International Medicine
www.theinternationalmedicine.org

Research Article

Section: Anaesthesia

Effectiveness of Instructional Video on Preoperative Anxiety in Children: A Randomized Controlled Trial

Dr. Paul Thomas Aliyattukudy*[1], Dr. Sara Vergis[2], Dr. Saira M Nazar[3], Dr. Dona Marie[4], Dr. Moses Reji Chandy[5], Dr. Samuel Thomas Aliyattukudy[6]

[1]Department of Anaesthesia , MOSC Medical College, Kolenchery

[2]MD, IDCCM, HOD of Critical Care ICU, MOSC Medical College Hospital, Kolenchery

[3,4,5]MBBS, Department of Anaesthesia, MOSC Medical College, Kolenchery

[6]MBBS, Department of Anaesthesia, Jubilee Medical College, Thrissur

ARTICLE INFO

Article History:

Received: 02-04-2025

Accepted: 10-05-2025

Key words:

Anxiety

Paediatric

Instructional video

Randomised Controlled Trials

***Corresponding author:**

Dr. Paul Thomas Aliyattukudy

Department of Anaesthesia

MOSC Medical College,

Kolenchery

ABSTRACT

Background and Aims: Preoperative anxiety in paediatric patients, negatively impacts surgical outcomes and postoperative recovery. Nonpharmacological interventions, such as instructional videos, offer a promising alternative to anxiolytic medications. This study evaluates the effectiveness of an instructional video in reducing preoperative anxiety in children aged 5-12 years undergoing elective surgery. **Material and Methods:** A randomized controlled trial was conducted in the Department of Anaesthesia. Forty-seven children scheduled for elective surgery under general anaesthesia were randomly assigned to either an intervention group (n=24), which viewed an instructional video about the surgical process, or a control group (n=23), which received standard verbal instructions. Anxiety was assessed using the modified Yale Preoperative Anxiety Scale-Short Form (mYPAS-SF). **Results:** The intervention group demonstrated significantly lower preoperative anxiety scores (median mYPAS-SF: 29.17, IQR: 24.47-44.27) compared to the control group (median mYPAS-SF: 45.83, IQR: 29.16-58.33) (p=0.017). Gender analysis indicated higher anxiety levels in females (p=0.022), whereas no significant differences were observed across age groups (p=0.137). **Conclusion:** Instructional videos are an effective, nonpharmacological intervention for reducing preoperative anxiety in paediatric patients. Future studies should explore age-specific content customization and home-based implementation to enhance patient and parent preparedness.

INTRODUCTION

Preoperative anxiety is a significant issue in paediatric patients, often leading to complications from the time of admission through surgery, and it negatively impacts postoperative recovery .[1] Children, particularly those with developmental or behavioural disorders, are especially vulnerable to preoperative anxiety due to fear of separation, unfamiliar environments, and anaesthesia induction.[2] Studies indicate that more than 40% of children aged 2-10 exhibit distress during anaesthesia induction, with severe anxiety leading to physiological responses such as elevated cortisol and epinephrine levels, tachycardia, and increased risk of infection. [1,3] These responses can complicate surgical procedures and delay recovery. Nonpharmacological interventions, including instructional videos, offer a promising alternative to anxiolytic medications, which can have side effects like respiratory depression and prolonged recovery. [4] This study investigated the effectiveness of instructional videos in reducing preoperative anxiety among children aged 5-12 years undergoing elective surgery.

METHODS

This randomized controlled trial was conducted over three months in the Department of Anaesthesia. Ethical approval was obtained from the Institutional Review Board and Ethics Committee, and informed consent was secured from the parents of participants along with assent from participants above age of 7 years. Children aged 5-12 years scheduled for elective surgery under general anaesthesia were included. Exclusion criteria included children with chronic illnesses, mental disorders, previous surgeries, or regular medication affecting anxiety levels. Participants were randomly allocated into two groups using computer-generated random numbers. Group A / Intervention group was shown an instructional

video the day before surgery during PAC (pre-anaesthetic checkup). Group B / Control group given standard verbal instructions about the surgery and anaesthesia.

Group allocation was concealed in serially numbered opaque envelopes. The instructional video included explanations of preoperative procedures, operating theatre facilities, and general anaesthesia induction by inhalation method. On the day of the surgery, anxiety was assessed using the modified Yale Preoperative Anxiety Scale (mYPAS-SF) by a blinded anaesthesiologist just before entering the Operating Theatre.

A short instructional video was made for this study with visuals showing mask conditioning for general anaesthesia induction to a young girl and visuals inside the OT. The scenes shown in the video were taken within hospital premises.

