

Exploring the therapeutic effect of CalmCube play on emotional well-being in hospitalized preschool-aged children



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ABSTRACT

Hospitalization can trigger significant anxiety in preschool children (ages 3–6) due to separation from familiar environments, invasive medical procedures, and limited emotional coping strategies. Excessive anxiety during hospitalization may hinder recovery and negatively affect emotional development. Play therapy is a widely recommended non-pharmacological approach to reduce pediatric anxiety. CalmCube is an innovative play therapy tool designed to engage children's cognitive and emotional responses through interactive, age-appropriate activities. This study aimed to evaluate the effectiveness of CalmCube play therapy in reducing anxiety among hospitalized preschool children. A quasi-experimental study using a pretest-posttest control group design was conducted at Dr. Soekardjo Hospital from October to December 2024. A total of 38 preschool-aged children (3–6 years) were selected through purposive sampling and assigned to intervention (n = 19) and control (n = 19) groups. Anxiety levels were measured using the Preschool Anxiety Scale (PAS) before and after the intervention. Data were analyzed using paired and independent sample t-tests. In the intervention group, the mean anxiety score decreased significantly from 37.10 (SD = 19.83) to 29.21 (SD = 17.57) after CalmCube therapy (p = 0.000). In contrast, the control group showed a negligible reduction from 44.78 to 43.94 (p = 0.076). Between-group analysis also revealed a statistically significant difference in post-intervention anxiety levels (p = 0.016), confirming the effectiveness of CalmCube therapy. CalmCube play therapy significantly reduced anxiety in hospitalized preschool children and can be implemented as a non-pharmacological nursing intervention to improve children's psychological well-being during hospitalization. Integrating structured play therapy into pediatric care protocols may enhance emotional resilience and recovery outcomes in young patients.

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INTRODUCTION

Child development, particularly during the early years is a critical phase that lays the foundation for a child's future physical, emotional, cognitive, and social functioning. Child development is divided into two main stages, namely ages 0–6 years which include the

prenatal period (embryo and fetus phase) and postnatal (neonates, infants, toddlers, and preschool), and ages 6–18 years which include school and adolescence.(1) The purpose of this development is to hone religious, moral, socio-emotional, physical, cognitive, language, and gross and fine motor skills.(2) Preschool children (3–6 years) are in an important phase in the formation of personality and the development of motor functions. Children experience an increase in gross motor skills such as jumping and walking on boards, as well as fine motor skills such as drawing, coloring, and stacking blocks.(3) They also begin to understand family and social rules, respect the rights of others, and begin to form social interactions through play activities. Therefore, play activities are very important, even when children are sick or hospitalized.(2)

According to WHO in 2015, the hospitalization rate for preschool children reached 45%, indicating that almost half of the population of that age group had been hospitalized.(4) Susenas data for March 2023 noted that 27.84% of children aged 0–17 years experienced health complaints, with the 0–4 age group recording 17.54% and the 5–6 age group at 16.60%. In West Java Province, 37.93% of children aged 0–4 years were reported to have health problems, with diarrhea as the main complaint (7.1%), according to the Indonesian Health Survey.(5) In addition, around 5% of toddlers had been hospitalized in the past year, with private hospitals being the most common place of care (42.59%), followed by government hospitals (36.25%). A preliminary study at Dr. Soekardjo Hospital recorded 2,124 cases of pediatric hospitalization in the Melati room in 2024, with around 600 children aged 3–6 years, and an average length of stay of three days. The most common disease suffered was pneumonia. The high number of hospitalizations can affect the psychological condition of children, which is known as hospitalization.(6)

Hospitalization is a condition when a child must be hospitalized suddenly or planned, which can trigger psychological stress. The unfamiliar hospital environment, separation from parents, loss of a sense of security and independence, and various medical procedures can be sources of stress for children.(7) Preschool-aged children usually respond to this situation with aggressive behavior such as biting or kicking, crying, or refusing to cooperate with nurses. There are also children who consider hospitalization as a form of punishment, and show high dependence on their parents.(8)

