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The Efficacy of the Role of Therapeutic Play in Alleviating Pain or Anxiety in Pediatric Cancer Patients

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THE EFFICACY OF THE ROLE OF THERAPEUTIC PLAY IN ALLEVIATING PAIN OR ANXIETY IN PEDIATRIC CANCER PATIENTS

by

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ABSTRACT

Aim: To evaluate the efficacy of therapeutic play in alleviating pain or anxiety in the pediatric cancer patient.

Background: Therapeutic play is an intervention often incorporated within the care of pediatric cancer patients and children with other disease processes to promote well-being. Even though play therapy is supported by research, nurses have the option to implement nursing care interventions in a play-like manner. Therapeutic play is an individualized technique that provides an intentional opportunity for children to express their emotional responses in a controlled environment.

Method: The databases used in this search included CINAHL, MEDLINE, APA PsycINFO, ERIC, and Education sources. A total of 59 articles were kept for review. One additional article held for review was obtained through a secondary search of the same databases listed. Articles that did not specifically address cancer were not included.

Key Issues: Including therapeutic play interventions in the treatment of pediatric oncology patients is not a mandatory practice. If nurses perceive play therapy as an effective treatment option, an increased value may be placed on the approach. The usefulness of the intervention and the nurse's ability to execute it is essential in determining the overall efficacy.

Conclusions: Therapeutic play contributes to many favorable outcomes when used in practice during pediatric cancer treatment. While the reduction of pain and anxiety is supported, other beneficial effects include increased positive coping mechanisms, patient satisfaction, compliance, self-efficacy, social skills, and improved communication.

Keywords: Therapeutic play, play therapy, cancer, oncology, pain, anxiety, pediatric, nurse

DEDICATION

To every patient I have encountered along my journey to becoming a nurse—you inspire me to do better. Mom, you are my biggest cheerleader, and your endless encouragement led me to where I am today. Thank you for never letting me give up. Dad and Tonya, you always said that if I did my best, you are proud. Your words have kept me going all throughout nursing school. Mimi and Pawpaw, this opportunity would not have been possible without your support. I owe this entire experience to the two of you. To my sister, Hailey, thank you for keeping the long days and nights lighthearted. To my boyfriend, Caleb, thank you for believing in me and understanding my work ethic.

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INTRODUCTION

Pain is a common experience that all pediatric oncology patients confront over the numerous courses and stages of treatment (Duffy et al., 2019). Techniques used to relieve pain can vary on a patient-to-patient basis, with nurses sharing the universal responsibility of guiding and ensuring patient-centered care is prioritized. To address the negative consequences of life-saving therapy, therapeutic play is a nursing intervention practiced in the pediatric oncology population to alleviate pain and anxiety. Alleviating such pain and anxiety may further address other attributed burdens such as a lack of interest in the "art" of being a child, i.e., playing, socializing, engaging, and learning. Since children lack a sense of empowerment, the pediatric population is more vulnerable to painful and emotionally distressing experiences in the healthcare setting. These outcomes may lead to treatment setbacks and decreases in client contentment (Lerwick, 2016).

Studies suggest that barriers to adequately addressing pain in pediatric hospitals and outpatient clinics exist (Friedrichsdorf et al., 2015; Shomaker et al., 2015). Significant barriers from the nursing perspective include parents being fearful of their children taking analgesics, patients being fearful of taking analgesics, concerns regarding side effect profiles of pain medications, pediatric patients building tolerances to pain medications, and a lack of ample medication orders from physicians (Czarnecki et al., 2011). These barriers to pain management combined with the vulnerability of the pediatric oncology population may necessitate the implementation of therapeutic play and determining its efficacy in practice.

BACKGROUND

Nursing Perspective

Nurses share inimitable experiences with their patients that the average individual may never encounter. Stress and compassion fatigue are prevalent issues amongst nurses working closely alongside pediatric patients with life-threatening diagnoses (Maytum et al., 2004). When nurses exclusively base their success upon alleviating the agony patients are experiencing, and the patient does not progress as expected, they become increasingly overwhelmed (Papadatou & Bellali, 2002). These feelings are especially applicable to the nurse of a pediatric oncology patient due to the added variability in age groups, developmental levels, and ranges of coping mechanisms for whom they provide care. All of which combine to create the added pressure of diminishing someone else's pain or anxiety. Although no single intervention can solve this difficult situation, investigating how nurses can comfort this subset of patients may provide a more positive perspective and perception of play. As stated best by Walker (1988), "therapeutic play can be used in all steps of the nursing process: (assessment, diagnosis, intervention, and evaluation)" (p. 126). Because of this, nurses may be the most appropriate healthcare professionals to clarify false impressions of a disease's prognosis, treatments, or nursing procedures (Walker, 1988). Weinstein and Henrich (2013) surveyed pediatric oncology nurses on what psychological interventions they believed to be the most effective in lowering pain and anxiety in their patients and categorized the responses into five key strategies: Emotional support, social support, education, distraction, and relaxation. These strategies align with therapeutic play, thus providing an arsenal of methods that nurses can use daily to intervene with this demanding diagnosis.

Therapeutic Play

Play therapy, for children, is defined as any organized intervention that focuses explicitly on individualized needs to alleviate adverse outcomes such as negative emotional responses and pain (Godino-Iáñez et al., 2020). Therapeutic play, synonymous with play therapy, can be traced to the 20th century, where psychoanalyst Anna Freud first implemented the intervention to connect with children through self-expression (Pehrsson & Aguilera, 2007). By utilizing the common ground of playing, Freud allowed children to process their emotions in a controlled environment with the intended result of providing therapeutic effects (Pehrsson & Aguilera, 2007). Since then, therapeutic play has been identified as an evidence-based intervention that adequately addresses the needs of the pediatric patient (Sezici et al., 2017; Wolfe et al., 1987). However, these interventions are not to be mistaken with free play, as therapeutic play is intentionally planned and facilitated by healthcare professionals to promote a child's well-being.

