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# **PLAY AS AN ELEMENT OF PEDIATRIC NURSING INTERVENTIONS**

**A Literature Review**



## ABSTRACT

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Play as an Element of Pediatric Nursing Interventions. A Literature Review

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Play is integral to children's development and growth. Hospitalization can be stressful for children; unfamiliar environments and staff, alongside frightening and painful procedures, can impede coping mechanisms. Therapeutic play considers children's psychosocial and cognitive development to support their emotional and physical development in different care situations. The thesis aimed to discover playful interventions as part of pediatric nursing interventions by addressing the research questions: "What kind of playful interventions are useful to reduce children's anxiety, distress, and pain? How can play interventions support nursing tasks?" The study included peer-reviewed research articles published in English from 2013 until 2023, investigating playful interventions and pediatric nursing and their effects on anxiety, distress, or pain. Studies concerning children aged 3-7 years and interventions involving or led by nurses were integrated.

This descriptive literature review aimed to determine the extent of the current knowledge of the topic, discover any interpretable pattern regarding existing theories and findings and discuss these. Sixteen scientific articles were systematically selected and went through inductive content analysis.

The play interventions included preparation for and distraction before and during a procedure. The studies incorporated interactive gaming technology, storytelling, role play, emotional outlet play, simulation play and medical play. Play interventions were considered a nonpharmacological approach to pain and anxiety management before surgery or during medical procedures. Administering play interventions showed decreased pain and anxiety, lower stress and anxiety or reduced pain and distress. However, one study reported no effect of distraction gaming on emergency delirium and pain, and another showed no impact of distraction during wound care on perceived pain. Integrating play in the nursing process led to the earlier discharge and was helpful in building trust and connection while improving the children's social, emotional, and behavioral skills. Yet, nurses outlined concerns about staffing, lack of time and technological issues.

Therapeutic play seemed to be effective in reducing preprocedural anxiety and pain, preoperative anxiety, preprocedural distress and negative emotions towards medical procedures. Providing age-appropriate procedural content could improve interactions between nurses and the child, enhance communication, connection, trust, and advance time management in the nurses' workflow. Nurses should expand their knowledge about the rich potential of play and receive training to incorporate play interventions in the nursing process. Nurse leaders and hospital management should provide resources for integrating play interventions into nursing care.

Keywords: hospitalized children, anxiety, pain, pediatric nursing, play interventions

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## 1 INTRODUCTION

Play is integral to children's development; it allows them to experiment with behavioral and social skills and exercise their physical and communicational repertory. In addition, play activities nurture the development of social competency, resilience and emotional scope, creativeness, and problem-solving skills (Nijhof et al., 2018). Hospitalization can be an unpleasant experience for children; they leave their familiar environment and cannot continue their regular play activities. The therapeutic form of play considers children's psychosocial and cognitive development to support their psychosocial and physical development. Besides, play is a form of expression which allows children to communicate with healthcare personnel and helps them process emotions (Koukourikos et al., 2015).

Furthermore, play aids children in familiarizing themselves with the medical equipment and procedures to make their concerns heard, make their own choices, resolute internal conflicts, and achieve mastery and coping with hospitalization successfully (Achterberg et al., 2019). Pediatric nurses use play for hospitalized children in everyday practice and during preparing children for surgery and invasive procedures (Koukourikos et al., 2015).

This thesis aims to discover playful interventions as part of pediatric nursing to reduce adverse responses in hospitalized children. This review includes male and female children who are three to seven years old, around preschool age and born without cognitive or physical impairment. It is of interest to identify interventions that help reduce anxiety, distress, and pain and contribute simultaneously to efficiency in nursing tasks. This work focuses on pediatric nursing in developed countries, examines the scope of the play interventions in an international context and intends to build a linkage to practical implementations for European pediatric nursing.

## 2 THE HOSPITALIZED CHILD AND PLAY IN PEDIATRIC NURSING

### 2.1 Hospitalized Children

Hospitalized children may experience fear of pain, needles, medicines, symptoms of their disease and lack of information. Further, separation from their parents, nursing procedures, strange environments, unfamiliar personnel, and still holding can cause negative emotions, distress, and anxiety. At the same time, their self-determination and freedom of choice are limited (Salmela et al., 2010). A critical aspect of pediatric care is to relieve children's pain. Unfortunately, procedural pain is a frequent problem experienced by pediatric patients, which can lead to healthcare avoidance, increased pain sensitivity, fear, and anxiety (Addab et al., 2022). For hospitalized children, needle procedures are extremely negative experiences. They have trouble coping with needle procedures like blood sampling or intravenous catheterization because it can cause pain and leads to stressful situations (Hjelmgren et al., 2022).

Anxiety before or during procedures can trigger a response of severe emotional distress in children, leading to deterioration, strong negative emotions, apathy, and sleep disturbances (Caleffi et al., 2016). In addition, preoperative anxiety can lead to significantly higher postoperative pain, delayed hospital discharge and maladaptive behavioral changes that last up to a few weeks following surgery (Fortier & Kain, 2015).

Distress is a negative stress response and can lead to maladaptive behavior. In children, it appears in inconsolable, restless crying that settles only when reunited with the mother or in non-agitated crying from which the child is consolable with a cuddle from the nurse (Hayhoe et al., 2018). A dramatic form of distress on awakening after surgery is called emergence delirium (ED). This delirium is an acute state of confusion in which the child cries, kicks, and thrashes while being irrational, incoherent, and uncooperative. Emergence delirium has a strong relationship with longer-term negative behavioral changes (Hayhoe et al., 2018).

## 2.2 Pediatric Nursing

According to the American Nurses Association (2016), pediatric nursing aims to protect, promote, and optimize the health and abilities of children from neonatal to teenage years. Pediatric nursing comprises preventing disease and harm, restoring health, and comfort in health conditions and at the end of life. Moreover, pediatric nursing contains care management and interventions with the goal of improving the pediatric patient's condition and simultaneously advocating for the children and their families (American Nurses Association, 2016).

The principle of family-centered care is commonly used in pediatric nursing worldwide since it is considered the ideal approach to care for hospitalized children and involves the parents in the child's care (Uuksulainen et al., 2022). The interaction between the pediatric nurse, the child and the parents in the hospital is complex. Knowledge about children's possible responses to hospitalization and developmental stages is crucial for optimal caring (Hjelmgren et al., 2022). Also, nurses need skills to observe and meet the child's needs to reduce experiences of anxiety and pain (Kleye et al., 2021).

## 2.3 Play in the Child's Development

The United Nations Convention on the Rights of the Child (1989) defines an explicit right for all children in Article 31 to have rest and leisure time, to engage in play and recreational age-appropriate activities and culture (United Nations Convention on the Rights of the Child, 1989).

Play allows children to develop motor skills, test their behavioral and social repertoire, simulate different scenarios, and address their behavior's positive and negative effects in a safe setting (Nijhof et al., 2018). Play and forms of play change during the developmental stages of children. Also, types of play depend on the child's interests and mood. Children can alternate between types of play and levels of complexity or be involved in various categories of play simultaneously (Nijhof et al., 2018).

Jean Piaget (1896-1980), a Swiss psychologist known for his theory on child development, formed four stages of cognitive development that include play behavior: (1) sensorimotor stage (0–2 years old), (2) preoperational stage (2–7 years old), (3) concrete operational stage (7–11 years old), (4) formal operational stage (11 years old through adulthood) (Piaget, 1962). This work focuses on children from three to seven years and corresponds to the preoperational stage. After learning mainly through their five senses in the sensorimotor stage, children exhibit their intelligence using symbols: they use an object to represent something else, such as pretending a stick is a sword. Language develops rapidly, memory and imagination mature, while thoughts are still nonlogical, intuitive and dominantly egocentric (Huitt & Hummel, 2003).

Children engage in extensive and elaborated pretend play (Achterberg et al., 2019) and talk about events that happened in the past or people who are not present (Huitt & Hummel, 2003). Pretend play develops through a sequence of gradually sophisticated phases from object play from age two to roleplay beginning at the end of the third year. Preschoolers from the age of three continue to practice loosely structured pretend, make-belief, fantasy, role- and social plays (Jones, 2018; Piaget, 1962).

Play is a natural modality that allows children to explore and experiment. Moreover, children use play as an instrument to develop resilience, learn cooperation, defeat challenges, and collaborate with others. Play in a supportive environment can therefore be of crucial importance for the developmental stages of children into healthy, skilled adults (Nijhof et al., 2018).

## 2.4 Play in the Hospital

The European Association for Children in Hospital (2016) formed ten principles related to the UN Convention on the Rights of the Child (1989) and the respect for children's developmental and emotional needs (European Association for Children in Hospital, 2016). Article 7.4 contains:

Extensive opportunities for play, recreation, and education, supported by appropriate play materials, resources and equipment, should be provided for all the age groups that are being cared for in the facility and comprise: sufficient periods of time for play, seven days a week; creative activities by all children, including those who are in isolation should be encouraged.

Play in the hospital environment provides comfort for children and a sense of normality and buffers against the adverse effects of stress (Jones, 2018).

According to the Cambridge Handbook of Play, healthcare professionals use playful interventions to transition children into care environments to help them cope with several stressors. Further, play can be utilized to evaluate the developmental stage, prepare them for procedures, enhance post-procedural mastery, and ensure children prosper during hospitalization (Achterberg et al., 2019).

Additionally, play helps children express their feelings and regain a sense of control and competence that seemed to have disappeared in the challenges of hospitalization and treatment (Jones, 2018).

Incorporating play, such as preparation play and distraction, medical and roleplay, can be adapted to meet the developmental and psychosocial needs of children with different health conditions (Jones, 2018) and can be regarded as a therapeutic modality (Achterberg et al., 2019). Types of play depend on the tasks and specific situations. For example, distraction play is used by nurses in emergency departments, oncology, radiology departments and surgical units (Achterberg et al., 2019). Thus, healthcare professionals play a crucial role in advocating for playfulness and integrating play opportunities into children's healthcare experiences (Jones, 2018).

### 3 NEUMAN SYSTEMS MODEL AND PEDIATRIC NURSING

This work is guided by the Neuman systems model. The first edition of Betty Neuman's systems model was published in 1982; further development and adjustments were elaborated in subsequent editions (Alligood, 2018). The model establishes a holistic understanding of stressors and a client's defense and resistance mechanisms. Moreover, the model outlines prevention measures.

