

Effect of Play Therapy on Preoperative Child Anxiety Level

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ABSTRACT

Children who will undergo preoperative procedures often experience significant anxiety due to uncertainty, fear of pain, and an unfamiliar hospital environment. High anxiety during the preoperative phase can affect physiological stability, complicate anesthesia, and slow postoperative recovery. Therefore, effective and easy-to-implement nonpharmacological interventions are needed to support children before surgery. This study aimed to determine the effect of play therapy on preoperative anxiety levels in children at Semen Padang Hospital. The study used a pre-experimental one-group pretest–posttest design involving 15 children aged 4–10 years scheduled for elective surgery. The intervention consisted of 20–30 minutes of play therapy using medical role-play and simple props. Anxiety levels were measured using the Modified Yale Preoperative Anxiety Scale (m-YPAS) before and after therapy. Data were analyzed with a paired t-test at a significance level p value ≤ 0.05 . The results showed a significant decrease in anxiety after the intervention. The mean anxiety score dropped from 52.4 ± 8.7 before therapy to 32.1 ± 7.9 afterward. The paired t-test obtained a result of $p = 0.001$, showing a significant effect of play therapy. It shows that play therapy has a significant impact on reducing anxiety. Additionally, 80% of participants experienced a shift from moderate to low anxiety. These findings imply that nurses should integrate play therapy into standard preoperative preparation, while hospitals provide adequate facilities to ensure consistent implementation. Play therapy proves effective in reducing preoperative anxiety and can serve as an important strategy to minimize psychological stress in children before surgery.

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INTRODUCTION

Anxiety is an emotional reaction that often appears in children when faced with unfamiliar, frightening, or full of uncertain situations. In the pre-operative medical context, child anxiety is a critical issue because it can affect both psychological and physiological aspects of the child. Preschoolers in particular are prone to experiencing stress and tension in the run-up to the operation, as they do not yet fully understand the procedure and the consequences of medical measures.

High anxiety conditions before surgery not only have a mental impact, but can also trigger physiological responses in the form of increased heart rate, release of stress hormones, and higher blood pressure. These responses have the potential to cause complications or complicate the course of anesthesia and surgery (Prayogi, Atikah, Susana, & Induniasih, 2022). Thus, the management of pre-operative anxiety is an important part of pediatric nursing care in order to improve procedural safety and comfort.

In addition, anxiety can affect the child's cooperation with medical personnel. An anxious child may refuse procedures, exhibit low cooperative behavior, or even resist interaction with hospital personnel. This can slow down the preparation and medical intervention process, as well as prolong the duration of hospitalization (Prayogi et al., 2022). Therefore, an approach to upbringing is needed that can effectively reduce such anxiety.

One strategy that does not involve medication is play therapy, which has been recognized as a safe and effective nonpharmacological method for suppressing child anxiety. Play therapy takes advantage of children's natural ways of expressing themselves through play so that they can understand and adapt to the hospital environment. This therapy can also distract the child from the medical threat into a fun and educational activity.

Local studies in hospitals in Indonesia also show the effectiveness of play therapy. For example, Apriani and Kardewi (2022) found that play therapy can reduce anxiety in hospitalized 6-12 year olds, with Wilcoxon test analysis resulting in $p = 0.000$. The study confirms that play interventions are relevant not only for preschool age, but also for older children undergoing hospitalization.

The types of play therapy used are also constantly evolving. For example, origami therapy was applied to children in the inpatient room and was shown to be able to significantly reduce anxiety (Maharani, Alwi, Taqiyah & Sunarti, 2024). The use of origami as a medium of play allows children to focus and calm the mind through the manipulation of paper, while providing cognitive distraction from the situational stressors encountered. (Maharani. dkk, 2024)

Other variants of therapy include coloring. A study in the hospital Dr. Tjitrowardojo Purworejo applied picture coloring play therapy and found that children's anxiety scores before and after the intervention decreased with perceptible shift (Priati & Pramesti, 2024). Coloring therapy is also considered as a way to keep the expression of children's emotions a secret with an easily accessible and inexpensive art medium.