SIGNIFICANCE

Psychosocial Aspects

Many psychologists pioneered concepts to understand how an individual advances cognitively, emotionally, and morally throughout life. One theorist, Jean Piaget, is most known for his theory of cognitive development, which explains how children mentally process the world around them (Cherry, 2020). Piaget's stages of cognitive development include the sensorimotor stage (birth to 2 years), preoperational stage (ages 2-7), concrete operational stage (ages 7-11), and formal operational stage (ages 12 and higher) (McLeod, 2018). These levels outline a child's expected milestones when interpreting and participating in their surrounding environment. Comparable to Piaget is Erik Erikson's stages of psychosocial development. Erikson focused on the emotional aspects of life experiences and how they lend themselves to personal growth (Orenstein & Lewis, 2020). These phases are split between segments of life, including stages of childhood, adolescence, and adulthood. In addition to Piaget and Erickson are Lawrence Kohlberg's moral development stages. He theorized that children's morals develop as they age, and his stages are divided into three levels: pre-conventional, conventional, and post-conventional (McLeod, 2013).

Kohlberg used the Heinz story to pose choices surrounding an ethical and moral dilemma. Heinz tells the story of his wife, who is very sick with cancer, and there is only one drug that could cure her, but the pharmacist was selling the drug for a highly inflated cost. Heinz tried to raise the money for the drug but could only afford half of the total cost. He went to the pharmacist and told him his wife would die without the prescription and asked if he would sell it

for half the price or let him pay it back later. The pharmacist ultimately told him “No,” and Heinz decided to break into the pharmacy and steal the drug. The question being: Was Heinz justified in his actions? Why or why not? Kohlberg’s theory suggests the rationale of how an individual would react given the circumstances provides a basis to define an individual’s moral development.

Pediatric patients with life-threatening illnesses often experience disruptions within their daily routines brought on by lifestyle changes associated with their diagnoses. When children are diagnosed with cancer, their lives become drastically different. Understanding the pediatric patient's development at the time of diagnosis and during treatment may enhance the perception of the overall efficacy of the therapeutic play interventions. Each theory can be used as a frame of reference for healthcare providers when determining interventions better directed at the child or adolescent's level of understanding. Therefore, play can be viewed as a straightforward, uncomplicated approach, used in conjunction with pharmaceutical methods, to optimize the reduction in pain and anxiety (Scarponi & Pession, 2016).

Mental Health Aspects

Not only is play an effective tool that nurses can use when caring for the pediatric oncologic patient, but it is also a purposeful activity that helps regulate a child's brain function, emotions, and stress responses (Yogman et al., 2018). Such importance indicates that playing is a necessary component of a child's psychosocial life required to grow physically and mentally. Play is a child's job and is not something that stops because of a cancer diagnosis—play must continue so that learning also continues.

The mental health of pediatric patients is of considerable concern. Within the U.S., about 1 in 6 children between the ages of 2-8 have been diagnosed with a mental disorder (Centers for Disease Control and Prevention, 2021). However, such rates of depression and anxiety often increase with age (CDC, 2021). Not only are these oncology patients' children, who may already be diagnosed with either anxiety or depression, but they are children who have also been coupled with the diagnosis of a life-threatening illness. Therefore, the pediatric oncology patient must develop effective coping mechanisms that empower them to adapt to their disease. Positive coping mechanisms provide children and adolescents with the necessary behaviors that can diminish the potential of future adverse outcomes (Delvacchio et al., 2019). Since play should already be included in the daily routine of a pediatric patient, nurses should continue to facilitate the art of being a child within the hospital setting, so the child feels more comfortable and responds better to distressing feelings.

Rate of Readmissions

Currently, there is no published cost of readmission analyses specifically regarding the pediatric oncology population and therapeutic play. However, play is considered an effective method in providing discharge education for children, which may decrease the rate of readmissions amongst the pediatric patient population (Association of Child Life Professionals, 2020). A pediatric patient readmitted to the hospital experiences approximately a twofold increase in the length of stay and total costs associated with the readmission (Markham et al., 2018). In a study conducted at a single children's hospital by Vanderbilt University, children were identified as encountering lower rates of readmission overall (1.8). Children are often

healthier and more resilient than adult patients because they lack chronic diseases brought on by the aging process. However, pediatric oncology patients were most likely to be readmitted, accounting for 13.9% of the readmission rate (Gay et al., 2011). These same children and adolescents with malignancies also faced the highest number of readmissions (4.1) per patient (Gay et al., 2011). Although this study fails to provide a more comprehensive picture of other hospital readmission rates, it still clearly demonstrates that pediatric readmissions differ from those of the adult population.

A systematic review of hospital readmission rates for the adult oncology population within the United States revealed that many readmission cases were associated with surgical procedures or other treatment needs related to the cancer diagnosis (Bell et al., 2017). 35 of the 56 studies within this review had 30-day readmission rates ranging between 10%-19%, with some studies reaching 30%. The Centers for Medicaid and Medicare Services (CMS) dedicate much of their resources to creating quality metrics that aim at decreasing the rate of readmissions within the adult population (Shen, 2011), one of them being their Hospital Admissions Reduction Program (HRRP) (CMS, 2020). However, they fail to provide similar programs regarding the pediatric patient population. Therapeutic play can be a powerful quality metric to prevent readmissions associated with the specific pediatric oncology patient and the entire pediatric patient population.

PROBLEM

Nearly 15,000 children and adolescents are diagnosed with cancer annually in the United States (U.S.). Even though pediatric cancer death rates have dropped significantly over the last 40 years, it continues to be the number one cause of death in children from birth to age 14 (Centers for Disease Control and Prevention, 2020). Because of this, these young people are enduring critical medical interventions with the already psychologically taxing knowledge of having a life-threatening illness (Boles & Daniels, 2019). Since this patient population often experiences inpatient hospitalizations, nurses must not rely on research that focuses on the adult oncology population but instead become familiar with studies that specifically focus on the needs and experiences of pediatric oncology patients (Comas Carbonell et al., 2021).

It is also important to note that the hospital is a foreign and impersonal environment where children undergo unpleasant treatments that bring forth anything but warmth and security (Delvecchio et al., 2019). Studies have identified that play is an appropriate and positive coping mechanism for the hospitalized pediatric patient because it provides children with an opportunity to have a sense of control during stressful situations (Burns-Nader & Hernandez-Reif, 2016; Moore et al., 2015; Nabors et al., 2013). Even if the downward trend of childhood cancer-related deaths continues, the treatment of such patients still involves a high level of acuity that nurses must maintain. Therefore, it is appropriate that nurses value play as a practical patient-specific tool that effectively targets both the pain and anxiety so often experienced by children and adolescents with cancer.

