

## THE ROLE OF THE NURSE IN THE NON-PHARMACOLOGICAL MANAGEMENT OF PEDIATRIC PAIN: PLAYFUL STRATEGIES AND HUMANIZATION

### O PAPEL DO ENFERMEIRO NO MANEJO NÃO FARMACOLÓGICO DA DOR PEDIÁTRICA: ESTRATÉGIAS LÚDICAS E HUMANIZAÇÃO

### EL ROL DE LA ENFERMERA EN EL MANEJO NO FARMACOLÓGICO DEL DOLOR PEDIÁTRICO: ESTRATEGIAS LÚDICAS Y HUMANIZACIÓN



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#### ABSTRACT

Pediatric pain is a complex phenomenon influenced by physiological, emotional, and sociocultural factors and remains underestimated in several healthcare settings. This study aimed to analyze scientific evidence regarding pain assessment in children, hospital humanization strategies, and non-pharmacological interventions used in pediatric pain management. An integrative literature review was conducted in the SciELO, BVS, and PePSIC databases between September and October 2025, using controlled descriptors in Portuguese and English. Original articles published between 1993 and 2025 involving children aged 0 to 12 years in hospital or outpatient settings were included. After applying the eligibility criteria, 20 studies composed the final sample. Results show that pain assessment should consider the child's developmental stage, with behavioral scales recommended for neonates (PIPP, N-PASS, COMFORT) and tools such as FLACC, FPS-R, and Wong-Baker for preverbal and older children. Non-pharmacological interventions demonstrated significant effectiveness, especially the use of sucrose and non-nutritive sucking in neonates, as well as audiovisual distraction, storytelling, guided breathing, and desensitizing devices (such as Buzzy® and Pikluc®) in older children. Hospital humanization strategies—including playrooms, therapeutic play, psychological support, and active family participation—were shown to reduce anxiety, improve adaptation, and strengthen the therapeutic bond. It is

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concluded that pediatric pain management requires a multidisciplinary, systematic, and child-centered approach, integrating appropriate assessment, non-pharmacological interventions, and humanized care practices. Incorporating these strategies into institutional protocols may improve care quality, reduce traumatic experiences, and promote greater comfort and safety for children and their families.

**Keywords:** Pediatric Pain. Pain Assessment. Non-Pharmacological Interventions. Hospital Humanization. Child Comfort.

## RESUMO

A dor pediátrica constitui um fenômeno complexo, influenciado por fatores fisiológicos, emocionais e socioculturais, e permanece subavaliada em diversos contextos assistenciais. Este estudo teve como objetivo analisar as evidências científicas sobre a avaliação da dor em crianças, as estratégias de humanização hospitalar e as intervenções não farmacológicas utilizadas no manejo da dor pediátrica. Trata-se de uma revisão integrativa da literatura, realizada nas bases SciELO, BVS e PePSIC entre setembro e outubro de 2025, utilizando descritores controlados em português e inglês. Foram incluídos artigos originais publicados entre 1993 e 2025, envolvendo crianças de 0 a 12 anos em contexto hospitalar ou ambulatorial. Após aplicação dos critérios de elegibilidade, 20 estudos compuseram a amostra final. Os resultados apontam que a avaliação da dor deve considerar o estágio de desenvolvimento infantil, destacando-se escalas comportamentais para neonatos (PIPP, N-PASS, COMFORT) e ferramentas como FLACC, FPS-R e Wong-Baker para crianças pré-verbais e maiores. As intervenções não farmacológicas demonstraram eficácia significativa, com destaque para o uso de sacarose e sucção não nutritiva em neonatos, bem como distração audiovisual, contação de histórias, respiração guiada e dispositivos dessensibilizadores (como Buzzy® e Pikluc®) em crianças maiores. A humanização do ambiente hospitalar, incluindo brinquedotecas, ludoterapia, acolhimento psicológico e participação ativa de familiares, mostrou contribuir para a redução da ansiedade, melhoria da adaptação e fortalecimento do vínculo terapêutico. Conclui-se que o manejo da dor pediátrica exige abordagem multiprofissional, sistemática e centrada na criança, integrando avaliação adequada, intervenções não farmacológicas e práticas de humanização. A incorporação dessas estratégias aos protocolos institucionais pode aprimorar a qualidade da assistência, reduzir experiências traumáticas e promover maior conforto e segurança à criança e sua família.

**Palavras-chave:** Dor Pediátrica. Avaliação da Dor. Intervenções não Farmacológicas. Humanização Hospitalar. Conforto Infantil.

