Differences in Anxiety Levels of Preschool Children Before and After Play Therapy: A Pre-Experimental Study

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ABSTRACT

Visits to outpatient clinics can provoke anxiety in preschool children, yet evidence on play therapy in outpatient settings remains limited. This study aimed to analyze differences in anxiety levels among preschool children before and after play therapy. A quantitative pre-experimental study with a one-group pretest–posttest design and no control group was conducted in May 2026. A total of 33 children aged 3–6 years were selected through purposive sampling. The intervention was individual play therapy lasting approximately 10 minutes while the children were waiting, delivered by the researcher. Anxiety was rated by the researcher through observation using the Facial Image Scale (FIS), scored 1–5, before and immediately after the intervention. Data were analyzed using the Wilcoxon signed-rank test. Before the intervention, 31 children (93.9%) were in the moderate to very anxious categories. After the intervention, 28 children (84.8%) were in the not anxious or mildly anxious categories. The mean FIS score decreased from 3.82 to 1.79 and the median from 4 to 2 ($Z = -5.127$; $p < 0.001$; $r = 0.89$). All children showed a decrease in score. In conclusion, brief play therapy was associated with reduced anxiety among preschool children in the outpatient clinic. However, the absence of a control group, unblinded assessment, and the unvalidated FIS rating method limit causal inference. These findings are preliminary. A randomized controlled trial with blinded assessors is needed.

Keywords: *Anxiety; Facial image scale; Play therapy; Preschool children*

INTRODUCTION

Visits to healthcare facilities can provoke anxiety in children. An unfamiliar environment, meeting unfamiliar healthcare workers, and anticipation of examinations or procedures may be perceived by children as threatening. In the early years of life, including the preschool age (3–6 years), children are highly vulnerable to stressors in healthcare settings because illness and healthcare contact represent a change from their usual state of health and daily routine, while their coping mechanisms are still limited. The main stressors include separation, loss of control, bodily injury, and pain, as well as fears arising from an

unfamiliar environment or a lack of information (Hockenberry et al., 2021). In the surgical context, high anxiety in preschool children can reduce cooperation during anesthesia induction and have negative consequences in the postoperative period (Thomasgaard et al., 2021). Preoperative anxiety is reported in 18–60% of children undergoing surgery and is associated with poorer outcomes (Pastene et al., 2023). In pediatric dentistry, previous experiences of pain and cooperation during earlier visits are associated with children's anxiety and cooperation at subsequent visits (Taravati et al., 2025). Managing anxiety from the first visit is therefore an important part of pediatric nursing care that is centered on the child and family.

Most attention to children's anxiety in healthcare facilities has focused on children who are hospitalized or who will undergo invasive procedures. Hospitalization can disrupt children's lives and cause anxiety, fear, or pain (Godino-Iáñez et al., 2020). Outpatient services are also important. The March 2023 National Socio-Economic Survey recorded that 36.21% of children in early childhood in Indonesia had a health complaint in the past month, and most of these children received treatment, either through self-medication or by visiting a health facility (Badan Pusat Statistik [BPS], 2023). Many children may therefore visit health facilities, including outpatient clinics. In outpatient clinics, children usually wait before being examined, and this waiting time takes place in an unfamiliar environment. Using waiting time for play has been reported in Brazil, where students ran a play group of drawing, games, and storytelling for children in the waiting room of a pediatric outpatient clinic (Poleti et al., 2006). Children's anxiety during this period has received comparatively little attention relative to inpatient settings.

Play therapy is one of the nonpharmacological interventions widely used by nurses to reduce children's anxiety. Play is an important part of children's lives, and through play children can express their feelings and cope with unpleasant experiences. A systematic review of 14 studies reported that play therapy in hospitalized children reduced anxiety, improved behavior and attitude, and reduced postoperative pain (Godino-Iáñez et al., 2020). A meta-analysis of five randomized controlled trials involving 451 children undergoing invasive procedures showed that the group given play had lower anxiety and pain than the control group (Halemani et al., 2022). A scoping review of 297 articles concluded that facilitated and purposeful play interventions in hospitals were generally reported to have positive effects on pain, stress, and anxiety, and were regarded as noninvasive, safe, and inexpensive (Gjærde et al., 2021).