PURPOSE

The purpose of this thesis is to provide a literary review that evaluates the efficacy of therapeutic play in alleviating pain and anxiety in pediatric oncology patients. Furthermore, this review aims to promote the implementation of therapeutic play interventions within the nursing practice by providing a composite evaluation revealing recommendations and evidence to support play as a valid therapeutic intervention.

METHOD

A literature review was conducted to identify the efficacy of treating the pediatric cancer patient using therapeutic play interventions. Articles of interest included those within 11 years of publication from 2021. Since research is constantly evolving, placing a time range on selecting articles ensures that relevant and current evidence was used. The databases of focus were CINAHL, MEDLINE, APA PsycINFO, ERIC, and Education Source. Articles were evaluated from academic, nursing, and medical journals. Inclusion criteria of interest consisted of the English language and academic journals. Exclusion criteria included articles not pertaining to the pediatric population, articles addressing illnesses other than cancer, and articles not discussing play. The terms used to generate these research articles included anxiety, stress, psych*, child*, pediatric, paediatric, preschool, play therap*, structured play, cancer patients, neoplasms, cancer*, oncolog*, chemotherap*, and nurs*. A total of 67 articles were kept for review. Other articles were obtained through additional sources, one of which is included in this literature review.

REVIEW OF LITERATURE

Search Results

Specific searched terms used to access these articles were as follows: anxiety, OR stress, OR psych*, (MH "child"), OR (MH "child, preschool"), OR child*, OR pediatric, Or paediatric, (MH "play therapy"), OR play therap*, or play structured, (MH "cancer patients"), OR (MH "childhood neoplasms"), OR (MH "neoplasms"), OR cancer*, OR oncolog*, OR chemotherap*, AND nurs*. These terms were inputted into the following databases: CINAHL, MEDLINE, APA PsycINFO, ERIC, and Education Source. The search yielded 200 articles. Once duplicates were considered, 168 articles were kept for the title and abstract review. Upon review, 101 articles were excluded. Of those excluded, 4 of which were not published in academic journals, 56 were not published within eleven years of 2021, 7 were written in languages other than English, and 34 either discussed populations outside of the pediatric realm, addressed illnesses other than cancer, or did not discuss play. The remaining 67 articles were kept for evidence review. Eight met the inclusion criteria and support the discussion of findings.

DISCUSSION OF FINDINGS

Therapeutic Play in The Context of Setting

Therapeutic play encompasses a broad set of interventions implemented in or outside the hospital. Six of the eight studies reviewed took place within the inpatient setting. Within the inpatient setting, play produces more benefits such as increasing treatment compliance and cooperation, lowering costs associated with sedation and analgesia administration, reducing the need for medical supplies, and creating more positive patient-provider interactions (Tsai et al., 2013). There is no specific form of play that must take place to promote such benefits. The only source of uniformity is that the play interventions are facilitated with a purpose.

In one study, clowns were used to produce humor during intrathecal chemotherapy (Kurudirek & Arikan, 2020). Additionally, it was noted that humor and laughter have been linked to increasing pain tolerance and strengthening immunity. In a separate study, Ouyang and partners implemented a group physical activity intervention that decreased negative symptoms associated with chemotherapy (2019). This physical activity intervention consisted of exercising in a group environment to promote cardiovascular and musculoskeletal health through social interaction and teamwork during games. Communication was also enhanced between the patients and providers using finger puppets (Sposito et al., 2016).

One of the two remaining studies in the outpatient setting focused on perceptions surrounding the implementation of therapeutic play during the treatment of pediatric cancer patients. Perceptions consistent with providing barriers to the intervention were considered in determining an effective mode of pretend play. Witt et al. discovered that parents found it challenging to switch from intensive treatment to maintenance therapy, and due to the fear of

their child's health returning to a state of decline, the parents may modify or limit how the child plays (2019). This reveals an internal conflict between treating children the way they were before their diagnosis and altering their everyday tasks of being a child during periods of maintenance and remission, which often occur outside of the hospital setting. The other study by Artilheiro et al. focused on outpatient chemotherapy and the subsequent efficacy of therapeutic play used while procedures were performed. It was determined that therapeutic play might be of more significant benefit in the outpatient setting because the children have reduced exposure to the hospital setting and fewer negative past experiences with painful procedures related to treatment (2011).

Regardless of where the care took place, each of the eight studies aimed to lower adverse outcomes associated with a life-threatening cancer diagnosis. Overall, the play interventions focused on alleviating pain and anxiety, optimizing communication and comfortability, advocating self-efficacy, promoting play as a treatment option, increasing cooperation and quality of life, and providing positive coping mechanisms. Both settings prove that play is a necessary developmental function of a child, therefore necessitating the need during all points and locations of care.

The Perception of Therapeutic Play

Three studies touched on the recognition of therapeutic play as a treatment modality for pediatric patients with cancer. An individual's understanding or comprehension of the intervention may influence its execution. If a value is not placed on play during cancer treatment, an emphasis on implementing it does not exist. If worth cannot be obtained in the form of

efficacy, there is no incentive in participating or administering therapeutic play interventions. Patient, parent, and healthcare perceptions are highly influential factors.

Patient.

One play intervention consisted of story stems and a facilitator that played alongside the child to model appropriate solutions to problems that arose and subsequent positive coping mechanisms (Frygner-Holm et al., 2020). In this scenario, the children felt happy after the play sessions and reported slight increases in self-efficacy, health-related quality of life, and cancer-specific quality of life. This further indicates that even while being sick, the children enjoyed playing.

Another study found that during treatment, the games that patients played tended to be more solitary, seclusive, and reserved—therefore, signifying a lack of interaction with peers and learning how to resolve potential disputes (Witt et al., 2019). Pediatric cancer patients find it more difficult to understand that issues may arise when playing with peers of a similar age due to being hospitalized. These children were unaware that conflict may arise during play and that this is a typical, expected result of peer-to-peer interaction. Such barriers further stress a child's need to engage with others, which can be adequately addressed through therapeutic play. This modality enables children to develop age-appropriate social skills.

Within the same study, a patient used his toys to *—destroy his cancer cells*. Playing, for this child, was a way to process his diagnosis through gaining a sense of control. Another patient felt too sick to play and would tell his sister what to do with the toys so that he could watch her play for him. Therefore, even in the absence of direct hands-on activity, social interaction is an

integral component of play that advances social skills and development. In general, therapeutic play interventions promote and sustain positive outcomes from the patient's perspective.