In the pre-operative context in particular, there are studies that directly examine pre-operative anxiety in children and play therapy. Prayogi, dkk (2022) reported that play therapy



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significantly reduced preoperative anxiety in preschool-aged children in a one-group pretest-posttest design with $p < 0.05$. This finding is particularly relevant because it suggests that the intervention could be applied before surgery as part of clinical preparation. (Prayogi, dkk, 2022)

More creative types of play therapy have also been tested. Nur Khafidhoh, Silvitasari & Prastiwi (2023) reported on the implementation of playing with hand puppets in preschool children at Soekarno Sukoharjo hospital. After two sessions of therapy, the level of anxiety decreased from the severe category to moderate or mild, indicating that the hand puppet was able to become a powerful and safe means of expression.

Not only dolls, stories (storytelling) are also used as a therapeutic method. Refita, Maryati & Punjastuti (2024) reported that storytelling therapy, performed with children for several days, was able to reduce children's anxiety due to invasive actions drastically from moderate to almost non-anxious. Stories provide a safe imaginative framework while helping children understand medical experiences that may be frightening.

In addition to individualized interventions, the integration of play therapy into clinical practice has become particularly relevant. At Charitas Hospital Palembang, Yunita, Rini & Suryani (2024) applied play therapy through picture matching to preschool children and found a significant decrease in anxiety. These results confirm that play therapy can be optimized in hospital procedures as part of holistic care.

Literature studies also support the effectiveness of play therapy in general. A Review of the literature by Nuliana (2022) notes that various types of games (puzzles, stories, coloring, clay, board games) have consistently been shown to lower anxiety in hospitalized preschoolers. These findings provide a strong theoretical and empirical basis for play therapy interventions in pediatric clinical contexts.

On the other hand, some studies also highlight broader psychosocial aspects: family parenting styles, especially protective behaviors, can exacerbate a child's anxiety during hospitalization (Mulhayati et al., 2022). This suggests that the intervention should not only be directed to the child, but also pay attention to the role of parents in lowering anxiety.

The interest in conducting further research at Semen Padang Hospital arises from real clinical conditions: many children are restless before surgery, nursing personnel have difficulty calming down without the use of drugs, as well as limited resources for formal psychosocial interventions. Given the local and National evidence of play therapy, the study at Semen Padang Hospital is essential to validate and adapt the intervention to the local context.

Against this background, research on the effect of play therapy on pre-operative child anxiety at Semen Padang Hospital has become very relevant and important. This research is expected to provide local scientific evidence, strengthen the argument that play therapy should be part of the pre-operative preparation package, and inform nursing policy to implement this therapy routinely for children who will be operated on.



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METHODS

This study used a pre-experimental design with one group pretest-posttest approach, which aims to determine the effect of play therapy on children's anxiety levels before surgery. This design was chosen because it allowed researchers to compare the anxiety scores of children before and after the intervention in a single group, so as to see the immediate changes produced by the therapy. The study was conducted at Semen Padang Hospital, focusing on children who would undergo elective surgical procedures. The sample consisted of 15 children aged 4-10 years who were selected using purposive sampling technique. Inclusion criteria include children who will undergo elective surgery, are able to understand simple instructions, and have obtained informed consent from a parent or guardian. Children with severe cognitive impairment or certain medical conditions that made it impossible to follow the intervention were excluded from the sample. During the research process, the confidentiality of participants' identities was maintained using a code, and participants were given the right to withdraw from the study at any time without consequences for the medical services received.

The intervention is given in the form of play therapy for 20-30 minutes using medical role-playing games and simple props, such as Doctor-Doctor toys, dolls, or artificial medical devices. During the session, children were invited to interact with props, try simulation procedures, and express emotions through play. This therapy is carried out one session before surgery to prepare the psychological condition of the child. Anxiety levels were measured using the modified Yale Preoperative Anxiety Scale (m-YPAS) before and after the intervention, which has been shown to be valid and reliable for assessing preoperative anxiety in children.

