

Pain Management Strategies in Hospitalized Children: The Role of Paediatric Nurses

Kumkum Yadav¹, Kajal Malik², Sheba Elizabeth Abraham³, Dr Madhavi Ghorpade⁴, Mukesh Saini⁵, Ravilla Bhuvanasai⁶, Rajveer Singh⁷

¹Assistant Professor, Government Medical College, College of Nursing, Azamgarh, Uttar Pradesh, India

²Nursing Tutor, Himalayiya College of Nursing, Sparsh Himalaya University, Dehradun, Uttarakhand

³Professor, Vasantrao Naik Institute of Nursing, Jalna, Maharashtra, India

⁴Assistant Professor, Sadhu Vaswani College of Nursing, Pune. Maharashtra, India

⁵Nursing Officer/PhD Scholar, PGIMER, Chandigarh, India

⁶Assistant Professor, Sree Vidyanikethan College of Nursing, Tirupati, Andhra Pradesh, India

⁷Assistant Professor, Sri Ganganagar College of Nursing, Tanta University, Sri Ganganagar, Rajasthan, India

Corresponding Author: Kumkum Yadav, **Email:** Kumkumy0407@gmail.com

Abstract

Pain remains one of the most distressing experiences for hospitalized children, influencing not only their physical comfort but also their psychological well-being, developmental outcomes, and trust in healthcare systems. Despite advances in pediatric care, under-assessment and inadequate management of pain continue to be reported globally, often due to misconceptions about children's pain perception, communication barriers, and resource limitations. Pediatric nurses, who spend the most time with children during hospitalization, play a crucial role in pain recognition, assessment, intervention, and evaluation. Their role extends beyond direct clinical care to encompass advocacy, family education, emotional support, and collaboration with interdisciplinary teams to ensure holistic pain management.

This review synthesizes current evidence on pharmacological and non-pharmacological pain management strategies in hospitalized children and highlights the pivotal role of pediatric nurses in implementing these interventions. The study aimed to identify best practices in pediatric pain management, evaluate the effectiveness of nurse-led interventions, and explore the challenges and opportunities in improving pain outcomes among children. A narrative review design was adopted, with integrative elements, analyzing 25 peer-reviewed studies, systematic reviews, and clinical guidelines published between 2015 and 2025. The evidence was grouped thematically into four categories: pharmacological approaches, non-pharmacological interventions, family-centered strategies, and the professional role of pediatric nurses. Results revealed that multimodal approaches yield the best outcomes in reducing pain intensity and distress. Pharmacological management, primarily involving opioids, non-steroidal anti-inflammatory drugs (NSAIDs), and acetaminophen, remains central to acute and procedural pain relief, though nurses must monitor dosing, side effects, and safe administration. Non-pharmacological methods, such as distraction, play therapy, guided imagery, music therapy, and cognitive-behavioral techniques, were shown to significantly reduce anxiety and perceived pain, particularly in younger children. Family-centered care, which empowers parents to actively participate in pain management, was associated with improved child cooperation, reduced anxiety, and enhanced satisfaction. Pediatric nurses were found to be instrumental in all these dimensions, with their roles encompassing pain assessment using validated pediatric scales, individualized intervention planning, education, and continuous evaluation of outcomes. The review concludes that effective pain management in hospitalized children requires a holistic, evidence-based, and family-centered approach. Pediatric nurses, through their unique position at the bedside and ongoing interactions with both children and families, are essential in bridging clinical evidence with compassionate care. Strengthening nurse education, institutional support, and interdisciplinary collaboration can significantly improve pediatric pain outcomes and ensure children's right to optimal pain relief.

Keywords: Pediatric pain management; Hospitalized children; Pediatric nursing; non-pharmacological interventions; Family-centered care; Pharmacological strategies.

INTRODUCTION

Pain is one of the most common and distressing symptoms experienced by children during hospitalization. Whether related to acute illness, surgical procedures, diagnostic interventions, or chronic conditions, pain has profound implications for a child's physical, psychological, social, and developmental well-being. Historically, misconceptions prevailed that children, especially infants and neonates, did not feel pain as intensely as adults, or that they would not remember painful experiences. Modern

neuroscience and pediatric research have decisively dispelled such myths, demonstrating that children not only perceive pain but may also experience heightened sensitivity due to developing nervous systems. In addition, unrelieved pain in early life has been associated with long-term adverse outcomes, including altered pain perception, increased anxiety, behavioral changes, and impaired trust in healthcare providers. Consequently, effective pain management in hospitalized children has become a critical priority in pediatric nursing and healthcare practice.

Globally, inadequate pain management among children persists as a significant healthcare concern. Despite advances in pharmacology, availability of validated pain assessment tools, and greater awareness of children's rights to pain relief, studies continue to reveal under-assessment and undertreatment of pain in pediatric hospitals. Barriers include lack of awareness, insufficient training of healthcare professionals, time constraints, limited access to medications, and cultural beliefs that minimize or normalize children's suffering. For children themselves, communication challenges especially among infants, toddlers, or those with cognitive or developmental disabilities often hinder accurate reporting of pain. These challenges highlight the indispensable role of pediatric nurses, who serve as the first line of assessment, intervention, advocacy, and support in managing children's pain effectively.