#### 3.1 Neuman Systems Model

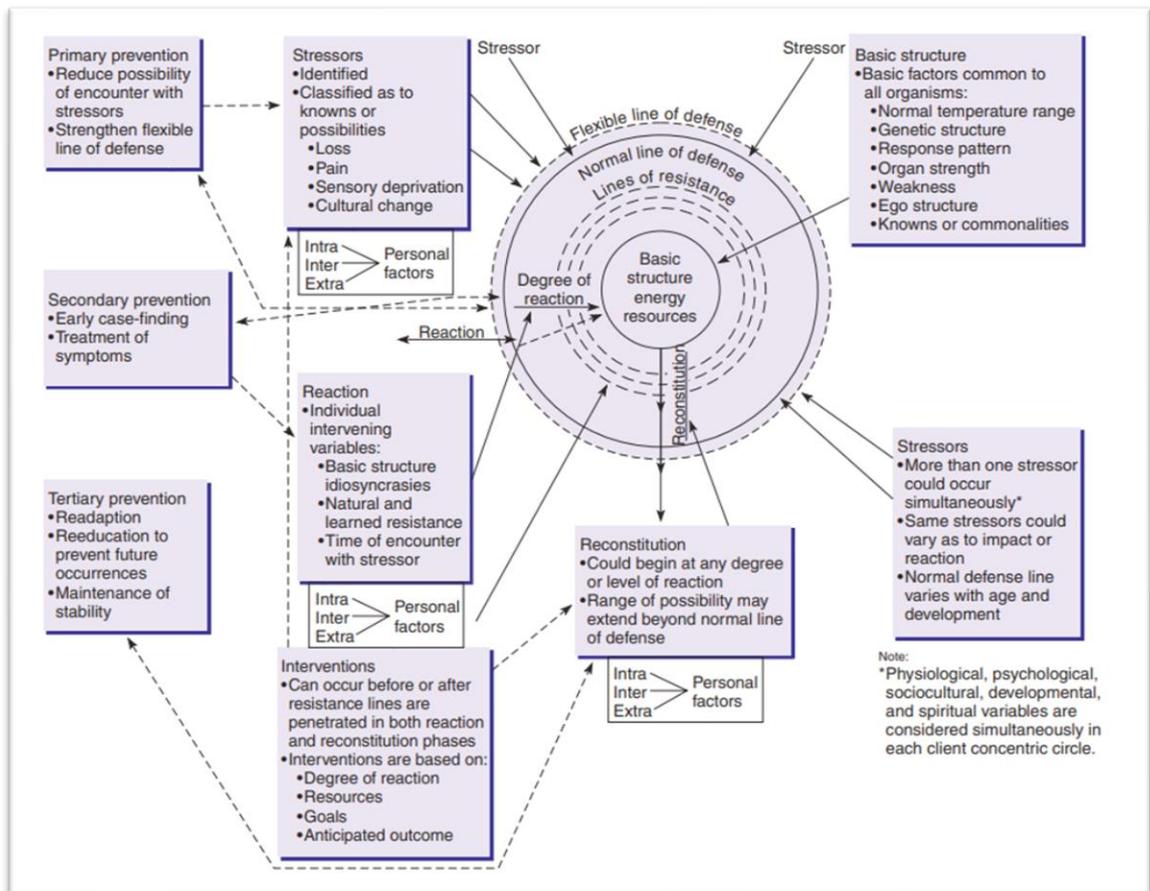


Figure 1: The Neuman systems model diagram (Alligood, 2018)

The Neuman systems model reflects the nature of human beings as so-called "open systems" in interaction with each other and the environment (Alligood,

2018). The “client system” is represented by concentric circles illustrating outer defense and inner resistance layers that cover the “basic structure” and energy resources of a human being (see Figure 1).

The model considers five “variables” that affect the client system simultaneously: “physiological, psychological, sociocultural, developmental, and spiritual” (Alligood, 2018). The developmental variable is significant for pediatric nursing because it considers age-related processes and activities. A human being exchanges energy and information, referred to as “input and output”, with the environment while using resources to move towards “stability” (Alligood, 2018). This stability is a desirable state of health and allows smooth interactions and energy exchange. Neuman sees health as a dynamic and constantly changing range between health and illness (Alligood, 2018).

### 3.2 Pediatric Nursing within the systems model

According to Neuman's model, the environment comprises “internal and external forces” which surround the client, manipulating and being manipulated by the client (Alligood, 2018). Beyond that, Neuman regards the client as subject to stressors arising from their relationship with other people and the environment (Alligood, 2018). However, how children deal with stressors highly depends on their psychosocial and cognitive development, which is different from that of adults (Li et al., 2011).

The stressors the child faces stimulate tension and disturb the system's stability, resulting in positive or negative reactions (Alligood, 2018). These stressors can arise within the child, such as conditioned responses, defined as “intrapersonal stressors”. “Interpersonal stressors” are related to the interaction that takes place between the child and the environment and “extra personal” external forces of environmental interaction that occur outside the child's boundaries (Almino et al., 2021).

The interrelationships of the five variables, including the child's developmental stage, affect the manner of reaction to the stressor (George, 2011). In addition, the reaction to the stressor and the prognosis are influenced by the number and strength of the stressors affecting the pediatric patient, the length of time the child is affected and the meaning of the stressor to the child (Idowu et al., 2022).

Neuman's model diagram was adapted for this work to depict the child's stressors and defense and resistance mechanisms (see figure 2). The most outer "flexible line of defense" is the primary defense of a child, which has the ability to expand. When the flexible line of defense expands, it moves away from the normal defense line providing greater protection; this process is also referred to as buffering or cushioning. Conversely, when the line contracts, it moves closer and less protection is accessible (Turner & Kaylor, 2015).

Penetration of the "normal line of defense" can result in manifestation of stress and illness. Consequently, the "lines of resistance", which are resource factors that try to restore equilibrium, are activated and lead to restoration or a decline (Alligood, 2018). Returning to wellness is called "reconstitution" (Turner & Kaylor, 2015). If reconstitution is not proceeding and the stressor disturbs the lines of resistance, the child's basic structure becomes penetrated, which is a potentially fatal threat (Turner & Kaylor, 2015).

Neuman further conceptualizes prevention as an intervention (Almino et al., 2021). Preventive interventions can happen before or after the child's protective lines of defense and resistance are attacked. It is beneficial that these interventions begin when a stressor is assumed or detected, such as, e.g., procedural pain. On this account, interventions are built on the potential or actual reaction, goals, resources, and estimated outcomes (Alligood, 2018). Neuman differentiates three stages of prevention:

1. Primary stage: promoting the child's wellbeing by preventing stressors.
2. Secondary stage: are carried out when a reaction to stress has already happened, aiming at early detection and treatment.

3. Tertiary stage: are implemented to restore the pediatric patient's wellbeing after recovery from stress reactions aiming at maintaining health and educating the child about future prevention (Almino et al., 2021).

These prevention interventions aim to protect the basic structure of the child, the inner core (see figure 2), by strengthening the lines of defense and lines of resistance (Pestana-Santos et al., 2021). Nursing interventions such as pain management, managing anxiety and establishing trust contribute to mitigating adverse influences of the hospital environment on pediatric patients, improving the experience as well as the child's perception of wellbeing (Pestana-Santos et al., 2021).

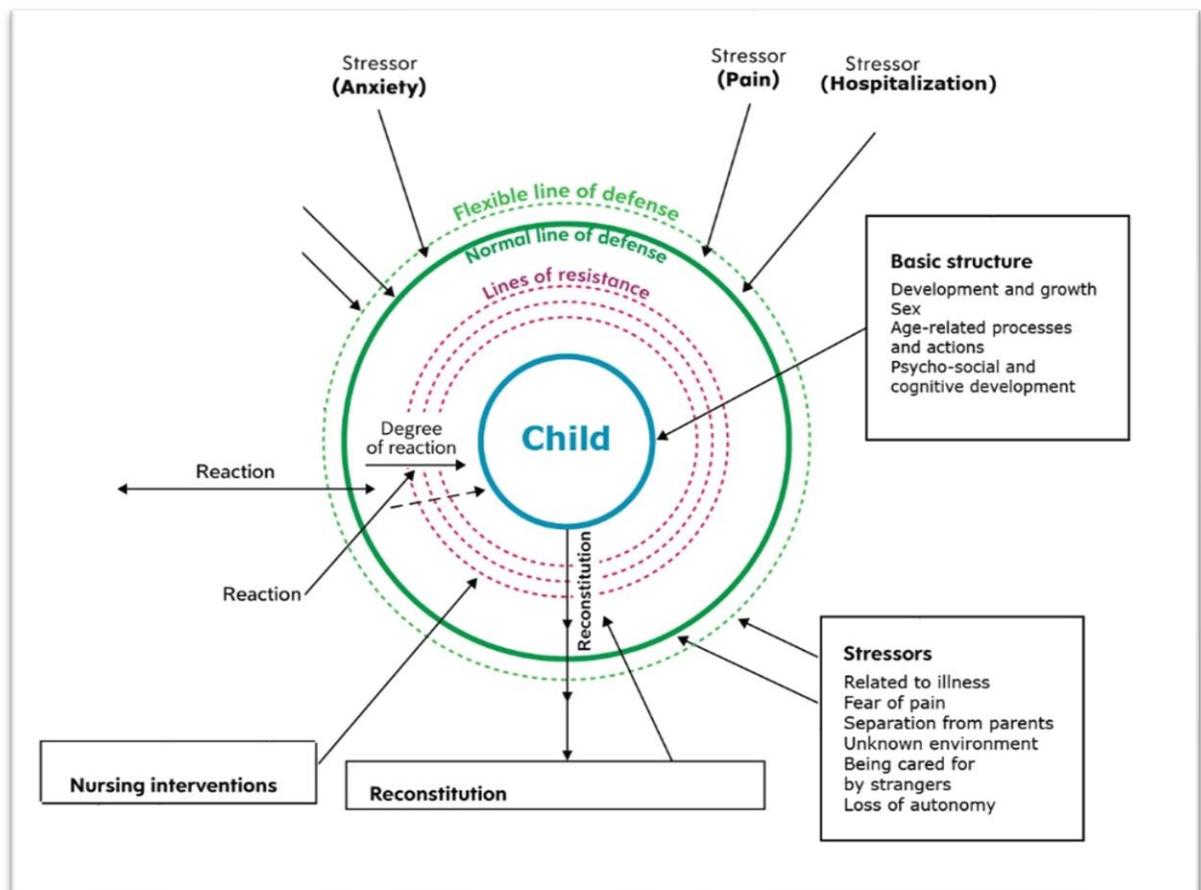


Figure 2: Adaption of Neuman systems model (Alligood, 2018, modified by Lakonen, 2023)

#### 4 PURPOSE AND OBJECTIVES OF THE THESIS

The study's purpose is to explore nursing interventions, including playful elements, to relieve anxiety, distress, and pain in hospitalized children. Also, it is of interest to identify interventions that support the child and promote pediatric nurses' work. The study aims to identify the current level of knowledge on the topic and its gaps.

