU patients.

Adequate practice of pain assessment strategies analyzed in this bibliometric study makes us reflect on the applicability of pain assessment scales in critically ill patients. The relevance of this study to the clinical practice comes from its usefulnessto guide most appropriate strategies for pain management in Brazilian ICUs. Ease of use, low cost, quality of evidence and viability in the Portuguese language can contribute to the better establishment of protocols for pain assessmentand control by ICU professionals in Brazil.

CONCLUSION

This bibliometric review allowed the discussion of 19 articles on the theme of pain assessment strategies by nurses. It is worth emphasizing that, in the practice, pain is an experience directly linked to the patient, but it is up to health professionals to work out strategies to minimize and control this sensation. It can be said that there are numerous pain assessment strategies, but online publications are still concentrated in articles from international journals, especially the American Journal of Critical Care.

The characterization of the analyzed publications showed that the articles addressingthe subject still seem to be incipient in viewofthe relevance of pain assessment in critical patients. There are gaps in knowledge production concerning, for example, pain assessment by nurses, application of specific scales, nursing interventions and reapplicationof the scales. Care must be taken to ensure that the assistance besystematized. Identifying the best scale to be used according to the patient's profile may be a good start to minimize the progressof pain and its consequences for critically ill patients, but intervening and evaluating needs to be a priority.

With theanalysis of the bibliometric aspects, we observed that nurses have the highest production. This finding reinforces the importance of valuing this care on the part of these professionals, especially in intensive care units, where they arethe professionals who spend most of the time performing intensive care at the bedside, monitoring vital signs and pain responses.

In addition, the contribution ofthe present study brings is the indication of the need of nurses to produce more research with publications in the national territory,respecting the characteristics of Brazilian critically ill patients, and the finite resources of the unifiedhealth system.

ESTRATÉGIAS PARA AVALIAÇÃO DA DOR EM PACIENTES CRÍTICOS: UM ESTUDO BIBLIOMÉTRICO

RESUMO

Esta pesquisa teve como objeto de estudo as estratégias de avaliação de dor utilizadas por enfermeiros na assistência ao paciente crítico. A dor foi descrita pela American Pain Society como 5° sinal vital, tornando-se imprescindível a utilização de escalas para medição da dor. O objetivo desta pesquisa foi identificar produções online que abordam estratégias utilizadas pelos enfermeiros para avaliação da dor dos pacientes críticos.Trata-se de um estudo bibliométrico, de natureza descritiva. Foram analisados 19 artigos, em maior número publicado em revistas internacionais, dando evidência a "American Journal of Critical Care". Os resultados demonstram que a maior frequência de produções científicas se consolidou em 2011 e 2013 e a escala Critical Care Pain Observation Tool (CPOT) é a de maior utilização pelos enfermeiros para a avaliação da dor em pacientes críticos, incapazes do auto relato e sob ventilação mecânica. Os dados parecem serem incipientes frente à relevância da temática, apresentando lacunas na produção do conhecimento, em especial à aplicação de escalas associadas a intervenção e reaplicação após intervenção de enfermagem. É preciso atender a observância da sistematização da assistência. Identificar a melhor escala de acordo com o perfil dos pacientes, pode ser um bom começo para minimizar a evolução da dor e suas consequências para o paciente crítico, mas intervir e avaliar precisa ser prioritário.

Palavras-chave: Medição da Dor. Cuidados Críticos. Cuidados de Enfermagem. Protocolos Clínicos.

ESTRATEGIA PARA LA EVALUACIÓN DEL DOLOR EN PACIENTES CRÍTICOS: UN ESTUDIO BIBLIOMÉTRICO

RESUMEN

Esta investigación tuvo como tema el estudio de las estrategias de evaluación del dolor utilizadas por enfermeros en la atención al paciente crítico. El dolor fue descripto por la *American Pain Society* como la 5° señal vital, volviéndose imprescindible la utilización de escalas para medición del dolor. El objetivo de este estudio fue identificar producciones en línea que tratan de

estrategias utilizadas por los enfermeros para evaluación del dolor de los pacientes críticos Se trata de un estudio bibliométrico, de naturaleza descriptiva. Fueron analizados 19 artículos, la mayoría publicada en revistas internacionales, dando evidencia a "*American Journal of Critical Care*". Los resultados demuestran que la mayor frecuencia de producciones científicas se consolidó en 2011 y 2013 y la escala *Critical Care Pain Observation* Tool (CPOT) es la de mayor utilización por los enfermeros para la evaluación del dolor en pacientes críticos, incapaces del autoinforme y bajo ventilación mecánica. Los datos parecen ser incipientes frente a la relevancia de la temática, presentando lagunas en la producción del conocimiento, en especial a la aplicación de escalas asociadas a intervención y reaplicación tras la intervención de enfermería. Es necesario atender el cumplimiento de la sistematización de la atención. Identificar la mejor escala de acuerdo con el perfil de los pacientes puede ser un buen punto de partida para disminuir la evolución del dolor y sus consecuencias para el paciente crítico, aunque intervenir y evaluar necesita ser prioritario.

Palabras clave: Medición del dolor. Cuidados críticos. Cuidados de enfermería. Protocolos clínicos.