The role of pediatric nurses in pain management extends far beyond the administration of analgesics. Nurses are uniquely positioned at the bedside, spending the most time with children and their families during hospitalization. Their responsibilities encompass holistic care that integrates pharmacological and non-pharmacological strategies, accurate and continuous pain assessment, emotional support, and coordination of interdisciplinary care. Furthermore, nurses act as advocates for children's rights, ensuring that pain relief is prioritized, and they often serve as educators, guiding families to participate actively in pain management practices. The evolving scope of pediatric nursing practice emphasizes evidence-based interventions, patient- and family-centered care, and culturally competent communication—all of which are essential for optimal pain relief in children.

A critical component of effective pediatric pain management is pain assessment. Unlike adults, children may lack the verbal ability, cognitive maturity, or emotional readiness to describe their pain accurately. Thus, nurses rely on a combination of self-report, behavioral observation, and physiological indicators to assess pain. Validated tools such as the FLACC scale (Face, Legs, Activity, Cry, CONSOL ability), Wong-Baker FACES Pain Rating Scale, and the Neonatal Infant Pain Scale (NIPS) have become integral in clinical practice. Nurses play a key role in selecting and applying these tools appropriately for different developmental stages and clinical contexts, ensuring that children's pain is not overlooked or underestimated. Accurate assessment forms the foundation upon which individualized pain management plans are built.

Pharmacological interventions form the backbone of pain management for hospitalized children, particularly in cases of moderate to severe pain. Analgesics such as acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), and opioids are commonly used, often in combination to achieve multimodal analgesia. However, pediatric pharmacology requires careful attention to age-appropriate dosing, weight-based calculations, and vigilant monitoring for adverse effects. Nurses, as medication administrators, are responsible not only for delivering these drugs safely but also for monitoring side effects such as respiratory depression, nausea, or sedation in opioid use. Their close observation and timely reporting to physicians are essential for preventing complications and ensuring safety. In addition, nurses provide critical education to families about medication regimens, potential side effects, and safe practices, empowering caregivers to participate confidently in their child's care.

While pharmacological strategies are indispensable, non-pharmacological interventions have gained increasing prominence as complementary approaches in pediatric pain management. Evidence-based methods such as distraction, guided imagery, deep breathing, play therapy, music therapy, and the use of virtual reality have been shown to significantly reduce pain perception and anxiety during procedures. For younger children, interventions such as blowing bubbles, storytelling, or using toys during injections can divert attention and reduce distress. For adolescents, more advanced strategies such as relaxation training or cognitive-behavioral therapy may be beneficial. Nurses are at the forefront of implementing these interventions, tailoring them to the developmental stage, cultural background, and preferences of each child. Such approaches not only minimize reliance on pharmacological agents but also empower children to develop coping skills that can be used in future healthcare encounters.

A family-centered approach is another cornerstone of pediatric pain management. Hospitalization is a stressful event not only for the child but also for the family, particularly parents who may feel helpless in alleviating their child's suffering. Studies have demonstrated that active parental involvement in pain

management—whether through providing comfort measures such as holding, breastfeeding, or skin-to-skin contact in infants, or participating in distraction techniques for older children—enhances outcomes and reduces anxiety for both the child and the parent. Nurses serve as facilitators of this partnership, educating parents about pain management strategies, encouraging their involvement, and respecting cultural beliefs and practices. Family-centered care aligns with the holistic philosophy of nursing, which recognizes that optimal care extends beyond the patient to include the family unit.

The global discourse on children's rights has further reinforced the moral and ethical imperative of effective pediatric pain management. The United Nations Convention on the Rights of the Child (UNCRC) explicitly recognizes the right of children to the highest attainable standard of health, which includes freedom from preventable pain and suffering. Nursing, as a profession grounded in advocacy, has a duty to uphold these rights. Pediatric nurses, through their daily interactions with children and families, are in a unique position to identify unmet needs, advocate for improved pain protocols, and influence policy and practice at institutional and national levels.

Despite these advances, significant challenges remain in ensuring consistent and effective pain management for hospitalized children. Barriers include inconsistent use of pain assessment tools, inadequate nurse-to-patient ratios, lack of training in non-pharmacological techniques, limited access to essential medications in low-resource settings, and variations in institutional protocols. Cultural beliefs also influence pain expression and management, with some families discouraging children from showing pain or perceiving analgesics as harmful. Addressing these challenges requires systemic changes, including ongoing nurse education, institutional support, interdisciplinary collaboration, and culturally sensitive practice.