The following research questions guide the study:

What kind of playful interventions are useful in reducing children's anxiety, distress, and pain?

How can play interventions contribute to the efficiency of nursing tasks?

## 5 METHODOLOGY

### 5.1 Literature Review

The literature review aims to determine the extent of the current knowledge of the topic, discover any interpretable pattern or trend regarding pre-existing theories and findings and discuss these (Lau & Kuziemy, 2016). The review explores aspects of a phenomenon, aiming to enhance the understanding of it (Cooper et al., 2018). This work puts the study in the context of the knowledge about the topic and discusses the concepts, variables, and problems appropriate to the research question. Also, the review aims to detect gaps in the current knowledge of the matter and discuss these (Aveyard, 2010).

Existing research studies on play interventions in a pediatric nursing context will be collected, analyzed, and synthesized. Accordingly, the investigation is based on evidence and aims to present a balanced view in the discussion chapter (Parahoo, 2014). In addition, reviewing the literature means summarizing the emphasis, methodologies and results and drawing conclusions on the state of research in this field (Parahoo, 2014). Literature reviews are a condensed source of the current literature, so that the reader does not need to access each research report (Aveyard, 2010).

### 5.2 Data Collection

This study is conducted as a descriptive literature review in a systematic manner. The research questions are addressed with peer-reviewed articles on playful elements of pediatric nursing interventions. The search was carried out in academic databases: CINAHL with Full text (EBSCO), PubMed, ProQuest Health Research Premium Collection, Sage, ScienceDirect and Cochrane Library. Boolean search phrases AND and OR were used, and the following keywords for relevant research articles were applied precisely in the same way for each database:

((pediatric nursing) AND (play interventions)) AND (children) AND (anxiety or pain or distress)

Limiters were set depending on the database's characteristics; truncation was not utilized due to the search on ScienceDirect, which does not support wildcards. CINAHL and PubMed were explored due to a strong relation to nursing research and the possibility to set age limits, afterwards ScienceDirect was chosen as profound database for nursing professionals, while further discovery was carried out on the Collection of databases on ProQuest Health Research to recheck if any further records could be found. SAGE Journals and Cochrane Library were searched to finalize the search.

The initial search was conducted in CINAHL with full text. The publication date from 2013 to 2023 was picked, and as a source type, "Academic journals" was selected. Further, only English articles were chosen from the given languages, and the pediatric patient's age range was selected as "all child", which led to 71 search results. The subsequent search was accomplished in PubMed, the results by year were filtered between 2013-2023, and the age 1-12 years was chosen. That generated 71 results, while three duplicates were detected.

The following search was done in ScienceDirect with the selected subject area "Nursing and Health professions" and "year(s)" between 2013-2023, while the article type: "research article" was chosen. That delivered 270 results, of which four duplicates were subtracted. In addition, the search was extended to ProQuest Health Research Premium Collection. The search was limited to "peer-reviewed", "2013-2023", and "English", which spawned 49 results.

Furthermore, another search was carried out in SAGE Journals with the following filters applied "2013-2023" and "research article", which supplied 388 results. Another search was accomplished in Cochrane Library, limited to "01.03.2013-01.03.2023", resulting in 51 hits, of which four duplicates were identified. Lastly, one article was added via hand searching (Cooper et al., 2018) while screening the included studies' reference lists.

The percentage of included studies per database displays that ScienceDirect yielded most search results (see figure 3).

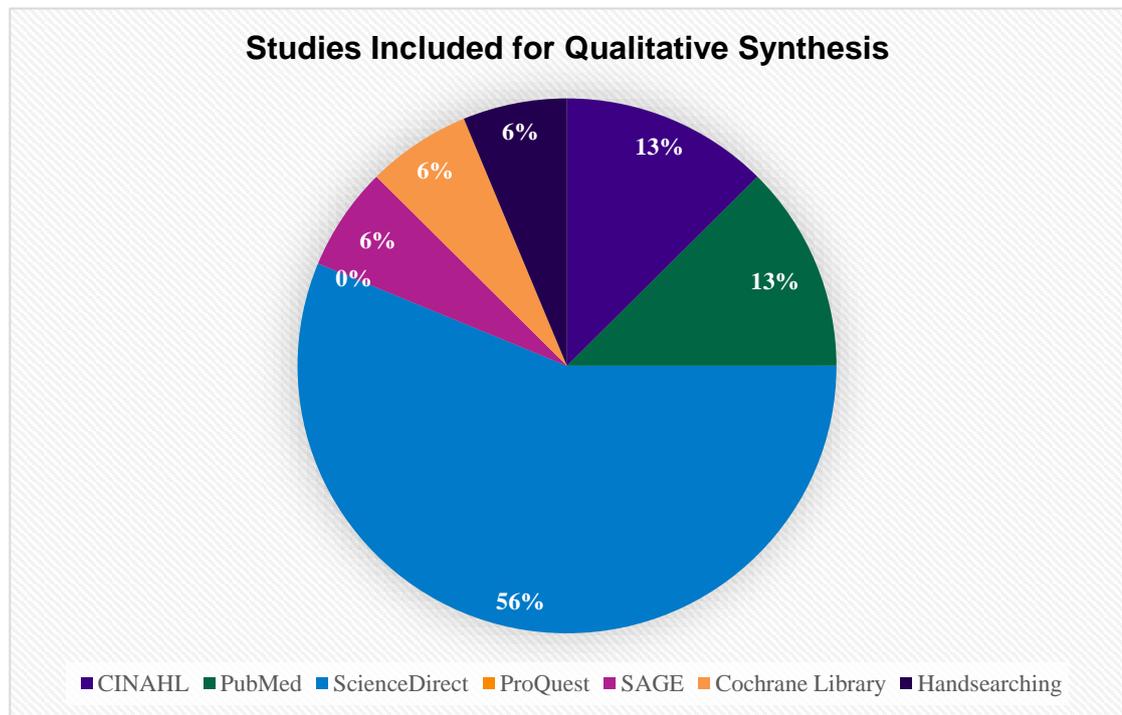


Figure 3: Percentage of included studies per database

The search strategy is transparently presented in a PRISMA flow diagram and illustrates how the data was managed (Coughlan & Cronin, 2021). In that way, the reader can replicate the search and selection of studies (see figure 4).

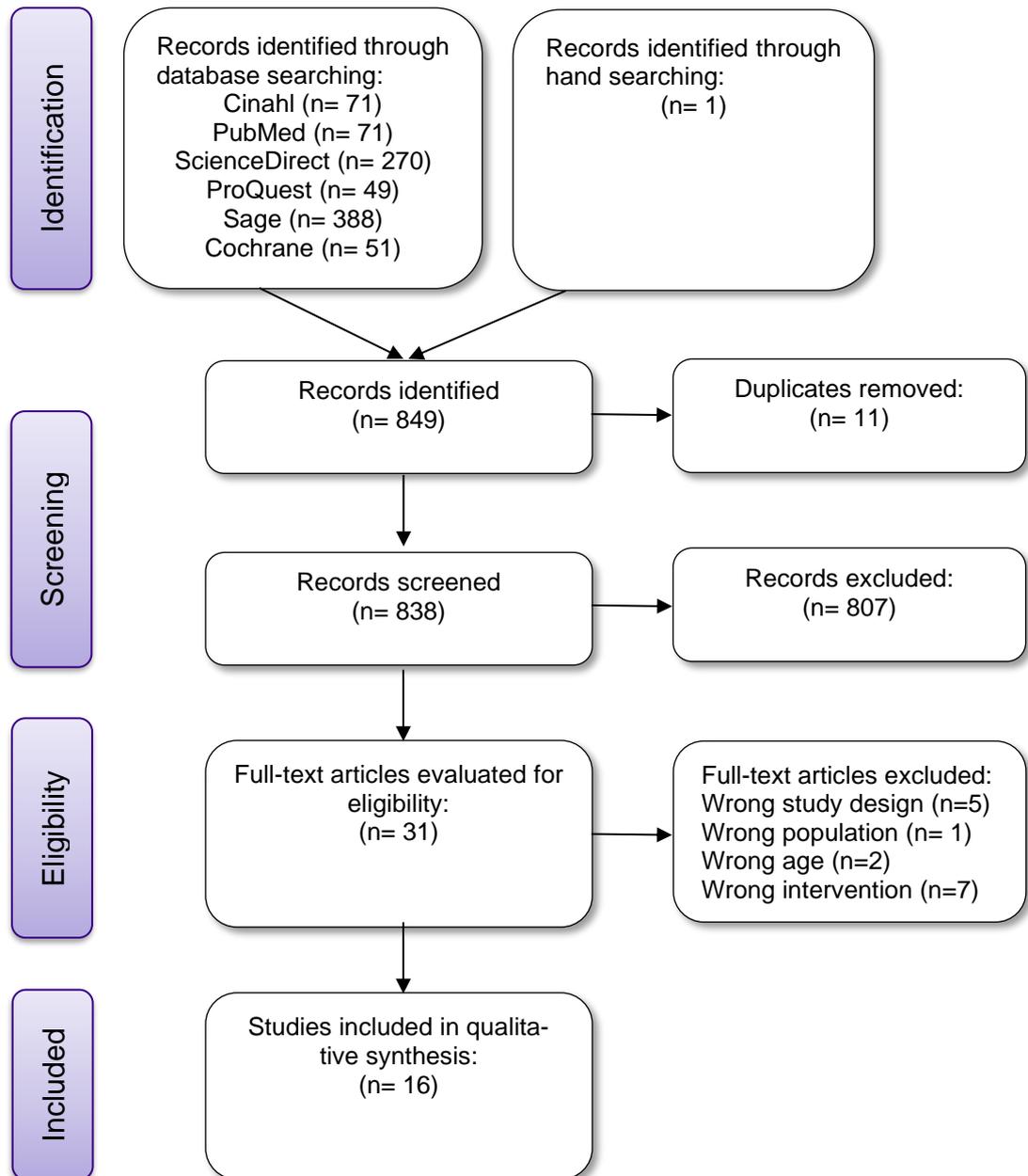


Figure 4: PRISMA flow diagram

The aim was to retrieve nursing-related research articles on play as an element of pediatric nursing interventions. This work concentrates on pediatric nursing in developed countries, which narrowed the search and yielded more focused results building a link to European pediatric nursing. The study included peer-reviewed research articles published in English from 2013 until 2023, investigating playful interventions and their effects on anxiety, distress, or pain. Nursing-related studies concerning children aged three to seven years and interventions involving or led by nurses were integrated. Children with special needs or cognitive impairment were excluded to limit the search (see table 1).

