

PLAY THERAPY AND ITS EFFECT ON ANXIETY LEVELS IN HOSPITALIZED PEDIATRIC PATIENTS: A LITERATURE REVIEW

Totok Wahyudi^{1*}, Mustain², Ikrima Rahmasari³, Niya Nurmawati⁴

Duta Bangsa University Of Surakarta¹²³⁴

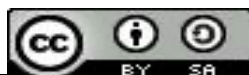
*Correspondence Email: Totok_wahyudi@udb.ac.id

ABSTRACT

Hospitalization in children often leads to stress and anxiety due to separation from parents, unfamiliar environments, and invasive medical procedures. These conditions can negatively impact children's emotional well-being and recovery. Play therapy has been identified as an effective non-pharmacological intervention to reduce anxiety and support coping mechanisms during hospitalization. This literature review was conducted through a comprehensive search of journal databases including ScienceDirect, PubMed, and Google Scholar, using the keywords Play therapy, Therapeutic play, Anxiety, Child, and Hospitalized. The inclusion criteria were full-text articles published within the last five years, including systematic reviews, randomized controlled trials, clinical trials, and meta-analyses. The reviewed studies consistently show that play therapy effectively reduces anxiety in hospitalized children. Interventions such as coloring, storytelling, role-playing with medical kits, puppet play, and traditional games like snakes and ladders were associated with lower anxiety scores, improved cooperation, and greater comfort during medical procedures. Moreover, parental involvement was highlighted as a crucial factor in optimizing therapeutic outcomes by providing emotional, psychological, and spiritual support to children. Play therapy serves as an effective complementary intervention to alleviate anxiety and enhance cooperation in hospitalized children. Integrating therapeutic play into pediatric care, combined with active parental involvement, not only improves the hospital experience but also promotes holistic child development and emotional resilience.

KEYWORDS

Child, Play Therapy, Therapeutic Play, Anxiety, Hospitalized



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International

INTRODUCTION

Hospitalization is one of the experiences that can cause stress and even anxiety for children. This can have a direct impact on the child's health condition. This condition can cause children to fear separation from their parents, which is common among children during treatment but can lead to feelings of sadness, anxiety, loneliness, and even fear of loss. This situation causes stress for both children and parents, and the level of stress and anxiety experienced by children depends on the support they receive from their families during treatment (Abdi et al., 2025).

World Health Organization (WHO) data from 2020 shows that 4-12% of pediatric patients treated in the United States experience anxiety during treatment. In addition, 3-6% of children in Germany experience the same thing, while 4-10% of pediatric patients in Canada and New Zealand only experience signs of anxiety. In Indonesia, the hospitalization rate for children reached more than 58% of the total child population in Indonesia (Ministry of Health, 2020). Data from the Central Statistics Agency shows a 19% increase in child hospitalizations in Indonesia in 2020. The hospitalization rate for preschool-aged children in Indonesia is 2.7 million, or about 8%, and on average they experience mild to moderate anxiety. In Central Java Province, 4.1% of preschool children who were hospitalized experienced moderate anxiety (Central Statistics Agency, 2020).

Anxiety in children during hospitalization is a form of disturbance in the need for safety and comfort, namely inadequate emotional needs in children. Emotional responses to illness vary greatly depending on the age and developmental milestones of the child (Sari et al., 2023). The causes of stress and anxiety in children are greatly influenced by several factors, including the behavior exhibited by health workers (doctors, nurses, and other health personnel), the child's hospitalization experience, and the support of the family accompanying them during treatment. These factors can cause children to experience anxiety, which can affect the healing process (Nurfatimah, 2019).

Children hospitalized should be viewed as active individuals participating in the inpatient process. The care provided must consider emotional and social needs and include techniques that facilitate communication in addition to meeting physical needs. Effective early interventions that can be provided to children can improve their social-emotional competence and prevent more serious disorders such as trauma and even mental disorders such as depression (Abdi et al., 2025). One way to reduce anxiety levels during hospitalization is through play therapy. Play therapy distracts children while undergoing treatment in the hospital. In concept, playing can free children from the tension and stress they experience and can reduce their anxiety levels (Colin et al., 2020).