Anxiety is an emotional reaction to certain situations that involve excessive feelings of insecurity, fear, or worry.(9) WHO in 2016 noted that around 35 million children in the world experienced anxiety during hospitalization. In the United States, of the 5 million children treated, 50% experienced anxiety with a length of stay of 3–10 days. In Indonesia, SUSENAS reported that 30.82% of children aged 3–5 years experienced anxiety during hospitalization.(10) Research shows that moderate anxiety is most experienced by 45 children (32.6%), followed by mild anxiety in 38 children (27.5%), severe anxiety in 33 children (23.9%), and panic in 22 children (16.0%).(9) Symptoms of anxiety include excessive worry, irritability, impaired concentration, behavioral changes, and sleep disturbances.(6) To overcome this, methods such as relaxation, music therapy, art therapy, physical activity, and play therapy are used.(11)

Play therapy is one of the most effective methods for dealing with stress and anxiety in children undergoing hospitalization. Playing provides space for children to express emotions, feel safe, and increase their ability to adapt to the hospital environment.(6) Age-appropriate group play therapy is also useful for developing children's motor, cognitive, language, and social skills.(9) Educational games such as puzzle blocks are an interesting and useful tool. Research by Martasih et al. (2023) shows that stacking blocks can significantly reduce anxiety in preschool children.(12) Likewise, research by Dewi et al. (2020) found that puzzle therapy is effective in helping children aged 3–6 years reduce anxiety during treatment.(13) While various non-pharmacological interventions such as relaxation, music, art, and general play therapy are employed to manage this anxiety (11), the persistent high prevalence of moderate to severe anxiety by Aliyah and Rusmariana

(2021) suggests a continued need for effective and child-centric approaches.(9) Existing interventions may face limitations in engagement, adaptability, or sustained impact, particularly for children experiencing prolonged stays or specific developmental needs.

This study proposes CalmCube play therapy as an innovative and structured intervention to address anxiety in hospitalized preschool children. CalmCube (Children, Adaptable, Learning, Mindful Cube), which is a puzzle-block play therapy equipped with six pictures and six questions or challenges designed to stimulate children's cognitive and emotional well-being. CalmCube is expected to help preschoolers overcome anxiety, improve concentration, problem-solving skills, and make children feel calmer. Despite the clear benefits of play therapy, CalmCube, with its unique structured approach, has not yet been explored as a specific intervention for reducing anxiety in this vulnerable population. Based on anxiety measurements of five children aged 3–6 years using the Preschool Anxiety Scale (PAS) in the Melati 5 room of Dr. Soekardjo Hospital, an average anxiety score of 43.2 was obtained on the first and second days of treatment. Play therapy such as CalmCube has never been applied before as an approach to reduce anxiety. Therefore, an intervention is needed that can help reduce children's anxiety effectively during hospitalization. With this background, researchers are interested in examining the effect of CalmCube play therapy on anxiety in preschool children at Dr. Soekardjo Hospital.

METHOD

This study employed a quasi-experimental, pre-test-post-test design with a control group to evaluate the effectiveness of CalmCube play therapy on anxiety levels in hospitalized preschool children. The research was conducted from March to April 2025 in the Pediatric Ward of Dr. Soekardjo Hospital, Tasikmalaya, Indonesia. The study's target population comprised hospitalized children aged 3–6 years in the Pediatric Ward. Purposive sampling was used to select participants who met the following inclusion criteria: hospitalized children aged 3–6 years; able to communicate verbally or non-verbally to express feelings; hemodynamically stable; and whose parents provided informed consent for their child's participation. Exclusion criteria included children with severe cognitive impairments, neurological disorders, hearing or visual impairments significantly affecting interaction, or those receiving sedative medication during the study period. A total of 38 participants were recruited and divided into two groups: an intervention group (19 children) and a control group (19 children). The sample size was determined using a power analysis, assuming (alpha of 0.05), to detect a statistically significant difference in anxiety levels between the groups. The intervention group received CalmCube play therapy, while the control group received standard hospital care (care as usual). CalmCube play therapy involved the use of structured puzzle-blocks, each featuring one of six pictures and an accompanying question or challenge designed to stimulate cognitive and emotional engagement. Therapy sessions were conducted once daily for three consecutive days, with each session lasting approximately 20 minutes, facilitated by a trained pediatric nurse in a designated play area within the ward. The researcher followed a standardized protocol to ensure consistent delivery of the therapy, focusing on encouraging emotional expression, problem-solving, and adaptive coping mechanisms through play. Specific instructions were provided for each picture and challenge to guide the interaction. The control group received routine hospital care without any structured play intervention. Anxiety levels were measured using the Preschool Anxiety Scale (PAS), a standardized questionnaire designed for children aged 3–6 years. The PAS assesses various dimensions of anxiety, yielding a quantitative score. The PAS consists of 28 items across five subscales: separation anxiety, generalized anxiety, social phobia, obsessive-compulsive symptoms, and physical injury fears. Responses are rated on a 5-point Likert scale (0 = not at all true to 4 = very often true), with a higher total score indicating greater anxiety. The Indonesian version of PAS used in this study has demonstrated good internal consistency (Cronbach's alpha = 0.87). Anxiety