Table 1: Inclusion and exclusion criteria

| <b>Included:</b>                                                    | <b>Excluded:</b>                                                                       |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Articles concerned with playful interventions and pediatric nursing | Research articles related to play and pediatrics but not focusing on pediatric nursing |
| Articles that include anxiety or pain, or distress                  | Focus on children with special needs or cognitive impairment                           |
| Peer-reviewed research articles                                     | Non-scientific articles                                                                |
| Published in English in the last ten years, from 2013 until 2023    | Publication date prior to 2013                                                         |
| Male and female children aged three to seven years                  | Children younger than three and older than seven                                       |
| Interventions involving or led by nurses                            | Developing countries                                                                   |

### 5.3 Data Analysis

The summary table shows that this literature review includes articles with several study designs: qualitative, quantitative, and mixed methods (see appendix 1). These articles investigate play interventions in pediatric nursing. Sixteen articles will undergo inductive content analysis. In this manner of analysis, the data moves from the detailed to the general so that certain occurrences are observed and then combined into a broader whole (Elo & Kyngäs, 2008).

#### Preparation

Before starting the process of selecting and labelling units of meaning, referred to as coding, the data is read and re-read thoroughly to become familiar with it in depth (Vears & Gilliam, 2022) and to acquire a sense of the whole (Vaismoradi et al., 2016). The reading process is guided by the aim and research question of the study in choosing the contents to analyze (Elo & Kyngäs, 2008).

In identifying chunks of text that have meaning related to the research questions, the discovery of units of meaning begins. Now, it has to be decided whether directly seen, manifest content (developing categories) or the underlying meaning, the so-called latent content (developing themes) is analyzed (Vaismoradi et al., 2013). Units of meaning, as shown in table 2 can contain more than one sentence and consist of several meanings (Elo & Kyngäs, 2008).

Table 2: Extracting unit of meaning and coding:

| Unit of meaning                                                                                                                                                                                                                                                                                                                                                                                                           | Coded for:                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>“Toys included in the distraction kit were adapted to the children’s age. Nurses strongly agreed that the distraction kit was an intervention, which deserved to be developed, and they also mentioned that the toys were easy to use. Nurses mentioned that, although bubble blowing was a helpful distraction tool, there was a concern about the bubbles getting on the insertion site “(Ballard et al., 2017).</p> | <p>Age-appropriate toys</p> <p>Nurses' point of view</p> <p>Development of intervention</p> <p>Usability of toys</p> <p>Safety of intervention</p> |

## Organizing

Then, the researcher begins to organize the texts by open coding, followed by identifying categories and abstraction. While reading an article, notes and headings are written directly in the text (Elo & Kyngäs, 2008). The coding is divided into first- and second-round coding: first, labelling to see the sense of the whole without focusing on the details and second, developing subcategories from codes (Vears & Gilliam, 2022). In the inductive process, the abstraction moves from subcategories to main categories and, finally, to themes.

Table 3: Building subcategories and main categories:

|                                                                                                                                                                                                                                     |                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Main Category:</b><br>Distraction interventions                                                                                                                                                                                  | <b>Main Category:</b><br>Preparational play                                                                                                          |
| <b>Subcategory 1:</b> Distraction methods<br><b>Subcategory 2:</b> Distraction during needle-related procedures<br><b>Subcategory 3:</b> Preoperative Distraction.<br><b>Subcategory 4:</b> Distraction in the emergency department | <b>Subcategory 1:</b> Knowledge about medical procedures<br><b>Subcategory 2:</b> Psychosocial skills<br><b>Subcategory 3:</b> Cognitive development |

By developing subcategories, the data is deciphered so that the various ideas and meanings in it can be seen without detaching these ideas from the context in which the original words were written (Vears & Gilliam, 2022). In this step, the researcher chooses a main category and looks at all the sections of all articles under that category (see table 3). Some subcategories may be so similar that they can be blended, while others will differ, so they should stay as stand-alone subcategories.

Next, it is evaluated if any subcategories relate to a different main category from the one it is coded to. That anticipates comparing all the bits of text coded in each subcategory from all articles. This is a comparing and iterative process: grouping and ungrouping subcategories, going back and forth, and testing the main categories. This process aims to best interpret the data without being repetitive or

dividing the data into too many categories losing the initial meaning (Vears & Gilliam, 2022). Subsequently, themes are built to summarize the underlying meaning of the content (see table 4).

Table 4: Building themes and main categories:

| Theme            | Main Category                                                                        |
|------------------|--------------------------------------------------------------------------------------|
| Therapeutic play | Distraction interventions<br>Preparational play<br>Development of play interventions |

## Reporting

Following these steps, the results of the abstraction process can be visualized in a schema. Then, the themes, main categories, and subcategories used in the data analysis are presented in table 5. Finally, the data is ready for reporting the results.

Table 5: Themes, main categories, and subcategories used in the data analysis

| Themes           | Therapeutic Play                                                                                                                                                                                                  |                                                                                                                                                                                 |                                                                                                                             | Play interventions in the nursing process                                                                   |                                                                                                                                              |                                                                                                                                |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Main categories  | Preparational play                                                                                                                                                                                                | Distraction interventions                                                                                                                                                       | Development of play interventions                                                                                           | Children's response to hospitalization                                                                      | Nurses' perspective                                                                                                                          | Play Interventions as Non-pharmacological Alternative                                                                          |
| Subcategories    | Medical play,<br>Developmental play,<br>Preparational or instructional play,<br>Role play and storytelling<br><br>Knowledge about medical procedures<br><br>Peer group preparation<br><br>Acceptance of treatment | Gaming technology<br><br>Distraction methods<br><br>Distraction during needle-related procedures<br><br>Preoperative Distraction<br><br>Distraction in the emergency department | Usability/ Handling of tools<br><br>Feasibility of interventions<br><br>Gaming technologies<br><br>Design based on theories | Anxiety<br><br>Pain<br><br>Distress<br><br>Emergency Delirium<br><br>Psychological and behavioral responses | Benefits and obstacles in workflow<br><br>Practicability of play interventions<br><br>Facilitation of the nursing task<br><br>Length of stay | nonpharmacological anxiolytic method<br><br>Nonpharmacological pain control<br><br>Nonpharmacological alternative to midazolam |
| Unit of analysis | 6, 7, 12, 15, 16                                                                                                                                                                                                  | 1, 2, 3, 4, 6, 8, 9, 10, 11, 13, 14                                                                                                                                             | 2, 6, 7, 10, 12, 14, 16                                                                                                     | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16                                                           | 2, 8, 9, 10, 12, 13, 14, 16                                                                                                                  | 1, 3, 4, 5, 13, 14                                                                                                             |

## 6 RESULTS

This study aimed to explore nursing interventions, incorporating playful elements to relieve anxiety, distress, and pain in hospitalized children. The interest was identifying interventions which support the child and promote pediatric nurses' work. This literature review revealed two key themes: therapeutic play and play interventions in the nursing process. The literature was further organized into main categories. First, preparational play, distraction interventions and development of play interventions are reported. Secondly, the child's response to hospitalization, the nurse's perspective, and play interventions as nonpharmacological alternatives are described.

This literature review included articles with several study designs: randomized controlled studies or randomized clinical trials (n=9), experimental studies (n=3), a descriptive qualitative study (n=1), an explorative qualitative study (n=1), a comparative pre-interventional and postinterventional research study (n=1) and a case study (n=1) (see Appendices 1 and 2).

### 6.1 Therapeutic Play

Therapeutic play methods comprised preparation for a procedure [6;7;11;12;15;16] and distraction before and during a procedure [1;2;3;4;5;6;8;9;10;13;14]. Various studies incorporated interactive gaming technology [4;5;8;9;10;13;14] or interaction with a social robot [11], while others used techniques such as bubble blowing, storytelling, role play, emotional outlet play, group play, simulation play and medical play [1;2;6;7;12;14;15;16].

### 6.1.1 Preparational Play

According to Li et al. [6], offering individualized preparational play interventions helped the children to gain knowledge about medical procedures. This understanding reduced anxious feelings and stress before medical procedures. Different therapeutic play interventions were selected based on the children's age, diagnosis, and physical condition. Parents emphasized that their children were much more courageous about medical procedures and could socialize with other children [6]. An experimental study outlines that the instructional play intervention provided an understanding of why people get sick and let the children simulate hospital situations and treatments in role plays. Through these role plays, children changed their cognition regarding medical procedures and treatment, influencing their stress response behavior [7].

Group sessions were utilized in a Turkish study to address nursing diagnoses such as fear, social disturbance, impaired social interactions, ineffective coping, and anxiety in preschool children. Play therapy sessions with playdough improved children's problem-solving, coping, and behavioral skills. In addition, play therapy helped to decrease fear and anxiety levels, improve communication skills, and elevate self-esteem [12].

In a qualitative study, the play interventions engaged children in a group during the storytelling and roleplay, created to target coping skills. Children were informed about the severity and duration of pain. This authentic explanation of pain helped to build trust with children and healthcare personnel and prepare children for the procedure. These therapeutic play actions were evaluated regarding compatibility with children's cognitive development. The result showed that the health education content was understandable and acceptable. In addition, children self-reported autonomy over the procedure and ability to adapt to stressful situations [16].

Storytelling and roleplaying approaches were used in preschool children to explain each step of radiotherapy in detail. These interventions were designed to

help the children understand and accept the treatment while enhancing cooperation [15].

### 6.1.2 Distraction Interventions

Numerous studies included gaming distraction [4;6;8;9;10;11;13;14] while some used different distraction techniques like bubble blowing, playing cards, storytelling, coloring and using tools like stress balls, puppets, and sensory toys [1;2;6;14;].

According to interviews with Norwegian nurses, distraction methods, such as bubble-blowing or gaming should only be used when the child's needs are well understood. The nurses emphasized that the children had to feel safe and in control. If not, the children could feel cheated when the nurses tried to move their attention away from the procedure [14]. Different distraction techniques, such as introducing the clinical environment through storytelling [1] or exciting games and toys like bubble blowing, pop-ups, music, puppets, sensory toys, and gaming [6], were utilized to reduce anxiety during medical procedures.

An experimental study found that age-compatible distraction kits are feasible interventions to help alleviate procedural pain intensity associated with needle-related procedures. While preparing for a needle-related procedure in an emergency department, a nurse prompted parents of preschoolers to use the kit with a selection of hunt-and-see games, playing cards, stress balls, sticker books, and tic-tac-toe games to distract their children [2]. An Italian study showed that children who watched animated cartoon distractions during venipuncture felt less pain [3]. A Swedish study incorporated interactive gaming with one hand remote control during burn injury wound care [9].

