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NARRATIVE REVIEW

Do children feel pain? Assessment methods of postoperative acute pediatric pain and excluded reality.

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Abstract

Objective: To describe, through the updated scientific literature, the instruments, and scales used in the assessment of acute postoperative pain in pediatrics in order to learn about the various methodologies for staging severity and monitoring the response to interventions in children in the postoperative period.

Methods: The present work is theoretical-descriptive documentary research. Indexed articles were used as primary sources of information, and the units of analysis were all those documents found in the databases: MedPlus, ScienceDirect, SciELO, and PubMed. Inclusion criteria: studies published from 2015 to 2021.

Results: In selecting scientific articles, twenty-two publications were included according to the inclusion and exclusion criteria; it is determined that the complexity of pain assessment has multiple heterogeneous factors that influence its outcome. For this reason, special care must be taken with the correct choice of the evaluation method for acute post-surgical pain in pediatrics.

Conclusions: The assessment of pain in pediatrics is one of the most complex procedures that health professionals face. For this reason, adequate knowledge of the available tools is imperative so that their application is correct and accurate. Current methods must be used under specific determinants, taking into account the age, cognitive development of the patient, emotional, socioeconomic environment, and variables that are easy to determine, such as physiological and behavioral ones.

Keywords:

MESH: Pain; Pain Measurement, Nociceptors; Pain, postoperative; Child.

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Introduction

Pain is not only the transmission of signals from the periphery to the cerebral cortex through various pathways to prevent and limit the action of eventual noxae but also, along the way, undergoes various synapses at the spinal cord, thalamus, and nervous system levels. Limbic, which will modulate this transmission. Thus, pain constitutes a sensory experience whose perception is influenced by multiple elements, including emotions, behavior, previous experiences, cultural, environmental, and family factors. Therefore, the applied analgesic strategy must incorporate and assess these factors to ensure its success [1].

Pain, according to the International Association for the Study of Pain (IASP), is an unpleasant sensory or emotional experience associated with damage or described in terms of such damage. It is, in any case, a subjective concept and exists whenever a patient says that something hurts in a specific area of the body. Inadequately treated postoperative acute pain increases perioperative morbidity and unnecessarily prolongs the length of hospital stay [2].

Pain assessment and treatment are essential components of pediatric care. Identifying the presence, severity, and subsequent treatment in children can be challenging, especially for the youngest. The use of assessment tools based on cognitive ability is essential to ensure that children of all ages receive adequate pain control [3].

Acute pain is one of the most common signs experienced by a child concerning illness, traumatic injury, surgery, or a result of a procedure. There is currently no debate as to whether children experience pain. This sign is associated with discomfort, rejection, and stress for the patient and her parents. Similarly, there is evidence that inadequate treatment of this symptom has biological and behavioral consequences and may result in inappropriate responses to subsequent painful events [4].

As already mentioned, pain is a subjective experience that has emotional, sensory, cognitive, and behavioral components interrelated with sociocultural, environmental, and developmental elements. Self-assessment scales are preferable, for example, at intermediate ages (from three to seven years). One can ensure that the child can give reliable information about the location and intensity [5].

The goal of pain assessment is to identify pain, assess severity, and monitor response to interventions. Pain assessment is strict in children; basically, three methods are used (alone or combined, depending on the type of pain and the population), behavioral, physiological, and self-assessed methods. Self-report and behavioral observation scales assess pain severity in patients who are unable to self-report [6].

Self-reporting relies on the pediatric patient's cognitive ability to understand that the severity of their pain can be measured over frequent repetition. Regarding the assessment scales, we find details such as the following [7]:

1. Younger children (three to eight years old): Some children as young as three can quantify their pain and translate it into a visual representation. In this age group, pain is quantified using visual analog pain scales based on a series of faces showing increased distress or pain. The older the child and her cognitive ability, the greater the reliability.
2. Older children (8 to 11 years): Pain assessment in this age group is generally performed using visual analog tools that rate pain intensity on a horizontal or numerical scale (e.g., 0-10 scale).
3. Adolescents: This group may rate their pain using a numerical rating scale without using an accessory assessment tool. This age group can usually describe the pain, its location and radiation, the intensity, duration and consistency, frequency, and the factors that worsen or alleviate it.