Nevertheless, gaps remain in the evidence. Most studies were conducted in hospitalized children or children undergoing invasive procedures, and about 78% of the articles in that scoping review came from high-income countries (Gjærde et al., 2021). Controlled studies in preschool children have also generally been conducted in preoperative contexts. Preoperative play therapy was reported to reduce anxiety and fear in children aged 3–6 years compared with routine care (Çelik & Canbulat Şahiner, 2024), and a cluster randomized trial in children aged 3–5 years with congenital heart disease reported lower anxiety scores and better compliance during anesthesia induction in the intervention group (Xing et al., 2026). A randomized controlled trial in an orthopedic outpatient clinic of a teaching hospital in Hong Kong, involving 208 children aged 3–12 years, reported that therapeutic play reduced anxiety in children aged 3–7 years compared with standard care (Wong et al., 2018). In Indonesia, Noverita et al. (2017) reported a reduction in anxiety among children aged 3–5 years attending a community health center (puskesmas) after play therapy, and Agramadani and Permatasari (2026) reported a decrease in Facial Image Scale (FIS) scores after puzzle play therapy in hospitalized preschool children in Jakarta. Evidence from hospital

pediatric outpatient clinics appears to remain limited.

Assessing anxiety in preschool children also poses its own challenges, because children of this age often cannot yet report their own emotional state. Observational assessment and self-report are considered complementary in preschool children (Muris, 2019). The FIS is a practical single-item scale of facial images and has shown good concurrent validity in children aged 3–18 years in a clinic waiting room (Buchanan & Niven, 2002). However, evidence on its use with observational assessment in preschool children in outpatient clinics remains limited.

The Pediatric Outpatient Clinic of Hospital H serves preschool children who wait for their consultation with a pediatrician. A preliminary study conducted by the researcher in November 2025 recorded 49 visits by preschool children to this clinic. This waiting time could potentially be used by nurses to deliver a simple, brief intervention. Therefore, this study aimed to analyze differences in anxiety levels among preschool children before and after play therapy at the Pediatric Outpatient Clinic of Hospital H. This study is expected to provide initial evidence for nurses on the feasibility of brief play therapy in outpatient settings and to serve as a basis for studies with stronger designs.

OBJECTIVE

This study aimed to analyze differences in anxiety levels among preschool children before and after play therapy at the Pediatric Outpatient Clinic of Hospital H.

METHOD

Research Design

This study used a quantitative pre-experimental design with a one-group pretest–posttest approach without a control group. Anxiety levels were measured in one group of children before and after a play therapy intervention. Reporting followed the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) guidelines.

Setting and Time of Study

The study was conducted at the Pediatric Outpatient Clinic of Hospital H in May 2026.

Population and Sample

The population comprised all preschool-aged children visiting the Pediatric Outpatient Clinic of Hospital H. A preliminary study in November 2025 recorded 49 visits. The sample size was calculated using the Slovin formula ($n = N / [1 + N \cdot e^2]$) with a 10% margin of error, yielding 32.9, which was rounded up to 33 children. Respondents were selected using purposive sampling. The inclusion criteria were age 3–6 years, visiting the Pediatric Outpatient Clinic of Hospital H, accompanied by a parent or guardian, and the parent or guardian being willing to give written informed consent. The exclusion criteria were developmental or neurological disorders, severe illness or emergency conditions, and the child's refusal or lack of cooperation during anxiety measurement.

Intervention

The intervention was individual play therapy lasting approximately 10 minutes. The therapy was delivered at a separate table in the waiting area while the child was waiting to be called for consultation with the pediatrician. The media provided were drawing books and crayons for coloring, hand puppets or role-play dolls, and toy cars. Children chose the activities they liked and were accompanied without coercion. The play medium chosen by each child was recorded on the observation sheet. To allow approximately 10 minutes of play, the researcher coordinated with the registration staff as the sessions began. The actual duration of each session was recorded.