In this context, the rationale for this review is clear: to synthesize evidence on effective pain management strategies for hospitalized children and highlight the crucial role of pediatric nurses in implementing these interventions. By examining pharmacological and non-pharmacological approaches, family-centered strategies, and the professional responsibilities of nurses, this review aims to provide a comprehensive understanding of best practices in pediatric pain management. Moreover, it seeks to identify barriers to optimal care and propose recommendations for nursing education, practice, and policy.

In conclusion, pain management in hospitalized children is not simply a clinical task but a holistic process that integrates scientific evidence, compassionate care, and ethical responsibility. Pediatric nurses, through their unique role at the bedside, have the opportunity to transform the experience of pain for children, reducing suffering and promoting healing. By embracing evidence-based strategies, fostering family involvement, and advocating for systemic improvements, nurses can ensure that every child receives safe, effective, and dignified pain relief. This review thus seeks to highlight best practices and provide a framework for advancing pediatric pain management in hospital settings.

Objectives:

The primary objective of this review is to synthesize current evidence on pain management strategies in hospitalized children, with a particular focus on the pivotal role of pediatric nurses in implementing, coordinating, and evaluating these interventions. Recognizing that children's pain remains under-assessed and inadequately treated in many healthcare settings, this review seeks to consolidate knowledge that can guide evidence-based, holistic, and family-centered nursing practice.

Specific objectives include:

1. **To explore pharmacological strategies** used in managing pain among hospitalized children, emphasizing safe administration, monitoring, and nurse-led education for families.
2. **To examine non-pharmacological interventions** such as distraction, play therapy, relaxation techniques, and cognitive-behavioral strategies that nurses employ to complement pharmacological management.
3. **To evaluate the role of family-centered care**, highlighting how pediatric nurses engage and empower parents and caregivers as active participants in pain management.
4. **To identify challenges and barriers** that limit effective pain management, including institutional, cultural, and resource-related factors.
5. **To highlight best practices and recommendations** for enhancing pediatric nurses' knowledge, skills, and advocacy in delivering comprehensive pain relief.

By addressing these objectives, the review aims to contribute to improved clinical outcomes, reduced suffering, and the promotion of children's rights to effective pain management during hospitalization.

METHODOLOGY:

This review adopted a **narrative review design with integrative elements** to synthesize evidence on pain management strategies for hospitalized children and explore the critical role of pediatric nurses in this context. A systematic yet flexible approach was followed to identify, analyze, and summarize relevant literature.

Search Strategy

A comprehensive search was conducted across major electronic databases including **PubMed, CINAHL, Scopus, PsycINFO, and Google Scholar**. Literature published between **2013 and 2025** was considered to capture both foundational and contemporary research. Keywords and Boolean operators used in the search strategy included: “pediatric pain management” OR “children’s pain” AND “hospitalized children” AND “nursing role” OR “pediatric nursing” AND “pharmacological interventions” OR “non-pharmacological interventions” OR “family-centered care.” Additional manual searches of reference lists from selected articles and pediatric nursing guidelines were conducted to ensure comprehensiveness.

Inclusion and Exclusion Criteria

Inclusion criteria:

1. Peer-reviewed articles, systematic reviews, randomized controlled trials (RCTs), and clinical guidelines.
2. Studies focusing on pediatric patients (0–18 years) hospitalized for medical, surgical, or procedural care.
3. Articles addressing pharmacological, non-pharmacological, or family-centered pain management strategies.
4. Research discussing the role of pediatric nurses in pain assessment and management.
5. Publications in English.

Exclusion criteria:

1. Studies limited to outpatient or community-based pediatric pain management.
2. Articles focused exclusively on adult or neonatal intensive care pain management without relevance to pediatric nursing.
3. Non-peer-reviewed sources, opinion pieces, and editorials.
4. Non-English publications.

Study Selection and Data Extraction

The initial search yielded **136 articles**. After removing duplicates and screening titles and abstracts, **74 articles** were shortlisted. Following full-text review against eligibility criteria, **25 articles and guidelines** were included in the final synthesis. Data were extracted into a structured matrix capturing authorship, year, country, population, intervention type, outcomes, and relevance to nursing practice.

Data Analysis

A narrative thematic analysis was employed to synthesize findings across studies. Results were categorized into four domains: (a) pharmacological strategies, (b) non-pharmacological interventions, (c) family-centered approaches, and (d) nursing roles and responsibilities. Emphasis was placed on identifying best practices, challenges, and implications for nursing education and clinical practice.

As this review analyzed secondary data from published literature, no ethical clearance was required. Only peer-reviewed, credible, and ethically conducted studies were included, ensuring academic rigor and transparency.

RESULT:

This review synthesized evidence from **25** peer-reviewed studies, systematic reviews, and guidelines published between 2013 and 2025, focusing on pain management in hospitalized children and the role of pediatric nurses. Findings were grouped into five thematic domains: pharmacological strategies, non-pharmacological interventions, family-centered care, barriers to effective pain management, and best practices with implications for pediatric nursing practice.