Children in a Danish study playing interactive tablet-based games tended to be less anxious than non-sedated control subjects at anesthesia induction [4]. Further, one study outlined that tablet-based interactive distraction significantly

reduced anxiety compared to midazolam medication at parent separation and mask induction and decreased postemergence delirium [13].

During a Canadian field study, parents stated that using a gaming iPad successfully distracted and relaxed the child. Nurses believed that the child was in a better state of mind going into surgery and that parents could focus more on the procedure and their questions [10]. In a clinical trial, storytelling and coloring proved to be as effective as preoperative medication in reducing anxiety [1].

Caregivers and nursing staff in an emergency department reported significantly reduced pain and distress levels when children got a combination of a preparation story that provided information about intravenous cannulation and distraction during the procedure by playing games on the multi-modal *Ditto* device, which provides developmentally appropriate procedural content [8]. Also, children waiting for emergency procedures who interacted with a social robot had significantly lower cortisol levels than in the other two groups. The robot uses cognitive-behavioral distractions appropriate to the age, such as songs, stories, jokes, games, riddles, tongue twisters and guessing games [11].

### 6.1.3 Development of Play Interventions

According to the findings of Ballard et al. [2], nurses proposed including musical and interactive toys in a distraction kit to solicit more than one sense. They also suggested decreasing the number of toys to facilitate the selection of toys. Additionally, nurses reflected on the safety of the bubble-blowing distraction and were concerned that the soap would get into the insertion site.

In a Norwegian qualitative study, the nurses reported carrying soap bubbles in their pockets, while others had small windmills stored everywhere in the ward. They emphasized using individualized distraction methods depending on the child's needs, such as guided imagery, offering new, exciting toys, video games, and singing [14]. Chinese healthcare professionals pondered the design of a

specialized distraction for extremely nervous children during kidney biopsy that keeps the body positioned and the head still to facilitate the procedure [16].

A Chinese study suggested developing cartoons and videos to introduce the environment and steps of kidney biopsy instead of using a book [16]. Nurses in an American study felt that the process of checking the distraction iPad in and out was a barrier and needed improvements because they did not want to reduce the time for the patient while dealing with the device. At the same time, parents expressed their worries that not enough games were appropriate for different age ranges [10].

Li et al. discussed that healthcare workers should incorporate therapeutic play as a standard mental preparation for children, allowing flexibility in time and schedules [6]. Children could reduce their negative emotional symptoms during hospitalization through a playful instructional process of changing cognition and emotional outlet play. Several studies outlined that therapeutic play activities were developed based on the theory of cognitive development and children's play [7;15;16], as well as Sezici et al., who used the social cognitive theory to design game sessions [12].

## 6.2 Play Interventions in the Nursing Process

Part of the studies found that the play intervention was as effective as premedication in terms of anxiety [1;4;5;10], showed decreased pain and anxiety [2;3], lower stress and anxiety [7;11;12;13], reduced pain and distress [8;9], lower anxiety and fewer expression of negative emotions [6;15]. However, one study reported no effect of play interventions on the occurrence of emergency delirium and pain [4] and no impact on the child-reported pain level [9].

### 6.2.1 Children's Response to Hospitalization

The findings of a study indicated that distraction kits with age-appropriate toys help to alleviate procedural pain intensity associated with needle-related procedures in preschool children visiting the Emergency department [2]. In a Swedish study, remote-control gaming resulted in lower observed behavioral pain and perceived distress levels than those getting lollipops or usual care. However, gaming did not significantly impact child-reported pain levels [9]. Nonpharmacological pain control techniques during venipuncture could decrease pain and anxiety in children and parents. Also, animated cartoon distraction effectively decreased the perception of pain in children [3].

A Danish study discovered that tablet-gaming children were likely less anxious than control subjects at anesthesia induction. However, there was no variation in the incidence of emergency delirium or pain twenty minutes after arrival in the post-anesthesia care unit [4]. Likewise, children who participated in different therapeutic play interventions in a Chinese study demonstrated fewer negative emotions and experienced less anxiety than those with usual care. Also, the study supports evidence that anxiety hinders the child's ability to cope with medical procedures and hospitalization [6].

A Turkish study on preschool children concluded that play therapy targeting hospitalization responses helped them strengthen their social, emotional, and behavioral skills while reducing their levels of fear and anxiety [12]. A Taiwanese study found that the study group utilizing storytelling and roleplaying had significantly lower anxiety scores, fewer negative emotions, and higher happiness levels than the control group before tumor radiation [15]. During a case study, nurse leaders observed that the pediatric patient with tablet-based distraction was calmer facing the approaching surgery [10].

Pain and distress levels reported by children and observed by nursing staff and caregivers before, during, and after intravenous cannulation in an emergency department notably reduced distress and pain levels in children receiving the combined *Ditto* - device preparation and distraction [8]. By measuring physiological,

psychological, and behavioral responses, a Chinese study reported that the experimental group showed significantly more reductions than the control group. Instructional play helps children cope with stress caused by medical environments and medical treatments by enhancing their positive cognition and evaluation [7].

The findings of an Italian study imply that salivary cortisol levels remarkably decreased more in the group that interacted with a social robot. Cortisol levels decreased more in girls than in boys. More extroverted children had less emotional distress at baseline [11]. The experimental group in an American study had significantly lower anxiety levels at separation and mask induction and emergence delirium fifteen minutes after awakening [13].

#### 6.2.2 Nurses' Perspective

A Swedish study suggested that lower observed pain behavior through distraction can give a nurse confidence that the child can endure wound care and, in this way, help to implement wound dressing [9]. In addition, in the busy environment of an emergency department, distraction and preparation by the Ditto device resulted in significantly less pain and distress than standard distraction and Ditto distraction [8].

Norwegian nurses stated that if they take a little extra time to prepare a child for peripheral venous cannulation, they get the procedure done without conflicts and still holding, which saves time [14]. Additionally, a nurse leader in an American study regarded the use of iPads as helpful in connecting with pediatric patients and their parents [10].

Furthermore, a randomized controlled trial found play therapy helpful in improving social, emotional, and behavioral skills, suggesting that pediatric nurses should include play therapy in their profession and the nursing process [12]. A qualitative study found that an honest depiction of pain during therapeutic play interventions could help to build trust between children and healthcare professionals [16].

An American study underlined an almost twenty-five minutes earlier home discharge from the post-anesthesia care unit when children got tablet-based distraction instead of Midazolam [13]. A study found a related result where the tablet intervention led to a twelve-minute shorter length of stay compared to the midazolam intervention [5].

During a descriptive case study from Canada, nurses felt that using an iPad afforded them more focused time with the parents before surgery while having other duties. However, many obstacles complicated integrating the iPads into the nurses' workflow [10]. Li et al. [6] discussed that healthcare workers ponder that increased support from the management and extra staff is required to realize play interventions. In qualitative interviews, nurses reported that when deciding to try out the distraction method, the individual child's needs should be evaluated rather than taking a pre-determined approach. The nurse stated that a terrified child did not benefit from having their focus moved away from the situation [14].

### 6.2.3 Play Interventions as Non- pharmacological Alternative

The main finding of an Italian study was that nonpharmacological methods of pain control, as employed during venipuncture, can decrease anxiety and pain in children compared to the standard procedure [3]. Likewise, an Australian study found considerably reduced distress and pain scores in children accessing the combined Ditto device preparation and distraction as nonpharmacological pain management [8].

A Danish study revealed that children scheduled for elective minor urologic and abdominal surgery seem to experience less preoperative anxiety and postoperative pain among children if they were engaged in tablet-based gaming before the anesthesia induction compared with non-sedated children who did not play [4].

An American study has added evidence that tablet distraction significantly reduced anxiety at parent separation and mask induction and decreased

postemergence delirium. Moreover, the findings from this study changed clinical practices at the pediatric Medical Center where the study was conducted; all caregivers of children admitted for surgery can choose tablet distraction or oral midazolam in preparation for parent separation and mask induction [13].

The distraction techniques of storytelling, coloring, introduction to the clinical environment, and allowing questions were useful alternatives to premedication in terms of anxiety [1]. The findings of an American study also support applying an active distraction intervention with unlimited gaming time as an anxiolytic method before surgery [5].

### 6.3 Ethical Perspectives and Reliability

This work includes research articles retrieved from scientific databases, and the search is described transparently. The work and accomplishments of researchers are respected by referring to their publications appropriately to give them credit and weight they deserve (Finnish Advisory Board on Research Integrity, 2012). Therefore, all direct and paraphrased citations in this review are suitably referred to in the text and the list of references.

Any subjective reflection is limited to the introduction, discussion, and conclusion to maintain objectivity. The screening of records is guided by the awareness of the possibility of handling unsafe data, which is made up (fabrication) or manipulated (falsification) and, therefore, a case of scientific misconduct (Armond et al., 2021).

To ensure that appropriate ethical standards are followed, all research, including human beings, should be reviewed by an ethics committee (Glasper, 2016). Nothing should be allowed to eliminate any of the protections for human subjects (World Medical Association, 2001). Furthermore, the research aims to be conducted to benefit participants (Doody & Noonan, 2016); therefore, included studies should intend to benefit children as part of society and society as a whole.

Reflecting on pediatric nursing in Finland, the Finnish National Board on Research Integrity TENK outlines that children must be informed about the research in a manner that they are able to understand. Children should be able to influence matters concerning themselves to the extent adequate for their level of development. Although a parent or carer is informed of the research, the autonomy of the child as a research participant and voluntary participation, regardless of the consent of the parent, must be respected (Kohonen et al., 2019)

## 7 DISCUSSION

This thesis aimed to answer the research questions: "What kind of playful interventions are useful to reduce children's anxiety, distress and pain?" Also, "How can play interventions contribute to the efficiency of nursing tasks?" The data suggest that different therapeutic play interventions seem to have reductional impacts on anxiety, pain, and distress. Overall, the results indicate the benefits of play interventions for the nursing process, while some obstacles are also reported.

### Therapeutic play

According to the Cambridge Handbook of Play (2019), healthcare professionals can use play interventions to transition children into care environments to help them cope with several stressors. Further, play can be utilized to prepare children for procedures, enhance post-procedural mastery, and make sure children prosper during hospitalization (Achterberg et al., 2019). This corresponds to the findings of several studies where the playful preparation for procedures helped the children gain knowledge, change their cognition regarding procedures, and accept the treatment. Further, the children felt a sense of control and could adapt to stressful situations [6;7;15;16]. This, in turn, strengthened them in coping with anxiety and pain and supported their wellbeing.

Considering the Neuman systems model, prevention interventions begin when a stressor is assumed or detected. Play interventions in the studies are built on the potential reaction of the child, the child's resources, and estimated outcomes (Alligood, 2018). Relevant pediatric nursing diagnoses like anxiety and ineffective coping were addressed with preparational play, while preparation in groups was designed to increase understanding and give the children a sense of control.