The intervention consisted of five stages. In the preparation stage, the play media were prepared. In the orientation stage, the researcher introduced themselves and built mutual trust with the child and

parents. In the implementation stage, the child played according to their choice. In the termination stage, play was stopped gradually with positive reinforcement. In the evaluation stage, the child's anxiety was measured again. Implementation of the intervention was recorded on an observation sheet that assessed the appropriateness of the type of play, its duration, child involvement, and nurse support.

Instruments and Measurement

Anxiety levels were measured using the Facial Image Scale (FIS), a single-item scale consisting of five facial images ranging from the most positive (score 1) to the most negative (score 5) (Buchanan & Niven, 2002). Concurrent validity of the FIS has been reported in children aged 3–18 years, with a strong correlation with the Venham Picture Test ($r = 0.7$; $p < 0.001$) (Buchanan & Niven, 2002).

In the original study, children pointed to the face that matched their own feelings. In this study, assessment was carried out by the researcher through observation of the child's facial expressions and behavioral responses in the clinic, which were then matched to the FIS images. This observational approach was chosen because preschool children often cannot yet reliably report their own emotional state, and observation and self-report are considered complementary at this age (Muris, 2019). Observational assessment has long been used to evaluate situational anxiety in children too young to self-report (Glennon & Weisz, 1978). The FIS was selected because its five graded faces provide a simple ordinal anchor that can be applied quickly in a busy waiting area. To promote consistency, each score was matched to predefined behavioral indicators. All pretest and posttest ratings were made by the same researcher; the clinic nurses assisted only with scheduling and did not rate anxiety. Since only one rater was involved, inter-rater reliability could not be assessed. The FIS has also been used to assess anxiety in preschool children in Indonesia (Tanika et al., 2026). Scores 1–5 were interpreted as not anxious, mildly anxious, moderately anxious, severely anxious, and very anxious.

Data Collection Procedure

After permission from the educational institution and the hospital was obtained, the researcher coordinated with the nurses and clinic staff regarding the implementation flow. The researcher screened children according to the inclusion and exclusion criteria, then explained the purpose, procedures, and participants' rights to the parents or guardians. Written consent was obtained before data collection. Anxiety was measured with the FIS before the intervention (pretest). The child then received play therapy for approximately 10 minutes, and anxiety was immediately re-measured with the FIS (posttest). All results were recorded on an observation sheet using respondent codes.

Data Analysis

Data were analyzed using SPSS version 25. Respondent characteristics and the distribution of anxiety levels were presented as frequencies and percentages, as well as the mean and standard deviation of FIS scores. Data normality was tested using the Shapiro-Wilk test. Because the data were ordinal, paired, and not normally distributed ($p < 0.05$), differences between pretest and posttest scores were tested using the Wilcoxon signed-rank test. The significance level was set at $\alpha = 0.05$ (two-sided). The effect size was calculated as $r = Z/\sqrt{N}$. Pretest and posttest FIS scores by the play medium chosen were summarized descriptively (median and range) without inferential testing, because the number of children in each subgroup was small.

Ethical Considerations

This study was approved by the Health Research Ethics Committee of Universitas Binawan (No. 141/KEPK-UBN/V/2026). The study applied the principles of informed consent, anonymity through respondent coding, data confidentiality, beneficence, non-maleficence, and justice. Parents or guardians had the right to refuse or

discontinue the child's participation at any time without consequences.

RESULT

Respondent Characteristics

A total of 33 children were included, all completed both measurements, and all were analyzed. No session was interrupted. Most respondents were male (n = 20; 60.6%). By age, the largest group was 5 years old (n = 12; 36.4%), followed by 6 years (n = 11; 33.3%). Five children (15.2%) were aged 3 years and five (15.2%) were aged 4 years (Table 1). The play media chosen were drawing and coloring, hand puppets or role-play dolls, and toy cars.