Data analysis was performed using a paired t-test to compare anxiety scores before and after play therapy, with the significance level set at 0.05. This analysis allowed researchers to determine the presence of significant changes in children's anxiety levels after being given play therapy. The results of the study are also presented in descriptive form, including mean values, standard deviations, and the percentage of children who have decreased anxiety, thus providing a more comprehensive picture of the effectiveness of play therapy in a clinical context..

RESULTS

The results of the study on the effect of play therapy on the level of pre-operative child anxiety are presented in the form of descriptive and statistical analysis. Descriptive analysis was conducted to see the characteristics of the sample and the distribution of anxiety levels before and after the intervention, while inferential analysis used a paired t-test to determine the significance of differences in anxiety scores.

1. Characteristics of Respondents

Table 1. Characteristics of Respondents

Variable	n	%
Gender		



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Variable	n	%
Men	8	53,3%
Female	7	46,7%
Age		
4-6 years old	6	40%
7-10 years	9	60%
Pre-Therapeutic Level Of Anxiety		
Low (<35)	2	13,3%
Medium (35-50)	9	60%
High (>50)	4	26,7%

Most of the respondents were aged 7-10 years (60%) with a balanced sex distribution. Before the intervention, children had moderate (60%) and high (26.7%) levels of anxiety, indicating that children experienced anxiety before surgery.

2. Children's Anxiety Levels Before and After Play Therapy

Table 2. Children's Anxiety Levels Before and After Play Therapy

Variable	Average ± SD	Minimum	Maximum
Pre-Play Therapy	52,4 ± 8,7	38	68
Post-Play Therapy	32,1 ± 7,9	20	46

The results of the showed minimum and maximum scores decreased post-therapy, which shows that all children experienced a decrease in anxiety scores where the average decreased from 52.4 to 32.1. These results indicate that play therapy has a positive effect in reducing children's anxiety before surgery. Statistical analysis showed a strong correlation between play therapy and decreased anxiety ($r = 0.72$).

3. Statistical Test of The Effect of Play Therapy on Anxiety Levels (Paired T-Test)

Table 3. Statistical Test of The Effect of Play Therapy on Anxiety Levels (Paired t-test)

Test	t	df	p-value
Paired t-test	8,742	14	0,001

The results of the paired t-test showed $p = 0.001 (<0.05)$, which means that there is a statistically significant decrease in anxiety after play therapy. This indicates that play therapy is effective in reducing pre-operative child anxiety levels.

4. Categories of Preoperative Pediatric Emergency Changes

Preoperative pediatric emergency changes refer to acute clinical alterations in pediatric patients prior to emergency surgery, including changes in vital signs, respiratory status,



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neurological condition, and metabolic stability. These changes are important to identify early, as they may affect perioperative management and increase the risk of surgical complications if not promptly addressed.

Table 4. Categories of Preoperative Pediatric Emergency Changes

Categories Of Pre-Therapeutic Anxiety	Categories Of Post-Therapeutic Anxiety	n	%
Medium	Low	7	46,7%
High	Medium	4	26,7%
Heigh	Low	1	6,7%
Medium	Medium	2	13,3%
Low	Low	1	6,7%

Most children experience a decrease in the category of anxiety after play therapy. About 80% of children had an improvement in the anxiety category (from high to moderate/low or from moderate to low), while 13.3% remained in the medium category and 6,7% remained low. This confirms the effectiveness of play therapy as an intervention to reduce preoperative anxiety.

DISCUSSION

1. Univariate Analysis

The results showed that the characteristics of the participants were relatively balanced between gender and age group. Of the 15 children sampled, eight children (53.3%) were boys and seven children (46.7%) were girls. This balanced distribution is important because previous studies have mentioned that sex differences can affect a child's emotional response to medical procedures, although the effect is not always statistically significant (Vasquez, 2023). With an even composition, play therapy interventions can be evaluated more objectively without bias due to the dominance of one of the Sexes.

