



Implementation of Coloring and Puzzle Play Therapy to Reduce Hospitalization Anxiety in Preschoolers: A Case Study

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ABSTRACT

Background

Physical deterioration, environmental changes, medical treatment, and loss of control over daily activities may cause anxiety in preschool children hospitalized with bronchopneumonia.

Objective

To explore the outcomes of coloring therapy and puzzle play therapy in reducing hospitalization anxiety in preschool children with bronchopneumonia.

Methods

A descriptive case study was conducted involving two preschool children with hospitalization anxiety who received different play therapy interventions. Patient 1 (N) received coloring therapy, whereas patient 2 (A) received puzzle play therapy. Both interventions were administered once daily for 30 minutes over three consecutive days. Anxiety levels were assessed before and after the intervention using the Facial Image Scale (FIS).

Results

Hospitalization anxiety levels decreased in both children following the intervention. In patient 1 (N), the FIS score decreased from 20 (severe anxiety) before therapy to 9 (mild anxiety) after coloring therapy. In patient 2 (A), the FIS score decreased from 15 (severe anxiety) before therapy to 5 (no anxiety) after puzzle play therapy.

Conclusion

Both coloring and puzzle play therapies were effective in reducing hospitalization anxiety among preschool children. Puzzle play therapy demonstrated a greater reduction in anxiety levels, with participants achieving a state of no anxiety.



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Background

Bronchopneumonia is one of the lower respiratory tract infections that remains a leading cause of morbidity and mortality among children worldwide. This disease results from an infection affecting the lung tissue and bronchioles, commonly caused by bacteria, but it may also be triggered by viral or fungal agents (World Health Organization/WHO, 2022). The condition can be particularly severe in vulnerable populations, including infants, young children, older adults, and individuals with compromised immune systems (File, 2025; Huang *et al.*, 2025). Data from WHO (2022) indicated that broncho-pneumonia accounted for 740,180 deaths among children under five years of age in 2019, representing 14% of total deaths in this age group and 22% of all deaths among children aged 1 to 5 years. United Nations Children's Fund (2024) reported that approximately 700,000 children under the age of five die each year from bronchopneumonia equivalent to about 2,000 deaths per day including 190,000 newborns. According to the Indonesia Health Survey/SKI (2023), a total of 877,531 cases of bronchopneumonia were recorded, 15.3% of which occurred among children aged 1 to 4 years (Ministry of Health Republic of Indonesia, 2023). In the Special Capital Region of Jakarta (DKI Jakarta), Indonesia, there were approximately 78,659 cases of bronchopneumonia among children under five years of age during the 2019–2021 period (Jakarta Provincial Health Office, 2023). Agustin and Linda (2018) research found that the highest incidence of pneumonia occurred in children aged 12-23 months (38%), and the lowest in children aged 48-59 months (12%). The majority of toddlers were male (55.9%), had normal nutritional status (97.1%), were exclusively breastfed (61.8%), received measles and DPT immunizations (70.6%), and 100% lived in Jakarta.

In addition to its physiological impact, bronchopneumonia also has significant psychological effects, particularly when children require hospitalization. The unfamiliar hospital environment, invasive medical procedures, and separation from parents can trigger various emotional responses, one of the most common being anxiety (Yulianto, Idayati, & Sari, 2021). Preschool children are highly susceptible to hospitalization anxiety due to their emotional dependence on parents and sensitivity to environmental changes. Inadequate management may impair treatment adaptation, reduce compliance with medical procedures, and delay recovery (Deswita & Nursiam, 2023). Nurses have roles include caregivers, educators, advocates, collaborators, counselors, and change agents (Kozier, *et al.*, 2016). The role of nurses as care providers is crucial in creating a therapeutic and adaptive environment that can reduce anxiety and support the psychological recovery of children during hospitalization.

Assessing the level of hospitalization anxiety in children is an essential initial step in determining appropriate interventions. The use of assessment instruments suited to the child's developmental stage, such as the Facial Image Scale (FIS), enables nurses to objectively measure anxiety levels through the child's facial expressions (Buchanan & Niven, 2002). The results of this assessment serve as the basis for implementing non-pharmacological therapies such as play

therapy, music therapy, or relaxation therapy which have been proven effective in reducing anxiety among hospitalized children (Lorenza, Maryatun, & Ratrinaningsih, 2024).