Play is an important factor in children's growth and development, which can increase self-confidence and reduce anxiety (Abdi et al., 2025). Play is an intervention method that gives children the opportunity to express unpleasant feelings and internal problems through play, and many researchers believe that play is the best way to overcome disturbances in the natural learning and communication processes (Samadi et al., 2024). During the treatment process, play therapy is necessary not only because children enjoy playing, but also because it facilitates care during hospitalization. Play is an activity that must be done in a child's life, so it can help children learn about conditions they have never experienced, express their feelings and concerns, feel more comfortable and secure, learn about treatment actions, and make decisions during hospitalization (Abdi et al., 2025). Play therapy, as a safe treatment method that is appropriate for the characteristics and developmental conditions of children, has always been part of educational, psychological, and rehabilitation interventions (Samadi et al., 2024).

Researchers are interested in collecting research results on play therapy to reduce or eliminate anxiety levels, by looking at play therapy that is appropriate and suitable for the age level as well as play therapy that is safe and comfortable for children.

RESEARCH METHOD

The research method used in the problem experiment includes analytical methods. Contains the type of method, time, place and tools of research materials. Picture captions are placed as part of the picture title (figure caption) not part of the picture. The methods used in completing the research are listed in this section.

The journal literature search was conducted by searching for publications in health and medical literature as well as Grey Literature, in order to fulfill the literature review material in this paper.

After searching journals with the keywords Play therapy AND Therapeutic play AND Anxiety AND Child AND Hospitalized and a maximum of the last 5 years, full text, systematic review, Randomized Control Trial, Control Trial, Meta Analysis in the database: Science Direct, 32 articles were found, PubMed found 29, Google Scholar found 5, a total of 66 journals were found and 8 journals were selected.

The next screening process involved reading the abstracts and excluding duplicate journals.

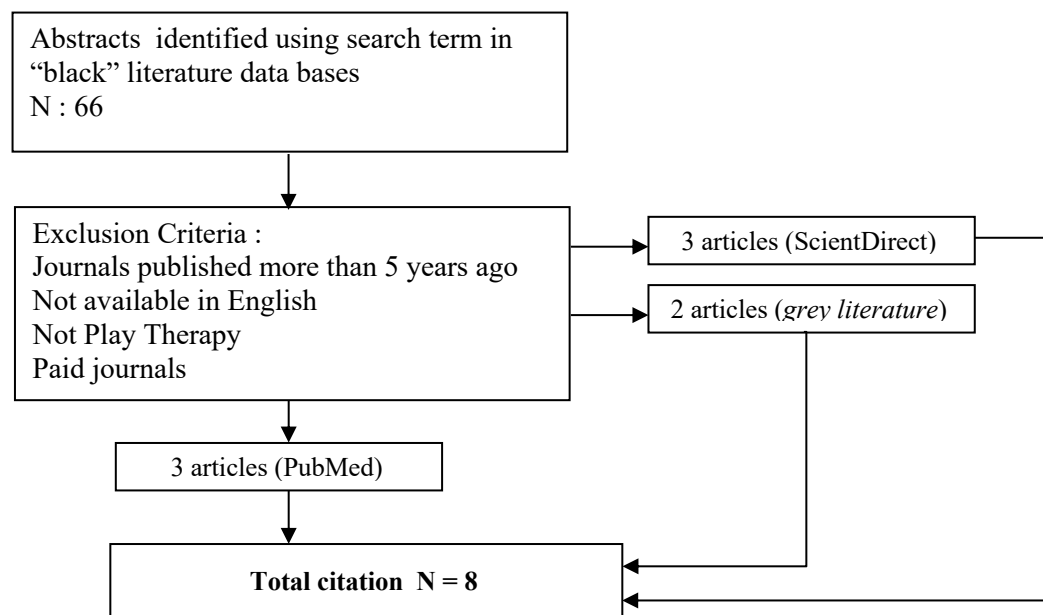


Figure 1. the applied stages were the literature study results.

RESULT AND DISCUSSION

The results of searching articles from various journal literature and after going through the screening stage 8 articles were found that met the criteria determined by the researcher.