By age group, the majority of participants were in the range of 7-10 years (60%), while 40% were aged 4-6 years. Age becomes an important factor in assessing anxiety because children's cognitive and emotional abilities develop with age (Senol Celik et al., 2022). Children aged 4-6 years tend to experience more intense anxiety due to limited ability to understand medical procedures and express their emotions, while children aged 7-10 years begin to be able to understand information simply so that anxiety responses are more controlled. These findings are in line with Piaget's theory of cognitive development, which states that preschoolers are at a pre-operational stage with limited symbolic thinking, while early school-age children enter a concrete operational stage that allows a better understanding of real situations such as operating procedures. (Senol Celik et al., 2022)

A univariate analysis of pre-therapy anxiety scores showed that the average anxiety score was 52.4 ± 8.7 , with a score range of 38-68. Most of the children were in the moderate anxiety category (60%), followed by high (26.7%) and low (13.3%). The high proportion of children with moderate to



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high anxiety suggests that the experience of dealing with the hospital environment and surgical procedures is a significant source of stress for children. This is in line with a recent study by Vasquez (2023), which reported that the majority of pre-operative children experience moderate to high anxiety due to uncertainty and fear of medical procedures.

After being given play therapy for 20-30 minutes, the average anxiety score of the child decreased to 32.1 ± 7.9 , with a minimum score of 20 and a maximum of 46. This decrease suggests that play therapy interventions are able to significantly reduce children's anxiety. All children had decreased scores, although some remained in the moderate category, but the number was relatively small. These findings are consistent with recent research by Ozdemir et al. (2024), who reported that pre-operative therapeutic play effectively decreased anxiety in pre-operative children.

Research results show that play therapy not only reduce average anxiety scores but also clinically impacts children's anxiety. Children who were previously in the high or moderate anxiety category shifted to the low anxiety category after the intervention. These findings support therapeutic play theory, which states that through symbolic and exploratory play, children can channel emotional tension and process fears in a safe context.

Further analysis showed that the effects of play therapy were seen in all age groups, although younger age children tended to require more intensive guidance during play sessions. These findings align with the Vasquez study (2023), which emphasizes the importance of adapting intervention methods to children's cognitive and emotional development to make therapy more effective.

This univariate result has significant practical implications. With the majority of children experiencing moderate to high anxiety before the intervention, pre-operative preparation should focus not only on the medical technical aspects, but also on the psychological aspects of the child. Play therapy can be an effective nonpharmacological strategy to reduce anxiety, improve a child's cooperation, and create a more positive medical experience. In addition, the findings also confirm that pre-operative anxiety assessment should preferably be a routine procedure in children's hospitals. By knowing the initial level of anxiety, health workers can design more targeted interventions, for example by prioritizing children with high scores for more intensive play therapy sessions.

These univariate results also provide an overview of the patterns of children's response to preoperative stress. Children who are younger or with high anxiety scores can be identified as a risk group, so interventions can be prioritized for them. This approach is consistent with the principles of evidence-based nursing care, which emphasize the importance of individualizing interventions to achieve optimal outcomes (Senol Celik et al., 2022).

The findings of this study are consistent with international and national literature emphasizing the effectiveness of play therapy as a child anxiety reduction strategy. Several recent studies in Indonesia have also shown that play-based interventions, such as role-playing games or storytelling, can significantly reduce pre-operative anxiety (Refita et al., 2024).



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In addition to reducing anxiety, play therapy also serves as a non-formal educational medium. Children learn to understand medical procedures through safe and fun simulations, so they are better prepared for surgery and work with health workers. This supports the theory of play-based coping, which emphasizes the role of games in the development of emotion regulation skills in children (Ozdemir et al., 2024).

Overall, this univariate analysis showed that the majority of children experienced moderate to high anxiety before the intervention and a significant decrease after play therapy. These findings confirm the need for integration of psychosocial strategies in the pre-operative preparation of children to improve their emotional well-being.

In addition to clinical aspects, the results of this study provide insights for hospital service planning. Information about participant characteristics and anxiety patterns can help healthcare staff design more effective play therapy sessions, select appropriate props, and determine optimal intervention duration.