assessments were conducted before and after the intervention for both groups. Data were analyzed using IBM SPSS Statistics software (Version 25). Descriptive statistics were used to summarize participant characteristics. To compare the anxiety levels between the intervention and control groups, Independent Samples T-tests were utilized, specifically to compare the change scores (post-test minus pre-test) or post-test scores if baseline values were comparable. Paired Samples T-tests were used to assess within-group changes in anxiety levels from pre-test to post-test. Prior to parametric testing, data normality was assessed using the Shapiro-Wilk test. A significance level (α) of 0.05 was established for all statistical analyses.

RESULTS

Tables 1 below describe the characteristics of the respondents. A total of 38 preschool children participated in this study, consisting of 19 respondents in the intervention group and 19 in the control group. As presented in Table 1, most children in both groups were aged 3 and 6 years (36.8% each in the intervention group and 26.3% and 31.6%, respectively, in the control group). The sex distribution was nearly equal, with males accounting for 52.6% in the intervention group and 47.4% in the control group. Most respondents in the intervention group (68.4%) had prior hospitalization experience, whereas in the control group, a slightly smaller proportion (47.4%) had such experience. Regarding the type of illness, most children in both groups were diagnosed with disorders of the digestive system (36.3% in the intervention group and 63.2% in the control group).

Table 1. Demographic Characteristics of Respondents (N = 38)

Characteristic	Category	Intervention Group (n = 19)		Control Group (n = 19)	
		f	%	f	%
Age (years)	3	7	36.8	5	26.3
	4	4	21.1	4	21.1
	5	1	5.3	3	15.8
	6	7	36.8	6	31.6
Sex	Male	10	52.6	9	47.4
	Female	9	47.4	10	52.6
Previous hospitalization	Ever	13	68.4	9	47.4
	Never	6	31.6	10	52.6
Type of illness	Respiratory system disorder	2	10.5	6	31.6
	Digestive system disorder	10	52.6	13	68.4
	Nervous system disorder	2	10.5	0	0.0
	Circulatory system disorder	5	26.4	0	0.0

Overall, the baseline characteristics between the two groups appeared relatively comparable, indicating no major differences that could bias the interpretation of intervention effects.

Before the intervention, the mean anxiety score among preschool children in the intervention group was 37.10 (SD = 19.83), while the control group had a higher mean score of 44.74 (SD = 19.17) (Table 2). Following the administration of CalmCube play therapy, the mean anxiety score in the intervention group decreased markedly to 29.21 (SD = 17.57). In contrast, the control group showed only a slight decline to 43.94 (SD = 18.40).

Table 2. Mean Anxiety Scores of Preschool Children Before and After Intervention

Group	Time of Measurement	Mean	SD	Min-Max	95% CI
Intervention group	Pretest	37.10	19.83	10–72	27.54–46.66
	Posttest	29.21	17.57	8–62	20.74–37.67
Control group	Pretest	44.74	19.17	21–87	35.54–54.03
	Posttest	43.94	18.40	20–85	35.07–52.81

These results suggest that preschool children in the intervention group experienced a more substantial reduction in anxiety compared with those who did not receive the intervention.

The paired sample *t*-test revealed a statistically significant reduction in anxiety levels in the intervention group (mean difference = 7.89, $p < 0.001$), indicating that CalmCube play therapy effectively alleviated anxiety among hospitalized preschool children (Table 3). Conversely, in the control group, the decrease in anxiety was minimal and statistically non-significant (mean difference = 0.84, $p = 0.076$), suggesting that the observed change may have resulted from natural adaptation rather than intervention effects.