Table 1. The Data Analysis

Title/Reseacher/Year	Purpose	Method	Population and Sample	Result
The Effect Of Play Therapy On Hospitalization Anxiety Among Pre-School Children (3-6 Years) (Herman Et Al, 2025)	This Study Aimed To Evaluate The Effect Of Play Therapy On Hospitalization Anxiety In Children..	A Quasi-Experimental Design Was Employed Involving 27 Hospitalized Children Aged 3–6 Years At Dr. M. Djamil Padang General Hospital	A Total Of 36 Children Aged 3-6 Years Who Experienced Cancer And Undergoing Chemotherapy At Public Hospital In Padang. Of The 36 Children, 30 Met The Sample Criteria And Were Willing To Participate In The Study, And Only 27 Attended The Complete Intervention. Because The Covid-19 Situation And The Limitation Of Entering Pediatric Ward, The Sample Was Taken Accidentally. Very Few Children Were Undergoing Chemotherapy At The Study, So This Study Was Only Conducted In One Group Without Control Group.	The Results Showed A Significant Reduction In Anxiety Scores After The Intervention (P < 0.05). These Findings Suggest That Play Therapy Is An Effective Complementary Approach To Alleviate Hospitalization-Related Anxiety In Young Children. This Aligns With Previous Studies That Emphasize The Therapeutic Benefits Of Play And Highlights The Importance Of Integrating Child-Friendly Interventions Into Routine Pediatric Care.
Effect Of Play Therapy And Storytelling On The Anxiety Level Of Hospitalized Children: A Randomized Controlled Trial (Abdi Et Al, 2025)	The Present Study Aimed To Compare The Effect Of Play Therapy And Storytelling On The Anxiety Of Hospitalized Children.	A Randomized Controlled Trial Study With A Three-Group Design (Play Therapy, Storytelling And Control) Was Conducted In 75 Children Aged 3 To 10 Years Admitted To Imam Ali Alborz Hospital Of Karaj, Iran Between 2022–2023. The Data Before And After The Intervention	Was Conducted In 75 Children Aged 3 To 10 Years Admitted To Imam Ali Alborz Hospital Of Karaj, Iran Between 2022–2023. The Data Before And After The Intervention Were Collected By The Spence Children’s Anxiety Scale And The Face Tool For Anxiety Assessment And Analyzed By The Mixed Effect	There Is A Statistically Significant Difference Between The Anxiety Score Of The Children For Whom Storytelling Was Used And Control Group. Also, Among The Two Therapies Of Storytelling And Play Therapy, Only Storytelling Therapy Has A Significant Effect On Reducing Children’s Anxiety.Regarding The Time Of Measuring The Anxiety Score(The

Title/Reseachers/Year	Purpose	Method	Population and Sample	Result
		Were Collected By The Spence Children's Anxiety Scale And The Face Tool For Anxiety Assessment And Analyzed By The Mixed Effect Model Statistical Method.	Model Statistical Method.	First, Second, Third Day After The Intervention), It Was Found That As This Time Increases, The Children's Anxiety De
Investigating The Effect Of Creativity-Based Play Therapy On Reducing Pain Intensity And Behavioral Problems Of Hospitalized Children (Samadi et al, 2024)	The Purpose Of This Research Is To Investigate The Effect Of Creativity-Based Play Therapy On Reducing Pain Intensity And Behavioral Problems Of Hospitalized Children.	This Research Uses A Semi-Experimental Method With A Pre-Test-Post-Test Design With A Control Group.	The Statistical Population Includes All 4-6-Year-Old Children Hospitalized In The Pediatric Surgery Department Of Imam Hossein (As) And Al-Zahra Hospital In Isfahan. 30 Children Were Randomly Selected And Fifteen Were Placed In Two Experimental And Control Groups. The Tools Used In This Research Include Cognitive-Behavioral Avoidance Questionnaire And Pain Measurement Scale Checklist. The Analysis Of The Obtained Data Was Done Using Covariance Analysis.	The Results Indicate That Creativity-Based Play Therapy Has A Significant Effect On Reducing Pain Intensity And Behavioral Problems Of Hospitalized Children.
Effectiveness Of Pop-It Therapeutic Play On Children's Anxiety During Inhalation Therapy In Children's Wards (Bawaeda Et Al., 2023)	This Study Aimed To Measure The Effectiveness Of Pop-It Therapeutic Play On Children's Levels Of Anxiety During Inhalation	This Study Used A Randomized Control Trial	Involving 66 Children Aged 1-12 Years Who Received Inhalation Therapy And Were Treated In The Children's Ward From Three Hospitals In North Sulawesi.	The Findings Showed That Playing Pop-It Effectively Reduced Children's Anxiety Levels During Inhalation Therapy, With A P Value Of 0.000 (A < 0.05). Therefore, Playing Pop-It Is The Right Solution For