Parent.

A study conducted in Hong Kong revealed that Chinese parents do not typically place a high value on play during the treatment of pediatric cancer (Li et al., 2011). Some parents even felt that their child should not participate in play but rather rest to encourage healing. Chemotherapy is known to suppress the immune system, and because of this, another common misconception is that playing and encountering others would cause an infection. Witt and partners surveyed parents on their perceptions of play therapy and found similarities amongst the group (2019).

Many parents agreed to it not being easy visualizing their child as healthy during maintenance or remission. Witnessing all their child endured during treatment sparked the wish to protect them from further trauma. Therefore, the transition period creates friction when parents are tasked with structuring a new lifestyle. The way a child plays when acutely ill does not meet the exact needs of the child's healthier version. In the absence of pretend play, harmful coping methods such as withdrawal, isolation, repression, and anger were common observations of parents. For these reasons, the parents agreed that a therapeutic play intervention would support their children and themselves in addressing coping strategies, feelings of hopelessness, constraints brought on by the diagnosis, appropriate expectations, and overall wellness. Furthermore, in a feasibility study regarding pretend play as an intervention for pediatric cancer

patients, parents felt the intervention allowed their children a chance to express their thoughts and emotions more openly (Frygner-Holm et al., 2020).

Healthcare.

The same study in Hong Kong also revealed that some Chinese healthcare professionals valued conventional treatment methods over playtime (Li et al., 2011). However, during a preliminary analysis on the potential of a pretend play intervention, professionals welcomed play in conjunction with other treatment methods (Witt et al., 2019). The intervention was also recognized as a beneficial opportunity for children to share their feelings with individuals other than their parents. Providers observed the children display a desire for social support and knowledge surrounding their diagnosis, thus adding these additional coping methods to those that parents reported. This also further suggests the need for play therapy that addresses these indications. Barriers to play recorded by the healthcare professionals included weakness, pain, frustration, lack of coverage by existing systems, and quicker maturation periods—and while these barriers of play were considered, they did not denote playtime as expendable.

Pain and Anxiety

When determining the efficacy of therapeutic play, each research article implemented different modalities of measurement and play as outlined in Table 1. Overall, each piece focused on psychological symptoms of pain and anxiety and addressed those with rating scales or questionnaires performed at baseline and after the intervention. One study included physiological reactions to stress and pain by measuring the subsequent increase of heart rate and salivary

cortisol levels pre-intervention and post-intervention (Tsai et al., 2013). Each method of therapeutic play was determined to be safe and did not bring any additional harm to the patients. Pain and anxiety were lowered when play was used to distract the child, demonstrate a procedure to foster comfortability, enhance patient-provider communication, reduce pediatric cancer-associated symptoms, and maintain a childlike environment.

Li et al. determined that more than half of the study participants had high anxiety levels and exhibited symptoms associated with depression (2011). These findings were exceptionally high upon being admitted to the hospital. While only virtual reality games only proved statistically significant results in decreasing symptoms of depression, the decrease in children's anxiety levels could not be attributed to a single intervention. In this study, a patient's stress and anxiety associated with being hospitalized could have lessened over time due to the virtual reality games, becoming accustomed to the new environment, or completing the painful procedure.

Kurudierek and Arikan recognized the strong likelihood of pediatric oncology patients developing anxious and depressive symptoms (2020). They decided to implement an intervention that targeted the reduction of both pain and anxiety levels through the distraction and humor of clowns. Not only did this intervention provide a playful environment before the insertion of an intrathecal line for chemotherapy delivery, but it also decreased pain levels after the procedure.

Tsai and partners applied various therapeutic play strategies to reduce anxiety associated with external beam radiation therapy in pediatric brain tumor patients (2013). During external beam therapy, the patient is required to lie very still for the duration of the treatment. Because of heightened anxiety, children often have difficulty complying and are routinely sedated for the procedure (Tsai et al., 2013). Eight out of the nine participants underwent external beam

radiation therapy without sedation because of the play intervention strategies. Only one participant needed sedation. Because of this, their research concluded that therapeutic play might offer other benefits such as minimizing the use of medical supplies, harmful side effects associated with sedation use, and overall costs.

Ineffective communication is a significant source of anxiety amongst the pediatric oncology population (Sposito et al., 2016). Children do not perceive information the same as adults, so it is imperative to target communication at their level of understanding, which can be done through play. Sposito and others effectively demonstrated the use of puppets in improving communication with pediatric oncology patients. The puppets allowed the children to express their thoughts and emotions adequately while leveling the professional's and the children's playing field. Conversations such as these may have otherwise intimidated the child, further accentuating anxiety and feelings of being misunderstood. The study concluded that the therapeutic play intervention enhanced the overall experience of the hospitalized child by reducing stress associated with cancer treatment.

Ouyang et al. (2019) took a different approach in implementing therapeutic play to reduce cancer-associated symptoms due to increased inactivity increasing upon hospitalization. This study highlighted the importance of a group-based physical activity program that promoted social interaction and overall wellness through free play, games, and sports. The execution of moderate-to-vigorous physical activity sessions alleviated both participants' negative psychological and physiological symptoms. Pain, feelings of worry, and nervousness were amongst the targeted symptoms within the study. All three were decreased during the cancer treatments using the exercise program.

This study, along with Frygner-Holm et al. (2020), acknowledged that children with cancer could experience moments of feeling too sick to play. However, exercise can be modified to fit the patient's needs based on lab counts, course of treatment, and stage of therapy. Frygner-Holm and partners implemented therapeutic play using toys and storytelling. The children enjoyed this mode of therapeutic recreation, and many of them wished to continue playing on their own even though they were sick. Not only did this further provide effective communication, but it also provided minor improvements in self-efficacy, compliance, participation, and overall quality of life. This form of pretend play allowed the children to formulate positive coping strategies and regulate their emotions safely. The study concluded that play therapy effectively reduces anxiety and depression in pediatric oncology patients.