One of the non-pharmacological interventions proven effective in reducing hospitalization anxiety is play therapy. Therapeutic play helps children express their emotions, develop coping strategies, and adapt to the hospital environment, thereby significantly reducing anxiety levels during hospitalization (Díaz-Rodríguez *et al.*, 2021; Kencana, Wanda, & Widya, 2025). Through play activities, children are able to channel their emotions, express themselves, and divert their attention away from frightening medical procedures (Agustina *et al.*, 2025).

Two types of play therapy that are commonly implemented in pediatric wards are coloring therapy and puzzle therapy. Both interventions have been reported to reduce hospitalization-related anxiety by providing distraction, promoting emotional expression, and enhancing children's adaptation to the hospital environment (Kartika, Winarsih, & Hartini, 2022; Satriana *et al.*, 2023). Riani, Afdhal, and Arsi (2025) conducted a quasi-experimental study assessing coloring therapy in reducing anxiety among hospitalized preschool children. The intervention group engaged in structured coloring activities using child-friendly images in a calm hospital environment, supported by nurse guidance, materials, and encouragement. Each session lasted 10–20 minutes daily. Results showed a significant reduction in anxiety scores from 33.44 to 20.75 ($p < 0.05$). The findings indicate that coloring therapy is an effective non-pharmacological intervention to reduce hospitalization-related anxiety. Puzzle play therapy has been shown to effectively reduce hospitalization anxiety in children. Administered in two 10–15-minute sessions over two days with anxiety assessed before and after intervention using the Face Anxiety Scale, the therapy significantly decreased anxiety levels, demonstrating strong therapeutic effectiveness ($p < 0.001$) (Mulhayati, Suryani, & Yasesas, 2022).

Based on the above description, the author is interested in conducting a case study involving two pediatric patients with bronchopneumonia who were hospitalized at Koja District General Hospital, North Jakarta, Indonesia. Previous studies typically examined only one type of play therapy and relied primarily on nurses' subjective observations. This current case study presents a novel approach by evaluating the comparative efficacy of coloring and puzzle therapies as specific non-pharmacological interventions for hospitalization-induced anxiety in preschool children with bronchopneumonia. The purpose of this case study is to describe the results of coloring therapy and puzzle play therapy in reducing hospitalization anxiety in preschool children with bronchopneumonia. These findings are expected to provide empirical evidence for the role of holistic nurses in supporting child growth and development.

Methods

This study employed a descriptive case study design conducted over a three-day period, from May 20 to May 22, 2025, at Koja District General Hospital, North Jakarta. The two cases were observed in two different wards. The data collection methods used in this study included anamnesis, observation, physical examination, and documentation review.

Case Description

Patient 1

N, a 3-year-old female child, was assessed on May 20, 2025, after being hospitalized for two days in Ward A with a medical diagnosis of bronchopneumonia. She was born through spontaneous delivery at 40 weeks of gestation, with a birth weight of 3.4 kg and a birth length of 50 cm. N was breastfed for two years. Her immunization history includes BCG, PCV, measles, and the follow-up measles immunization.

Patient 2

A, a 4-year-old female child, was assessed on May 20, 2025, during her second day of hospitalization in Ward B with a medical diagnosis of bronchopneumonia. A has a younger sibling. She was born through spontaneous delivery at full-term gestation, with a birth weight of 3 kg and a birth length of 48 cm. She was breastfed for two years. Her immunization history includes DPT, Polio, BCG, and Hepatitis B.

Physical assessment

The physical assessment of N revealed a body weight of 12.4 kg and a height of 96 cm. N exhibited shortness of breath, fever, and cough, along with signs of anxiety such as tension, irritability, fear of the nurse's presence, dependence on her parents, and avoidance of eye contact with strangers, including the researcher. The physical examination of A revealed a body weight of 13 kg and a height of 100 cm. The child experienced shortness of breath, runny nose, and cough. She also exhibited signs of anxiety, such as frequently asking to go home, showing fear upon the nurse's arrival, and crying when about to receive an injection.