Table 3. Paired Sample *t*-Test Results Comparing Anxiety Scores Before and After Intervention

Group	Measurement	Mean	SD	Mean Difference	p-value
Intervention group	Pretest	37.10	19.83	7.89	<0.001*
	Posttest	29.21	17.57		
Control group	Pretest	44.78	19.17	0.84	0.076
	Posttest	43.94	18.40		

Further comparison using an independent sample *t*-test demonstrated a significant difference between the two groups after the intervention ($p = 0.016$) (Table 4). This finding confirms that children who received CalmCube play therapy exhibited a greater reduction in anxiety levels compared to those in the control group.

Table 4. Independent Sample *t*-Test Comparing Posttest Anxiety Scores Between Groups

Group	Mean	SD	p-value
Intervention (CalmCube play therapy)	29.21	17.57	0.016*
Control (no intervention)	43.94	18.40	

In summary, the results indicate that CalmCube play therapy significantly reduced anxiety levels in hospitalized preschool-aged children. The intervention proved to be an effective non-pharmacological approach to supporting children's emotional well-being during hospitalization, whereas no significant improvement was observed in the control group.

DISCUSSION

Respondent Characteristics Overview

The characteristics of respondents in this study (age, gender, hospitalization experience, and type of illness) play a crucial role in understanding anxiety levels among hospitalized preschool children and their responsiveness to play-based interventions. Understanding the demographic and clinical characteristics of hospitalized preschool children is crucial for contextualizing their anxiety responses and tailoring effective interventions.

In this study, the average age of respondents was 4.52 years. Consistent with previous literature, younger children are often more vulnerable to anxiety during hospitalization due to their limited cognitive capacity to fully comprehend the situation and greater susceptibility to separation anxiety.(14) While Harnilawati & Asrianto (2021) observed a prevalence of anxiety in children aged 5-6 years who begin to perceive threats to their well-being but lack independent emotional regulation, our sample's younger average

age highlights the broad susceptibility to hospitalization-induced anxiety across the preschool spectrum.(15)

The study observed a balanced gender distribution (50% male, 50% female), suggesting that hospitalization anxiety can affect both genders without a stark distributional difference in our sample. However, theoretical frameworks and some studies suggest that girls may express anxiety more outwardly, while boys might exhibit more withdrawn reactions or experience anxiety more frequently due to environmental pressures.(14,16) Our balanced sample allowed for an unbiased assessment of CalmCube's effect across genders, though future research with larger, stratified samples could explore potential gender-specific responses to the intervention.

Regarding previous hospitalization experience, most of our respondents (63.3%) had been hospitalized before. While intuitively prior experience might reduce anxiety by familiarizing children with the hospital environment, studies like Dihuma et al. (2023) suggest that children with previous hospitalization experience tend to have lower anxiety.(17) The continued presence of anxiety in our experienced cohort, as evidenced by pre-test scores, indicates that prior exposure alone may not suffice to mitigate psychological distress. This underscores the persistent need for supportive interventions, even for children with past hospitalizations, as each admission can present new stressors.

The most common primary diagnosis in our young cohort was digestive system disorders (60.5%). Being hospitalized for any illness, particularly in early childhood, represents a significant crisis, forcing children to adapt to unfamiliar environments and cope with health deterioration.(18) The nature of the illness and its associated medical procedures can profoundly influence a child's anxiety levels, as even routine treatments can be perceived as frightening or invasive.(19) This highlights the universal vulnerability of hospitalized preschoolers to anxiety, irrespective of their specific medical condition.

Overall, understanding these respondent characteristics provides essential context for interpreting the outcomes of the intervention. It reinforces the importance of tailoring play therapy interventions like CalmCube not only to developmental stages but also to individual psychosocial profiles. Such personalization may enhance therapeutic engagement and improve anxiety outcomes.

Effectiveness of CalmCube Play Therapy on Children's Anxiety

This study investigated the effectiveness of CalmCube play therapy in reducing anxiety among hospitalized preschool children, a vulnerable population often experiencing significant psychological distress during hospital stays. Our findings provide compelling evidence that CalmCube play therapy significantly reduces anxiety levels in this cohort.

Before intervention, both the intervention and control groups exhibited moderate anxiety, with average scores of 37.10 (SD 19.83) and 44.74 (SD 19.17), respectively. This aligns with observations by Aprina et al. (2019) that hospitalized preschool children commonly display anxiety symptoms such as refusal to eat, frequent questioning, crying, and uncooperative attitudes, primarily due to separation from their secure home environment.(20) The results of this study indicate that the majority of children experienced anxiety before being given CalmCube play therapy intervention. Children feel afraid when meeting health workers and are reluctant to be separated from those closest to them. They show anxiety, fussiness, and often express a desire to go home. Some become quiet and passive, while others show aggressive behavior such as getting angry, kicking, or screaming. Because of the loss of freedom to play. This condition shows that hospitalization can affect the emotional and social aspects of children.