Universally accepted scales (Table 1), sensitive, reproducible, and applicable, are the most important. A threshold value must imply a reaction, and a 50% reduction in score demonstrates the efficacy, regardless of the instrument used in the assessment. One of the most important details is the location of the pain, for which tools are used in children and adolescents based on graphs. For example, a graphic outline of the body is often used, and the patient is asked to "color in" the areas where they feel pain. A systematic review of the literature reported that the quality of the included studies was not high, overall [8].

Table 1. Types of the pain rating scale and target group.

Scale	Type	Age group
PIPP (Premature Infant Pain Profile)	Heteroevaluation	Premature
CRIES (Crying, O_2 requirement for sat 95%, increased vital signs (HR and TA), facial expression, and slippers)	Heteroevaluation	Under one year
CHEOPS (Children's Hospital Eastern Ontario Pain)	Heteroevaluation	Postoperative 1-7 years
FLACC (Face, Legs, Activity, Cry, Consolability)	Heteroevaluation	Under three years
FACES	Self-appraisal	3-12 years
VAS (numeric or visual)	Self-appraisal	Older than seven years

On the other hand, the observation tools used to assess pain in infants and children who cannot report it for themselves are already internationally validated. These scales are based on scoring facial expressions, ability to be comforted, level of interaction, motor responses of the limbs and trunk, and verbal responses. However, neither tool can be recommended over another despite the information obtained. Observational assessment, for example, may underestimate pain severity compared to self-report. In a study of young children (ages three to seven years) after surgery, the severity of pain obtained by observational assessment was less than that obtained by self-report [8].

Thus, the main goals of pediatric pain management are to reduce, control, and prevent pain. Treatment varies depending on the type, source, severity, and duration of the pain. In some cases, treating the underlying source or other related symptoms, such as distress or anxiety, can relieve the symptoms. Control in children is multimodal and is based on the primary use of four types of drugs: local anesthetics, opioids, nonsteroidal anti-inflammatory drugs (NSAIDs), and acetaminophen (paracetamol) [3].

In this context, this theoretical review is justified because pediatric pain is a complex problem due to the characteristics of this age group. Assessing pain level and treatment outcome can be exceptionally difficult, especially in preverbal patients, and it is recommended that standardized and validated scales be used routinely. On the other hand, within the general principles, we find that pain treatment includes pharmacological and nonpharmacological measures; oral analgesics should be used when possible to avoid painful routes of administration; adjuvant therapy may be helpful in specific clinical settings. Most acute postsurgical pain situations can be effectively treated with a multimodal approach, such as the judicious and balanced use of regional blockades, nonsteroidal anti-inflammatory drugs, opioids, and acetaminophen. In this regard, it should be considered that there are different pharmacological behaviors for these drugs among premature patients, neonatal patients, and older children, so special care should be taken in the dosage of each drug.

In this sense, this theoretical review aims to describe, through the updated scientific literature, the instruments and scales used in the assessment of acute postsurgical pain in pediatrics to determine the various methodologies with the purpose of staging severity. Furthermore, we monitored the response to interventions in children in the postoperative period.

Population and methods

Design of the investigation

The present work is descriptive, theoretical documentary research; the procedure involved tracking, organization, systematization, and analyzing scientific articles from indexed journals.

Stage

Those referring to the assessment of acute postoperative pain in pediatrics were used as primary sources of information. The units of analysis were all those documents found in the databases MedPlus, ScienceDirect, SciELO, and PubMed. The search was carried out from August to November 2021, and it was made as broad, deep, and updated as possible.

Inclusion criteria

Articles were indicated from 2015 to 2021 in Spanish, English, and Portuguese. The exclusion criteria included papers, unpublished articles, conference and symposium abstracts, and articles published in less than 2015.