Title/Reseachers/Year	Purpose	Method	Population and Sample	Result
	Therapy In Children's Wards.		The Respondents Were Divided Into Intervention And Control Groups, With 33 Respondents For Each Group. The Samples Were Selected Using Simple Random Sampling. Anxiety Level Was Assessed Using The Visual Facial Anxiety Scale.	Children Who Receive Inhalation Therapy And Is Recommended As An Alternative Toy In Hospitals. This Finding Can Be Applied In Children Who Receive Inhalation Therapy Because It Is Easy To Do, Efficient And Effective Controlling The Children's Anxiety.
The Effect Of Play Therapy (Skill Play) Of Snakes And Ladders Game On The Level Of Cooperation During Treatment In Preschool Children (3-6 Years) In The Edelweist Room Of Rsud Dr. M Yunus Bengkulu (Colin Et Al., 2020)	This Study Aims To Study The Effect Of Play Therapy (Skill Play) Of Snakes And Ladders Game On The Level Of Cooperation During Treatment In Preschool Children (3-6 Years) In The Edelweist Room Of Rsud Dr. M Yunus Bengkulu.	This Study Uses This Type Of Research Using A Pre-Experimental Design Approach Pre Test Post-Test One Group Design.	The Study Population Was Preschool Children (3-6 Years) Taken By Accidental Sampling By 20 Samples. Data Collection Uses Secondary And Primary Data.	The Results Showed: (1) The Average Level Of Cooperation Before Playing Snakes And Ladders Was 44.55; (2) The Average Level Of Cooperation After Playing Snake Ladder Therapy Is 70.15 And (3) The Wilcoxon Sign Rank Test Results Obtained Z Value = -3,921 With P-Value = 0,000 < 0,5 Meaning That There Is The Effect Of Playing Therapy (Skill Play) Game Of Snakes And Ladders Towards The Cooperative Level During The Treatment Of Preschool Children (3-6 Years) In The Edelweist Room Of Rsud Dr. M Yunus Bengkulu.
Effect Of Toys Made From Medical Materials On Anxiety Among Hospitalized Children: A Randomized Controlled Trial (Yildirim Et Al., 2025)	This Study Was Conducted As A Randomized Controlled Trial To Examine The Effect Of Toys Made From Medical Materials On Anxiety Among Hospitalized Children.	This Prospective Study Was Conducted As A Randomized Controlled Trial To Assess The Effect Of Toys Made From Medical Materials On The Anxiety Levels Of	This Study Was Conducted With Pediatric Patients Aged 4-6 Years Who Were Hospitalized In The Pediatrics Department Of A Teaching And Research Hospital In The South Eastern Anatolia Region.	Analysis Based On Children's Self-Reports Revealed A Significant Reduction In The Post Test Anxiety Scores Of Children In The Toys Made Of Medical Materials Group. No Significant Difference Was Observed In The

Title/Reseacher/Year	Purpose	Method	Population and Sample	Result
		Hospitalized Children.	The Study Was Completed With 90 Children, Allocated To The Toys Made Of Medical Materials Group (45) And The Control Group (45). Children, In The Toys Made Of Medical Materials Group, Were Given Medical Materials And Asked To Make Toys. The Anxiety Levels Of Children In Both The Toys Made Of Medical Materials And Control Groups Were Assessed Using The Children's State Anxiety (Csa) Scale.	Anxiety Scores Of Children In The Control Group. In The Comparison Between Groups Based On Mothers' Reports, It Was Found That The Post-Test Anxiety Scores Of Children In The Toys Made Of Medical Materials Group Were Significantly Lower Than Those Of Children In The Control Group.
The Effect Of Instructional Therapeutic Play On Acceptance Behavior Of Nasal Lavage In Hospitalized Children (De Souza Et Al ., 2025)	To Evaluate The Effect Of Instructional Therapeutic Play On Acceptance Of Nasal Lavage In Children Hospitalized For Respiratory Conditions.	Thisquasi-Experimental Study	Conducted At A Teaching Hospital.For The Therapeutic Play Session, Disposable Gloves Filled With Compressed Air And Designed To Resemble A Human Face, Syringes, And Saline Solution Ampoules Were Used. Children's Acceptance Behaviors Were Assessed Before, Immediately After, And 6 H After The Therapeutic Play Session. The Data Were Subjected To Descriptive And Inferential Statistical Analyses.	Children (N = 42) Aged 3-6 Years, 50% Female, With A Hospitalization Duration Of 0.2–9 Days, Showed Increased Acceptance Of Nasal Lavage (P = 0.01), With The Child Self-Administering The Saline Solution (P = 0.01), And With Reduction Of All Resistance Behaviors To Nasal Lavage (P <0.05).
The Application of Coloring Play Therapy	The Purpose Of This Study Was	This Research Was A Case	Anxiety In Children Aged 3-	Anxiety Was Observed Before