After the intervention was carried out, the researchers found a significant difference between the group that received CalmCube play therapy and the group that did not receive the intervention. The intervention group showed a clear decrease in anxiety levels, with an average score of 29.21 (SD 17.57). In contrast, the control group that was not given

treatment still showed high levels of anxiety, with an average score of 49.94 (SD 18.40). In line with research conducted by Purnamasari et al., (2022) showed that the intervention group experienced a decrease in moderate anxiety levels to mild anxiety levels of 30 respondents (88.3%), while in the control group respondents who experienced a decrease in anxiety levels were only 3 respondents (8.8%).(21) These results show that children who undergo play therapy experience a greater decrease in anxiety than those who do not receive intervention. Children in the control group generally show more negative reactions to the hospitalization process, such as restlessness, frequent crying, withdrawing from the surrounding environment, fear of new people, and refusing to participate in existing activities. Even after time passes, without any intervention, these signs of anxiety tend to remain or even increase, because children do not have enough means to channel their emotions or stress.

Based on the results of a study on the effect of Calmcube play therapy on preschool children's anxiety during hospitalization at Dr. Soekardjo Hospital, it shows that the average anxiety score before play therapy is 37.10 and the average anxiety score after playing is 29.21 with an average decrease in anxiety score of 7.89. Then the p value is obtained 0.000 ($p < 0.05$) The results of the study showed that H_0 was rejected, which means there is a significant difference in the average level of anxiety in children before and after being given CalmCube play therapy while being treated at Dr. Soekardjo Hospital. In line with research conducted by Israeli et al. (2020) This study shows that play therapy using puzzles significantly reduces anxiety levels in preschool children who are hospitalized with (p -value < 0.05). (22) Another study conducted by Damanik et al., (2022) also found a significant decrease in anxiety in preschool children after being given plasticine play therapy with a p value = 0.023 (< 0.05), this therapy provides a means for children to express their negative feelings, as well as divert attention from stressful situations. (23) The colorful plasticine and the soft touch sensation provide a relaxing effect that helps reduce children's emotional tension.

The average anxiety score of respondents in the control group before treatment was recorded at 44.78. After being re-measured without being given calmcube play therapy, the average anxiety score decreased slightly to 43.94. This means that there was a decrease in the score of 0.84. This slight decrease is thought to have occurred because some children showed a process of adaptation to the atmosphere in the hospital. These findings support the results of Dayani's study (2015) regarding the effectiveness of clay play therapy in reducing anxiety in preschool children (aged 3–6 years) who were undergoing hospitalization, with a p -value of 0.41 ($p > 0.05$), which indicates that the results are not statistically significant. (24)

In addition, in a study conducted by Harnilawati & Asrianto (2021) on the control group that was not given intervention, there was no significant difference in levels. anxiety before and after observation with p value = 0.480. (15) In fact, there was an increase in anxiety in some children because the child did not get support or emotional channeling activities during treatment, the child had more difficulty adapting to the unfamiliar hospital environment, causing fear, dependence, and stress, the absence of parents in some moments of treatment can exacerbate feelings of separation and loss of control.

This is in line with the adaptation theory put forward by Nursetiawati et. al (2023), which states that every individual can adapt, although the time needed to adapt can vary depending on the condition of each child in facing a new environment. (25) In addition, other factors such as age, gender, duration of hospitalization, and previous experience of hospitalization can also affect anxiety levels. (24) The results of the analysis using the paired sample t-test showed a p -value of 0.076 ($p > 0.05$), it can be concluded that there is no significant difference in anxiety levels before and after in the control group that did not receive Calmcube play therapy intervention, especially in preschool children (3–6 years) who are being treated at Dr. Soekardjo Hospital.

Based on the results of the analysis using the independent sample t-test between the intervention group and the control group, a p-value of 0.016 ($p < 0.05$) was obtained. These results indicate that the null hypothesis (H_0) is rejected, so it can be concluded that there is a significant difference between the anxiety levels of the two groups. The data shows that after being given Calmcube play therapy, 11 children in the intervention group experienced mild anxiety symptoms (score < 28), while in the control group there were 12 children who still showed moderate anxiety symptoms (score 28–56). Thus, although both groups showed a decrease in anxiety levels, the group that received the intervention experienced a more pronounced decrease in preschool children during hospitalization.

