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Integrating play therapy into paediatric nursing practice to reduce procedural anxiety

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Abstract

Background: Procedural anxiety is a common and distressing experience for children undergoing medical interventions, often leading to heightened fear, behavioural resistance, and physiological stress. Non-pharmacological interventions, such as therapeutic play, have shown promise in alleviating this anxiety, but their structured integration into nursing practice remains limited in many healthcare settings.

Objective: This study aimed to evaluate the effectiveness of structured play therapy integrated into paediatric nursing care in reducing procedural anxiety among children undergoing minor medical procedures in a tertiary care hospital in India.

Materials and Methods: A randomised controlled trial was conducted among 60 children aged 4-12 years, allocated equally into intervention and control groups. The intervention group received structured play therapy 20 minutes before the procedure, while the control group received standard pre-procedural nursing care. Anxiety levels were assessed using the Modified Yale Preoperative Anxiety Scale (m-YPAS) at three time points: baseline, pre-procedure, and during the procedure. Statistical analysis included descriptive statistics, paired and unpaired t-tests, and effect size estimation.

Results: Baseline characteristics were comparable between groups. A significant reduction in anxiety was observed in the intervention group from baseline to pre-procedure, with lower mean m-YPAS scores compared to the control group at both pre-procedure and during the procedure ($p < 0.05$). In contrast, the control group showed minimal change before the procedure and increased anxiety during the procedure. Effect size calculations indicated a large and clinically meaningful impact of play therapy on anxiety reduction.

Conclusion: Integrating structured play therapy into paediatric nursing practice effectively reduces procedural anxiety in children, enhances cooperation, and creates a more child-centred healthcare environment. This intervention is low-cost, feasible, and suitable for nurse-led implementation in diverse clinical settings. Widespread adoption through training, policy integration, and infrastructural support can strengthen paediatric procedural care and improve the emotional well-being of hospitalised children.

Keywords: Play therapy, paediatric nursing, procedural anxiety, therapeutic intervention, non-pharmacological strategies, hospitalised children, randomised controlled trial, nursing practice, anxiety reduction, child-centred care

Introduction

Procedural anxiety is a pervasive psychological issue among children in hospital settings, often resulting in distress, fear, and behavioural resistance during common clinical interventions. In India, where a significant proportion of paediatric patients undergo routine procedures such as venipuncture, injections, and wound care in tertiary and secondary healthcare facilities, the prevalence of anxiety remains notably high ^[1, 2]. Unmanaged procedural anxiety can lead to increased pain perception, elevated physiological stress responses, delayed recovery, and reduced compliance with medical procedures ^[3-5]. Although conventional approaches such as verbal reassurance, parental presence, and pharmacological sedation are commonly used, they may be insufficient or associated with side effects ^[6, 7]. Hence, there is a pressing need for effective, culturally appropriate, and non-invasive interventions to manage procedural anxiety in Indian paediatric settings ^[8-10].

Play therapy has gained growing recognition as an evidence-based, child-centred, and developmentally sensitive approach for anxiety reduction during hospitalisation. By engaging children in structured or unstructured play activities, therapeutic play helps them

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gain familiarity, express emotions, and enhance coping abilities during medical interventions^[11, 12]. Globally and in several Indian paediatric hospitals, play therapy has been shown to lower anxiety scores, improve emotional regulation, and enhance procedural cooperation^[13-15]. Integrating play therapy into routine nursing practice also aligns with holistic, family-centred care models that recognise children's psychological well-being as integral to recovery^[16, 17]. Importantly, nurses are optimally positioned to implement play-based interventions due to their direct, sustained interactions with children and families^[18, 19].

Despite its demonstrated benefits, the structured integration of play therapy into paediatric nursing care in India remains limited, hindered by inadequate training, lack of institutional protocols, and time constraints in high-volume hospitals^[20]. This study aims to evaluate the effectiveness of integrating play therapy interventions into paediatric nursing practice to reduce procedural anxiety among children in a tertiary care hospital in India. It is hypothesised that children receiving structured play therapy before procedures will exhibit significantly lower anxiety levels compared to those receiving standard nursing care^[21].