Title/Reseacher/Year	Purpose	Methode	Population and Sample	Result
to Reduce Hospitalization Anxiety Levels in Children Aged 3-6 Years: A Case Study (Sari, 2023)	To Find Out The Description Of The Application Of Coloring Play Therapy To Reduce Hospitalization Anxiety Levels In Children Aged 3-6 Years In Kenari Room Rs Tk Iii Dr Bratata Jambi.	Study With A Descriptive Approach.	6 Years, A Total Of Two Children, Was Observed For 3 Days.	And After The Coloring Play Therapy Was Given After The Application Of Coloring Play Therapy In This Study, It Was Found That Coloring Play Therapy Could Reduce The Anxiety Level Of Children Who Were Hospitalized. Coloring Therapy Is A Therapy That Can Help Reduce Anxiety Levels In Hospitalized Children.

Several research results explain that the condition where children have to be treated in the hospital is annoying, frightening, and can cause anxiety for children (Yildirim et al., 2025). This can cause stress due to the treatment process undergone by children, which can disrupt their routine and require them to stay in an unfamiliar environment with poor health conditions, as well as medical treatment procedures that cause stress for children. The strategy recommended by the World Health Organization (WHO) to change this context and promote optimal health and development in children is play, which can be mediated through therapeutic play (de Souza et al., 2025).

Play therapy can be a solution in reducing anxiety in children. This anxiety can be diverted with play and relaxation activities (Bawaeda et al., 2023). There are many types of games that can be given to children to reduce anxiety. Coloring play therapy is one option for reducing anxiety. Research conducted by Sari (2023) on two pediatric patients aged 3-6 years explains that providing play therapy to children aged 3-6 years who experience anxiety during the treatment process can help children reduce their feelings of anxiety. This can also make it easier for medical personnel to continue the treatment that will be provided.

Play therapy that can also be given to children can take the form of communication or storytelling games. Storytelling is one option for parents and medical personnel to distract children from their anxiety during treatment. This is evidenced in Abdi's (2025) study, which was conducted on three research groups. The control group was only given medical therapy and treatment, while the first intervention group was given play therapy using medical kits (cotton, syringes without needles) through role-playing. The second intervention group was a group of children who were given storytelling play therapy. The results showed that there was a statistically significant difference between the anxiety scores of children who received storytelling therapy and the control group. In addition, between the two therapies, namely storytelling therapy and play therapy, only storytelling therapy had a significant effect in reducing children's anxiety. Regarding the timing of anxiety score measurements (first, second, and third days after intervention), it was found that as time passed, the children's anxiety decreased significantly. In addition, the children's gender, age, and hospitalization history were influencing factors.

Nowadays, there are many types of games that can be found on gadgets, and this will actually worsen the condition of children if they are not supervised. The types of games that can be provided in the treatment room can use tools that are available in the room. Children can play using toys made from gloves and syringes without needles. These tools can be used to make games such as dolls, airplanes, or others. Of course, these games become a platform for children's creativity to develop their imagination in making toys. The result is that there is a lower level of anxiety in the group of children who play with toys made from materials such as gloves, syringes, and others than in the control group (Yildirim et al., 2025).