REFERENCES

1. Bottega FH, Fontana RT. A dor como quinto sinal vital: utilização da escala de avaliação por enfermeiros de um hospital geral. Texto Contexto - Enferm. [Internet]. 2010 jun [citado 2017 nov 30]; 19(2):283-90. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-07072010000200009&lng=en. http://dx.doi.org/10.1590/S0104-07072010000200009.

2. Willian AC, Craig Kenneth D.Updating The definition of pain. Pain. 2016 Nov;157(11):2420-3.

3. Rahu MA, Grap MJ, Cohn JF, et al. Facial expression as an indicator of pain in critically ill intubated adults during endotracheal suctioning. Am J Crit Care. 2013;22:412-22.

4. 4-Barbosa TP, Beccaria LM, Pereira RAM. Avaliação da experiência de dor pós-operatória em pacientes de unidade de terapia intensiva. Rev Bras Ter Intensiva. 2011; 23(4): 470-7.

5. Sakata RK. Analgesia e Sedação em Unidade de Terapia Intensiva. Rev Bras Anestesiol. 2010; 60(6): 648-58.

6. IASP. Guia para o tratamento da dor em contextos de poucos recursos. [citado 2016 out 11]. Disponível em: http://www.iasp-pain.org/.

7. Nassar Junior AP, Neto RCP, Figueiredo WBD. Validade, confiabilidade e aplicabilidade das versões em português de escalas de sedação e agitação em pacientes críticos. Med J. 2008;126:215-9.

8. Rocha LS, Moraes MW.Assistência de enfermagem no controle da dor na sala de recuperação pós-anestésica. Rev Dor. 2010 jul-set;11(3):254-8.

9. Oliveira TR. Frequência de publicação de trabalhos científicos apresentados no 9º Congresso Brasileiro de Dor. Rev Dor, 2012;13(2):124-7.

10. Norma CAR, Simonize CCB, Edilene CH, Regina MCS. O enfermeiro no cuidado à vítima de trauma com dor: o quinto sinal vital. Rev Esc Enferm USP. 2011; 45(1):146-52.

11. Alves, VS, Tamires SS, Maria Cristina S FT, Regina MS, Fernanda SM. Conhecimento de Profissionais da Enfermagem sobre Fatores que Agravam e Aliviam a Dor Oncológico. Rev Bras Cancerol. 2011 [citado 2016 out 13]; 57(2):199-206. Disponível em: http://www.inca.gov.br/rbc/n_57/v02/pdf/07_artigo_conhecimento_profi ssionais_enfermagem_fatores_agravam_aliviam_dor_oncol%C3%B3gic a.pdf.

12. Medeiros KKAS, Costa GMC, Coura AS, Celino SDM, Araújo AKF. Associações entre o qualis/capes e aspectos bibliométricos da produção científica da enfermagem gerontogeriátrica. Rev Rene. 2012;13(4):958-68.

13. Valera GG, Carezzato NL, Vale FAC, Hortense P. Cultural adaptation of the scale Pain Assessment in Advanced Dementia – PAINAD to Brazil. Rev Esc Enferm USP. [Internet] 2014 june [citado 2017 nov 30]; 48(3):462-68. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0080-62342014000300462&lng=en. http://dx.doi.org/10.1590/S0080-62342014000300011.

14. Payen JF, Gélinas C. Measuring pain in non-verbal critically ill patients: which pain instrument? Crit Care. 2014; 18(5):554.

15. Santos JFA, Alves LGN, Cerqueira Neto ML, Badauê- Passos D, Santana Filho VJ, Santana JM. Validação da versão Brasileira da Escala Comportamental de Dor (Behavioral, Pain Scale) em adultos sedados e sob ventilação mecânica. Rev Bras Anestesiol. 2017;67(3):271-7

16. Kawagoe CK, Matuoka JY, Salvetti MG. Instrumentos de avaliação da dor em pacientes críticos com dificuldade de comunicação verbal: revisão de escopo. Rev Dor [Internet]. 2017 abr [citado 2017 nov 27] ;18(2):161-5. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1806-00132017000200161&lng=pt. http://dx.doi.org/10.5935/1806-0013.20170032.

17. Nunes RR, Chave IMM, Alencar JCG, Franco SB, Oliveira YOG, Menezes DGA. Índice bispectral e outros parâmetros processados do eletroencefalograma: uma atualização. Rev Bras Anestesiol. [Internet]. 2012 fev [citado 2017 nov 30]; 62(1):111-7. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-70942012000100014&lng=en. http://dx.doi.org/10.1590/S0034-70942012000100014.

18. Rocha MCP, Rossato LM, Bousso RS, Leite AM, Kimura AF, Silva EMR. Avaliação da Dor por enfermeiros em Unidade de Terapia Intensiva Neonatal. 2013. Ciênc Cuid Saúde. 12(4):624-32.

19. Arbour C, Michaud C, Vaillant F, Desjardins S. Implementation of the critical-care pain observation tool on pain assessment/management nursing practices in an intensive care unit with nonverbal critically adults: a before and after study. Int J Nurs Stud. 2011;48(12):1495-504.

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