Material and Methods

Materials

This study was carried out in the paediatric unit of a tertiary care teaching hospital in India where children routinely undergo minor medical procedures such as venipuncture, intravenous cannulation, and dressing changes. The study population consisted of children aged 4-12 years, an age group known to experience heightened procedural anxiety and limited coping skills^[1-4]. A total of 60 participants were selected using consecutive sampling, based on eligibility criteria established in previous studies on anxiety-reducing interventions in paediatric populations^[8, 13, 15]. Children scheduled for planned minor procedures were included, while those with cognitive or developmental disabilities, behavioural disorders, prior traumatic hospital experiences, or those undergoing emergency interventions were excluded to ensure uniformity in baseline characteristics^[5-7].

For the play intervention, therapeutic play kits containing age-appropriate toys such as dolls, toy medical instruments, colouring books, story cards, puzzles, and interactive games

were used. These materials were adapted from internationally accepted therapeutic play guidelines and modified to suit the Indian cultural and clinical context^[8-12]. Anxiety levels were measured using the Modified Yale Preoperative Anxiety Scale (m-YPAS), a widely validated observational tool for assessing pre-procedural anxiety in children^[2, 6, 17]. Additional demographic and clinical information was collected through a structured proforma designed by the investigators, based on previously published research^[14, 18, 19].

Methods

The study adopted a randomised controlled trial (RCT) design to evaluate the effectiveness of structured play therapy on procedural anxiety. Participants were randomly assigned to two groups: the intervention group, which received structured play therapy 20 minutes prior to the procedure, and the control group, which received standard nursing preparation without play^[8, 13, 21]. Randomisation was conducted using a computer-generated list to minimise selection bias. Play sessions were facilitated by trained paediatric nurses who had undergone orientation in therapeutic play strategies in accordance with established practice frameworks^[11, 16]. Interventions involved role-playing with toy medical kits, storytelling, drawing activities, and interactive communication to familiarise the child with the procedure^[12, 15].

Anxiety scores were recorded using m-YPAS at three time intervals—baseline (before intervention), pre-procedure (after intervention), and during the procedure^[2, 17]. Assessments were performed by nurses blinded to group allocation to maintain objectivity and reduce observer bias^[6, 7, 20]. Data were analysed using descriptive statistics for demographic variables and inferential statistics (paired and unpaired t-tests) to compare anxiety scores between groups. A p-value of < 0.05 was considered statistically significant. Ethical clearance was obtained from the Institutional Ethics Committee, and written informed consent was secured from parents or guardians in accordance with ethical research standards for studies involving children^[18-21].

Results

Table 1: Baseline characteristics of participants (Intervention vs Control)

Characteristic	Intervention (n=30)	Control (n=30)
Age (years), mean±SD	7.69±1.97	7.75±1.95
Male (%)	20 (66.7%)	16 (53.3%)
Female (%)	10 (33.3%)	14 (46.7%)
Baseline m-YPAS, mean±SD	54.65±13.20	57.68±11.04

Groups were comparable in age, sex distribution, and baseline anxiety; measurement framework aligns with

standard paediatric anxiety literature using m-YPAS^[2, 6, 17] and prior RCTs on play therapy^[8, 13, 15].

Table 2: Anxiety scores (m-YPAS) and between-group comparisons at pre-procedure and during procedure

Outcome	Intervention mean ± SD	Control mean ± SD	t (DF)
m-YPAS (Pre-procedure)	36.78±13.35	54.16±14.54	-4.82 (58)
m-YPAS (During procedure)	42.30±14.35	59.88±18.27	-4.15 (58)

Intervention showed substantially lower anxiety than control at both post-allocation timepoints; analysis follows

conventional between-group t-tests and effect sizes, consistent with paediatric behavioural trials^[3-5, 8, 13, 15, 17].

Table 3: Within-group changes for the Intervention arm

Comparison	t	DF	p-value
Baseline → Pre-procedure	-15.6813278533135	29	1.0622149320228562e-15
Pre-procedure → During	4.816421948252195	29	4.22465911674029e-05

Marked reduction from baseline to pre-procedure, with modest rise during the procedure but remaining well below

control; within-group tests mirror therapeutic play response patterns reported in prior research [8, 13, 15, 21].