Anxiety Levels Before and After Play Therapy

Before play therapy, no child fell into the "not anxious" category. The moderately anxious and severely anxious categories each comprised 11 children (33.3%), followed by very anxious in 9 children (27.3%) and mildly anxious in 2 children (6.1%). Overall, 31 children (93.9%) fell into the moderately to very anxious categories. After play therapy, the distribution shifted toward lower categories: 15 children (45.5%) were mildly anxious and 13 children (39.4%) were not anxious, while 4 children (12.1%) remained moderately anxious, 1 child (3.0%) was severely anxious, and no child was very anxious (Table 2).

Differences in Anxiety Levels Before and After Play Therapy

The Shapiro-Wilk test indicated that the pretest scores ($W = 0.864$; $df = 33$; $p = 0.001$) and posttest scores ($W = 0.807$; $df = 33$; $p < 0.001$) were not normally distributed; therefore, the difference between the two measurements was analyzed using the Wilcoxon signed-rank test. The mean FIS score decreased from 3.82 (SD 0.917) on the pretest to 1.79 (SD 0.781) on the posttest, with a mean difference of 2.03. The median score decreased from 4 (IQR 3–5) to 2 (IQR 1–2). The Wilcoxon signed-rank test showed a statistically significant difference between the pretest and posttest ($Z = -5.127$; $p < 0.001$) with a large effect size ($r = 0.89$). All participants (33 children; 100%) experienced a decrease in anxiety scores, and no child's score increased or stayed the same (Table 3).

DISCUSSION

This study found a reduction in anxiety levels among preschool children at the outpatient clinic following individual play therapy lasting approximately 10 minutes. Before the intervention, 31 children (93.9%) were classified as moderately to very anxious. After the intervention, 28 children (84.8%) were in the not anxious or mildly anxious categories. The median FIS score decreased from 4 to 2; all 33 children showed a decrease in their scores, and the effect size was large ($r = 0.89$; $p < 0.001$). Because of the pre-experimental design without a control group, these findings are preliminary and do not establish that play therapy caused the reduction.

These findings are consistent with evidence from systematic, scoping, and meta-analytic reviews. Godino-Iáñez et al. (2020) reviewed 14 studies and concluded that play therapy for hospitalized children reduces anxiety, improves behavior, and decreases postoperative pain. A meta-analysis by Halemani et al. (2022) of five randomized controlled trials involving 451 children undergoing invasive procedures reported lower levels of anxiety and pain in the group that received play interventions. A scoping review by Gjærde et al. (2021) of 297 articles concluded that facilitated and purposeful play interventions are generally reported to have a positive impact on pain, stress, and anxiety. Specifically among preschoolers, Çelik and Canbulat Şahiner (2024) reported that preoperative play therapy reduced anxiety and fear in children aged 3–6 years more than routine care did. Most of this evidence comes from hospitalized children or those undergoing invasive procedures. This study was conducted among children attending an outpatient clinic and thus adds preliminary evidence from a different setting.

In a similar setting, Noverita et al. (2017) reported a decrease in anxiety among children aged 3–5 years who were receiving treatment at a community health center following play therapy, from an average of 2.87 to 2.39 among 75 children. Agramadani and Permatasari (2026), who used a single-group design and the FIS with 22 preschool-aged inpatients in Jakarta, reported a median score that decreased from 4 to 1 following puzzle-based play therapy involving parents. The pretest median, which was the same as in this study (4), and the decrease to a low level in both studies suggest a similar pattern, although the posttest median in this study was 2. Direct comparisons should be made with caution because the settings, duration, parental involvement, and assessment methods differed. The magnitude of the reduction in this study may have been influenced by high baseline anxiety levels, which allowed for a greater potential for reduction and by the tendency for extreme scores to regress toward the mean on the second measurement.

The fact that all children experienced a reduction including those with low baseline scores who could only decrease by one level also raises the possibility of unblinded assessment bias, as discussed in the limitations section. The effect of waiting time alone also needs to be considered. Among children aged 5–12 years in an outpatient surgical unit, those who participated in play activities experienced a reduction in anxiety after 15 minutes, whereas children in the control group remained anxious (Weber, 2010). This suggests that waiting alone does not necessarily reduce anxiety, although this study which lacked a control group cannot prove it.