This study carries significant implications for pediatric nursing practice. CalmCube play therapy presents a practical, accessible, and non-pharmacological strategy that can be readily integrated into routine care for hospitalized preschool children. Implementing such a structured play intervention can empower healthcare providers to proactively manage and reduce pediatric anxiety, potentially leading to improved patient cooperation during procedures, enhanced overall well-being, and a more positive hospital experience for both children and their families.

Despite these contributions, the study has several limitations. The quasi-experimental design, while suitable for clinical settings, means the absence of full randomization could introduce potential biases. The study was also conducted at a single hospital, which may limit the generalizability of findings to diverse healthcare environments. Furthermore, the relatively short intervention and observation period might not fully capture long-term anxiety trends or sustained benefits. Future research could explore the long-term impact of CalmCube through randomized controlled trials (RCTs) across multiple settings, investigate optimal intervention frequency and duration, and assess its effectiveness in children with varying medical conditions or developmental stages.

CONCLUSION

This study demonstrates that CalmCube play therapy is an effective non-pharmacological intervention for reducing anxiety among hospitalized preschool children. The intervention group showed a statistically significant decrease in anxiety levels compared to the control group, indicating that structured, developmentally appropriate play activities can provide emotional support during hospitalization.

These findings have practical implications for pediatric nursing care. CalmCube play therapy can be implemented as part of routine nursing interventions to help children cope with stress, improve their hospital experience, and prevent long-term psychological impacts associated with hospitalization. Further research is recommended to explore the long-term effects of CalmCube therapy, its effectiveness across different age groups and hospital settings, and its integration into standardized pediatric care protocols.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

1. Knauer HA, Ozer EJ, Dow WH, Fernald LCH. Parenting quality at two developmental periods in early childhood and their association with child development. *Early Child Res Q.* 2019 Apr 1;47:396–404.
2. Suryana E, Sopiah M, Agustiawan A, Harto S. Early Childhood Development (Physical, Intellectual, Emotional, Social, Moral, and Religious Tasks) Implications For Education. *Indones J Early Child J Dunia Anak Usia Dini.* 2022 July 31;4(2):361.
3. Sutapa P, Pratama KW, Rosly MM, Ali SKS, Karakauki M. Improving Motor Skills in Early Childhood through Goal-Oriented Play Activity. *Children.* 2021 Nov 2;8(11):994.
4. Padila P, Agusramon A, Yera Y. Terapi Story Telling dan Menonton Animasi Kartun terhadap Ansietas. *J Telenursing JOTING.* 2019 Apr 17;1(1):51–66.
5. Badan Pusat Statistik. *Profil Statistik Kesehatan Tahun 2023.* Jakarta - Indonesia: Badan Pusat Statistik; 2024.
6. Meentken MG, van der Ende J, del Canho R, van Beynum IM, Aendekerck EWC, Legerstee JS, et al. Psychological outcomes after pediatric hospitalization: the role of trauma type. *Child Health Care.* 2021 July 3;50(3):278–92.
7. Jepsen SL, Haahr A, Eg M, Jørgensen LB. Coping with the unfamiliar: How do children cope with hospitalization in relation to acute and/or critical illness? A qualitative metasynthesis. *J Child Health Care.* 2019 Dec 1;23(4):534–50.
8. Vianti RA. Pengalaman Perawat Mengatasi Dampak Hospitalisasi Pada Anak. *Pena J Ilmu Pengetah Dan Teknol.* 2020 Oct 5;34(2):29.
9. Aliyah H, Rusmariana A. Gambaran Tingkat Kecemasan Anak Usia Prasekolah Yang Mengalami Hospitalisasi :Literature Review. *Pros Semin Nas Kesehat.* 2021 Nov 29;1:377–84.
10. Andriastuti A, Lestari NE, Purnamasari ERW. The Effect of Implementing Medical Play on Anxiety Levels Due to Hospitalization in Preschool Children. *Jendela Nurs J.* 2025;9(1):45–51.
11. Fetriani R, Dharizal AR. Pengaruh Terapi Bermain Bercerita Terhadap Tingkat Kecemasan Pada Anak Usia Prasekola (3-5 Tahun) Akibat Hospitalisasi. *J MEDIA Kesehat.* 2017;10(2):179–84.
12. Martasih E, Sari IY, Prawesti I. Terapi Bermain Menyusun Balok Menurunkan Kecemasan Prasekolah Selama Hospitalisasi. *J Kesehat.* 2025 Jan 9;10(2):92–100.
13. Dewi DR, Lestari A, Vellyana D. The Effect of Therapy Containing Puzzle on Decreasing Anxiety of Hospitalized Children Aged 3–6 Years. In *Atlantis Press*; 2020 [cited 2024 Oct 16]. p. 413–5. Available from: <https://www.atlantispress.com/proceedings/icosheet-19/125942136>
14. Saputro H, Fazrin I. Penurunan Tingkat Kecemasan Anak Akibat Hospitalisasi dengan Penerapan Terapi Bermain. *JKI J Konseling Indones.* 2017 Oct 17;3(1):9–12.