Diagnostic Testing

Both patients underwent a complete blood count (CBC) and chest radiographic (X-ray). The chest radiographs of both patients demonstrated bilateral pulmonary infiltrates, with the final radiographic impression being consistent with bronchopneumonia. However, the complete blood count results are not presented in this report, as the authors focused exclusively on the chest radiographic findings, which were considered the primary diagnostic evidence relevant to this case study.

Diagnosis

The medical diagnosis of bronchopneumonia was established by the attending physician for both patients. This diagnosis was based on the integration of the patients' clinical assessment, chest radiographic findings, and laboratory investigations. No additional medical diagnoses were established by the attending physician for both patients.

Nursing Diagnosis

The nursing diagnosis for both patients was *Anxiety* related to a situational crisis (hospitalization), as evidenced by tension, irritability, fear of the nurse's presence, dependence on parents, avoidance of eye contact with strangers, frequent requests to go home, and crying during injections. The nursing diagnosis was established based on the *Indonesian Nursing Diagnosis Standard* with diagnosis code D.0080 (Indonesian National Nurses Association, 2017).

Therapeutical Intervention

Nursing interventions of coloring play therapy for N and puzzle play therapy for A was conducted by the researcher (DAA) over three consecutive days (May 20–22, 2025). Each play therapy session was conducted once daily for 30 minutes over three consecutive days. Before the therapy began, the researcher performed an initial measurement of anxiety level using the FIS. It was carried out by providing the respondents with a questionnaire consisting of 5 questions, followed by the presentation of five facial images: very happy, happy, neutral, sad, and very sad. The respondents were asked to select one of the five facial expressions that best represented how they felt before and after the play therapy sessions. Anxiety was reassessed after each session, with continuous observation, encouragement, praise, and positive reinforcement provided throughout the intervention.

The FIS consisted of five items assessing children's feelings during hospitalization, including how they feel in the hospital environment, when seeing the room and people around them, when unable to play at home as usual, when separated from their parents, and whether they feel anxious

or sad during hospitalization (Buchanan & Niven, 2002). Each item is rated on a 5-point scale/ score from 1 to 5. Score 1 represents very happy indicating no anxiety, score 2 represents happy indicating mild anxiety, score 3 represents neutral indicating moderate anxiety, score 4 represents sad indicating severe anxiety, and score 5 represents very sad indicating very severe anxiety. Each image selected by the respondent was assigned its corresponding score and recorded on the questionnaire scoring sheet. The scores from all selected images were then summed to obtain a total anxiety score. Based on the total score, anxiety was classified into five categories: no anxiety (1–5), mild anxiety (6–10), moderate anxiety (11–15), severe anxiety (16–20), and very severe anxiety (21–25). The FIS demonstrated good validity, with a correlation coefficient of $r = 0.70$ ($p < 0.001$). However, information regarding reliability testing was not reported in the original study by Buchanan and Niven (2002).