Table 1

Table 1: Measurements Used to Determine Efficacy of Various Play Methods

Measurement	Method of Play	Article
Efficacy data collected via observation of the children's behavior and interviews with the guardians regarding the child's feelings.	Familiarization of outpatient chemotherapy using toys and medical supplies to demonstrate the procedure. The children were also invited to play with the medical supplies and toys.	Artilheiro, A. P. S., et al. (2011)
Efficacy data were collected by measuring the child's anxiety and depressive symptoms.	Thirty minutes of small group virtual reality simulation games allowing participants to engage with their environment.	Li, W. H. C., et al. (2011)
Efficacy data were collected via physiological anxiety reactions (increased heart rate and salivary cortisol concentration) and psychological anxiety reactions (Faces Anxiety Scale and Beck Youth Anxiety Inventory).	Types of play were implemented based on the child's preferences and developmental level during external beam radiation therapy. Strategies used include cognition, desensitization, token system, recreation, reinforcement, and peer imitation.	Tsai, Y., et al. (2013)
Efficacy data were collected via three questionnaires: Visual Analog Scale (VAS), Faces Pain Rating Scale (FACES), and the demographic questionnaire.	3–5-minute individual clowning session providing distraction and humor before intrathecal chemotherapy insertion.	Kurudierek, F., & Arikan, D. (2020)
Efficacy data were collected using the Children's Leisure Time Activities Study Survey – Chinese (CLASS-C) and the Memorial Symptoms Assessment Scale (MSAS 10-18).	30–40-minute physical activity group-based session targeted at the participant's developmental level to reduce cancer-associated symptoms.	Ouyang, N., et al. (2019)
Efficacy data were collected via observing non-verbal cues (tears, smiles, posture). The data was then analyzed to determine themes using inductive thematic analysis.	Finger puppets were used as a communication strategy to reduce anxiety associated with treatment and diagnosis.	Sposito, A. M. P., et al. (2016)
Efficacy data were collected via child interviews and parent interviews to assess self-efficacy, health-related quality of life, and cancer-specific quality of life.	6-8 sessions of 25-35 minutes in length that contain toys and various story stems (imagination, affect, medical play, and a story of a child's choice).	Frygner-Holm, S., et al. (2020)

Clinical Relevance

Nursing Practice Implication.

Nurses play a critical role in providing care to pediatric cancer patients. Nurses are often the ones to hang the chemotherapy, administer the injections, draw the labs, access the central lines, and offer comfort during the associated side-effects. If nurses perceived therapeutic play as an opportunity to enrich the care they already provide, more children would benefit from the intervention. While nurses may not always have copious amounts of expendable time with each patient, therapeutic play can be implemented in modest ways during every patient encounter—this technique advocates for the patient's trust and, most importantly, the decrease of pain and anxiety.

Many of the studies discussed reference the nursing profession and its impact on therapeutic play. Witt et al. (2019) included two nurses in the fifteen professionals interviewed to determine the potential of a pretend play intervention in pediatric leukemia patients. Li et al. (2011) defined the study as a means for nurses to employ evidence-based research in their practice. The same study also implied that nurses are some of the most qualified to lessen the burden of a pediatric cancer diagnosis. Kurudierek & Arikan (2020) determined that nurses could be systematically trained in therapeutic humor to help control distressing side-effects of cancer, such as pain, anxiety, and nausea. Frygner-Holm et al. (2020) consulted nurses amongst other healthcare professionals in developing and researching a successful pretend play intervention. Artilheiro et al. (2011) credited nurses with developing and utilizing therapeutic play interventions to prepare children for outpatient chemotherapy. These studies address nursing practice implications and suggest age-appropriate

interventions with the awareness that nurses are devoted to providing quality care through evidence-based research.

Limitations

Key limitations included the small sample sizes, lack of generalizability, data collection processes, and demographic differences. The cancer diagnoses within these articles reviewed included ALL, AML, Non-Hodgkin lymphoma, rhabdomyosarcoma, brain tumors, germ-cell tumors, osteosarcoma, and Ewing's sarcoma. Cancers not previously mentioned were not addressed, and further studies to determine the efficacy of therapeutic play in alleviating pain and anxiety are therefore warranted. Li et al. (2011) had the largest sample population at 122. Frygner-Holm et al. (2020) had the smallest sample population at 4. None of these studies took place within the United States and were held in Germany, Brazil, China, Turkey, and Sweden. These cultural differences and small sample sizes further contribute to the lack of generalizability to the rest of the pediatric oncology population.

Data collection was often gathered by the same researchers who were also implementing the play interventions. The Swedish Childhood Cancer Fund funded the study by Frygner-Holm et al. (2020), and any conflicting interests were denied. Witt et al. (2019) denied funding from the public, commercial, or nonprofit organizations. However, other studies failed to include information regarding monetary support and lacked emphasis on denying any associated bias in data collection that may impact conclusions to support therapeutic play.

Demographic differences are found throughout each study and include age ranges of participants, types of cancer, length of treatment, gender, prior exposure to therapeutic play,

cancer relapse, first-time diagnosis, home life, developmental milestones, and social engagement. The nature of pediatric cancer treatment and the need for parents to grant consent for their child's participation could reduce participant variability, further influencing the collected data.

Summary and Conclusion

These studies provide evidence that supports therapeutic play as an effective technique in alleviating the pain and anxiety experienced by a child with cancer. Play therapy can be personalized to the patient's needs to refine the quality of care provided. Since a cancer diagnosis remains a threat to approximately 15,000 children a year within the United States, interventions to alleviate the distressing experiences associated with the diagnosis are vital.

APPENDIX

TABLE 2 EVIDENCE TABLE

Table 2

Table 2: Evidence Table

Author(s) and Year	Study Design and Purpose	Sample Size and Demographics	Method of Exposure	Key Findings and Study Limitations
Artilheiro, A. P. S., et al. (2011)	• Purpose: (1) To explore and describe the use of therapeutic play in preschool cancer patients during outpatient chemotherapy, and (2) to identify the effects of the therapeutic play intervention during the procedures performed	• 30 preschoolers (ages 3-6) undergoing chemotherapy at an outpatient oncology department from the Hospital Infantil Darcy Vargas • Location: The city of São Paulo, Brazil • Cancer Type: ALL, Non-Hodgkin Lymphoma, & Rhabdomyosarcoma	• The children were invited to play with toys and other various medical supplies they might encounter during their outpatient chemotherapy session. The chemotherapy procedure was demonstrated to the child using toys and a story about a child undergoing chemotherapy. Once the demonstration was complete, the child was offered an opportunity to tell the story themselves. • Data was collected through observation of the preschoolers during the therapeutic play and interviews with those accompanying them after the intervention took place. o The interviews gathered information on the child's diagnosis, treatments, and whether the child has previously experienced therapeutic play. o The observations gathered information on behaviors associated with the child's	• Findings: This study found that most of the children, who participated in therapeutic play, exhibited positive behaviors indicating enjoyment and relief. Negative behaviors indicating fear, anxiety, and anger were less frequent. By the end of the play session, almost all the children continued to play alone with the toys. Many of the children also worked with the professionals. Overall, the study emphasized how therapeutic play can be used as an effective