Distraction, which is moving the attention away from what is going on, seemed to be a common method throughout the data, whether before or during surgical and emergency care procedures. According to Hjelmgren et al. (2022), children are

highly stressed about upcoming needle-related procedures. Distraction during needle procedures through bubble blowing and playing cards [2] or watching cartoons [3] were used to alleviate procedural pain. Overall, interactive distraction soliciting more than one sense positively affected anxiety and pain.

During several studies, children, or their parents [2;6;10,16] and nurses were interviewed [2;10;14] to develop and improve play interventions, which mirrors the principle of family-centered care (Uuksulainen et al., 2022). For example, parents worried there were not enough games appropriate for different age ranges [10]. Also, parents in a Chinese study suggested developing cartoons and videos from the original picture book to visualize the steps of a kidney biopsy [16]. Parents furthermore gave suggestions on what to add to a distraction kit [2] and reflected on their children's response to play interventions [6].

Few studies developed therapeutic play to address stress responses and specific stressors of preschool-aged children based on cognitive theories and concrete measures of therapeutic play to strengthen the child's coping strategies in advance [6;7;12;16]. This aligns with the Neuman systems model in strengthening the lines of defense and lines of resistance by prevention intervention (Pestana-Santos et al., 2021). According to Jean Piaget's theory of cognitive development, children's thoughts in the preoperational stage are still nonlogical, dominantly egocentric and intuitive. Consequently, their comprehension of hospitalization, procedures, and medical treatment is based on intuitive thinking. Hence, simulation and roleplay, which are typical play activities for preschool children (Piaget, 1962), could be effectively used to change their understanding of medical procedures and strengthen their coping mechanisms.

### Play interventions in the nursing process

Pain, anxiety, distress, negative emotions, and emergency delirium were the potential and assumed stressors and reactions to stressors investigated throughout the data. In addition, one study observed resistant behavior [7], and one evaluated social competence and behavior [12]. These stressors, reactions to

stressors and assumed behaviors illustrate the concentric circles of the Neuman systems model, the stressors that attack the lines of defense and the inner lines of resistance react when the stressors penetrate the normal line of defense. A cushioning effect is achieved by strengthening the child's social, emotional, and behavioral skills [12]. Playful interventions were utilized to prevent stressors from invading the defense and resistance lines to disturb the stability and attack the basic structure of the child.

Perception of pain is crucial in measuring pediatric pain and supports the child's right to prevention or relief of physical pain (European Association for Children in Hospital, 2016). Distraction during needle-related procedures could reduce children's perceived pain [2;3]. Still, one study reported decreased observed pain but no difference in perceived pain compared to the control group when children got distraction intervention during wound care [9]. This discrepancy weakens the play intervention outcome.

The data showed that preoperative anxiety was efficiently addressed with tablet distraction and storytelling and partially compared to midazolam groups. This is relevant for practical implementation, given that preoperative anxiety can lead to significantly higher postoperative pain, delayed hospital discharge and maladaptive behavioral changes (Fortier & Kain, 2015). Besides, tablet-based distraction appears feasible due to easy handling in bedridden situations and busy environments. Tablet-based interventions have considerable potential by containing research-based content, focusing on developmental stages, and including children's opinions and wishes in the design process.

The data further revealed that emergence delirium should be considered when investigating play interventions in a surgical context to show the complete outcome. Emergence delirium is a dramatic form of distress on awakening after surgery, in which the child is confused, irrational and uncooperative. One study showed no effect of distraction on the occurrence of emergence delirium. Another study presented the same effect compared to the midazolam group [5], and one study found reduced occurrence compared to the control group [13].

The preparation that is concerned with children's cognition of medical procedures could alleviate children's anxiety and negative emotions before the procedure and enhance cooperation. Reflecting on the Neuman systems model, distress involves prolonged attacks of stressors or invasion of several stressors simultaneously, leading to negative responses like anxiety. Changing cognition of procedures by preparing the child [6;7;8] reduced distress levels in the hospital environment where stressors may accumulate.

Distraction also appeared sustainable in combination with preparation regarding anxiety, pain, and distress [1;8;15]. The child gets prepared while going through each step of the procedure by storytelling or simulation play and receives distraction during the procedure. That generates understanding and a change of cognition and leads to cooperation, while during the procedure the attention moves away from the treatment to comfort the child. It can be outlined that children with prolonged hospital stays or recurring procedures especially need comfort, distraction, and normalcy to adapt to procedures and the hospital environment. Also, recurring medication and sedatives can have side effects; therefore, play interventions as nonpharmacological approaches benefit particularly children with repeated hospitalization.

Altogether, the goal of pediatric nursing was to relieve children's adverse response to hospitalization with the aim of completing procedures. Nurses pointed out that play interventions are beneficial if they let the child be in a better state of mind before going into surgery, if interventions lead to the endurance of a procedure and contribute to nursing tasks in a hectic environment. Playful interventions could also help the nurses connect with the child and the parents [10], build trust [16] and maintain cooperation between the child and the nurse [14]. As per the Neuman systems model, trust, connection and cooperation between the child and the nursing staff implies smooth energy exchange and interactions which lead to a desirable state of health and stability (Alligood, 2018).

Also, therapeutic play helped the child improve coping strategies, which led to better cooperation with healthcare workers. Nurses stated that play interventions

should be individualized, not pre-determined, and relate to their needs and developmental stage, which means that standardization for practical implementation is only possible as an optional intervention. Distraction was tested as an alternative to premedication, still emphasizing the concept of individual management for pain [2;14] and anxiety [4;13] by offering optional pharmacological treatment. Since pharmacokinetic and pharmacodynamic processes are quite different in children, one could argue that it is worth minimizing medication administration in suitable situations. The data shows that nonpharmacological alternatives to medication can benefit the pediatric patient by decreasing pain and anxiety and the nurses' workflow with reduced length of stay. A shorter length of stay after surgery advances optimal efficiency in busy surgical care. In addition, play interventions have no side effects and a faster recovery time.

Nurses experienced obstacles when interventions and gaming took too much time away from caring for the child, and parents required age appropriateness of distraction content [10]. Some studies discussed time and planning of play interventions concerning pediatric nurses' busy hospital environment and workflow [6;8;10;14], pondering the extra staff needed. In addition, nurses described the technological issues of iPads as challenging, time-consuming, delayed and that discouraged the use [10].

## 7.1 Conclusion

The findings of this study present a range of therapeutic play interventions administered in different care situations in the hospital to relieve children's anxiety, pain, and distress. Therapeutic play interventions seem to be effective in reducing preprocedural anxiety and pain, preoperative anxiety, preprocedural distress and negative emotions towards medical procedures.

The use of preparational therapeutic play makes it easier for children to understand medical procedures and enhances their courage to face procedures. By simulating hospital situations, they can change their cognitions about treatments and gain a sense of control over the procedure. Consequently, therapeutic play

enables the child to participate in their treatment and better accept it. Interventions in a group allow the child to socialize with peers and prevent feelings of loneliness and boredom. Playful preparation before procedures and surgery can reinforce coping skills and prevent distress and anxiety that impedes coping mechanisms. Providing developmentally appropriate procedural content has the potential to improve interactions between healthcare personnel and the patient, enhance communication, connection, and trust, and improve time management in the nurses' workflow. Distracting children helps decrease fear before and during procedures, supports coping, and creates comfort. Pediatric nurses need knowledge about children's developmental needs and play behavior to incorporate play into nursing tasks efficiently.

Gaming technologies through tablets, virtual reality, and robots have changed the landscape of children's play in Western societies. Tablet-based distraction appears to reduce anxiety in preschool children undergoing elective surgery, resulting in an earlier discharge, which benefits both the child and the clinical workflow. Gaming seems to be a valuable tool for generating a less stressful pre-surgical workflow and can help to alleviate unwanted complications due to anxiety experienced by the patient. Technology-based play interventions with a social robot, a tablet or the *Ditto* device seem to offer a promising opportunity to decrease children's stress, pain, and anxiety in healthcare emergency contexts. These devices may be integrated into the pediatric emergency department workflow.

Playful distraction and preparation were tested as nonpharmacological alternatives to anxiolytics and topical analgesics in emergency and surgical departments, aiming to improve the children's hospital experience. Nonpharmacologic play interventions seem to have the potential as feasible and effective methods to reduce anxiety and pain. In addition, the incidence of emergency delirium after surgery was investigated and appeared to be a crucial step to fully assess distraction techniques as a nonpharmacological approach in the surgical department.

Preparational play based on theories of children's cognitive development helps hospitalized children cope with stress by enabling positive cognition and

assessment of medical procedures. Integrating hospital play means to care holistically and to enhance the quality of care. In addition, a cognitive behavioral process equips children with coping skills to decrease their fear and anxiety levels and improve communication and self-esteem. In conclusion, preparational and distractive therapeutic play appears to reduce the negative experiences of children during hospitalization. Pediatric nurses can integrate play for hospitalized children as nonpharmacological intervention, during preparation for surgery and invasive procedures and to build and maintain cooperation. Nurses should expand their knowledge about the rich potential of play and receive training to incorporate play interventions in the nursing process. Finally, nurse leaders and the hospital management should make the resources available for integrating play interventions into nursing care.

## 7.2 Professional Development

The thesis writing process provided a deeper understanding of nursing research by learning to search databases in order to collect reliable information. In the future, this facilitates acquiring, evaluating, and incorporating evidence-based research papers and strengthens my nursing skills from a theoretical point of view. In a multi-professional team, supporting a viewpoint by providing research-based knowledge will contribute to professionalism. Also, I improved my presentation skills during the thesis seminars and practiced constructive feedback and discussions with nursing colleagues. My writing skills evolved persistently, and I am able to present research content in appropriate styles and terms.

Getting deeper engaged with my topic made me agree that pediatric nurses need scientific knowledge about play behavior and the developmental stages from neonatal to young adulthood. As a pediatric nurse, I should become a specialist in assessing individual development and finding age-appropriate ways to care for the child. In general, nurses play a role in promoting play in pediatric nursing because they advocate for the child and the families. However, to care for the child in a holistic way, a pediatric nurse needs skills to integrate playfulness into nursing interventions and actively contribute to play in nursing interventions. This

corresponds to the European Association for Children in Hospital (2016); children should be cared for by trained personnel that are able to react to their emotional, physical, and developmental needs.

A broad spectrum of play interventions in this study aided in gaining knowledge of how play is utilized during specific procedures, emergency care, surgery, needle-related procedures, and wound care and as preparation to improve understanding, cooperation, and acceptance of the procedure. Additionally, it was assessed as a nonpharmacological intervention in general and as an alternative to medication.