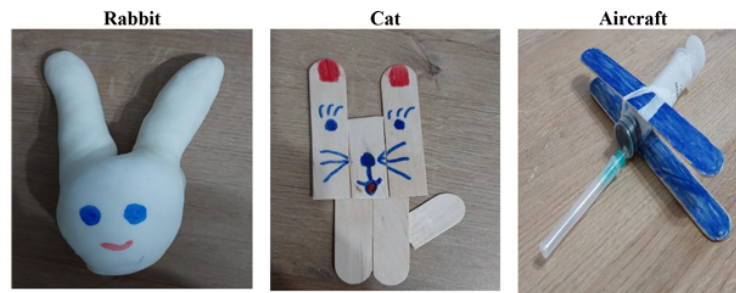


Figure 2. Toys made by children using medical materials. Source : (Yildirim et al., 2025).

Play therapy can be a companion in providing care, as therapeutic games will certainly make it easier for health workers to provide care to children without causing fear or anxiety. Research by de Souza et al. (2025) provided a game in the form of a hand puppet made from disposable gloves colored with pens or markers to give it eyes, a nose, and a mouth, resembling a face to give a comfortable and relaxed impression to children who were about to undergo nasal irrigation. The results showed that children were more cooperative in following the treatment and more independent in performing nasal irrigation. This proves that children do not experience anxiety when undergoing treatment and tend to enjoy the treatment provided by healthcare workers. Similar research also proves that snake and ladder play therapy in children aged 3-6 years increases the level of cooperation in undergoing treatment in the inpatient ward (Colin et al., 2020).

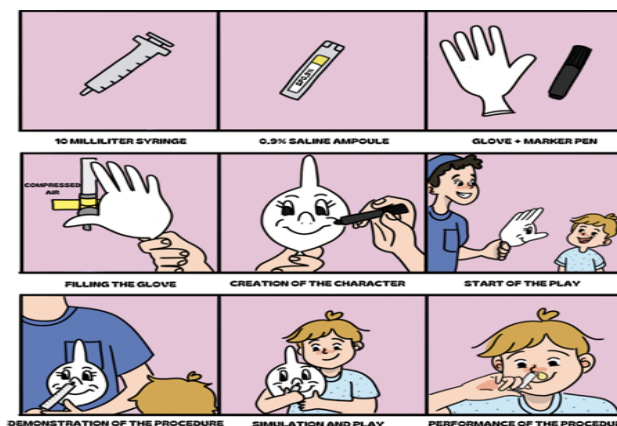


Figure 3. Illustration of the educational intervention with the instructional therapeutic play. Source : (de souza et al., 2025)

Quasi-experimental research was conducted on 27 children aged 3-6 years who were treated at Dr. M. Djamil Padang General Hospital. The intervention consisted of three types of play therapy given over three days, with each session lasting 20–30 minutes. On

the first day, the children played constructive games with Lego; on the second day, they participated in coloring activities; and on the third day, they played with origami. All activities were conducted with parental supervision. Anxiety levels were measured using a questionnaire that assessed parents' perceptions of anxiety responses in children aged 1–6 years. Data were analyzed using paired t-tests. The results showed a significant decrease in anxiety scores after the intervention ($p < 0.05$). These findings indicate that play therapy is an effective complementary approach to reducing anxiety levels in children in the inpatient ward. This is in line with previous studies that emphasize the therapeutic benefits of play and highlight the importance of integrating child-friendly interventions into the care of children in hospitals (Hermalinda Hermana, Deswitaa, 2025).

In the implementation of play therapy, the role of parents or family members is certainly inseparable as an important component in providing care in hospitals. The better the role of parents, the less impact hospitalization will have on children. This is because in caring for children in hospitals, parents are able to fulfill their roles in meeting personal hygiene needs, nutritional needs, assisting with nursing care, meeting psychological needs, providing support when children undergo medical procedures, and meeting spiritual needs. Parents are able to act as protectors for their children. The role of parents is important because there is support for providing care for children in terms of caring, educating, encouraging, and supervising from parents, which overall makes children better. When children are treated in the hospital, the role of parents increases. There is a significant relationship between parental involvement and the impact of hospitalization on preschool children. Parental involvement in care enables children to develop personally and fosters a positive attitude in parents, resulting in more optimal care for the child (Nurfatimah, 2019).