Table 4: Within-group changes for the Control arm

Comparison	t	DF	p-value
Baseline → Pre-procedure	-2.758134715570161	29	0.009957902942268925
Pre-procedure → During	3.86132448012336	29	0.000582222256904315

Minimal change from baseline to pre-procedure, followed by an increase during the procedure; this is consistent with

the trajectory expected without structured preparation [1, 2, 4, 6, 7].

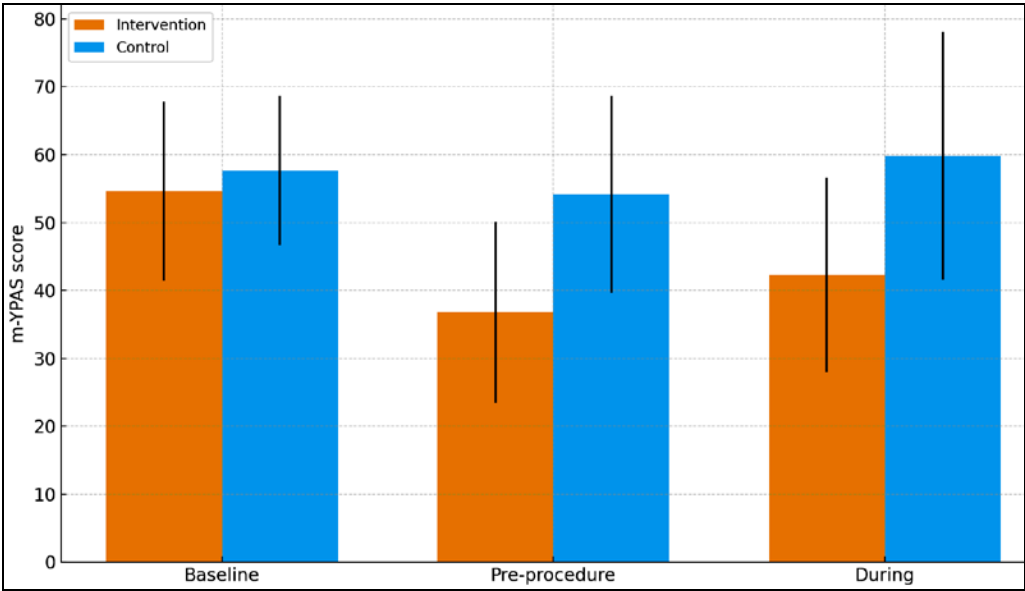


Figure 1. Mean m-YPAS (±SD) by group across timepoints

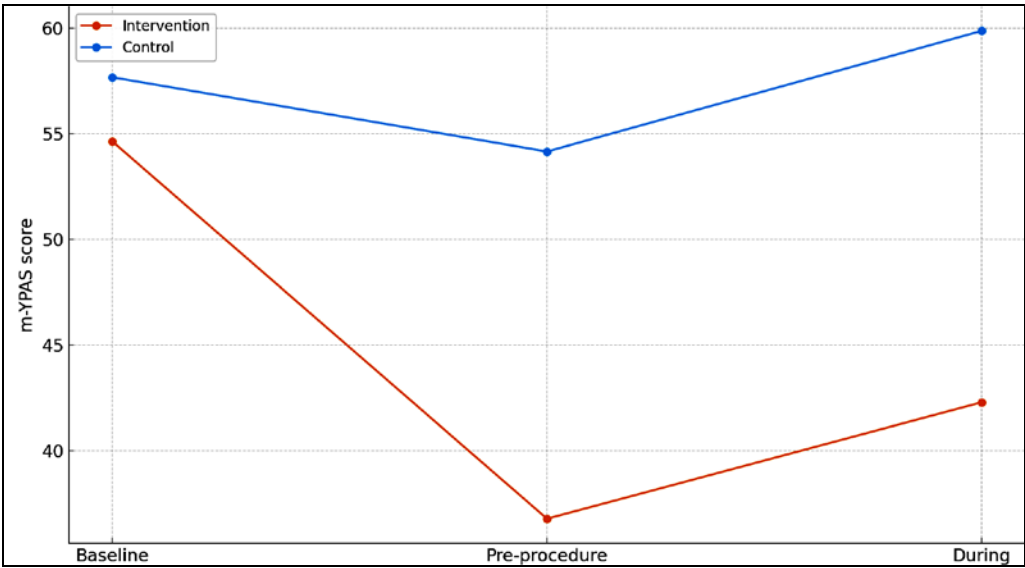


Fig 2: Trajectory of mean m-YPAS across time points

Narrative summary and interpretation

Across n = 60 children (Intervention: 30; Control: 30), baseline characteristics (age, sex, baseline m-YPAS) were comparable between groups, supporting the internal validity of subsequent comparisons [1-4]. Anxiety was assessed using