1. Pharmacological Strategies

Pharmacological approaches remain the cornerstone of acute pain management in hospitalized children. Studies consistently emphasized the use of **acetaminophen and NSAIDs** as first-line agents for mild to moderate pain, with **opioids such as morphine or fentanyl** reserved for severe pain or post-operative management. Evidence supported **multimodal analgesia**, combining different classes of drugs to maximize efficacy and minimize side effects. For example, studies showed that the combination of acetaminophen and ibuprofen was more effective for post-surgical pain than either drug alone.

The role of pediatric nurses was central in ensuring **safe medication administration**, particularly given the need for weight-based dosing and vigilant monitoring for side effects such as respiratory depression, nausea, and sedation. Several studies highlighted nurse-led interventions in educating parents about safe medication practices, especially around opioid use, to reduce anxiety and improve adherence to treatment plans.

2. Non-Pharmacological Interventions

A significant body of evidence supported the use of **non-pharmacological strategies** as complementary measures to reduce both pain and anxiety. Interventions such as **distraction techniques** (e.g., toys, videos, virtual reality), **play therapy**, **guided imagery**, **deep breathing**, and **music therapy** demonstrated positive effects in reducing children's distress during invasive procedures like venipuncture, lumbar puncture, or wound dressing.

Nurses played a pivotal role in implementing these interventions, tailoring strategies according to the child's age, cognitive development, and preferences. For infants, techniques such as breastfeeding, skin-to-skin contact, and swaddling were effective, while school-aged children responded well to storytelling, video games, and interactive play. Adolescents benefitted from more advanced methods like relaxation exercises and cognitive-behavioral therapy elements. The results indicated that when nurses consistently applied these approaches, both pain perception and procedural anxiety were significantly reduced.

3. Family-Centered Approaches

Evidence strongly supported the benefits of **parental involvement** in pediatric pain management. Studies found that when parents were encouraged and guided by nurses to participate in comfort measures—such as holding, distraction, breastfeeding, or verbal reassurance—children experienced lower pain scores and demonstrated greater cooperation during procedures.

Additionally, parents reported increased satisfaction with care and reduced anxiety when actively involved in their child's pain management. Nurses acted as **educators and facilitators**, empowering families with knowledge and skills to support their child effectively. The integration of family-centered care aligned with holistic nursing principles and was shown to improve overall care experiences for both children and families.

4. Barriers to Effective Pain Management

Despite advances, multiple barriers continued to hinder optimal pediatric pain management. Studies reported **inconsistent use of validated pain assessment tools**, often leading to under-recognition of pain in non-verbal children or those with developmental disabilities. Nurses frequently cited **time constraints**, **heavy workloads**, and **high nurse-to-patient ratios** as limiting their ability to consistently apply non-pharmacological interventions.

Other barriers included **lack of training** in specialized pain management techniques, limited availability of medications (particularly opioids) in resource-constrained settings, and **cultural beliefs** that minimized children's expressions of pain or discouraged the use of analgesics. Institutional factors, such as the absence of standardized protocols, further contributed to variability in pain management practices across hospitals.

5. Best Practices and Nursing Implications

Across the reviewed literature, several **best practices** emerged. These included the routine use of validated pediatric pain assessment scales, adoption of **multimodal pain management strategies**, structured **discharge education programs**, and nurse-led quality improvement initiatives. For example, studies demonstrated that the integration of standardized pain protocols into hospital policy significantly improved both the frequency of pain assessments and the adequacy of interventions provided.

The central role of pediatric nurses was consistently reinforced across studies. Nurses were recognized not only as frontline caregivers but also as **advocates, educators, and coordinators** who bridge gaps between children, families, and interdisciplinary teams. Nurse-led initiatives in pain education and advocacy contributed to improved patient outcomes, reduced hospital-related trauma, and increased adherence to pain protocols.

The results indicate that effective pain management in hospitalized children is best achieved through a **multimodal, holistic, and family-centered approach**. While pharmacological interventions remain essential, non-pharmacological strategies and parental involvement enhance outcomes and reduce reliance on medications. Pediatric nurses occupy a central position in this process, although systemic barriers limit their ability to consistently deliver optimal care. Addressing these barriers through training, institutional support, and standardized guidelines can further strengthen nursing contributions to pediatric pain management.

DISCUSSION:

Pain in hospitalized children continues to be a critical clinical, ethical, and social concern. Despite significant advances in pediatric medicine, the persistence of under-recognized and under-treated pain highlights gaps between available evidence and everyday practice. This review consolidated findings across pharmacological and non-pharmacological interventions, family-centered strategies, and nursing roles, providing insight into both achievements and ongoing challenges. The discussion focuses on interpreting these findings in relation to the broader context of pediatric healthcare, examining implications for nursing practice, education, and policy.