15. Harnilawati, Asrianto. The Effect of The Application of Play Therapy On The Anxiety Level of Children Experiencing Hospitalization Reactions In Pre-School Age Children At Rsud Haji Provinsi Sulawesi Selatan. *Int J Sci Technol Manag.* 2021 Nov 29;2(6):1989–94.
16. Warner EN, Ammerman RT, Glauser TA, Pestian JP, Agasthya G, Strawn JR. Developmental Epidemiology of Pediatric Anxiety Disorders. *Child Adolesc Psychiatr Clin N Am.* 2023 July;32(3):511–30.
17. Dihuma M, Arniyanti A, Sanghati S. Application of Coloring Play Therapy with Anxiety of Preschool Age Children. *J Ilm Kesehat Sandi Husada.* 2023 June 1;12(1):40–6.
18. Zannah M, Agustina R, Marlinda E. Peran Orang Tua Terhadap Tingkat Kecemasan Anak Pada Saat Pemasangan Infus Diinstalasi Gawat Darurat (IGD) RSUD Banjarbaru. *Dunia Keperawatan J Keperawatan Dan Kesehat.* 2015;3(2):26–33.
19. Putra IGY. Terapi Bercerita Berpengaruh terhadap Kecemasan Akibat Hospitalisasi pada Anak Pra Sekolah. *J Gema Keperawatan.* 2016 June 30;9(1):1–8.
20. Aprina A, Ardiyansa N, Sunarsih S. Terapi Bermain Puzzle pada Anak Usia 3-6 tahun terhadap Kecemasan Pra Operasi. *J Kesehat.* 2019 Sept 13;10(2):291–7.
21. Purnamasari A, Andas AM, Prima A, Harahap D. Efektivitas Terapi Bermain Menggambar terhadap Kecemasan Anak Usia Sekolah 6-12 Tahun di Ruang Perawatan Anak Rumah Sakit Umum Daerah Konawe: The Effectiveness of Drawing Play Therapy on Anxiety of School Age Children 6-12 Years in the Child Care Room of Konawe Regional General Hospital. *J Surya Med JSM.* 2022 Apr 30;8(1):188–93.
22. Islaeli I, Yati M, Islamiyah, Fadmi FR. The effect of play puzzle therapy on anxiety of children on preschooler in Kota Kendari hospital. *Enferm Clínica.* 2020 June 1;30:103–5.
23. Damanik R, Purba SD, Saragih FL, A.P.Dalimunthe T. Pengaruh Terapi Bermain Plastisin Terhadap Tingkat Kecemasan Akibat Hospitalisasi Pada Anak Usia 3-6 Tahun Di RSUD Dr.RM Djoelham Binjai. *J Teknol Kesehat Dan Ilmu Sos TEKESNOS.* 2024 May 31;6(1):51–8.
24. Dayani NE, Budiarti LY, Lestari DR. Terapi Bermain Clay Terhadap Kecemasan Pada Anak Usia Prasekolah (3-6 Tahun) Yang Menjalani Hospitalisasi Di RSUD Banjarbaru. *Dunia Keperawatan J Keperawatan Dan Kesehat.* 2015;3(2):1–15.
25. Nursetiawati S, Siregar JS, Josua DP. Understanding adaptability in the family environment in facing COVID-19: A review. *Heliyon.* 2023 Oct 27;9(11):e20618.