CONCLUSION

The reviewed literature demonstrates that hospitalization often causes anxiety and stress in children due to unfamiliar environments, medical procedures, and disrupted routines. Play therapy emerges as an effective complementary approach to reduce anxiety, increase cooperation, and support children's emotional well-being during hospitalization. Various forms of play, such as coloring, storytelling, role-playing with medical kits, hand puppets, and traditional games like snakes and ladders, have been proven to significantly decrease children's anxiety and make them more cooperative in medical treatments. In addition, structured play activities, including Lego, origami, and coloring, show measurable reductions in anxiety levels. Parental involvement plays a vital role in optimizing the impact of play therapy, as it provides children with emotional, psychological, and spiritual support during hospital stays. Overall, integrating therapeutic play into pediatric care, alongside active parental participation, contributes to better treatment experiences and promotes holistic child development in hospital settings.

REFERENCES

- Abdi, F., Karamoozian, A., Lotfilou, M., Gholami, F., Shaterian, N., Niasar, A. A., Aghapour, E., & Jandaghian-Bidgoli, M. (2025). Effect of play therapy and storytelling on the anxiety level of hospitalized children: a randomized controlled trial. *BMC Complementary Medicine and Therapies*, 25(1). <https://doi.org/10.1186/s12906-025-04767-4>
- Badan Pusat Statistik. (2020). *Statistik Angka Kejadian Hospitalisasi pada Anak*. Badan Pusat Statistik.
- Bawaeda, O., Wanda, D., & Aprillia, Z. (2023). Effectiveness of pop-it therapeutic play on

- children's anxiety during inhalation therapy in children's wards. *Pediatrics Medica e Chirurgica*, 45(S1), 17–22. <https://doi.org/10.4081/pmc.2023.315>
- Colin, V., Keraman, B., Waydinar, D. D., & Eca. (2020). the Effect of Play Therapy (Skill Play) of Snakes and Ladders Game on the Level of Cooperation During Treatment in Preschool Children (3-6 Years) in the Edelweist Room of Rsud Dr. M Yunus Bengkulu. *Journal Of Nursing Anda Public Health*, 8(1), 111–115.
- de Souza, D. M., Maia, E. B. S., Ferrer, A. P. S., Rocha, J. C. A., da Silva, M. L. L. M., Barber, R. O. L. B., & Rossato, L. M. (2025). The effect of instructional therapeutic play on acceptance behavior of nasal lavage in hospitalized children. *Journal of Pediatric Nursing*, 80, e144–e150. <https://doi.org/10.1016/j.pedn.2024.12.004>
- Hermalinda Hermana, Deswitaa, Y. P. S. (2025). *NERS Jurnal Keperawatan The Effect of Play Therapy on Hospitalization Anxiety*. 21(1), 106–111.
- Kementerian Kesehatan. (2020). *Profil Kesehatan Indonesia Angka Kejadian Kesakitan Anak 2020*. Kemenkes RI.
- Nurfatimah, N. (2019). Peran Serta Orang Tua dan Dampak Hospitalisasi pada Anak Usia 3-6 Tahun di Ruang Anak RSUD Poso. *Jurnal Bidan Cerdas (JBC)*, 2(2), 77. <https://doi.org/10.33860/jbc.v2i2.187>
- Samadi, M., Rasouli, M., & Zare, G. (2024). Investigating The Effect Of Creativity-Based Play Therapy On Reducing Pain Intensity And Behavioral Problems Of Hospitalized Children. *International Journal of Medical Investigation*, 13(1), 43–50.
- Sari, P. I., Pordaningsih, R., Erwinsyah, E., & Prasetya, R. D. (2023). Penerapan Terapi Bermain Mewarnai untuk Menurunkan Tingkat Kecemasan Hospitalisasi pada Anak Usia 3-6 Tahun: Studi Kasus. *Jurnal Ilmiah Ners Indonesia*, 4(1), 109–115. <https://doi.org/10.22437/jini.v4i1.25069>
- Yildirim, M., Akin, H. Y. S., & Akin, B. (2025). Effect of toys made from medical materials on anxiety among hospitalized children: A randomized controlled trial. *Journal of Pediatric Nursing*, 80, e180–e186. <https://doi.org/10.1016/j.pedn.2024.12.010>