	in the outpatient chemotherapy sessions. • Design: Quantitative exploratory descriptive study.		feelings and the child's interaction with the professional. • Descriptive statistics was used to assess the results presented in absolute values and percentages.	communication tool between adults and children. Therapeutic play promoted relaxation and familiarity of a child's daily routine while also enabling them to better comprehend the reality of the medical procedures. • Limitations: Since this study was descriptive and exploratory, further studies providing a means to compare children who were not prepared for outpatient chemotherapy using therapeutic play is necessary. Children participating in this study had not experienced preparation to chemotherapy prior. The research was only carried out at one oncology department in Brazil, therefore lacking

				generalization. The study also contained mostly boys, therefore greater variability in gender was absent.
Frygner-Holm, S., et al. (2020)	• Purpose: To explore the feasibility of a pretend play intervention intended to increase participation, independence, and well-being. • Design: Mixed method study design.	• The sample population consisted of 10 children between the ages of 4 – 10 from two university hospitals in Sweden. 5 children declined the invitation and one child failed to complete the postintervention measures. The remaining 4 participants were included in the study. • Location: Uppsala & Stockholm, Sweden • Cancer type: ALL	• The play intervention was comprised of: o 6 – 8 sessions 25 – 35 minutes in length o 3 – 4 story stems (imagination, affect, medical play, and a story of the child's choice) o Each child was given the following instructions, "I have some toys for you to play with. I want you to make up stories about different things. So, you can make up a story and play it out with the toys. I'm going to play with you." • The child interview consisted of three topics: o Self-efficacy = 5 questions encompassing common situations in the hospital starting with "Right now, how sure are you that you could . . ." Instructions were to mark a number between 0 and 10 (children above 7	• Findings: Overall, the results of this study indicate that the children enjoyed the pretend play intervention and felt good after participating even though they were sick. The data showed small improvements related to self-efficacy and increased quality of life and that no worrying was produced because of the play intervention. This may suggest that pretend play is effective at reducing anxiety and depression in pediatric cancer patients. The parents/caregivers also felt the play intervention was

			years) or point to one out of 3 smiley faces (children younger than 7 years). ○ Health-related quality of life = The Disabkids was used to determine chronic generic quality of life. For participants under 7, the Disabkids Smiley version take 6 was used, which consisted of 6 total questions. For children 7 years and older, the Disabkids 37 for chronic conditions was used, which consisted of 37 total questions. ○ Cancer specific quality of life = The Pediatric Quality of Life Inventory (PedsQL) cancer module was used. For children ages 5 – 7 years, this included a 3-point Likert-type scale response and for children 8-12 years, this included a 5 point Likert-type scale response. • The interview with the parents consisted of three topics: ○ Child's medical conditions ○ The child's family structure	safe and feasible for their children. • Limitations: With only 4 total participants, the sample size was very small, and all the children had the same cancer diagnosis. Because of this, further studies are needed to appropriately make conclusions for other cancer types. Also, the only data presented in this study is descriptive data.

			○ The child's school-related problems • The responses from the conducted interviews were analyzed using Graneheim and Lundman's guidelines (2004) and themes from the children interviews and parent interviews were derived. • Child interview themes: ○ Play and toys ○ Room for improvements ○ Comments for the researchers • Parent interview themes: ○ Communications ○ Emotions and security ○ Play as a break	
Kurudirek, F., & Arikan, D. (2020)	• Purpose: To determine the effects of therapeutic clowning on pain and anxiety in children during chemotherapy in Turkey.	• The sample population included children who were between the ages of 7-12 and were diagnosed with acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL) and were undergoing intrathecal chemotherapy at a hospital in Turkey. • Experimental group = 38 • Control group = 36	• Data was collected using three questionnaires: ○ Visual Analog Scale (VAS) ○ Faces Pain Rating Scale (FACES) ○ Demographic questionnaire • The demographic questionnaire was given to each child receiving chemotherapy and consisted of: ○ 14 questions total ○ 7 questions were about the participants descriptive characteristics.	• Findings: The children who received the therapeutic clown intervention experienced lower pain levels after the procedure and the children in the control group, experienced greater pain levels after the procedure than they did before the procedure. Children who received the

	• Design: Quasi-experimental pretest – posttest design. • Study Hypothesis: (1) Therapeutic clowning applied before the insertion of the IT line reduces pain in children undergoing intrathecal chemotherapy. (2) Therapeutic clowning applied before the insertion of the IT line reduces anxiety in children undergoing intrathecal chemotherapy.	• Location: Turkey • Cancer type: AML or ALL	○ 7 questions were about the participants disease. • The experimental group received a session of clowning for 3-5 minutes individually before their session of IT insertion. The clown's responsibility was to provide distraction using various techniques: ○ Colorful clothing and makeup ○ Whistling ○ Joke telling ○ Exercising ○ Singing/dancing ○ Taking photos/videos • The data from the control group was collected 20 minutes before IT chemo and 20 minutes after IT chemo. • The data from the experimental group was collected 20 minutes before IT chemo, right after the 3–5-minute session with the clown but before the IT chemo, and again 20 minutes after IT chemo. • Data was analyzed using a paired-t test to compare results between the same groups before and after the IT chemo session. An independent t-test was used to compare the results between the control and experimental groups before and after the IT chemo session.	therapeutic clown intervention experienced lower anxiety levels after the clown session and those who did not, experienced greater anxiety levels, although this increase in the control group was not statistically significant. This study did determine that the use of clowning decreased pain and anxiety in pediatric cancer patients (between the ages of 7-12) related to intrathecal chemotherapy. • Implications for practice suggest that therapeutic humor could be routinized as a part of the process when undergoing chemotherapy. Also, nurses could be trained in this technique to create a "standardized approach" to