## RESUMEN

El dolor pediátrico es un fenómeno complejo, influenciado por factores fisiológicos, emocionales y socioculturales, y sigue siendo infravalorado en diversos entornos sanitarios. Este estudio tuvo como objetivo analizar la evidencia científica sobre la evaluación del dolor en niños, las estrategias de humanización hospitalaria y las intervenciones no farmacológicas utilizadas en el manejo del dolor pediátrico. Se trata de una revisión bibliográfica integradora, realizada en las bases de datos SciELO, BVS y PePSIC entre septiembre y octubre de 2025, utilizando descriptores controlados en portugués e inglés. Se incluyeron artículos originales publicados entre 1993 y 2025, que involucraron a niños de 0 a 12 años en entornos hospitalarios o ambulatorios. Tras aplicar los criterios de elegibilidad, 20 estudios constituyeron la muestra final. Los resultados indican que la evaluación del dolor debe considerar la etapa de desarrollo infantil, destacando las escalas conductuales para neonatos (PIPP, N-PASS, COMFORT) y herramientas como FLACC, FPS-R y Wong-Baker para niños preverbales y mayores. Las intervenciones no farmacológicas han demostrado una eficacia significativa, en particular el uso de sacarosa y succión no nutritiva en neonatos,



así como la distracción audiovisual, la narración de cuentos, la respiración guiada y los dispositivos de desensibilización (como Buzzy® y Pikluc®) en niños mayores. La humanización del entorno hospitalario, incluyendo salas de juego, terapia de juego, apoyo psicológico y participación familiar activa, ha demostrado contribuir a reducir la ansiedad, mejorar la adaptación y fortalecer el vínculo terapéutico. Se concluye que el manejo del dolor pediátrico requiere un enfoque multidisciplinario, sistemático y centrado en el niño, que integre una evaluación adecuada, intervenciones no farmacológicas y prácticas de humanización. La incorporación de estas estrategias en los protocolos institucionales puede mejorar la calidad de la atención, reducir las experiencias traumáticas y promover una mayor comodidad y seguridad para el niño y su familia.

**Palabras clave:** Dolor Pediátrico. Evaluación del Dolor. Intervenciones no Farmacológicas. Humanización Hospitalaria. Confort Infantil.



## 1 INTRODUCTION

Pain, regardless of its cause or the patient's age, is experienced and coped with in different ways by individuals with different profiles. Pain perception involves the process by which each person's body interprets and organizes sensations to give them meaning. This process is not directly linked only to the presence of a disease, but to a series of factors, such as past experiences, emotional state, culture, gender, race, and social context of each individual (Bueno *et al.*, 2018). Thus, pain in children is a complex experience, with physiological, emotional and social components. When poorly managed, it can generate fear, withdrawal, and aversion to the hospital environment, in addition to negative physiological impacts. Contemporary pediatric care must therefore integrate accurate pain assessment, rational use of pharmacological and non-pharmacological interventions, and humanization practices that ensure comfort and well-being for the child and the family (Bueno *et al.*, 2018).

The hospital environment, generally distant from the child's routine and reality, often results in psychic pain, which can significantly impact this period of childhood. In view of this situation, the use of playful methods and resources is intended to favor child care and promote physical and psychological well-being (PERES *et al.*, 2024). Pain is described as a personal perception that may or may not be linked to actual or potential tissue damage, with vaccination being the most common source of pain during childhood, described as a source of suffering for children exposed to this procedure. Suffering can impact parents and guardians, who blame themselves for the child's discomfort, affecting their mental health during the procedure (Pires *et al.*, 2021).

Children often describe that hospital practices related to needles are among the most painful and feared aspects of the health care experience. This aspect makes venipuncture the procedure that most contributes to pediatric patients having negative and fearful memories about health care, even causing, in some cases, phobias of needles and avoidance of seeking medical care in adulthood, directly impacting self-care during the individual's maturity (Santos *et al.*, 2022).

Recent studies highlight that pain is still underestimated in pediatrics, despite the existence of validated instruments and robust evidence on simple and effective interventions, such as sucrose, skin-to-skin contact, and audio-visual distraction (Montanholi *et al.*, 2022; Formiga *et al.*, 2025; Faria, 2024). At the same time, the humanization of hospital environments, whether through toy libraries, play therapy, or psychological support, contributes significantly to coping with hospitalization and strengthening the therapeutic bond (Ciuffo *et al.*, 2023; Miranda *et al.*, 2022).