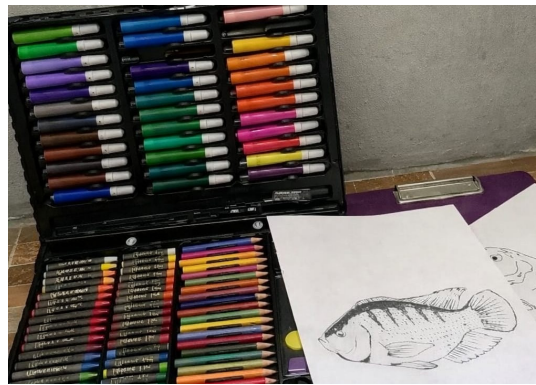


Figure 1. Coloring Tools

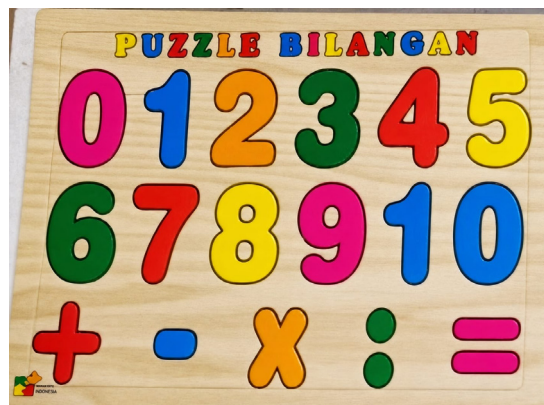


Figure 2. Number Puzzle



Figure 3. Block Puzzle

The intervention materials used in this case study included coloring tools (Figure 1), a number puzzle (Figure 2), and a block puzzle (Figure 3). These play materials were selected according to the developmental characteristics of preschool children and were used throughout the intervention sessions to reduce hospitalization anxiety.

Results

The evaluation of the implementation of coloring play therapy for N (3 years old) and puzzle play therapy for A (4 years old) over a three-day period is presented Table 1. Based on Table 1, there was a noticeable decrease in anxiety level in patient 1 (N) from severe anxiety (score 20) to mild anxiety (score 9), indicating an 11-point reduction. These findings suggest that coloring play therapy could decrease the anxiety score from 20 to 9 in patient N. Patient 2 (A) experienced a decrease in anxiety level from moderate to anxiety, with a reduction of 10 points in the post-intervention score compared to the pre-intervention score. These findings suggest that puzzle play therapy could reduce the anxiety score from 15 to 5 in patient A.

Table 1. Description of Anxiety Levels Pre and Post Coloring and Puzzle Therapy (3×24 Hours)

Type of Play Therapy	Day	Pre-Therapy Anxiety Level (Score)	Post-Therapy Anxiety Level (Score)
Coloring (Patient 1/ N)	1	Severe (20)	Severe (16)
	2	Severe (16)	Moderate (13)
	3	Moderate (13)	Mild (9)
Puzzle (Patient 2/ A)	1	Moderate (15)	Moderate (13)
	2	Moderate (12)	Mild (8)
	3	Mild (7)	No Anxiety (5)

Discussion

This case study found that both coloring play therapy and puzzle play therapy could reduce the hospitalization anxiety in two preschool children with bronchopneumonia. Play therapy is found to have a positive impact in reducing the level of anxiety in this current study. The literature review by Wahyudi *et al.* (2025) consistently demonstrated that play therapy improves adaptive behavior and reduces hospitalization-related anxiety across diverse pediatric populations. However, the included studies involved a broad age range (3–10 years), although several focused specifically on preschool children aged 3–6 or 4–6 years, which more closely resembles the participants in the present study. Moreover, anxiety was evaluated using heterogeneous instruments, including the Face Tool for Anxiety Assessment, Visual Facial Anxiety Scale, Children's State Anxiety Scale, Spence Children's Anxiety Scale, and parent-reported questionnaires, rather than the FIS. Despite these methodological differences, the review consistently supports the effectiveness of

developmentally appropriate play therapy in reducing psychological distress during hospitalization, thereby reinforcing the present findings.

In this case study, anxiety levels decreased following the implementation of number and block puzzle play interventions in two preschool-aged children during hospitalization. These observations suggest a potential benefit of play-based interventions; however, the findings should be interpreted cautiously given the descriptive nature of the study. Although both therapies were beneficial, puzzle play therapy appeared to produce a greater reduction score in anxiety than coloring play therapy. The possible factors contributing to these findings and their implications for nursing practice are discussed below.

The Effectiveness of Coloring Play Therapy

The results of the case study indicate that coloring therapy has a positive impact in reducing the level of anxiety from severe anxiety to mild anxiety in a preschool child during hospitalization. Coloring therapy functions as a structured expressive activity that allows children to externalize emotions, improve focus, and regain a sense of control in unfamiliar hospital environments (Pattikayhatu & Houghty, 2024; Wahyudi *et al.*, 2025). These mechanisms are supported by evidence that art-based interventions promote relaxation, mindfulness, and emotional regulation, thereby reducing anxiety symptoms in pediatric populations (Pattikayhatu & Houghty, 2024; Wahyudi *et al.*, 2025). Coloring therapy also provides opportunities for positive interactions between children and their parents, nurses, or therapists, fostering emotional support and a sense of security during hospitalization. This supportive environment helps children feel less isolated, enhances their coping abilities, and contributes to a reduction in hospitalization-related anxiety (Patandung, Langingi, & Rembet, 2024; Riani, Afdhal, & Arsi, 2025).