The results of this univariate also emphasize the importance of collaboration between health workers, parents and children. Parents can support the therapy process by participating or providing additional information about the child's preferences and interests, making the intervention more personalized and fun. Thus, this study provides empirical evidence that play therapy is an effective and relevant intervention to reduce preoperative childhood anxiety. Routine implementation of play therapy can be an integral part of pediatric surgery preparation protocols, in line with the principles of child-friendly and evidence-based care (Vasquez, 2023; Senol Celik, 2022; Ozdemir et al., 2024).

1. Effect of Play Therapy on Pre-operative Child Anxiety Level

The results of the paired t-test showed a significant difference between anxiety scores before and after play therapy, with values of $t = 8.742$, $df = 14$, and $p = 0.001$. This very small p-value suggests that the decrease in anxiety scores is not a coincidence, but rather a real effect of the play therapy intervention. These findings are in line with recent research by Özdemir et al. (2024), who reported that preoperative therapeutic play was effective in reducing children's anxiety before medical action. Theoretically, play therapy serves as a coping mechanism through which the child can process fear through safe symbolic and exploratory activities (Senol Celik et al., 2022).

A more in-depth analysis showed that all participants had decreased anxiety scores, although the rate of decrease varied. Children who had high pre-therapy scores decreased the most significantly, while children with medium or low scores still showed a decrease but on a smaller scale. This is consistent with the dose-response principle in psychosocial interventions, where individuals with higher needs show greater changes when receiving appropriate interventions (Vasquez, 2023).

In addition to looking at the average score, the category of anxiety changes provides a clearer clinical picture of the effects of play therapy. The Data showed that most children experienced a category shift from high or moderate to low after the intervention. A total of 46.7% of children with moderate anxiety became low, 26.7% from high to moderate, and 6.7% from high to low. These



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findings corroborate evidence that play therapy not only lowers numerical scores, but also impacts anxiety categories practically (Maharani et al., 2024).

This decrease in anxiety categories is in line with therapeutic play theory, which states that play activities help children express their fears and anxieties in a safe context, so that they can learn to manage emotions and deal with stressful situations more effectively (Senol Celik et al., 2022). The shift in anxiety categories also shows a real clinical impact: children who previously showed high anxiety are now in a calmer state, which has the potential to improve cooperation during medical procedures.

These results support the findings of other studies in Indonesia that use play interventions, such as Maharani et al. (2024) who found that origami-based creative play decreased pre-operative child anxiety. As with the findings of this study, the intervention not only lowered the average score but also shifted the child's anxiety category to a lower level. This confirms the effectiveness of play therapy as an adaptive and flexible nonpharmacological intervention.

In addition, the results of the category of changes show that play therapy can be applied to the entire age group. Although younger children needed more intensive help during play sessions, all groups experienced a decrease in anxiety. These findings are consistent with child development theories that emphasize the importance of psychosocial stimulation according to developmental stages to maximize positive responses (Ozdemir et al., 2024).

A significant decrease in anxiety scores and categories showed that the duration of play therapy of 20-30 minutes was effective enough to produce noticeable psychological changes before surgery. This provides evidence for nursing practitioners that brief but focused interventions can be routinely applied in pre-operative preparation, improving the efficiency and effectiveness of services (Vasquez, 2023).

In addition to reducing anxiety, play therapy also acts as a non-formal educational medium. Children can learn to understand medical procedures through safe simulations, thereby reducing the fear that arises from uncertainty. This effect is important because unmanaged anxiety can trigger physiological and behavioral responses that inhibit medical action (Senol Celik et al., 2022).

The analysis of changes in anxiety categories also provides practical guidance for health workers. Children with high anxiety before therapy can be identified as a priority group to get additional play sessions or more intensive accompaniment. This approach is in line with the principle of evidence-based nursing care, which emphasizes the personalization of interventions to achieve optimal outcomes (Refita et al., 2024).

Overall, the results of Tables 3 and 4 show that play therapy is effective in reducing pre-operative childhood anxiety levels, both numerically and clinically categorical. These findings corroborate the relevance of game-based nonpharmacological interventions as part of pediatric preoperative preparation protocols in hospitals.