Among the strategies described for the management of this discomfort during childhood, non-pharmacological methods emerge with the objective of expanding the variety of analgesic alternatives that health professionals should adopt in their daily lives. Methods such as tactile stimulation, differentiated vaccine administration techniques, distraction maneuvers, and breastfeeding itself are measures that help the professional to pay attention to the pain perceived by the child during the procedures (Pires *et al.*, 2021).

In this context, the inclusion of clowns and playful activities in hospital sectors is an effective strategy to relieve pain, promote relaxation and stimulate children's emotional expression during hospitalization. Thus, playfulness presents itself as an indispensable tool in nursing care, offering an alternative care centered on child well-being (Coutinho *et al.*, 2022). Studies indicate that physical contact and emotional support from the mother or caregiver promote a sense of calm and well-being, which can directly impact the child's perception of pain, not only bringing the benefit of improving the health procedure experience, but also strengthening the bond between the infant and the mother or caregiver. The mamanalgesia technique, which refers to breastfeeding the baby during painful procedures, is recommended by the Ministry of Health to provide relief and comfort during invasive procedures in newborns (Formiga *et al.*, 2024).

Among the consolidated non-pharmacological instruments are desensitizers in playful formats, which are devices in the shape of bees or ladybugs that promote high-frequency vibration, associated with an ice pack in the shape of wings, which act for at least 30 seconds before the procedures. The combination of stimuli causes the central nervous system to process various sensations and, consequently, pain decreases during needle insertion (Formiga *et al.*, 2025). Ultimately, the investigation of coping strategies allows us to unravel the ways in which children manage the stress and pain inherent to health procedures, providing an essential overview for clinical practice. Such findings support the proposition and improvement of psychotherapeutic and non-pharmacological interventions aimed at effective pain relief, minimizing trauma and promoting more humanized care experiences (Dias *et al.*, 2024).

## 2 BACKGROUND

Pediatric pain represents a significant challenge for health professionals, as it involves physiological, emotional, and social aspects that vary according to the child's stage of development. Despite scientific advances and the availability of validated instruments for pain assessment, pain measurement and management are still undervalued in clinical practice, resulting in negative hospitalization experiences and potential long-term impacts on children's





physical and psychological health.

Recent scientific literature shows that non-pharmacological interventions such as the use of oral sucrose, skin-to-skin contact, audiovisual distraction, analgesia, play therapy and desensitizers are effective in reducing pain and anxiety, especially when associated with hospital humanization strategies. Family presence, emotional support, and adaptation of the physical environment are factors that contribute significantly to the comfort and well-being of hospitalized children, minimizing the trauma associated with invasive procedures.

Epidemiological data reinforce the relevance of the theme: painful procedures, especially those related to needles, are the main sources of suffering reported by children in hospital and outpatient settings. Studies have shown that poorly managed pain experiences in childhood can result in phobias, avoidance of medical care in adulthood, and compromised self-care, highlighting the need for early and effective interventions. In addition, the implementation of humanized practices, such as the creation of toy libraries, the performance of hospital clowns and the inclusion of soft care technologies, has shown a positive impact on the hospitalization experience, favoring stress reduction, strengthening the therapeutic bond and promoting the child's autonomy and active participation in the care process.

In the context of Nursing, professional performance in the management of pediatric pain demands not only technical-scientific knowledge, but also sensitivity, creativity and commitment to the principles of humanization. The integration of pharmacological and non-pharmacological strategies, combined with systematic pain assessment and family involvement, constitutes the foundation for comprehensive, safe care centered on the child's needs.

Thus, the realization of this integrative review is justified by the need to gather, synthesize and critically analyze the available evidence on pediatric pain assessment and non-pharmacological relief practices, considering the context of hospital humanization. By consolidating current knowledge, this study seeks to support the implementation of more effective and evidence-based care protocols, strengthening the role of Nursing and the entire multidisciplinary team in promoting the comfort, safety and quality of life of children and their families.

### **3 OBJECTIVES**

#### **3.1 GENERAL OBJECTIVE**

To analyze the scientific evidence on pain assessment in children, hospital humanization strategies, and non-pharmacological interventions used in pediatric pain management in hospital settings.