Pharmacological Strategies: Efficacy and Safety

The evidence strongly supports the continued reliance on pharmacological methods, particularly acetaminophen, NSAIDs, and opioids, for managing moderate to severe pain. Nurses are instrumental in ensuring the safe administration of these medications, given the need for individualized, weight-based dosing in children. Importantly, studies underscored the role of multimodal analgesia, combining pharmacological agents to enhance effectiveness and reduce side effects. However, concerns about opioid safety, including risks of respiratory depression, dependence, and stigma, remain widespread. Nurses often face the dual challenge of advocating for adequate pain relief while addressing parental anxieties and misconceptions about opioids. This highlights the need for nurse-led education that demystifies pharmacological treatment while reinforcing safe practices.

Non-Pharmacological Interventions: Complementary and Holistic Approaches

One of the most significant findings of the review was the effectiveness of non-pharmacological interventions, which align closely with the holistic philosophy of nursing. Distraction techniques, play therapy, guided imagery, and music therapy not only reduced pain intensity but also alleviated children's anxiety during hospitalization. Nurses, through their consistent presence at the bedside, are uniquely positioned to deliver these interventions, often tailoring them to a child's developmental stage and emotional state.

The integration of non-drug approaches is especially important in reducing over-reliance on pharmacological treatments, promoting coping skills, and improving the hospital experience for children. However, implementation often depends on time availability, institutional support, and nurse confidence in applying these methods. Expanding training in evidence-based non-pharmacological interventions would empower nurses to embed such practices into routine care, ensuring that every child has access to both medical and psychosocial pain relief.

Family-Centered Approaches: Strengthening the Care Partnership

The evidence reinforced the benefits of family-centered care in pediatric pain management. When parents were actively involved in comforting and supporting their children, both pain outcomes and emotional well-being improved. Nurses act as the bridge between clinical protocols and parental involvement, educating and guiding families to participate confidently in pain management practices.

This approach aligns with broader nursing principles of holistic and family-centered care, recognizing that parents are not passive observers but integral partners in their child's healing. Family involvement also reduces parental distress, fosters trust in the healthcare team, and promotes continuity of care beyond hospitalization. The challenge, however, lies in cultural variations: in some contexts, families may be hesitant to intervene in clinical procedures or may hold beliefs that discourage children from expressing pain. Nurses must therefore adapt strategies with cultural sensitivity, balancing respect for beliefs with the imperative to prioritize the child's right to pain relief.

Barriers to Optimal Pain Management

Despite growing evidence, barriers to effective pain management persist. Time constraints, inadequate staffing, and heavy workloads prevent nurses from consistently using validated pain assessment tools or applying non-pharmacological strategies. Limited training in specialized pediatric pain management also hinders confidence and competence among nurses. In resource-limited settings, access to essential medications such as opioids remains restricted, further compounding inequities in pediatric care.

These barriers are not solely individual but systemic, pointing to the need for institutional reforms. Hospitals must prioritize policies that support routine pain assessment, ensure adequate nurse-to-patient ratios, and integrate continuing education into practice. Without structural support, even the most skilled and motivated nurses may struggle to deliver optimal pain relief.

Best Practices and the Central Role of Nurses

Across the evidence, best practices emerged consistently: routine use of age-appropriate pain scales, multimodal interventions, structured discharge planning, and interdisciplinary collaboration. Nurses

were consistently highlighted as the linchpin of these practices. Their role is not confined to bedside care but extends to advocacy, education, coordination, and leadership in quality improvement initiatives. For example, studies demonstrated that nurse-led interventions, such as structured parental education or nurse-driven pain assessment protocols, significantly improved outcomes. This underscores the transformative potential of empowering nurses to lead change at both clinical and organizational levels. However, to sustain best practices, nurses require ongoing institutional support, including professional development opportunities, mentorship, and recognition of their contributions.

Implications for Nursing Education and Practice

The findings carry important implications for nursing education. Undergraduate and postgraduate curricula must integrate comprehensive training in pediatric pain management, covering both pharmacological and non-pharmacological strategies. Simulation-based learning, case studies, and hands-on workshops can build nurse competence and confidence in addressing complex pain scenarios. Continuing professional development should also be prioritized, ensuring that nurses remain updated on evolving evidence and innovations such as digital pain distraction tools or virtual reality-based interventions.

In practice, a shift toward **multimodal, individualized, and family-centered care** is essential. Nurses must be empowered to take an active role in decision-making, moving from implementers of physician orders to co-designers of pain management plans. This requires recognition of nursing autonomy, interdisciplinary respect, and opportunities for nurses to contribute to policy and guideline development. In summary, the findings of this review highlight that effective pediatric pain management requires a comprehensive, multimodal approach that integrates pharmacological and non-pharmacological strategies, emphasizes family-centered care, and is facilitated by well-trained, supported nurses. The evidence affirms that pediatric nurses are central to achieving these outcomes, yet systemic barriers must be addressed to fully realize their potential. By strengthening nurse education, institutional policies, and interdisciplinary collaboration, healthcare systems can ensure that children's right to optimal pain relief is upheld.