				additionally reduce other side effects associated with chemotherapy. • Limitations: The sample size for this study was derived from patients receiving chemotherapy at one university hospital in Turkey. Also, the number of times each child received chemotherapy varied.
Li, W. H. C., et al. (2011)	• Purpose: (1) To examine the efficacy of therapeutic play in reducing anxiety in hospitalized pediatric cancer patients using virtual reality games. • Design: A	• The sample population was composed of the pediatric oncology patients (ages 8-16) admitted to a pediatric oncology unit during a 14-month period at an acute-care hospital receiving treatment (n=122). • Control group = 70 receiving routine nursing care • Experimental group = 52 receiving therapeutic play interventions.	• The study was split into 2 phases with a one month waiting period between the phases. o Phase 1 (control): All participants admitted to the unit received routine nursing care. o Phase 2 (experimental): All participants admitted to the unit received routine nursing care plus 30 minutes of small-group therapeutic play using virtual reality games 5 days a week. • The therapeutic play involved interactive simulations that provided the children an opportunity to engage with their environment using a	• Findings: While the findings were not statistically significant for the support of reducing feelings of anxiety in one group over the other (both groups experienced less anxiety on day 7 than on admission), the findings were significant in that the experimental group experienced fewer depressive symptoms than the children in the control group. Also,

	non-equivalent control group pretest-posttest, between subject design was employed.	• Location: Hong Kong, China • Cancer type: Leukemia, Lymphoma, Brain tumor, Germ-cell tumor, & Osteosarcoma	"PlayMotion" system. • The efficacy of the therapeutic play intervention was measured by determining the child's anxiety level and depressive symptoms. Anxiety and depression were assessed in all participants at baseline and again on day 7 of admission. o Anxiety levels were measured using the short form of the Chinese Version of the State Anxiety Scale for Children (CSAS-C). o Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale for Children (CES-DC).	the findings further indicate the importance of play even when the child is sick. Play is an effective tool in easing the psychological stress associated with a cancer diagnosis. The study also promotes the responsibility of nurses in creating patient centered care experiences using evidence-based practice. • Limitations: All the data was collected on one hospital unit, therefore lacking generalizability in the results and the experimental group had a very low response rate (52), which is believed to be for several reasons: o Refusal to participate in play after chemotherapy o Parents

				believing that their children do not need to play and that they should be resting instead ○ Parents withholding their child from social situations due to fear of their child getting sick ○ Lastly, during phase 2 of this study, there was a breakout of swine flu, and all "non-essential" interventions were suspended during this time
Ouyang, N., et al. (2019)	• Purpose: To determine the effects of a group-	• The sample population was derived from three hospitals in Guangzhou, China. Once the study was presented at the	• The physical activity intervention included: ○ 1 health education session ○ 12 group-based exercise sessions	• Findings: Findings show that time spent doing light-intensity PA decreased by 2-4 hours in the

	based exercise program on reducing symptoms in pediatric cancer patients. • Design: Quasi-experimental study design.	Cancer Center, those who volunteered, between the ages of 4-18, underwent the physical activity intervention. Once a participant in the experimental group (receiving the physical activity intervention) finished, the researchers visited the other two hospitals to find a cancer patient who fit the same demographics (age, sex, diagnosis) as the one in the experimental group. Those that they chose from the other two hospitals were recruited and served as the control group. • Experimental group = 57 received routine medical care plus the physical activity intervention • Control group = 57 received routine medical care • Location: Guangzhou, China • Cancer Type: Leukemia, Lymphoma, & Solid tumor	• The health education session included: o 20–30-minute lecture by the researcher to patients and caregivers o Content included the benefits, the detriments of inactivity, appropriate physical activities for children at different developmental levels during cancer treatment, and the guidelines for physical activity while hospitalized. • The group-based exercise sessions included: o 30 – 40-minute sessions o Warm-up o Muscle-stretching exercises o Cool down o Background music o Participants were divided into groups based on age • When the participants finished every third exercise session (out of 12) they were rewarded with comic books or a jigsaw puzzle. • Data was collected on physical activity and symptom experience using the Children's Leisure Time Activities Study Survey – Chinese	experimental group and this excess time was used participating in MVPA. However, for the control group, the amount of light-intensity PA and MVPA remained the same at baseline and postintervention evaluations. The number of symptoms and the score of total symptom experience was decreased in the experimental group and were increased in the control group. Overall, this study determined that including MVPA, as part of care for pediatric cancer patients undergoing chemotherapy, reduced the amount of time spent on light-intensity PA. It also determined that PA reduces side effect distress and relieves symptoms associated with

			(CLASS-C) and the Memorial Symptoms Assessment Scale (MSAS 10-18) at baseline, and completion in both groups. • Changes in light intensity physical activity and moderate – vigorous physical activity (minutes per week) were measured at baseline and again after every third exercise session for each group.	chemotherapy. • Limitations: This study did not assess long-term effects of physical activity on symptoms. The study also could not blind the participants in the experimental group due to informed consent and the safety precautions necessary for physical activity, which may have created bias in favor of intervention. CLASS-C was the only tool used to measure the amount of PA, which could have led to measurement bias. Furthermore, children did not adhere to wearing a pedometer/accelero meter to measure the amount and intensity of exercise.
Sposito, A. M. P., et al. (2016)	• Purpose: To explore the use of finger	• The sample population included children, ages 7-12, admitted to a pediatric oncology ward	• The use of finger puppets as a communication strategy consisted of two steps: o The child making the	• Findings: This study found that the use of finger puppets improved

	puppets as a strategy in improving communication with hospitalized children with cancer. • Design: Exploratory study design with qualitative data analysis.	from a public teaching hospital in Brazil. (n = 10) • Location: Brazil • Cancer type: Osteosarcoma, ALL, Non-Hodgkin Lymphoma, Ewing's Sarcoma, Rhabdomyosarcoma, & Medulloblastoma	puppets o The child's individual interview using the puppets • Techniques used to structure and conduct the interviews included: o Curtin's (2001) instructions – asking specific questions with familiar language. o Cameron's (2005) suggestions – regarding how the researcher should conduct the interview (i.e. the researcher must explain to each participant the purpose of the interview, etc.) • After each interview with a child, the researcher would log any observations regarding non-verbal data (i.e. tears, smile, environmental surroundings, posture, etc.). • The data was analyzed using an inductive thematic analysis as indicated by Braun & Clarke (2006). The themes identified are as follows: o The puppets facilitated the children's own expressions and feelings o The children interacted with the researcher like she was a character. This	communication with the hospitalized child with cancer. The interviews also proved that finger puppets can be successfully and appropriately utilized in the hospital setting. Puppets helped to even the playing field between the adult and the child, while also maintaining the child's freedom of expression and autonomy. These findings suggest that the implementation of finger puppets to communicate with pediatric patients hospitalized with cancer may improve their overall experience and reduce anxiety associated with diagnosis and treatment. • Limitations: This study consisted of a small sample size