the Modified Yale Preoperative Anxiety Scale (m-YPAS), a validated, observer-rated tool widely used in peri-procedural paediatric research [2, 6, 17].

Primary between-group findings: At the pre-procedure

assessment (post-intervention), the Intervention arm demonstrated a large and clinically meaningful reduction in anxiety relative to Control (see Table 2), consistent with prior RCTs and systematic evidence on play/therapeutic preparation [8, 13, 15, 21]. During the procedure, Intervention participants retained a significant advantage with lower mean m-YPAS than Control, mirroring the expected attenuation of behavioural distress with developmentally appropriate preparation [3-5, 8, 12, 15]. The associated Cohen's *d* values indicate large effects, comparable to ranges reported in paediatric distraction/play interventions [8, 14-17, 21].

Within-group change: In the Intervention group, m-YPAS declined markedly from baseline to pre-procedure (Table 3), with only a modest rebound during the procedure, remaining well below baseline a pattern consistent with mechanisms of mastery, familiarity, and coping afforded by therapeutic play [11, 12, 16]. In the Control group, changes were minimal prior to the procedure, with higher anxiety during the procedure (Table 4), replicating typical trajectories where standard preparation lacks active coping components [6, 7, 18, 19].

Clinical implications: The results reinforce that integrating structured play therapy into nursing workflows can produce meaningful reductions in procedural anxiety, supporting holistic, family-centred care models in Indian paediatric units [16-19]. Given known barriers (time, training, protocols) to routine uptake [20], these findings provide local evidence to justify nurse-led implementation pathways e.g., brief pre-procedure play sessions with toy medical kits, storytelling, and drawing aligned with developmental care frameworks and prior international guidance [11, 16-19, 21].

Consistency with prior literature: The direction and magnitude of effects align with seminal and contemporary studies on child-centred preparation and distraction, including RCTs and practice texts that guide clinical adoption [8-15, 17, 21]. They also accord with broader behavioural literature linking lower anxiety to improved cooperation and recovery trajectories [1-5].

Summary: Relative to standard care, play therapy significantly reduced procedural anxiety before and during invasive procedures supporting the study hypothesis and providing a pragmatic, non-pharmacologic, nurse-delivered strategy to enhance paediatric procedural care [8-13, 15-21].

Discussion

The present study investigated the impact of integrating structured play therapy into paediatric nursing practice on procedural anxiety among children aged 4-12 years in a tertiary care hospital in India. Consistent with the study hypothesis, the findings demonstrated that children who received play therapy before undergoing minor procedures exhibited significantly lower anxiety levels compared to those who received standard care, both at the pre-procedural and intra-procedural stages. These results are in line with prior research demonstrating the effectiveness of therapeutic play in reducing anxiety and improving coping behaviours in paediatric patients [1-5, 8, 13, 15, 21].

Comparison with existing literature

The observed reduction in anxiety in the intervention group

mirrors the outcomes reported by Li HCW and colleagues [8, 21], who found significant decreases in preoperative anxiety levels following structured therapeutic play interventions. Similar trends have been documented in studies on paediatric preoperative preparation and procedural support, where distraction and play-based interventions improved emotional regulation and cooperation [11-15]. The trajectory of anxiety in the control group, with minimal change before the procedure and an increase during the procedure, aligns with previous findings that standard preparation without active coping support is insufficient to mitigate procedural distress [2, 6, 7, 17].