### 3.2 SPECIFIC OBJECTIVES

- To identify the main validated instruments and scales for the assessment of pediatric pain according to different age groups and stages of development.
- To describe evidence-based non-pharmacological interventions for pain relief in hospitalized children and their respective applicability.
- To analyze the role of hospital humanization and playful practices in promoting comfort and reducing child pain and suffering.
- To discuss the role of the nursing and multiprofessional team in the implementation of strategies for the assessment and non-pharmacological management of pediatric pain.
- Synthesize recommendations for clinical practice based on scientific evidence on pain assessment and management in pediatrics.

## 4 METHODOLOGY

It is an integrative literature review, a method that allows the synthesis and critical analysis of the scientific knowledge available on a given topic, enabling the identification of gaps and the proposition of directions for clinical practice and future research.

The search was carried out in the Scientific Electronic Library Online (SciELO), Virtual Health Library (VHL) and Portal of Electronic Journals of Psychology (PePSIC) databases, from September 2025 to October 2025. Controlled descriptors of the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) were used, combined using the Boolean operators AND and OR. The search strategies included combinations of the following terms in Portuguese and English: "pediatric pain, pain assessment, non-pharmacological interventions, hospital humanization, hospitalized child, audiovisual distraction and hospital toy library.

The inclusion criteria established were: original scientific articles (experimental, quasi-experimental, observational, and qualitative studies); publications in Portuguese, English or Spanish; publication period between 1993 and 2025; target population consisting of children aged 0 to 12 years hospitalized or in outpatient care; theme related to pediatric pain assessment, non-pharmacological interventions for pain management and hospital humanization in the pediatric context; and availability of the full text. Studies conducted exclusively with an adult or adolescent population over 12 years of age, literature reviews, editorials, letters to the editor, congress abstracts, theses and dissertations, duplicate articles in the databases, studies without an empirical basis or clearly described methodology, and publications that did not directly address the proposed theme were excluded.



The selection of articles was carried out in three stages: initial search with application of search strategies in the databases and registration of the total number of studies identified; screening by reading titles and abstracts for the application of eligibility criteria, excluding duplicates and studies that are clearly not eligible; and full reading of the pre-selected articles to confirm eligibility and data extraction. After applying the filters and eligibility criteria, 20 articles were selected to compose the final sample of this integrative review.

The selected articles were submitted to critical and systematized reading, with the extraction of the following information: authors, year of publication, country of origin, study objective, type of study, population and sample, main results and conclusions. The data were organized in an analytical matrix containing information on methodological characteristics, population, interventions, results and conclusions of the included studies, and analyzed in a descriptive and thematic way, following strategies of comparison, categorization and integrative synthesis, allowing the synthesis of the knowledge produced on the subject and the identification of convergences, divergences and gaps in the scientific literature. As this is an integrative literature review, based on secondary data in the public domain, this study does not require submission to the Research Ethics Committee, as recommended by Resolution No. 510/2016 of the National Health Council.

## 5 RESULTS AND LITERATURE REVIEW

### 5.1 ASSESSMENT OF PEDIATRIC PAIN

Based on the literature analyzed, it is observed that the evaluation of pediatric pain should be compatible with the child's stage of development, considering their communication and expression skills. For neonates and infants, widely used behavioral scales stand out, such as the PIPP (Premature Infant Pain Profile), which analyzes facial expression, heart rate, oxygen saturation, and gestational age; the N-PASS (Neonatal Pain, Agitation and Sedation Scale), which evaluates crying, behavior, muscle tone and physiological parameters; and the COMFORT Scale, which measures alertness, calmness/agitation, body movements, facial tension and vital signs (DGS, 2010; Bittencourt *et al.*, 2021).

In preverbal children, the FLACC (Face, Legs, Activity, Cry, Consolability) scale is widely recommended, as it allows pain to be measured through the observation of five behavioral domains. For older children, who have the ability to verbalize their sensations, self-reports such as the Faces Pain Scale – Revised (FPS-R) and the Wong-Baker Faces Scale are preferable, since they use facial representations for the child to identify the level of pain he or she is experiencing (DGS, 2010; Bittencourt *et al.*, 2021).





The systematic adoption of standardized scales allows pain to be measured objectively and to target more effective interventions. However, many services still lack institutional protocols for continuous pain recording (Faria, 2024). In addition to physical pain, hospitalization causes atypical feelings and sensations in children, due to the distance from their routines, friends and family. At the same time, these patients are kept in an unknown environment, being manipulated by people they do not know and undergoing new and often painful procedures. This situation has a physical, psychological, and emotional impact on the hospitalized child (Peres *et al.*, 2024).