The present findings are consistent with those of Herawati and Mariyani (2023), who reported that coloring play therapy significantly reduced hospitalization-related stress in preschool children aged 4–6 years, with mean stress scores decreasing from 21.09 to 13.13 ($p < 0.001$). Although their study assessed stress using a modified Hamilton Rating Scale for Anxiety (HRS-A) questionnaire rather than the FIS, both studies support coloring play therapy as an effective non-pharmacological intervention for reducing hospitalization-related psychological distress. This evidence reinforces the effectiveness of coloring play therapy as a non-pharmacological strategy for alleviating hospitalization-related distress in pediatric patients. Coloring play therapy significantly reduces anxiety levels in hospitalized children by providing distraction, emotional expression, and a sense of control over the environment (Desrina, Putra & Ulfa, 2023; Futri & Risdiana, 2023; Sudirman, Dodjo, & Aziz, 2023; Dewanti & Maryatun, 2023). From a neuropsychological perspective, engagement in enjoyable creative activities such as coloring is associated with activation of the brain's reward system, which may stimulate endorphin release and reduce stress-related physiological responses, including cortisol activity (Kaimal, Ray, & Muniz, 2016). This neurobiological response contributes to improved mood, emotional balance, and decreased anxiety intensity in children undergoing medical procedures (Kaimal, Ray, & Muniz, 2016; Pattikayhatu & Houghty, 2024).

Effectiveness of Puzzle Play Therapy

Puzzle play therapy has been recognized as an effective atraumatic care intervention for alleviating hospitalization-related anxiety among preschool children (Satriana *et al.*, 2023). Through cognitive engagement and distraction mechanisms, puzzle activities divert children's attention from stressful hospital stimuli, fostering relaxation, sustained concentration, and a greater sense of environmental control (Agramadani & Permatasari, 2026). Furthermore, puzzle play contributes to psychosocial development by strengthening problem-solving abilities, fine motor skills, and adaptive coping strategies, which collectively support emotional adjustment during hospitalization

(Satriana *et al.*, 2023; Sari *et al.*, 2024; Agramadani & Permatasari, 2026). These findings are consistent with previous studies conducted by Diansari, Soleman, & Ratrinaningsih (2024), Islamiyah, Novianti, & Anhusadar (2024), and Yulianto, Idayati, & Sari, (2021), which demonstrated that puzzle play therapy significantly reduces anxiety levels among preschool children during hospitalization. These results support the effectiveness of puzzle-based play interventions as a non-pharmacological strategy for alleviating hospitalization-related anxiety. By engaging children in enjoyable and cognitively stimulating activities, puzzle play therapy can enhance emotional comfort, promote adaptive coping mechanisms, and improve overall psychological well-being during medical treatment.

Comparison Between Coloring Therapy and Puzzle Play Therapy

The findings of this case study demonstrated that both coloring and puzzle play therapies effectively reduced anxiety level among preschool children. However, comparison of the two interventions showed that puzzle play therapy in Patient A (4 years old) produced a greater reduction in anxiety score than coloring therapy in Patient N (3 years old). Being one year older, Patient A exhibited more advanced cognitive and emotional development, including a greater ability to recognize and express emotions and a clearer understanding of the surrounding social environment. This level of developmental maturity likely enhanced the child's capacity to cope with anxiety. In contrast, Patient N was in an earlier stage of emotional regulation development. Patient N exhibited a higher level of anxiety than Patient A.

This difference may be explained by developmental characteristics related to early childhood cognitive maturation (Piaget, 1951; Demetriou *et al.*, 2024). According to Piaget's preoperational stage, children aged 2–7 years demonstrate progressive improvements in symbolic thinking, attention span, and problem-solving abilities, which become more advanced with age. Consequently, older preschool children tend to engage more effectively in structured cognitive activities such as puzzle play, which require sustained attention, logical sequencing, and active problem-solving. These cognitive demands may enhance distraction from anxiety-provoking hospital stimuli and increase perceived control, resulting in a stronger anxiolytic effect. In contrast, coloring therapy, although beneficial for emotional expression and relaxation, is less cognitively demanding and may function as a more passive form of distraction, particularly in younger children with limited attentional capacity (Piaget, 1951; Demetriou *et al.*, 2024).