Randomized controlled trials suggest a more modest effect. In a cluster-randomized trial involving 82 children aged 3–5 years with congenital heart disease, the incidence of anxiety did not differ significantly between the intervention and control groups at any of the four post-intervention time points (T1–T4), whereas scores on the modified Yale Preoperative Anxiety Scale–Short Form (mYPAS-SF) and compliance during anesthesia induction differed significantly at T4 (Xing et al., 2026). This suggests that the effects of play therapy in preschool children are not always evident at every time point, and that the large, consistent reductions observed in uncontrolled designs such as this study should be interpreted with caution. Immediate effects also do not necessarily persist. In children (mean age 9.3 years) waiting for an examination in a pediatric emergency department, soap bubbles reduced perceived pain during the wait but not after the examination, while anxiety scores did not differ between groups (Longobardi et al., 2019).

The mechanism by which anxiety is reduced was not tested in this study; therefore, the following explanation is interpretive. Play can divert a child's attention from situations perceived as threatening and help the child cope with unpleasant experiences (Halemani et al., 2022). The release of emotional tension through play, known as catharsis, is cited as one of the foundations of play therapy (Godino-Iáñez et al., 2020). Several procedural elements in this study may also have contributed. The orientation phase established a relationship of mutual trust between the researcher, the child, and the parent. Children chose their own preferred games, giving them a sense of control in an unfamiliar environment. The intervention was provided during the waiting period, before the child underwent any procedures, allowing the child's attention to be diverted before the child met the pediatrician. The use of drawing and coloring materials aligns with a randomized trial involving children aged 6–12 years at a pediatric dental clinic, where structured art therapy (drawing, coloring, collage) for 15 minutes prior to the visit was associated with lower anxiety compared with routine behavioral management (Hambire & Hambire, 2025). Explanations and preparation through play, as well as experiences of participating in and coping with situations, have also been reported to

help support anxious preschoolers (Thomasgaard et al., 2021).

CONCLUSION

Brief individual play therapy lasting approximately 10 minutes, delivered while children were waiting for their consultation, was associated with lower anxiety levels among preschool children at the Pediatric Outpatient Clinic of Hospital H. Before the intervention, most children were moderately to very anxious; after the intervention, most were not anxious or only mildly anxious, and every child had a lower FIS score. Because the study used a single-group design without a control group and relied on unblinded observational ratings with an unvalidated adaptation of the FIS, these findings are preliminary and do not establish that play therapy caused the reduction in anxiety.

Implication

Brief play therapy during waiting time can be integrated into the outpatient clinic workflow with nurses as facilitators, without a special room or expensive equipment, which is consistent with the view that play is a noninvasive, safe, and low-cost intervention (Gjærde et al., 2021). Nurses may consider providing a play corner or structured play sessions in pediatric outpatient clinics, but this practice should be evaluated in controlled studies before it is adopted as standard care.

Study Limitation

First, without a control group, the decrease in scores may have been influenced by other factors, such as the children's adaptation to the outpatient clinic environment, the passage of waiting time, or attention from the researchers. Second, the assessor was not blinded to the measurement phase and also served as the intervention provider; thus, assessor bias may have occurred, particularly because observational assessment is subjective and was conducted by a single assessor. Third, the FIS was used as an observer-rated modification that has not been validated, and inter-rater reliability was not assessed; the scores therefore need to be interpreted with caution. Fourth, the small sample (n = 33) was drawn from a single hospital using purposive sampling, which limits generalizability and precluded inferential subgroup analysis by age, gender, or type of play medium chosen. Fifth, anxiety was measured only immediately after the intervention, so it is unknown whether the effect persisted, and the short interval between measurements makes regression to the mean and other non-intervention effects difficult to exclude. Future studies should employ randomized controlled designs with blinded assessors, a validated scale, multiple raters to assess inter-rater reliability, a sample size calculated from the expected effect size, and follow-up measurements.

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Conflict of interest

The authors declare no conflict of interest.