Also, as a pediatric nurse, I need to estimate the benefits and obstacles to integrating play interventions resourcefully, aiming to support the child and the family and facilitate procedures in a multi-professional hospital setting. Therefore, apart from usual nursing tasks, I should build a repertoire to incorporate playfulness constantly into communication, intervention, and hospital environment. In that way, I could benefit from the positive aspects that play offers to impact smooth processing.

### 7.3 Recommendations

Gaming technologies have potential in the hospital setting because they are easy to handle, can be administered at the bedside, and correspond to recent play activities. However, the included studies did not compare preparational content through gaming to preparational content via e.g., storytelling or medical play. Therefore, knowing how preschool children accept or prefer technology-based gaming, classic storytelling, or role-play would be interesting. In that way, the actual effect of gaming would be visible, helping to understand the impact of technology on play and children's development. Also, gaming that is purposely developed for a particular procedure should be compared to usual gaming. Further, since the data showed rapid technological development, it would be exciting to explore the progressing enhancements of virtual reality and new technologies

and their innovations concerning assumed responses to hospitalization and the involvement of cognitive behavioral skills.

To approach best practice, comparing different play interventions in the control groups and not just a single intervention to care as usual would be valuable. Although nonpharmacological play interventions show potential in avoiding the side effects of medication and saving time in the nursing workflow, it seems that more research is needed for practical implementation taking children's individual reaction and developmental stage into account.

Pediatric nursing staff need theoretical and clinical training in a multi-professional context to implement a playful approach in nursing interventions successfully. In addition, acquiring these skills is necessary to become promoters of recreational activities to provide holistic care. Further, more research is needed on play interventions in different hospital settings related to pediatric stress and coping mechanisms, sense of control and pain and anxiety management to initiate robust play intervention standards. Finally, studies concentrating on cultural considerations or inclusive approaches for children with and without disabilities would be crucial to the practical implementation and holistic care.

#### 7.4 Strengths and Limitations

The data collected for this review is relevant to this study's aim and research questions. The chosen scientific articles were all published within the past ten years. The results of the data analysis showed adequate findings across the included countries. Therefore, relevant findings were presented, addressing the research question while incorporating the child's response to hospitalization and the nurse's perspective (see Appendices 1 and 2).

This review consists of sixteen articles with different study designs, which might be an obstacle to thoroughly comparing the studies. Even though the review focuses on children from three to seven years old, finding articles with exactly this age range was not feasible. However, all articles contain the chosen age range and do not comprise newborns over 12 years old and adolescents. The

investigation was possibly carried out quite broadly. For future investigations, it would be an enhancement to focus on a specific department in the hospital, a particular procedure, or a specific play intervention technique to limit the findings and improve reliability.

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## APPENDIX 1: Summary table

| Author, Year of Publication and Country                   | Study design                | Sample                                                                                           | Intervention                                                                                                                                                                                                                                                                                                                                                            | Results                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <b>Al-Yateem et al. (2016)</b><br>United Arab Emirates | Randomized clinical trial   | n = 168 children elective day surgery under general anesthesia<br>Age: 3–8 yrs.                  | 'Adam Goes to Surgery' story was created and used to distract the children going to the theatre by telling them the story and allowing them to color the pictures. The story introduced the children to the theatre equipment, personnel, and procedures and allowed time for questions.                                                                                | <b>Meas.:</b> mYPAS, short STAIC survey for parents and (HR, respiratory rate, and blood pressure)<br>Distraction techniques were as effective as pre-operative medication regarding anxiety.                                                                                                                                                                                                               |
| 2. <b>Ballard et al. (2017)</b><br>Canada                 | Pre-experimental study      | n = 50 children in the ED of pediatric health center<br>Age: two age groups; 0.3- 2 and 3-5 yrs. | Two different distraction kits with toys for infants and toddlers and for preschoolers. During preparation for a needle-related procedure, the nurse encouraged parents to use one or more toys from the age compatible kit to distract their child. In addition, parents could use an unlimited number of toys with their child during the procedure. NO control group | <b>Meas.:</b> Questionnaires to assess feasibility, usefulness, acceptability, and satisfaction. FLACC before, during, and after the needle-related procedure<br>The findings indicate that the distraction kits are feasible interventions to help alleviate procedural pain intensity associated with needle-related procedures in infants, toddlers, and preschoolers visiting the Emergency department. |
| 3. <b>Bergomi et al. (2018)</b><br>Italy                  | Randomized controlled study | n = 150 children venipuncture<br>Age: 5–12 yrs.<br>60 % girls                                    | 2 nonpharmacological techniques, vibration combined with cold therapy analgesia (Buzzy devices) and age-appropriate animated cartoons                                                                                                                                                                                                                                   | <b>Meas.:</b> FACES, CEMS, NRS<br>Nonpharmacological techniques of pain control during venipuncture can lessen pain and anxiety in children and anxiety in parents. Animated cartoon distraction was the most effective method for decreasing the perception of pain in children; combining Buzzy and animated distraction was less valuable.                                                               |
| 4. <b>Clausen et al. (2021)</b><br>Denmark                | Randomized clinical trial   | n = 60 children elective minor surgery<br>Age: 3–6 yrs.<br>15 % girls                            | Two groups, the non-sedated control, and the intervention group: the intervention group were equipped with a tablet computer containing 50 different age-appropriate online games. Children were encouraged to continue gaming during transfer to the operating room and the anaesthesia induction.                                                                     | <b>Meas.:</b> mYPAS, PAED, FLACC<br>Tablet-gaming children were likely to be less anxious compared to control subjects at the time of anesthesia induction. At the same time, there was no difference in the incidence of Emergency delirium (ED) or pain.<br>20 minutes after arrival in the post anesthesia care unit (PACU).                                                                             |

|                                                  |                             |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5. <b>Levay et al. (2022)</b><br><b>USA</b>      | Randomized controlled trial | n = 99 children elective surgery<br>Age: 3–5 yrs.<br>39 % girls                                                                   | the active distraction group (n = 52) had unlimited time to play with a <b>tablet</b> , and the midazolam group (n = 47) were medicated 10 minutes before mask-induced anesthesia.                                                                                                                                     | <b>Meas.:</b> mYPAS, PAED, RASS<br>Active distraction with a tablet as a nonpharmacological intervention was as effective as midazolam for preschool-aged children regarding preoperative anxiety with no side effects and reduced length of stay.                                                                                                                                                              |
| 6. <b>Li et al. (2016)</b><br><b>China</b>       | Quasi-experimental study    | n = 304 children acute-care public hospital<br>Age: two age groups: 3-7 and 8-12 yrs.<br>44% girls                                | Play intervention group: individualized. (Medical, developmental, preparation and distraction play).<br>The control group received routine care                                                                                                                                                                        | <b>Meas.:</b> Chinese State Anxiety Scale for Children (CSAS-C), CEMS and semi-structured interviews with parents and children<br>Children who participated in hospital play interventions experienced less anxiety than those with usual care and demonstrated fewer negative emotions.                                                                                                                        |
| 7. <b>Liu &amp; Chou (2021)</b><br><b>Taiwan</b> | Experimental research study | n = 105 children in an inpatient hospital with an acute respiratory infection<br>Age: 3–6 yrs.<br>43,1 % girls                    | The experimental group received therapeutic play interventions on their first day of hospitalization: Instructional play (picture book, CD, and roleplaying games) and emotional outlet play (unstructured play design: negative emotions, stress response, self-control).<br>The control group received routine care. | <b>Meas.:</b> HR, RR, BP, salivary cortisol, psychological response (CEMS), and behavioral response (resistant behaviour)<br>The experimental group showed significantly greater reductions in stress and anxiety compared to the control group. Instructional play helps children cope with stress caused by medical environments and medical treatments by enhancing their positive cognition and evaluation. |
| 8. <b>Miller et al. Australia (2016)</b>         | Randomized controlled trial | n = 98 children Intravenous cannulation is commonly performed in pediatric emergency departments.<br>Age: 3–12 yrs.<br>51 % girls | 5 intervention groups:<br>1. usual distraction<br>2. Portable PlayStation distraction<br>3. <i>Ditto</i> device distraction<br>4. <i>Ditto</i> device preparation<br>5. <i>Ditto</i> device preparation and distraction                                                                                                | <b>Meas.:</b> FLACC, Wong-Baker, VAS Pain and distress levels evaluated through child self-reports and observed by caregivers and nursing staff (1) before, (2) during, and (3) after IV cannulations, decreased pain and distress levels in children getting the joint <i>Ditto</i> preparation and distraction.                                                                                               |
| 9. <b>Nilsson et al. (2013)</b><br><b>Sweden</b> | Randomized clinical trial   | n = 60 children in paediatric day care unit for wound care<br>Age: 5–12 yrs.                                                      | Children were randomized to 3 groups: serious gaming, the use of lollipops and a control group. The game “Tux Racer” was played with a remote control and a laptop during wound care. The remote control vibrated when the children gave a command.                                                                    | <b>Meas.:</b> Nurse FLACC, caregiver VAS, child FACES, CAS<br>The use of serious gaming resulted in lower observed behavioral pain scores and self-reported distress compared with those of the other two study groups—no significant impact on child-reported pain levels.                                                                                                                                     |