In addition, anxiety reduction tends to occur more rapidly in older preschool children (around 4 years) compared to toddlers due to greater cognitive maturation, improved language comprehension, and more effective coping mechanisms (Demetriou *et al.*, 2024). At this developmental stage, children are increasingly able to differentiate reality from imagination and better understand simple explanations regarding medical procedures, whereas younger children are more prone to separation anxiety (Pujianti, Susanto, & Wijayanti, 2025). Furthermore, enhanced verbal communication skills at age 4 facilitate expression of pain and emotional distress, enabling more effective emotional support from caregivers and nurses (Ginting & Sembiring, 2024). Older preschool children also demonstrate more developed coping strategies, including distraction and engagement in therapeutic play, which support faster adaptation to unfamiliar hospital environments (Putri & Miradwiyana, 2024).

The findings of this case study differ from those reported by Pratiwi and Deswita (2013), who conducted a quasi-experimental study involving 30 children and found that coloring play therapy was more effective than puzzle play therapy in reducing anxiety scores. This discrepancy may be attributed to methodological differences, as the present study employed a case study design with only two participants, each receiving a different intervention, thereby limiting the comparability and generalizability of the findings.

Age

Both patients were of preschool age and demonstrated age-appropriate developmental abilities, including independence in simple daily activities such as eating without assistance, dressing, and following instructions from adults. Patient A, who was one year older, exhibited more advanced development than Patient N, particularly in the ability to express needs and desires using clearer and more comprehensible language. The reduction in anxiety observed in both cases may be attributed to the developmental characteristics of preschool-aged children, who possess limited cognitive capacity to comprehend illness, hospitalization, and medical procedures. Consequently, hospitalization is often perceived as a threatening experience that triggers anxiety (Hockenberry, Duffy, & Gibbs, 2023). Furthermore, emotional dependence on parents and exposure to an unfamiliar hospital environment may exacerbate psychological distress during hospitalization (Agramadani & Permatasari, 2026). Coloring and puzzle play therapies are developmentally appropriate interventions for preschool children because play represents a fundamental medium for emotional expression, adaptation, and coping. Consistent with previous studies, both interventions have been shown to effectively reduce hospitalization-related anxiety among preschool-aged children by providing distraction, enhancing emotional regulation, and promoting a sense of control over stressful situations (Kartika, Winarsih, & Hartini, 2022; Nazarius, Lautan, & Batari, 2024).

Gender

Both patients, N and A, are female. In general, girls tend to display more overt emotional expressiveness than boys, particularly in stressful situations such as hospitalization (Chaplin & Aldao, 2013). Emotional reactions such as crying, anxiety, resistance to procedures, and seeking parental comfort are more frequently observed and more openly expressed in girls compared to boys, which may be influenced by both socialization processes and biologically based differences in emotion regulation (Chaplin & Aldao, 2013). In pediatric nursing contexts, such differences are clinically relevant because they may affect how anxiety is identified and managed during hospitalization (Hockenberry, Duffy, & Gibbs, 2023).

Immunization

Both patients in this case study had a complete immunization status, indicating adherence to the recommended national immunization schedule. Full immunization is known to enhance specific and long-term immune protection, thereby reducing susceptibility to vaccine-preventable diseases and contributing to improved overall health outcomes in children during periods of hospitalization (WHO, 2024; Ministry of Health of the Republic of Indonesia, 2023). From a pediatric nursing perspective, immunized children generally exhibit better physiological resilience, which supports stability during acute care conditions (Hockenberry, Duffy, & Gibbs, 2023). In this context, both children demonstrated optimal physical readiness to participate in non-pharmacological interventions, including coloring and puzzle play therapy. Their stable clinical condition and adequate immune status likely facilitated better attention, cooperation, and engagement during therapeutic play. This condition may have contributed to optimizing the effectiveness of play-based nursing interventions in reducing hospitalization-related anxiety, as children with better physical stability are more capable of participating actively in structured therapeutic activities (Hockenberry, Duffy & Gibbs, 2023; WHO, 2024).