Results

The search for articles was carried out using the keywords, finding 2485 articles in the PubMed search engine, 22 articles in MedPlus, nine articles in ScienceDirect, 12 articles in SciELO, and 328 articles in Google Scholar, after separating the articles according to the inclusion and exclusion criteria. Eighty articles were selected; after reviewing each article, twelve articles were excluded because they were in another population group different from the one studied, eight articles. After all, they were invalid studies, with fourteen articles framed within the abstracts of congresses and symposiums; fourteen were not related to the topics, and ten were irrelevant for this review. At the end of this process, twenty-two publications were included (Table 2).

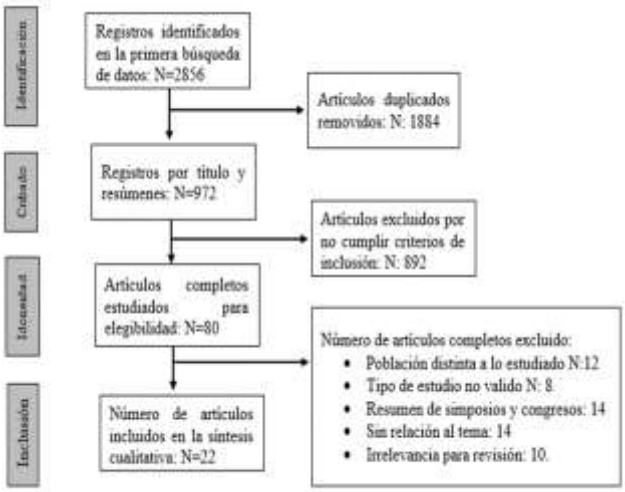

Figura 1 Diagrama de selección de artículos

The results found in the literature review are described below: according to studies by Ortiz and Noriega [9], even though pain is considered a medical diagnosis coded by ICD-10 (R-52), it is infrequent to find it in the clinical reports of children who have suffered pain due to disease or procedures. It is necessary to carry out more prospective studies to improve the assessment and management of the most common pain in pediatrics. Knowing the existence of pain is the first step in developing an adequate therapeutic plan. Therefore, the pain record must be incorporated into the clinical records of patients in all health fields, including it as a diagnosis.

In this context, the authors Leyva et al. [6] and Allgood et al. [10] report that, without an adequate clinical assessment based on age, the underlying disease, and the type of suspected pain, this suffering goes unnoticed too often, and as a consequence, it is undertreated and poorly prevented. The prevalence of acute pain in pediatrics is challenging to estimate and varies between 22% (procedural pain) and 77% (pain in emergency and hospital patients). Among the barriers detected in pain diagnosis is the difficulty in assessing it due to lack of registration, various scales for assessment (according to age and type of pain), and the lack of training in their management and interpretation. Considering, as well as the fifth constant to determine, pain.

Similarly, the review by Herrero et al. [2] indicates that the comparison of scales and questionnaires reaffirms the complexity of pain assessment. All of them are considered beneficial, valid, and not conclusive. Furthermore, the researcher must decide which one to use in each case based on their experience and the objective sought. It must be taken into account that, apart from the cause of the pain and its type and intensity, multiple factors indirectly related to the causal etiology have an influence and can modulate the duration, intensity, and impact of the painful sensation.

Manworren and Stinson [11], who determined the availability of several valid, reliable, and recommended tools to assess children's pain, suggest that children's pain is not yet optimally assessed and treated. Children's self-reports of pain are essential and should be sought whenever possible. The first step in assessing pain is to record a pain history. The second step is to assess the child's pain using a developmentally appropriate assessment tool. The third step is to assess the effectiveness of interventions to relieve pain.

On the other hand, Zieliński et al [3]. This indicates that pain is always subjective, so each patient must evaluate its severity individually. The main problem with pain management in children is the difficulty involved in evaluating it. Whatever tool is applied to measure pain must consider the child's age, language, ethnicity, and cognitive ability. There is no universal method of pain assessment that is appropriate for all

pediatric patients. To establish simple criteria for scale selection, it seems more appropriate to categorize the patient's age into ≤ 5 years and > 5 years. For patients up to 5 years of age, the Children's Hospital Eastern Ontario Pain Scale (CHEOPS) and Face, Legs, Activity, Cry, and Comfort Scale (FLACC) should be used; they are behavioral scales and do not require self-assessment by the patient. For children older than five years of age, who can describe the severity and intensity of their pain, it is recommended to use mainly pictorial scales such as FACES or the visual analog scale (VAS).