|                                        |                                                                      |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10. Patmon et al. (2022) USA</b>    | Descriptive case study                                               | n =13 Nurses and 2 parents of children in a Pre-Anesthesia Surgical Suite<br>Age: 2–14 yrs. | 12 Nurses were trained to use the iPad, which came preloaded with games. All games required active interaction from the patient, and games based on popularity and appropriateness for the age range were chosen. The research staff took detailed notes during training and implementation. Research staff conducted interviews with nurses, leaders, and patient guardians for the study. | <b>Meas.:</b> Field notes during training, interviews<br>A nurse felt the iPad afforded them more focused time with the parents before surgery. From the parents' point of view, iPads were helpful in distracting their child, but they worried there were not enough games appropriate for different age ranges. The nurse leader regarded the iPads as helpful in connecting with the patient and their parents. Many obstacles made integrating the use of iPads in the nurses' workflow difficult. |
| <b>11. Rossi et al. (2022) Italy</b>   | Randomized Clinical Trial                                            | n = 94 children in emergency room non-urgent procedure<br>Age: 3-10 yrs.<br>49% girls       | (1) playing with a robot, (2) playing with the nurse, or (3) playing with parents in the playroom<br>The robot is programmed for cognitive-behavioral distraction techniques including age-appropriate games, songs, storytelling, jokes, riddles, guessing games and tong twisters                                                                                                         | <b>Meas.:</b> Heart rate, Salivary cortisol (swab), psychological tests (TEC, CBQ-VSF). Salivary cortisol /stress levels significantly decreased more in the group that interacted with the robot compared to the other two groups.<br>Cortisol levels were lower in girls compared to boys. More extroverted children had less emotional distress at baseline.                                                                                                                                         |
| <b>12. Sezici et al. (2017) Turkey</b> | Randomized controlled study                                          | n = 79 children in preschool<br>Age: 4-5 yrs.<br>60% girls                                  | Control= 40, Intervention = 39<br>The study aims to detect the influences of play therapy on the emotional, social and behavioral skills of preschool children. Eight playdough games (inspired by social cognitive theory) were played by each of the children in the intervention group at the end of a 4-week period.                                                                    | <b>Meas.:</b> SCBE-30<br>Play therapy helped to improve social, emotional, and behavioral skills. In addition, play therapy helped to decrease fear and anxiety levels, improve communication and coping skills, and elevate self-esteem.                                                                                                                                                                                                                                                               |
| <b>13. Stewart et al. (2019) USA</b>   | Comparative preinterventional and postinterventional research design | n =102 children in surgical services<br>Age: 4- 12 yrs.<br>49 % girls                       | Tablet-Based Interactive Distraction experimental and midazolam control group.<br>The experimental group received an iPad mini with an age-appropriate gaming application one minute before parental separation to be continued through mask induction.                                                                                                                                     | <b>Meas.:</b> mYPAS-sf, anxiety scores at baseline, separation, and mask induction, PAED postemergence delirium scores; caregiver ratings of child anxiety and satisfaction; and time from post anesthesia care unit arrival to discharge and behaviors after hospital.<br>The experimental group had significantly lower anxiety at separation and mask induction and emergence delirium 15 minutes after awakening, were extubated earlier, and discharged earlier.                                   |

|                                               |                                |                                                                                                                      |                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>14. Svendsen &amp; Bjørk (2014) Norway</b> | Qualitative exploratory design | n = 14 nurses                                                                                                        | Distraction: Get the children's attention and help them move their focus away from the situation. Distraction was the most frequently used approach. Several types of distraction: bubble-blowing windmill, guided imagination, toys, video games, singing                                                       | <b>Meas.:</b> Focus group interviews with nurses<br>Nonpharmacological methods influence building and maintaining cooperation with the child, while caring for the child means individualizing non-pharmacological methods.                                                                                                                                                                        |
| <b>15. Tsai et al. (2013) Taiwan</b>          | Controlled study               | n = 19 children external beam radiotherapy (EBRT) for pediatric brain tumor<br>Age: 3–12 yrs.<br>26,3 % girls        | For preschool children, storytelling and roleplaying approaches using children's coloring books were used, with each step of the treatment process explained in detail. Additionally, they could bring their favorite doll and paint their fixing masks.                                                         | <b>Meas.:</b> FAS; BAiY, heart rate variability, salivary cortisol<br>The study group had remarkably lower anxiety scores, fewer negative emotions and stated a higher level of happiness than the control group before radiation.                                                                                                                                                                 |
| <b>16. Zhao et al. (2022) China</b>           | Descriptive qualitative study. | n = 10 children and caregivers undergoing native kidney biopsy under local anesthesia<br>Age:5–12 yrs.<br>40 % girls | The therapeutic play program consisted of a 15-page picture book titled Kidney Biopsy Treasure Hunt and a kidney biopsy play package. The play intervention for kidney biopsy under local anesthesia was led by nurses and followed the steps of kidney biopsy using the picture book and group play simulation. | <b>Meas.:</b> Semi-structured face-to-face interviews with children, caregivers, and physicians.<br>The study demonstrated that materials of the therapeutic play programming were accessible and feasible for kidney biopsy under local anesthesia. The children and their caregivers accepted the picture book well and the format of the play and were satisfied with the overall intervention. |

**Pain** **FACES:** Wong Baker Faces scale | **VAS:** visual analog scale | **FLACC:** the Faces, Legs, Activity, Cry and Consolability scale

**Anxiety** **mYPAS:** modified Yale Preoperative Anxiety Scale | **FAS:** faces anxiety scale | **BAI-Y:** The Beck Youth Anxiety Inventory | **CEMS:** Children's Emotional Manifestation Scale

**Stress** **Salivary Cortisol** sample with a swab | **Heart rate variability** | **FAS level of distress** | **Watcha scale:** for the assessment of emergence delirium in children | **PAED:** Pediatric Anesthesia Emergence Delirium

**Psychological tests** **CBQ-VSF:** Children's Behavior Questionnaire-very short form | **TEC:** Test of Emotion Comprehension | **SCBE 30:** Social Competence and Behavior Evaluation Scale

## APPENDIX 2. List of Chosen Research Articles

1. Al-Yateem, N., Brenner, M., Shorrab, A. A., & Docherty, C. (2016). Play distraction versus pharmacological treatment to reduce anxiety levels in children undergoing day surgery: a randomized controlled non-inferiority trial. *Child: Care, Health and Development*, 42(4), 572–581. <https://doi.org/10.1111/cch.12343>
2. Ballard, A., Le May, S., Khadra, C., Lachance Fiola, J., Charette, S., Charest, M.-C., Gagnon, H., Bailey, B., Villeneuve, E., & Tsimicalis, A. (2017). Distraction Kits for Pain Management of Children Undergoing Painful Procedures in the Emergency Department: A Pilot Study. *Pain Management Nursing*, 18(6), 418–426. <https://doi.org/10.1016/j.pmn.2017.08.001>
3. Bergomi, P., Scudeller, L., Pintaldi, S., & Dal Molin, A. (2018). Efficacy of Nonpharmacological Methods of Pain Management in Children Undergoing Venipuncture in a Pediatric Outpatient Clinic: A Randomized Controlled Trial of Audiovisual Distraction and External Cold and Vibration. *Journal of Pediatric Nursing*, 42, e66–e72. <https://doi.org/10.1016/j.pedn.2018.04.011>
4. Clausen, N. G., Madsen, D., Rosenkilde, C., Hasfeldt-Hansen, D., Larsen, L. G., & Hansen, T. G. (2021). The Use of Tablet Computers to Reduce Preoperative Anxiety in Children Before Anesthesia: A Randomized Controlled Study. *Journal of PeriAnesthesia Nursing*, 36(3), 275–278. <https://doi.org/10.1016/j.jopan.2020.09.012>
5. Levay, M. M., Sumser, M. K., Vargo, K. M., Bodas, A., Bena, J. F., Danford, C. A., & Siedlecki, S. L. (2023). The effect of active distraction compared to midazolam in preschool children in the perioperative setting: A randomized controlled trial. *Journal of Pediatric Nursing*, 68, 35–43. <https://doi.org/10.1016/j.pedn.2022.09.021>
6. Li, W., Chung, J. O. K., Ho, K. Y., & Kwok, B. M. C. (2016). Play interventions to reduce anxiety and negative emotions in hospitalized children. *BMC Pediatrics*, 16(1), 36. <https://doi.org/10.1186/s12887-016-0570-5>
7. Liu, M.-C., & Chou, F.-H. (2021). Play Effects on Hospitalized Children With Acute Respiratory Infection: An Experimental Design Study. *Biological Research For Nursing*, 23(3), 430–441. <https://doi.org/10.1177/1099800420977699>
8. Miller, K., Tan, X., Hobson, A. D., Khan, A., Ziviani, J., O'Brien, E., Barua, K., McBride, C. A., & Kimble, R. M. (2016). A Prospective Randomized Controlled Trial of Nonpharmacological Pain Management During Intravenous Cannulation in a Pediatric Emergency Department. *Pediatric*

Emergency Care, 32(7), 444–451.  
<https://doi.org/10.1097/PEC.0000000000000778>

9. Nilsson, S., Enskär, K., Hallqvist, C., & Kokinsky, E. (2013). Active and Passive Distraction in Children Undergoing Wound Dressings. *Journal of Pediatric Nursing*, 28(2), 158–166. <https://doi.org/10.1016/j.pedn.2012.06.003>
10. Patmon, F., Rylee, T. L., Holder, D., Woodworth, J., Anderson, M., & Gee, P. M. Nurse, Parent, and Nurse Leader Perspective on Adoption of iPads for Pediatric Preoperative Anxiety Reduction. *Journal of PeriAnesthesia Nursing*, 37(3), 393–397. <https://doi.org/10.1016/j.jopan.2021.09.005>
11. Rossi, S., Santini, S. J., Di Genova, D., Maggi, G., Verrotti, A., Farello, G., Romualdi, R., Alisi, A., Tozzi, A. E., & Balsano, C. (2022). Using the Social Robot NAO for Emotional Support to Children at a Pediatric Emergency Department: Randomized Clinical Trial. *Journal of Medical Internet Research*, 24(1), e29656. <https://doi.org/10.2196/29656>
12. Sezici, E., Ocakci, A. F., & Kadioglu, H. (2017). Use of Play Therapy in Nursing Process: A Prospective Randomized Controlled Study. *Journal of Nursing Scholarship*, 49(2), 162–169. <https://doi.org/10.1111/jnu.12277>
13. Stewart, B., Cazzell, M. A., & Percy, T. (2019). Single-Blinded Randomized Controlled Study on Use of Interactive Distraction Versus Oral Midazolam to Reduce Pediatric Preoperative Anxiety, Emergence Delirium, and Postanesthesia Length of Stay. *Journal of PeriAnesthesia Nursing*, 34(3), 567–575. <https://doi.org/10.1016/j.jopan.2018.08.004>
14. Svendsen, E. J., & Bjørk, I. T. (2014). Experienced Nurses' Use of Non-pharmacological Approaches Comprise More Than Relief From Pain. *Journal of Pediatric Nursing*, 29(4), e19–e28. <https://doi.org/10.1016/j.pedn.2014.01.015>
15. Tsai, Y.-L., Tsai, S.-C., Yen, S.-H., Huang, K.-L., Mu, P.-F., Liou, H.-C., Wong, T.-T., Lai, I.-C., Liu, P., Lou, H.-L., Chiang, I.-T., & Chen, Y.-W. (2013). Efficacy of therapeutic play for pediatric brain tumor patients during external beam radiotherapy. *Child's Nervous System*, 29(7), 1123–1129. <https://doi.org/10.1007/s00381-013-2099-3>
16. Zhao, R., Wu, Y., Shen, X., Jian, D., Fu, L., Liu, H., Zhai, Y., Chen, J., Shen, Q., Xu, H., Gu, Y., & Zhou, Q. (2022). A Therapeutic Play Program for Children Undergoing Kidney Biopsy With Local Anesthesia: Construction and Feasibility Evaluation. *Journal of PeriAnesthesia Nursing*, 37(6), 939–945. <https://doi.org/10.1016/j.jopan.2022.04.007>