The Role of Nurses in Managing Hospitalization Anxiety Through Play Therapy

The results of the case study demonstrate that coloring and puzzle play therapy could reduce children's anxiety levels. This finding highlights the significant contribution of nurses to the effectiveness of play therapy through their roles as care providers, educators, and collaborators (Kozier *et al.*, 2016). The care provider role is carried out by integrating play therapy as part of

holistic nursing care. The actions include: 1) preparing a playroom decorated with colorful images, soft music, and age-appropriate coloring tools (paper, crayons, colored pencils) or puzzles; 2) scheduling playtime outside medical procedures to provide children with a “stress-free moment”; 3) encouraging children to choose their preferred pictures or puzzles (such as animals, cartoons, or vehicles); 4) accompanying and giving praise to help children feel appreciated and motivated; and 5) observing the child’s expressions throughout the activity to assess anxiety levels. Integrating play therapy into holistic nursing care significantly minimizes hospital-induced trauma and reduces pediatric anxiety. This approach synthesizes environmental optimization, procedural isolation, patient autonomy, and interactive accompaniment to accelerate psychological recovery (Gupta *et.al*, 2023).

The educator role in this case study is carried out by providing education to both the child and the parents about play therapy. It includes explaining the benefits of play as part of the healing process, teaching parents how to continue play activities at home to help the child remain calm and adaptive after hospital discharge, and facilitating play even during illness through activities and schedules appropriate to the child’s condition. Family involvement and parental participation in therapeutic play have been shown to enhance children’s coping abilities, reduce hospitalization-related anxiety, and support continuity of psychosocial care beyond the hospital setting (Agramadani & Permatasari, 2026).

The collaborator role of nurses in this case study was demonstrated through close cooperation with parents and family members in accompanying the child during play activities, thereby supporting the implementation of family-centered care throughout hospitalization. Nurses also collaborated with physicians to ensure that play therapy did not interfere with medical procedures, treatment schedules, or rest periods. In addition, nurses monitored and reported changes in the child’s behavior, emotional responses, and anxiety levels to physicians as part of the ongoing assessment of the child’s psychological condition. Such interdisciplinary collaboration among nurses, physicians, and family members is a fundamental component of atraumatic and family-centered care, contributing to improved coping abilities, reduced anxiety, and more positive hospitalization experiences for children (Alfiyanti *et al.*, 2024).

Study Limitations

This case study has several limitations. It included only two preschool children, each receiving a different intervention, which limits direct comparison and the generalizability of the findings. Individual clinical conditions, developmental differences, previous hospitalization experiences, and variations in parental involvement may also have influenced the outcomes. Furthermore, the hospital environment, including ongoing renovation activities and limited child-friendly facilities, may have affected the children’s responses to the interventions. Other limitation is that the intervention was conducted by the author. It could lead to bias. Additionally, the FIS scale was translated into Indonesian by the researcher without following a standardized instrument translation procedure, which may have affected measurement validity. Therefore, the findings should be interpreted cautiously. Nevertheless, this study provides preliminary evidence supporting coloring and puzzle play therapy for reducing hospitalization-related anxiety in preschool children. Future studies should include larger samples, independent outcome assessors, and more rigorous designs to strengthen the evidence.

Conclusion

This case study suggests that both coloring and puzzle play therapies may reduce hospitalization-related anxiety in preschool children, with puzzle play showing greater improvement in these cases. This study demonstrates that the reduction in anxiety is heavily influenced by

developmental characteristics, engagement levels, and cognitive abilities. Although limited by the case study design and small sample, the findings support the integration of structured play therapy into pediatric nursing practice as a simple, developmentally appropriate, non-pharmacological intervention to promote children's emotional well-being during hospitalization.

Informed Consent

This case study was conducted with the voluntary consent of both the patients and their parents. Written informed consent was obtained from the parents after they received a full explanation of the study objectives, procedures, and their rights as participants.

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