The investigations of Garduño et al. [12] and Otero et al. [13]. Specify that the prevalence of moderate to severe postoperative pain (POP) has been estimated between 40 and 60%; however, despite the evidence on the repercussions of inadequate pain management in children, a good correlation between the new concepts of pain perception and an adequate evaluation, diagnosis, and management of the problem has not yet been determined. It is recommended that pain be assessed as a multifactorial phenomenon with three components, subjective, behavioral, and physiological, for which there are self-assessment methods and heteroassessment methods.

In this sense, the studies by Díaz et al. [14]. and Kaminsky et al. [15]. described that a significant proportion of parents and children disagreed with their pain ratings on postoperative days 1 to 3. Most parents overestimated their child's pain, precisely 24-26%, on these postoperative days. For this reason, it is essential to develop a standardized method of assessing pain in children and a personalized recommendation for a postoperative analgesic regimen. Within the pain assessment measures, we found the child's self-reported pain, which was measured using the Faces of Pain Scale-Revised (FPS-R). It has demonstrated high validity and excellent reliability and is recommended for children ages four to eighteen. For parental evaluation, the Numerical Rating Scale (NRS) was used to rate children's DPO on a 0-10 point scale. Furthermore, previous research has found that the NRS and FPS-R are functionally equivalent.

Likewise, Ferland et al. [16]. showed that those patients who reported pain before surgery indicated greater pain intensity on postoperative day 1 (P = 0.033), POD 2 (P = 0.008), and follow-up six weeks after surgery (P = 0.0001). Preoperative trait anxiety was associated with the intensity of pain before surgery (P = 0.002) but not with the intensity of POD (P > 0.05). The findings suggest that preoperative distress factors do not predict the intensity of POD in the acute and intermediate periods. The intensity of POD was the only variable associated in the acute period and six weeks after surgery. In the reviews carried out by Mekonnen et al. [17] and de Moura et al. [8], the prevalence of moderate or severe pain after pediatric surgery was 40.5% (95% CI: 32.7, 48.4). Preoperative anxiety (AOR: 2.24, 95% CI: 1.02, 4.88), history of preoperative pain (AOR: 3.97, 95% CI: 1.55, 10.19), neurological surgery [AOR: 8.32, 95% CI: 1.77; 39.12) and incision size greater than 10 cm (AOR: 3.41, 95% CI: 1.08, 10.77) were significantly associated with POD.

According to Gai et al. [5], it has been identified that pain may not be adequately or regularly assessed in pediatric patients. Documented pain assessment is vital to a successful analysis. Whenever possible, self-report is preferred because pain is a subjective experience. There are many pain assessment methods, and ideally, they should combine patient and family history, bedside nursing assessments (NAPI), physiological parameters, and instrument assessment of pain. Commonly used scales include the NRS, FLACC, Infant Pain Profile (PIPP-R), FPS-R, and Pain Word Scale. Currently, there is no evidence to recommend any single tool as superior.

However, one study found the FLACC and NAPI tools to have superior clinical utility. For postoperative pain, the FLACC scale has been recommended for hospital use. The pain score should be contextualized with an assessment of patient satisfaction, family feedback, patient–nurse feedback, and physiological parameters. Pain assessment, therefore, should always be tailored to the individual patient and their own experience [5]

Several studies by Crellin et al. [7, 18 - 20] reported that the pain scores evaluated using the VAS scale were the lowest in all the procedures. The sensitivity and specificity were highest for FLACC scores (94.9% and 72.5%, respectively). Observers changed their Modified Behavioral Pain Scale (MBPS) scores more often than they changed FLACC or VAS, but FLACC scores were more often incomplete. Data from the study supported the reliability and sensitivity of the FLACC and MBPS. However, there are concerns about the ability of these scales to distinguish between pain

and nonpain-related distress. Despite its limitations, the FLACC scale may be more suitable than other scales for measurement procedures.