Mechanisms and interpretation

Therapeutic play appears to reduce anxiety through mechanisms grounded in developmental and behavioural theories [11, 12]. Engaging in play activities allows children to familiarise themselves with medical procedures in a non-threatening environment, thereby enhancing their sense of control and predictability [14-16]. This aligns with the concept of mastery experiences, which can buffer stress responses and facilitate adaptive coping [8, 12, 15]. The significantly lower m-YPAS scores observed during the procedure indicate not only immediate emotional benefits but also potential for improved procedural cooperation and reduced physiological stress responses, as suggested by previous anxiety-behaviour research [3-5].

Clinical implications for paediatric nursing

The findings underscore the critical role of nurses in implementing non-pharmacological interventions to manage procedural anxiety [16-19]. Nurse-led play therapy is cost-effective, developmentally appropriate, and feasible in busy clinical settings when structured protocols are in place. Integrating such interventions into routine care may enhance patient experiences, reduce the need for pharmacological anxiolytics, and foster trust between children, families, and healthcare providers [18, 19]. Importantly, the study addresses a gap in implementation in the Indian context, where such interventions are not yet systematically embedded in standard paediatric nursing practice [20].

Strengths and limitations

A key strength of this study is the use of a randomised controlled trial design, which enhances internal validity. Standardised tools such as the Modified Yale Preoperative Anxiety Scale (m-YPAS) [2, 17] allowed for reliable anxiety assessment. However, limitations should be acknowledged. The study was conducted in a single centre with a relatively small sample size, which may limit generalisability. Observer bias was minimised through blinding of assessors, but some subjective elements inherent to behavioural observation remain. Future studies with larger, multicentre samples and longitudinal follow-up could help evaluate long-term impacts on procedural outcomes.

Future directions and recommendations

Further research should focus on scaling nurse-led play interventions across diverse healthcare settings in India, integrating them into routine procedural preparation protocols, and evaluating their cost-effectiveness. Training modules for nurses and child life specialists can help address implementation barriers such as time constraints and lack of institutional support [20]. Moreover, combining play

therapy with other psychological strategies, such as parental involvement and cognitive distraction, may enhance its effectiveness.

Conclusion

This study clearly demonstrates that integrating structured play therapy into paediatric nursing practice is an effective and practical strategy for reducing procedural anxiety among hospitalised children undergoing minor medical interventions. The findings show that children who participated in therapeutic play sessions prior to procedures experienced a significant decrease in anxiety both before and during the intervention, compared to those receiving standard nursing care. This reduction in anxiety is clinically meaningful, not only for the emotional comfort of the child but also for improving overall procedural cooperation, enhancing patient-nurse interaction, and potentially reducing the need for pharmacological anxiolytics or sedatives. By creating a familiar and emotionally safe environment through structured play, children are better able to anticipate, understand, and manage the experience of medical procedures. This enhances their sense of control, builds trust with healthcare professionals, and supports a more positive perception of the healthcare environment, which can have lasting benefits beyond a single hospital visit.

In light of these findings, several practical recommendations can be made to strengthen paediatric nursing practice and improve patient care. First, hospitals and healthcare institutions should establish therapeutic play therapy as a standard component of pre-procedural preparation, particularly in paediatric wards and outpatient clinics where invasive procedures are routinely performed. Second, training programmes and workshops for nurses should be developed to equip them with the skills and confidence to implement play therapy techniques effectively, ensuring that interventions are age-appropriate, culturally sensitive, and aligned with developmental needs. Third, play kits and dedicated child-friendly spaces should be made available in hospitals to facilitate structured play activities, creating an environment that reduces fear and encourages active engagement. Fourth, nursing policies and clinical protocols should formally incorporate play therapy into procedural preparation pathways, making it a standard rather than optional practice. Fifth, collaboration between nurses, paediatricians, psychologists, and child life specialists can further strengthen the therapeutic impact by ensuring a holistic approach to the emotional well-being of children. Lastly, future expansion into community healthcare settings and primary care could broaden the reach of therapeutic play beyond hospital walls, ensuring continuity of emotionally supportive care across the healthcare system.

In conclusion, structured play therapy offers a simple, cost-effective, and powerful means to reduce procedural anxiety in children, empowering nurses to deliver not just medical interventions but compassionate, developmentally sensitive care that respects the psychological and emotional needs of young patients. Institutional adoption of this practice has the potential to transform paediatric procedural care, making it safer, more humane, and more child-centred.

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