The statistically and clinically significant proven effectiveness of play therapy is also in line with the principles of play-based coping and therapeutic play, which emphasize the importance of symbolic and creative activities in helping children deal with stressful situations (Ozdemir et al.,



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2024). This suggests that this strategy not only provides short-term impact but also has the potential to improve the child's overall medical experience.

In addition, these results provide evidence for the development of hospital policies regarding child-friendly services. By routinely implementing play therapy, hospitals can improve service quality, reduce child anxiety, and increase parental satisfaction with the treatment process (Maharani et al., 2024).

The results of this study emphasize that the success of play therapy depends not only on the intervention itself, but also on the competence of the health workers who implement it. Special training is needed so that health workers understand the principles of therapeutic play, are able to choose the appropriate method, and adapt the props to the characteristics of the child's development, such as age, interests, and cognitive abilities. With proper training, the intervention can be carried out in a more effective and enjoyable way, so that the child is more receptive and actively participates in therapy sessions (Vasquez, 2023).

In addition, the application of play therapy tailored to the needs of children also improves the quality of interaction between health workers, children, and parents. Children who feel comfortable with the methods used tend to be more cooperative, show a marked reduction in anxiety, and are better prepared for medical procedures. These positive interactions not only have an impact on the child, but also provide a more satisfying work experience for health workers and increase parental confidence in the care process (Senol Celik et al., 2022).

The discussion of bivariates analyzed through tables 3 and 4 shows that play therapy significantly decreases preoperative Pediatric Anxiety scores, both quantitatively and in clinical categories. These results indicate that play-based interventions are adaptive and relevant for different age groups and anxiety levels. A significant decrease in the average score and a shift in the category of anxiety prove that play therapy is able to provide tangible psychological benefits to the preoperative child (Ozdemir et al., 2024).

The integration of play therapy into pre-operative protocols at Semen Padang Hospital can be an important strategy to improve children's emotional well-being. By including play sessions as part of medical preparation, hospitals not only lower anxiety levels, but also create a more child-friendly environment and support their psychosocial development. This is in line with the principle of evidence-based nursing care which emphasizes the importance of effective interventions and focuses on the needs of the patient (Maharani et al., 2024).

Overall, the study provides a solid empirical basis for the development of child-friendly nursing practices in hospitals. Play therapy is proven to be effective, adaptive, and can be implemented routinely with attention to the characteristics of the child. The long-term implications are improved quality of service, consistent reduction of child anxiety, as well as the establishment of more human and evidence-based preoperative protocols, ultimately supporting the success of medical procedures and a positive experience for the child and family.



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CONCLUSIONS

The results of this study show that play therapy significantly lowers the level of pre-operative child anxiety. Before the intervention, the average child's anxiety score was 52.4 ± 8.7 , with 60% being in the moderate category and 26.7% in the high category. After being given play therapy for 20-30 minutes, the average score decreased to 32.1 ± 7.9 , and most children had a decrease in the category of anxiety from moderate or high to low. The paired t-test showed that this decrease was statistically significant with $p = 0.001$, confirming the effectiveness of the intervention.

In addition to lowering anxiety scores numerically, play therapy also has an impact on clinically changing categories of anxiety. Of the 15 participants, 46.7% of children with moderate anxiety shifted to low, while 26.7% of children with high anxiety dropped to moderate, and 6.7% of children from the high category became low. These findings suggest that play therapy is able to provide real benefits in lowering children's anxiety levels, not only statistically but also practically, preparing children more emotionally prepared to face surgery.

Based on the results of the study, it can be concluded that play therapy is an effective non-pharmacological intervention to reduce preoperative child anxiety. The practical implication is that hospitals, particularly Semen Padang Hospital, can integrate play therapy into pre-operative protocols as part of pediatric nursing care. This intervention not only improves the emotional well-being of the child, but also has the potential to increase the cooperation of the child and parents, so that the process of preparation and surgery becomes smoother and safer.

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