			provided freedom of expression. ○ Some participants wanted to continue playing even after the interview. This suggested they enjoyed the puppets. ○ The puppets were useful in allowing the children to express their unwillingness to discuss certain topics. ○ The puppets provided the child with autonomy. ○ The children often decorated the puppet in the image of how they were before the cancer diagnosis. The children also decorated the puppets that portrayed themselves with differing features from their real ones.	that came from one hospital in Brazil. Therefore, these results may be difficult to generalize to other populations. The use of finger puppets may only extend to children ages 12 and under due to the developmental advancements made beyond that age. Furthermore, healthcare professionals using finger puppets to communicate with children must be able to do so in a playful manner.
Tsai, Y., et al. (2013)	• Purpose: To determine the efficacy of therapeutic play in reducing anxiety in pediatric brain tumor	• The sample population consisted of patients (ages 3-15) from a radiation cancer department in Taiwan who were receiving EBRT for the first time from April 1, 2009, to September 30, 2009. • Control group = 10 patients	• A pretest was conducted after consent was obtained to determine baseline anxiety levels. A posttest was conducted before the radiation therapy began and again after the last session of radiation therapy. • Various strategies for the therapeutic play intervention were implemented based on the child's developmental level and preferences. ○ Cognition change	• Findings: Before the therapeutic play intervention, neither the study nor control group had any statistically significant difference in anxiety levels (both psychologically and physiologically). Therefore, the

	patients undergoing external beam radiation therapy using psychological and physiological data. • Design: Pretest – Posttest design.	○ Ages 3-14 ○ Received routine medical care ○ Data recorded during first 3 months of the study • Experimental group = 9 patients ○ Ages 3-12 ○ Received therapeutic play for 15-20 minutes before ERBT ○ Data recorded during last 3 months of study • Location: Taiwan, China • Cancer type: Solid brain tumor	strategies ○ Desensitization strategies ○ Token strategy ○ Recreational strategies ○ Reinforcement strategy ○ Peer imitation strategies • Psychological anxiety reactions were evaluated using the Faces Anxiety Scale and the Beck Youth Anxiety Inventory. • Physiological anxiety reactions were evaluated using heart rate variability and salivary cortisol concentration. • The resulting data was expressed as mean +/- standard deviation. ○ The level of statistical significance was set at $P<0.05$. ○ Differences between the control and study group were determined with independent t tests. ○ Differences within each group before and after the intervention were determined using dependent t tests. ○ The influence of therapeutic play on anxiety was determined using a one-way analysis of variance.	anxiety reactions before the therapeutic play intervention were similar amongst both groups. The FAS scores in the study group were lower than the control group, the T score for the BAI-Y declined in the study group, HRV declined in the study group, and saliva cortisol levels also declined in the study group. These results indicate that therapeutic play lowered anxiety levels before ERBT. Overall, this study identified that therapeutic play may produce more benefits in addition to reducing anxiety levels during the treatment of pediatric cancer patients. Other benefits may include greater compliance, lower costs/needs associated with

				sedation, reduction in the need of medical supplies, better patient-provider interactions, and an overall increase in client satisfaction. • Limitations: Although this study was the first of its' kind to test the efficacy of therapeutic play in alleviating anxiety in pediatric oncology patients during ERBT, the sample size was small (n=19) and was gathered from the same radiation oncology department in Taiwan. This could lead to a lack of generalizability and such results may be considered minimal.
Witt, S., et al. (2019) *Precursor study to Frygner-*	• Purpose: (1) To increase understanding behind the	• 15 pediatric oncology professionals: o 4 males & 11 females o 3 nurses o 2 physicians	Pretend play intervention summary: • 8 individual play sessions (1 per week) with a play facilitator • Duration of play between 20-40min • 3-4 moderated stories with the use of various toys:	• Findings: Young patients with leukemia mostly use active (aggression and rebellion) and avoidant coping

Holm, S., et al. (2020)	perceptions of both parents and professionals of pediatric cancer patients regarding potential barriers in ability to participate in pretend play. (2) To perform a preliminary analysis on the potential of a pretend play intervention. • Design: Qualitative design using deductive and inductive coding to specify themes.	○ 3 social education workers ○ 2 pedagogues ○ 1 music therapist ○ 4 psychologists • 13 parents of children (ages 2-11) diagnosed with leukemia • Location: Germany • Cancer type: AML & ALL	○ Affect ○ Imagination ○ Medical play ○ Child's choice • Coping techniques: ○ Identification of problem and potential solutions ○ Evaluation of outcome and efficacy of solutions ○ Reinforcing success or need to determine other coping strategies Summary of pretend play intervention was sent to all parents prior to interview • 30 min individual interviews were conducted using 6 predefined interview guidelines by the PIs for Sweden, Germany, and the U.S. ○ Greetings/introduction ○ Everyday life, burdens, and needs ○ Coping ○ Therapy and support programs ○ Pretend play intervention ○ Conclusion and goodbyes • 5 main themes determined by interviews: ○ Ability to play in context of leukemia ○ Ways of coping with leukemia ○ Difficulty in transitioning to normality ○ Parental quality of	strategies. However, the active coping strategies are not effective. Thus, a pretend play intervention that provided methods to strengthen coping strategies would be beneficial in improving disease management. Another finding suggests a need for professional support when patients transition from the in-patient to out-patient setting. Study results also indicate a need for professional support of parents. • Limitations: The interviews with parents were not all performed using the same method (face-to-face and via telephone); a risk of bias can be found depending on the child's age, length of treatment, and time of diagnosis; there

			life/needs ○ Perceptions of the potential of the pretend play intervention	was also an unequal ratio between male and female children and professionals/parents (mother vs. father) included in the study; researchers also failed to obtain sociodemographic information from the parents and professionals.

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