REFERENCES

Agramadani, M., & Permatasari, I. (2026). Puzzle play therapy with parents as a non-pharmacological intervention for preschool children's anxiety due to hospitalization. JKEP, 11(1), 258–264. https://doi.org/10.32668/jkep.v11i1.2344

Badan Pusat Statistik. (2023). Profil anak usia dini 2023 (Katalog 4103021). BPS. https://www.bps.go.id/en/publication/2023/12/12/e9b0a9a0adcffefb137e0d0d/profil-anak-usia-dini-2023.html

Buchanan, H., & Niven, N. (2002). Validation of a Facial Image Scale to assess child dental anxiety. International Journal of Paediatric Dentistry, 12(1), 47–52. https://doi.org/10.1046/j.0960-7439.2001.00322.x

Çelik, B., & Canbulat Şahiner, N. (2024). The effects of preoperative therapeutic play on anxiety and fear levels in

preschool children. Journal of Pediatric Nursing, 78, e244–e249. https://doi.org/10.1016/j.pedn.2024.07.012

Gjærde, L. K., Hybschmann, J., Dybdal, D., Topperzer, M. K., Schrøder, M. A., Gibson, J. L., Ramchandani, P., Ginsberg, E. I., Ottesen, B., Frandsen, T. L., & Sørensen, J. L. (2021). Play interventions for paediatric patients in hospital: A scoping review. BMJ Open, 11(7), e051957. https://doi.org/10.1136/bmjopen-2021-051957

Glennon, B., & Weisz, J. R. (1978). An observational approach to the assessment of anxiety in young children. Journal of Consulting and Clinical Psychology, 46(6), 1246–1257. https://doi.org/10.1037/0022-006X.46.6.1246

Godino-Iáñez, M. J., Martos-Cabrera, M. B., Suleiman-Martos, N., Gómez-Urquiza, J. L., Vargas-Román, K., Membrive-Jiménez, M. J., & Albendín-García, L. (2020). Play therapy as an intervention in hospitalized children: A systematic review. Healthcare, 8(3), 239. https://doi.org/10.3390/healthcare8030239

Halemani, K., Issac, A., Mishra, P., Dhiraaj, S., Mandelia, A., & Mathias, E. (2022). Effectiveness of preoperative therapeutic play on anxiety among children undergoing invasive procedures: A systematic review and meta-analysis. Indian Journal of Surgical Oncology, 13(4), 858–867. https://doi.org/10.1007/s13193-022-01571-1

Hambire, C. U., & Hambire, U. V. (2025). Efficacy of structured art therapy interventions in reducing dental anxiety in children: Evidence from a controlled clinical study. Journal of the Indian Society of Pedodontics and Preventive Dentistry, 43(4), 543–550. https://doi.org/10.4103/jisppd.jisppd_378_25

Hockenberry, M. J., Wilson, D., & Rodgers, C. C. (2021). Wong's essentials of pediatric nursing (11th ed.). Elsevier. https://books.google.com/books/about/Wong_s_Essentials_of_Pediatric_Nursing_E.html?id=KLEhEAAAQBAJ

Longobardi, C., Prino, L. E., Fabris, M. A., & Settanni, M. (2019). Soap bubbles as a distraction technique in the management of pain, anxiety, and fear in children at the paediatric emergency room: A pilot study. Child: Care, Health and Development, 45(2), 300–305. https://doi.org/10.1111/cch.12633

Muris, P. (2019). Assessment of fear and anxiety in preschool children: Self-report and observational measures. In B. Fisak & P. Barrett (Eds.), Anxiety in preschool children: Assessment, treatment, and prevention (pp. 99–113). Routledge/Taylor & Francis Group. https://doi.org/10.4324/9781315213828-5

Noverita, N., Mulyadi, M., & Mudatsir, M. (2017). Terapi bermain terhadap tingkat kecemasan pada anak usia 3–5 tahun yang berobat di puskesmas. Jurnal Ilmu Keperawatan, 5(2), 67–78. https://doi.org/10.52199/jik.v5i2.10539

Pastene, B., Piclet, J., Praud, C., Garcia, K., Louis, K., Schmidt, C., Boyadjiev, I., Boucekine, M., Baumstarck, K., Bezulier, K., Bouvet, L., Zieleskiewicz, L., & Leone, M. (2023). Pre-operative distraction using electric ride-on cars for children undergoing elective ambulatory surgery: A randomised controlled trial. European Journal of Anaesthesiology, 40(3), 190–197. https://doi.org/10.1097/EJA.0000000000001758