## 5.2 NON-PHARMACOLOGICAL INTERVENTIONS FOR PAIN RELIEF

In recent years, Brazilian studies have reinforced the importance of non-pharmacological interventions as the first line of care for child pain relief. Based on the situations commonly witnessed in the hospital environment, the playful approach is used as a tool that helps to create a bond between the patient and the professional, facilitating communication and the way the child deals with hospitalization, allowing the expression of fears and doubts. Using this tool, it is possible to carry out a comprehensive assessment, and it is up to the professional to remain attentive to physical and psychological issues that may interfere with the child's well-being, as well as their development as a pediatric patient (Peres *et al.*, 2024).

Among neonates, the use of sucrose or 24% glucose, associated with non-nutritive sucking, significantly reduces physiological and behavioral responses to pain in procedures such as venipuncture (Montanholi *et al.*, 2022; Faria, 2024; Travassos *et al.*, 2024). In addition, skin-to-skin contact (kangaroo method) is widely recognized as an effective adjunct, promoting comfort and cardiorespiratory stability (Travassos *et al.*, 2024).

In older children, cognitive and behavioral strategies such as audiovisual distraction, storytelling, guided breathing, and therapeutic play have shown positive results in reducing pain and anxiety during venipuncture (Moura *et al.*, 2025; Mendes *et al.*, 2022). Recent protocols have integrated the use of devices such as the Buzzy®, which is shaped like a bee or ladybug and combines cold and vibration to control pain, and the Pikluc®, which is shaped like a butterfly and has several mini tips that desensitize the region where the application or puncture will take place, associated with visual stimuli, with a noticeable improvement in tolerance to the procedure (Moura *et al.*, 2025).

These interventions are safe, low-cost, and can be delivered by nurses, psychologists, and family members after basic training. In addition, the presence and active participation of the companion enhances the analgesic effect and increases the child's sense of security



(Martins, 2024).

### 5.3 HUMANIZATION OF THE PEDIATRIC HOSPITAL ENVIRONMENT

The humanization of the hospital environment is an essential pillar in the care of hospitalized children. Recent research shows that the implementation of toy libraries and the use of therapeutic toys promote emotional adaptation, reduce stress, and facilitate the acceptance of procedures (Ciuffo *et al.*, 2023; Miranda *et al.*, 2022). Although the direct impact on length of hospital stay still lacks robust quantitative evidence, qualitative studies point to relevant indirect benefits: lower resistance to treatment, improved adherence, and reduced anxiety, factors that may contribute to more favorable clinical outcomes (Depianti *et al.*, 2024). In addition to the toy libraries, the presence of a companion, psychological support and an adapted physical environment (with colors, privacy and areas for playing) are central elements of a humanized hospital model (Pinheiro, 1993; Lima *et al.*, 2015). Such practices have been institutionalized in several pediatric units in Brazil, in line with the National Humanization Policy (Pinheiro, 1993; Lima *et al.*, 2015).

Considering the child's level of development, communication is of great importance for the application of humanized care and care, as it makes it possible to have a more patient-focused reception, in addition to the development of strategies to reduce suffering. Therefore, the need for transparency with the child is evidenced, so that he understands his condition and actively participates in his treatment, also receiving an explanation of each procedure and intervention that will be performed (Peres *et al.*, 2024).

## 6 CONCLUSION

Pain in childhood is a complex biopsychosocial experience, modulated by physical, emotional and cultural factors. Effective management, as demonstrated in this review, is based on the recognition of the child as the protagonist of his or her own care and on the appreciation of his or her playfulness and developmental phase. Systematic pain assessment, using validated scales appropriate for each age group, should be seen as the gold standard of care. Recent national evidence confirms the effectiveness of non-pharmacological interventions including the use of sucrose and non-nutritive sucking for neonates, and audio-visual distraction, storytelling and devices for older children, which have been shown to be safe and low-cost. At the same time, hospital humanization, through toy libraries, psychological support and the active presence of companions, acts as an essential therapeutic resource, transforming the hostile environment into a space that transmits safety and comfort, positively impacting treatment adherence and quality of life.



The assessment and management of childhood pain requires, therefore, a multidisciplinary approach that is sensitive to the particularities of childhood. It is essential that pediatric units integrate these evidence-based strategies into their institutional protocols, promote the continuous training of teams, and strengthen humanization policies centered on the child and the family. In this way, comprehensive care, which includes playful practices, non-pharmacological techniques and family support, will be standardized and widely disseminated in clinical practice, guiding not only care, but also professional training curricula and public health policies.

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