In this context, observer-administered VAS (obsVAS) is widely used to quantify pain, but evidence to support validity is poor. The sensitivity and specificity were 84.7% and 95.0%, respectively, for pain and 91.5% and 77.5% for distress. The correlation between VASobs' pain and FLACC scores was good (r = 0.74), and the correlations between VASobs' distress and FLACC scores were excellent (r = 0.89). Despite evidence of sensitivity and responsiveness to pain, the reliability results were poor, and the use of this scale cannot be recommended. Regarding the analysis of the FLACC scale, it is defined that the psychometrics of this scale have not been adequately summarized and evaluated to provide clear recommendations regarding its use. There are insufficient data to support the FLACC scale for use in all circumstances and populations to which it is currently applied. More work is required to provide a basis from which there are reliable recommendations on the continued use of the FLACC scale in pediatric pain assessment [19, 20].

Likewise, Smolarek et al. [21] and Makhlouf et al. [4] indicate that it is essential to consider that children express their pain in different ways that depend on age and development. The modes of expression of pain include but are not limited to verbalizing, crying and moaning, and behavioral changes in the case of older children. Historically, self-report has been considered the gold standard for assessing pain severity. However, this poses an obstacle for children who cannot verbally report their pain due to age or development. Methods have been developed to assess pain severity ratings in preschool/school-age children. These include the Wong-Baker FACES scale (used for children ages three and up) and the FPS-R scale (used for children ages four to twelve). For children over the age of seven, the VAS is a tool that allows a physician to indicate the level of pain. For infants, the Neonatal Infant Pain Scale (NIPS), FLACC (used for children under four years of age), provides observers with a checklist for assessing pain-related behaviors. The Parental Postoperative Pain Measure (PPPM) is a fifteen-item checklist that indicates pain (e.g., whining and holding the painful body area) and recovery behaviors. Finally, a grouped and hierarchical approach was proposed to comprehensively assess pain. It is centered around the acronym CARES, which stands for 'context, assess pain expression, risk factors, emotional factors, and sociocultural factors' The Neonatal Infant Pain Scale (NIPS), FLACC (used for children under four years of age) provides observers with a checklist for assessing pain-related behaviors. The Parental Postoperative Pain Measure (PPPM) is a fifteen-item checklist that indicates pain (e.g., whining and holding the painful body area) and recovery behaviors. Finally, a grouped and hierarchical approach was proposed to comprehensively assess pain. It is centered around the acronym CARES, which stands for 'context, assess pain expression, risk factors, emotional factors, and sociocultural factors' The Neonatal Infant Pain Scale (NIPS), FLACC (used for children under four years of age) provides observers with a checklist for assessing pain-related behaviors. The Parental Postoperative Pain Measure (PPPM) is a fifteen-item checklist that indicates pain (e.g., whining and holding the painful body area) and recovery behaviors. Finally, a grouped and hierarchical approach was proposed to comprehensively assess pain. It is centered around the acronym CARES, which stands for 'context, assess pain expression, risk factors, emotional factors, and sociocultural factors' FLACC (used for children under four years of age) provides observers with a checklist to assess behaviors related to pain. The Parental Postoperative Pain Measure (PPPM) is a fifteen-item checklist that indicates pain (e.g., whining and holding the painful body area) and recovery behaviors. Finally, a grouped and hierarchical approach was proposed to comprehensively assess pain. It is centered around the acronym CARES, which stands for 'context, assess pain expression, risk factors, emotional factors, and sociocultural factors' FLACC (used for children under four years of age) provides observers with a checklist to assess behaviors related to pain. The Parental Postoperative Pain Measure (PPPM) is a fifteen-item checklist containing behaviors that indicate pain (e.g., whining and holding the painful body area) and recovery behaviors. Finally, a grouped and hierarchical approach was proposed to comprehensively assess pain. It is centered around the acronym CARES, which stands for 'context, assess pain expression, risk factors, emotional factors, and sociocultural factors' The Parental Postoperative Pain Measure (PPPM) is a fifteen-item

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[4, 21]