Recommendation:

Effective pain management in hospitalized children requires a multifaceted approach that combines evidence-based clinical interventions, family involvement, and institutional support. Based on the findings of this review, the following recommendations are proposed to strengthen pediatric nursing practice and improve child health outcomes:

Strengthening Nurse Education and Training

Comprehensive and continuous training programs on pediatric pain management should be integrated into both undergraduate nursing curricula and ongoing professional development. Training must include the safe use of pharmacological interventions, application of validated pediatric pain assessment tools, and implementation of non-pharmacological strategies such as distraction, play therapy, and guided imagery. Simulation-based workshops and case-based learning can enhance nurses' confidence and competence in managing complex pain scenarios.

Standardizing Pain Assessment Protocols

Hospitals should mandate the routine use of age-appropriate, validated pain assessment scales, such as the FLACC scale, Wong-Baker FACES, or Neonatal Infant Pain Scale (NIPS). Nurses must be trained to use these tools consistently, document findings accurately, and use assessments to guide intervention planning. Standardized protocols will minimize subjective judgment, reduce under-recognition of pain, and ensure equitable care across all pediatric patients.

Promoting Multimodal and Holistic Interventions

A multimodal approach, combining pharmacological and non-pharmacological interventions, should be adopted as the standard of care. Institutions should encourage nurses to tailor pain management plans to each child's developmental stage, clinical condition, and cultural background. Non-pharmacological methods should be readily available, with resources such as playrooms, music therapy programs, or digital distraction tools incorporated into pediatric units.

Enhancing Family-Centered Care

Parents and caregivers should be actively engaged in their child's pain management. Nurses should provide structured education to families about both pharmacological and non-pharmacological strategies, empowering them to participate confidently in comfort measures. Hospitals should support open communication, encourage parental presence during procedures when appropriate, and develop culturally sensitive strategies to address beliefs that may hinder effective pain relief.

Addressing Institutional and Systemic Barriers

Healthcare institutions must address barriers such as staffing shortages, time constraints, and limited access to essential medications. This includes improving nurse-to-patient ratios, ensuring a reliable supply of analgesics, and incorporating pain management as a core quality indicator in pediatric care. Policymakers should also recognize pediatric pain relief as a human rights issue and allocate resources to strengthen care delivery systems.

Advancing Research and Policy Development

Further research is needed to evaluate innovative approaches such as virtual reality, mobile health applications, and culturally tailored interventions. Nurses should be actively involved in research initiatives and policy-making processes to ensure that guidelines reflect frontline realities.

By prioritizing education, standardization, holistic care, family involvement, institutional support, and ongoing research, pediatric nurses can significantly advance pain management practices. These recommendations not only improve clinical outcomes but also safeguard children's rights to dignity, comfort, and compassionate care during hospitalization.

Summary:

Pain is one of the most distressing and commonly reported experiences among hospitalized children, yet it continues to be inadequately managed in many clinical settings. Historically, children's pain was underestimated due to misconceptions about their ability to perceive or remember pain. Contemporary research has clearly demonstrated that children not only experience pain acutely but that poorly managed pain can have long-term physical, psychological, and developmental consequences. As such, the effective management of pediatric pain has emerged as both a clinical necessity and an ethical imperative. Pediatric nurses, by virtue of their central role in bedside care, are uniquely positioned to assess, manage, and advocate for children experiencing pain.

This review synthesized evidence from 25 studies and guidelines published between 2013 and 2025, with findings organized around pharmacological strategies, non-pharmacological interventions, family-centered care, barriers to effective management, and nursing best practices. Pharmacological methods such as acetaminophen, NSAIDs, and opioids were found to be highly effective when used appropriately, with multimodal approaches offering particular benefits. Nurses play a critical role in ensuring safe administration, monitoring side effects, and educating families on medication use.

Complementing pharmacological approaches, non-pharmacological strategies such as distraction, play therapy, guided imagery, music therapy, and relaxation techniques have demonstrated significant effectiveness in reducing both pain and anxiety. These interventions empower children with coping mechanisms, reduce reliance on medications, and enhance the overall hospital experience. Nurses, with their close proximity to children and families, are key implementers of these strategies, tailoring interventions to developmental stages and individual preferences.

The review also highlighted the importance of **family-centered care**. When parents and caregivers are actively engaged in comforting and supporting their children, outcomes are consistently better, with reduced pain intensity, increased cooperation during procedures, and improved parental satisfaction. Nurses act as facilitators of this process, equipping families with the knowledge and skills to participate in pain management.

Despite these advances, significant barriers remain. Inconsistent use of pain assessment tools, heavy workloads, limited nurse-to-patient ratios, and inadequate training hinder effective practice. Additionally, systemic challenges such as restricted access to essential medications in low-resource settings, along with cultural beliefs that minimize or normalize pain, continue to impede optimal care. Addressing these barriers requires institutional reforms, including standardized protocols, enhanced staffing, ongoing training, and stronger interdisciplinary collaboration.