Poleti, L. C., Nascimento, L. C., Pedro, I. C., Gomes, T. P., & Luiz, F. M. (2006). Recreação para crianças em sala de espera de um ambulatório infantil [Playing for children in waiting room at an infant outpatient clinic]. Revista

Brasileira de Enfermagem, 59(2), 233–235. https://doi.org/10.1590/s0034-71672006000200021

Tanika, C., Hidayati, L. N., & Maghfiroh, M. (2026). Terapi bermain storytelling dan literasi awal untuk kecemasan hospitalisasi anak prasekolah: Studi kasus [Storytelling therapeutic play combined with early literacy activities for hospitalization anxiety in a preschool child: A case study]. Jurnal Keperawatan Klinis dan Komunitas, 10(2), 90–101. https://doi.org/10.22146/jkkk.120996

Taravati, S., Ataeian, F., Mofradnejad, S., & Rakhshan, V. (2025). Risk factors for dental anxiety and cooperativeness in pediatric patients with or without oral habits (bruxism, nail biting, and thumb sucking). BMC Oral Health, 25(1), 786. https://doi.org/10.1186/s12903-025-06169-x

Thomasgaard, M., Lohne, V., & Valeberg, B. T. (2021). “The worst is the worry”: Importance of preoperative preparation of preschool children. AANA Journal, 89(4), 342–349.

Weber, F. S. (2010). The influence of playful activities on children's anxiety during the preoperative period at the outpatient surgical center. Jornal de Pediatria, 86(3), 209–214. https://doi.org/10.2223/JPED.2000

Wong, C. L., Ip, W. Y., Kwok, B. M. C., Choi, K. C., Ng, B. K. W., & Chan, C. W. H. (2018). Effects of therapeutic play on children undergoing cast-removal procedures: A randomised controlled trial. BMJ Open, 8(7), e021071. https://doi.org/10.1136/bmjopen-2017-021071

Xing, H., Zheng, T., Ma, Y., Zhang, Q., Liu, Y., Wang, X., Li, M., Guo, C., Wang, S., He, X., Li, T., Zhang, X., & Fan, X. (2026). The effects of therapeutic play on alleviating preoperative anxiety in preschool children with congenital heart disease: A cluster-randomized controlled trial. Journal of Pediatric Nursing, 87, 201–208. https://doi.org/10.1016/j.pedn.2026.01.006

Table 1. Respondent characteristics (N = 33)

Characteristic	n	%
Sex		
Male	20	60.6
Female	13	39.4
Age		
3 years	5	15.2
4 years	5	15.2
5 years	12	36.4
6 years	11	33.3

Note. n = number of respondents. Percentages were calculated from the total number of respondents.

Table 2. Distribution of children's anxiety levels before and after play therapy (N = 33)

Anxiety level (FIS score)	Pretest, n (%)	Posttest, n (%)
Not anxious (1)	0 (0.0)	13 (39.4)
Mildly anxious (2)	2 (6.1)	15 (45.5)
Moderately anxious (3)	11 (33.3)	4 (12.1)
Severely anxious (4)	11 (33.3)	1 (3.0)
Very anxious (5)	9 (27.3)	0 (0.0)
Total	33 (100.0)	33 (100.0)

Note. Anxiety was rated using the Facial Image Scale (FIS), scored 1–5. Percentages were calculated from the total number of respondents at each measurement.

Table 3. Anxiety scores (FIS) before and after play therapy and Wilcoxon signed-rank test results (N = 33)

Measurement	Mean ± SD	Median (IQR)	Z	p	r
Pretest	3.82 ± 0.917	4 (3–5)	−5.127	<0.001	0.89
Posttest	1.79 ± 0.781	2 (1–2)			

Note. SD = standard deviation; IQR = interquartile range. Z and p are from the Wilcoxon signed-rank test (two-sided, α = 0.05). Effect size r = Z/√N.