For their part, Pancekauskaitÿe and Jankauskaitÿe1 found in their analysis that many different pain assessment tools have been developed. However, there is no single, generally recommended tool or scale for assessing pain in children. The method of pain measurement is environmentally oriented and highly dependent on the experience of the medical staff and the individual patient. The NIPS was developed and validated to evaluate patients under one year of age. A medical professional evaluates a baby's facial expressions, crying, breathing, arm and leg position, and alertness. FLACC is recommended for assessing pain in children aged two months to seven years. A score of 1 to 3 shows mild discomfort, 4 to 6 indicates moderate pain, and seven or more represents severe discomfort and severe pain; the maximum score is 10. The FPS-R can assess pain in children aged four to sixteen years. The VAS is an easy and popular method that does not require additional tools or prolonged patient observation. The EVA accuracy is close to the FLACC score. However, it can only be used for older children, from seven or eight. Additionally, FLACC is superior for younger patients who have difficulty understanding VAS principles. The color analog scale (CAS) demonstrated slightly higher responsiveness and reliability than the VAS, so the authors recommended the CAS for children aged 6 to 17 years. However, no other studies were found to confirm these findings. The FPS-R was easier to understand than the VAS in a sample of children aged four to twelve years. In addition, the FPS-R was reported to help assess children's pain better than the VAS [1]

Similarly, the review by Lamart et al. [22] indicates that, in children, it is difficult to obtain authentic information on the intensity of pain due to their limits in communication and the extreme variability in perception, which is influenced by social behaviors and environmental factors. For these reasons, a heteroassessment and a self-assessment of pain should always be performed. Some authors consider VAS very advantageous for children five years of age and older due to its simplicity. The verbal numerical scale (VNS) is a linear scale very similar to the VAS, in which the patient rates the pain simply by choosing a score between 0 and 10. CAS is designed as a rectangle with different shades of color, and this heterochromatic scale makes it possible to define the intensity of pain through color grading.

The McGill Pain Questionnaire (MPQ) is also helpful in formulating a correct diagnosis of pain: it is not just a scale. The pain is analyzed by asking questions to the minor patient and requires their interaction with the operator. It is made up of three parts in which the first includes a descriptive scale with numbers and adjectives to rate the pain (1-tolerable; 2-unpleasant; 3-stressful; 4-tremendous; 5-unbearable); the second part consists of human figures in frontal and dorsal projections, and the child indicates the location of the pain; the third part gives an evaluation of pain based on a series of adjectives corresponding to the sensory, affective and cognitive aspects of pain. These scales, together with a careful anamnesis and an adequate clinical examination [22].

Discussion

Pediatric acute pain has a high incidence at present, as evidenced in the various studies already detailed. However, the assessment methods are of particular importance since they must be adequate and correct to be the basis for effective treatment. Management of this sign. The description of various methods used in this field and their relationship with the results obtained allow us to have a clear vision of how the specialist is heading regarding managing acute postsurgical pain in children. In this sense, criteria were found similar to those of the authors Leyva et al. [6] and Allgood et al. [10], where their results converge,

indicating that, without an adequate evaluation tool about the child's age, this sign can very often go unnoticed even by the most experienced personnel. In this way, the incidence of postsurgical pain in postanesthetic recovery rooms is increased.

Likewise, the criteria of both Herrero et al. [2] and Ortiz and de Noriega [9] agree that the diversity of scales and questionnaires used reveal the difficulty involved in assessing pediatric pain so that, over time, the use and refinement of each of them reveal their validity and usefulness. However, no definitive agreement has been reached on the specific use of each in certain situations. In this case, it is essential to point out the divergent criteria of Zieliñski et al. [3] and Manworren and Stinson [11] that, to establish simple determinants for the selection of a correct method, the use of assessment tools was categorized according to age in children under and over five years of age, where they specified the use of the scales (for example, CHEOPS and FLACC in children up to the age of 5. Children older than five years of age recommend using mainly pictorial scales such as FACES, FPS-R, or the EVA.