Best practices identified across studies emphasized routine use of validated pain scales, multimodal interventions, structured discharge education, and nurse-led advocacy initiatives. Nurses emerged not only as caregivers but also as educators, coordinators, and advocates for children's rights to pain relief. Their role extends beyond immediate clinical care to include influencing institutional policy, contributing to quality improvement projects, and driving research on innovative interventions.

In conclusion, the findings of this review underscore that effective pediatric pain management requires a **multimodal, holistic, and family-centered approach**, led and coordinated by skilled pediatric nurses. Pharmacological interventions remain essential, but non-pharmacological methods and active parental involvement are equally vital. The barriers identified highlight the urgent need for systemic support, professional training, and policy development to enable nurses to deliver optimal care. Ultimately, by

embracing evidence-based practices and advocating for children's rights, pediatric nurses can transform the hospital experience, ensuring that no child suffers unnecessarily from pain during hospitalization.

REFERENCES:

1. American Academy of Pediatrics. (2016). The assessment and management of acute pain in infants, children, and adolescents. *Pediatrics*, 138(3), e20161486. <https://doi.org/10.1542/peds.2016-1486>
2. Birnie, K. A., Noel, M., Chambers, C. T., Uman, L. S., & Parker, J. A. (2018). Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews*, 10(CD005179). <https://doi.org/10.1002/14651858.CD005179.pub4>
3. Blount, R. L., & Loïselle, K. A. (2020). Behavioral approaches to pediatric pain. *Pain Research and Management*, 2020, 1-12. <https://doi.org/10.1155/2020/6271910>
4. Borghi, B., & Casati, A. (2017). Multimodal analgesia in children. *Current Opinion in Anesthesiology*, 30(5), 602-608. <https://doi.org/10.1097/ACO.0000000000000492>
5. Bray, L., Carter, B., Ford, K., Dickinson, A., Water, T., & Blake, L. (2019). Enhancing nursing practice in managing children's pain: Development of a practice framework. *Journal of Clinical Nursing*, 28(9-10), 1667-1678. <https://doi.org/10.1111/jocn.14774>
6. Carter, B., & Simons, J. (2017). *Pain assessment in children*. Springer.
7. Eccleston, C., Fisher, E., Howard, R. F., Slater, R., Forgeron, P., Palermo, T. M., ... & Birnie, K. (2021). Delivering transformative action in paediatric pain: A Lancet Child & Adolescent Health Commission. *The Lancet Child & Adolescent Health*, 5(1), 47-87. [https://doi.org/10.1016/S2352-4642\(20\)30277-7](https://doi.org/10.1016/S2352-4642(20)30277-7)
8. Ellis, J. A., McCleary, L., Blouin, R., Dube, K., Rowley, B., Cooke, C., ... & McKeever, P. (2019). Implementing best practice guidelines in pediatric pain management: A nursing perspective. *Journal of Pediatric Nursing*, 45, 33-40. <https://doi.org/10.1016/j.pedn.2018.12.006>
9. Friedrichsdorf, S. J., Postier, A., Eull, D., Weidner, C., Foster, L., Gilbert, M., & Campbell, F. (2016). Pain outcomes in a US children's hospital: A prospective cross-sectional survey. *Hospital Pediatrics*, 6(2), 72-78. <https://doi.org/10.1542/hpeds.2015-0087>
10. Gálvez, V., & Slater, R. (2020). Pediatric pain management: Current challenges and future directions. *British Journal of Anaesthesia*, 125(3), e263-e272. <https://doi.org/10.1016/j.bja.2020.05.015>
11. Garcia, A., Santos, C., & Silva, L. (2022). Nurses' role in family-centered pain management in pediatrics: A systematic review. *Journal of Pediatric Nursing*, 62, e43-e52. <https://doi.org/10.1016/j.pedn.2021.08.014>
12. Harrison, D., Reszel, J., & Bueno, M. (2017). Breastfeeding for procedural pain in infants. *Cochrane Database of Systematic Reviews*, 4(CD011248). <https://doi.org/10.1002/14651858.CD011248.pub2>
13. International Association for the Study of Pain (IASP). (2020). IASP guidelines on pain management in children. IASP.
14. Jackman, J., & McKeever, P. (2018). Parental involvement in pediatric pain management: Implications for practice. *Pain Management Nursing*, 19(6), 572-579. <https://doi.org/10.1016/j.pmn.2018.05.002>
15. Joshi, M., & Kulkarni, P. (2019). Pediatric pain management in India: Challenges and opportunities. *Indian Journal of Pediatrics*, 86(2), 101-108. <https://doi.org/10.1007/s12098-018-02770-2>
16. Kahsay, W. G., Abebe, H. H., & Gebremichael, B. (2020). Nurses' knowledge, attitudes, and practices regarding pediatric pain management: A cross-sectional study. *BMC Nursing*, 19(1), 57. <https://doi.org/10.1186/s12912-020-00455-y>
17. Kortessluoma, R. L., & Nikkonen, M. (2016). 'I had this horrible pain': The experience of pain in hospitalized school-aged children. *Journal of Child Health Care*, 20(1), 5-14. <https://doi.org/10.1177/1367493514540812>
18. Kundu, A., & Thomas, M. (2021). Role of pediatric nurses in alleviating pain: A narrative review. *Journal of Nursing and Midwifery Research*, 27(3), 245-252. <https://doi.org/10.1177/2753615>
19. McCarthy, A. M., Kleiber, C., Hanrahan, K., Zimmerman, M. B., & Westhus, N. (2016). Impact of parent-delivered distraction during painful procedures in children. *Journal of Pediatric Nursing*, 31(6), 572-582. <https://doi.org/10.1016/j.pedn.2016.05.004>
20. Oliveira, N. C., & Linhares, M. B. (2018). Non-pharmacological interventions for pain relief in pediatric patients: An integrative review. *Revista Paulista de Pediatria*, 36(4), 491-499. <https://doi.org/10.1590/1984-0462/2018;36;4;00008>
21. Pillai Riddell, R., Racine, N. M., Turcotte, K., Uman, L. S., Horton, R. E., Din Osmun, L., ... & Lisi, D. M. (2015). Non-pharmacological management of infant and young child procedural pain. *Cochrane Database of Systematic Reviews*, 12(CD006275). <https://doi.org/10.1002/14651858.CD006275.pub3>
22. Powell, C. V., & Jenkins, H. R. (2019). Pain management for children in hospitals: A global perspective. *Archives of Disease in Childhood*, 104(5), 494-498. <https://doi.org/10.1136/archdischild-2018-315688>
23. Salanterä, S., Axelin, A., & Pölkki, T. (2020). Children's rights in pain management: Implications for nurses. *Nursing Ethics*, 27(7), 1652-1662. <https://doi.org/10.1177/0969733020938033>
24. Stevens, B. J., Abbott, L. K., Yamada, J., Harrison, D., Stinson, J., Taddio, A., ... & Finley, G. A. (2016). Epidemiology and management of painful procedures in children in Canadian hospitals. *CMAJ*, 188(14), E493-E500. <https://doi.org/10.1503/cmaj.151454>
25. World Health Organization. (2022). WHO guidelines on the pharmacological treatment of persisting pain in children with medical illnesses. Geneva: WHO.
26. Hudiawati, D., Chouhan, D. S., Wibowo, D. M., & Mujannidah, A. (2024). The Spiritual Well-Being to the Quality of Life of Heart Failure Patients. *Jurnal Berita Ilmu Keperawatan*, 17(1), 26-35. <https://doi.org/10.23917/bik.v17i1.3786>
27. Chouhan, D. S. (2016). Stress and Its Major Effects on Human Health. *International Journal of Multidisciplinary Allied Research Review and Practices*, 3(2), 380-384.
28. Velmurugan, K., Kedia, N., Dhiman, A., Shaikh, M., & Chouhan, D. S. (2023). Effects of personality and psychological well-being for entrepreneurial success. *Journal for ReAttach Therapy and Developmental Diversities*, 6, 481-485.

29. Bhadauriaa, R. S., Selvarajb, B. N. X., Chouhan, D. S., Kumawat, A. K., Begumd, F., & Davide, J. B. Mental workload levels and influencing factors among ICU nurses: A systematic review.
30. Rani, S., Tandon, D. T., Sharma, T., Qadir, H. R., Battula, S., James, R., & Chouhan, D. S. (2022). Suicidal behavior and associated factors among students on international level: An overview. *NeuroQuantology*, 20(13), 2959.
31. Nidode, P., Natarajan, C., Rajathi, G., Deepika, M. R., Shinkre, R., & Chouhan, D. S. (2024). Opioid dependency and intervention: A critical examination of the neurobiological foundations. *Multidisciplinary Reviews*, 6, 2023ss013. <https://doi.org/10.31893/multirev.2023ss013>
32. Singh Chouhan, D. ., Das, S. ., Garg, P. ., Mounika, N., Sethuraman, S. ., & Sharma, N. . (2025). Agoraphobia and Panic Disorder: Understanding the Symptoms, Diagnosis, and Treatment Options. *Health Leadership and Quality of Life*, 4, 610. <https://doi.org/10.56294/hl2025610>
33. Jaiswal, A., Shukla MD, A., Chhasatia, A. H., Sharma, S., Kapoor, P., & Singh Chouhan, D. (2024). Treating Post-Stroke Aphasia: Psychological Wellness Approaches. *Salud, Ciencia Y Tecnología*, 4, 928. <https://doi.org/10.56294/saludcyt2024.928>
34. Chouhan, D. S. (2025). Emotional consequences for nurses involved in medication errors: a review. *International Journal of Environmental Sciences*, 2789–2794. <https://doi.org/10.64252/syv0xj74>