Given the tremendous complexity of assessing pain in the pediatric age, several factors were taken to evaluate predictive conditions for its appearance during the immediate postoperative period. In this sense, the authors Ferland et al. [16], Mekonnen et al. [17], and de Moura et al. 8 converge in their criteria where it is highlighted that the main predisposing factor in suspecting acute postoperative pain is the intensity of the preoperative pain presented by the patient. In contrast, factors such as preoperative anxiety are not a good predictor of the intensity of POD in the acute and intermediate periods. All the articles in this review agree that the various pain assessment methods must encompass various spheres of the patient, such as their history, physiological parameters, and behavior, among others. Thus, the pain score must encompass several aspects related to the experience of each patient and the relationship with the environment [7, 9, 14]

Within the various works carried out by Crellin et al. [7,18-20], conclusive results are observed that converge in criteria such as that there are not enough data to support the use of a particular scale over another in specific situations as already mentioned, but despite all the inconveniences and limitations that the scale presents FLACC, this may be the most appropriate than others for the measurement of acute postsurgical pain. However, it is logical that more studies and work are required so that there are reliable recommendations for the continuous use of this scale.

As we have mentioned, it is a complex process to obtain accurate information about the intensity of pain, so it is better to keep in mind that it is necessary to consider the patient's environment and that the skills and experience of the evaluating staff play an essential role. For this reason, it is crucial to carry out a heteroevaluation and a self-evaluation, as long as the latter is possible. Thus, the most recognized usefulness are the scales that use a self-assessment of pain as a basis, which can only be achieved with age groups that can express this verbally. In this sense, the accuracy of the EVA scale is very similar to that of the FLACC scale. However, it can be used in children from the age of seven when their knowledge and discernment are superior [4]. 1 In addition, questionnaires (e.g., McGill Pain Questionnaire, MPQ) are currently being evaluated for a correct diagnosis of pain in children, with three pillars that initially include a descriptive scale, second a projective graph of location in the human figure and, finally, a sensory, affective and cognitive evaluation of pain [22].

The most complex assessment is in those in which verbal ability is not developed; the criteria of both Smolarek et al. [21] and Makhlouf et al. [4] converge on the use of NIPS in patients under one year of age and FLACC as a method to assess pain in children from two months to seven years of age. In this regard, and finally, a grouped and hierarchical approach has been proposed for comprehensive evaluation; this focuses on the acronym CARES, which encompasses the evaluation of context, expression of pain, risk factors, emotional factors, and sociocultural factors.

The authors of this literature review support that the complexity of pain assessment has multiple heterogeneous factors that influence its results. For this reason, special care must be taken with the correct choice of the evaluation method of acute postsurgical pain in pediatrics, considering that, however diverse the tools may be, it is the individual circumstances of each of the patients who serve as a guide. The basis

for the excellent selection is under the specific determinants of each case. Thus, it is vital to treat the age group and differentiate their cognitive capacity to consider the use of self-assessment, which is the best method due to the subjective sense of pain.

Conclusions

The assessment of pain in pediatrics is one of the most complex procedures that health professionals face. For this reason, adequate knowledge of the tools currently available is imperative so that their application is correct and as successful as possible. In this way, current methods must be used under specific determinants, taking into account the age and cognitive development of the patient and their emotional, socioeconomic environment, and variables that are easier to determine, such as physiological and behavioral ones. All this set of factors that influence childhood should be highlighted for the specific choice of the necessary tool that leads us to an adequate staging of acute postoperative pain,

Abbreviations

VAS: Pain Assessment Scale.
PIPP: Premature infant pain profile.
CRIES: Crying, O_2 requirement for sat 95%, increased vital signs (HR and TA), facial expression, and slipples.
CHEOPS: Children's Hospital Eastern Ontario Pain.
FLACC: Face, Legs, Activity, Cry, Consolability.

Supplementary information

Supplementary materials are not declared.

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Author contributions

The authors carried out the research protocol and design, data collection, statistical analysis, data assessment and interpretation, critical analysis, discussion, writing, and approval of the final manuscript. in the process. The corresponding author represents the group of authors.

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Availability of data and materials

Data and articles supporting this manuscript are available upon request from the corresponding author.

Statements

Ethics committee approval and consent to participate

It was not needed.

Publication consent

It does not apply to studies that do not publish MRI/CT/Rx images or physical examination photographs.

Conflicts of interest

The authors report no conflict of interest.

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