Table 1: mYPAS-SF

A Activity	1 = Looking around, curious, playing with toys, reading (or other age-appropriate behaviour); moves around holding area/treatment room to get toys or go to parent; may move toward OR equipment 2 = Not exploring or playing, may look down, may fidget with hands or suck thumb (blanket); may sit close to parent while waiting, or play has a definite manic quality 3 = Moving from toy to parent in unfocused manner, nonactivity derived movements; frenetic/frenzied movement or play; squirming, moving on table, may push mask away or clinging to parent 4 = Actively trying to get away, pushes with feet and arms, may move whole body; in waiting room, running around unfocused, not looking at toys or will not separate from parent, desperate clinging
B Vocalizations	1 = Reading (nonvocalizing appropriate to activity), asking questions, making comments, babbling, laughing, readily answers questions but may be generally quiet; child too young to talk in social situations or too engrossed in play to respond 2 = Responding to adults but whispers, "baby talk", only head nodding 3 = Quiet, no sounds or responses to adults 4 = Whimpering, moaning, groaning, silently crying 5 = Crying or may be screaming "no" 6 = Crying, screaming loudly, sustained (audible through mask)
C Emotional Expressivity	1 = Manifestly happy, smiling, or concentrating on play 2 = Neutral, no visible expression on face 3 = Worried (sad) to frightened, sad, worried, or tearful eyes 4 = Distressed, crying, extreme upset, may have wide eyes
D State of Apparent Arousal	1 = Alert, looks around occasionally, notices watch what anaesthesiologist does with him/her (could be relaxed) 2 = Withdrawn child sitting still and quiet, may be sucking on thumb or face turned into adult 3 = Vigilant looking quickly all around, may startle to sounds, eyes wide, body tense 4 = Panicked whimpering, may be crying or pushing others away, turns away

is a validated scale measuring paediatric anxiety, scoring activities, vocalizations, emo -tional expressivity, and state of apparent arousal. Permission to use this scale was sought from the respective authors before initiation of this study. Kuppuswamy Socioeconomic Scale was used to assess the socioeconomic status of participants' families. Structured Case Record Form was used to collect demographic and clinical data.

Categorical variables were summarized using frequ-ency and percentage, and quantitative variables were summarized using mean and standard deviation or medianand interquar tilerange, depending on data distribution. Independent t-tests or Mann-Whitney U tests were performed to compare anxiety scores. A p-value <0.05 was considered significant. Data analysis was performed using EZR software (version 1.41).

Based on previous studies, the minimum required sample size was 23 participants per group (total n=46), with a power of 80% and a confidence level of 95%.

RESULTS

A total of 47 participants (24 in the intervention group, 23 in the control group) completed the study.

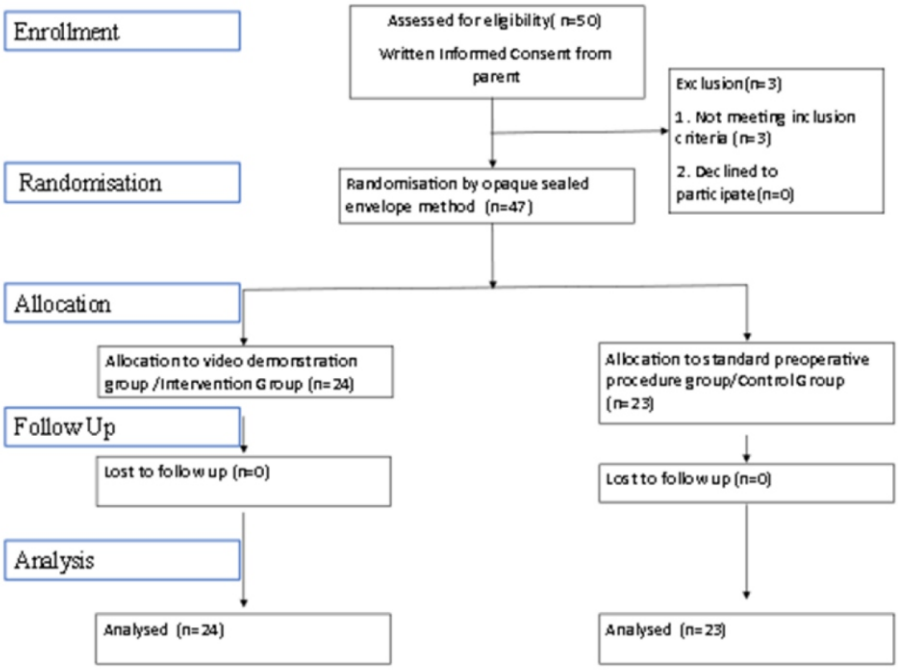

Figure 1: Consort Flowchart Guidelines

Significant differences were observed in anxiety scores

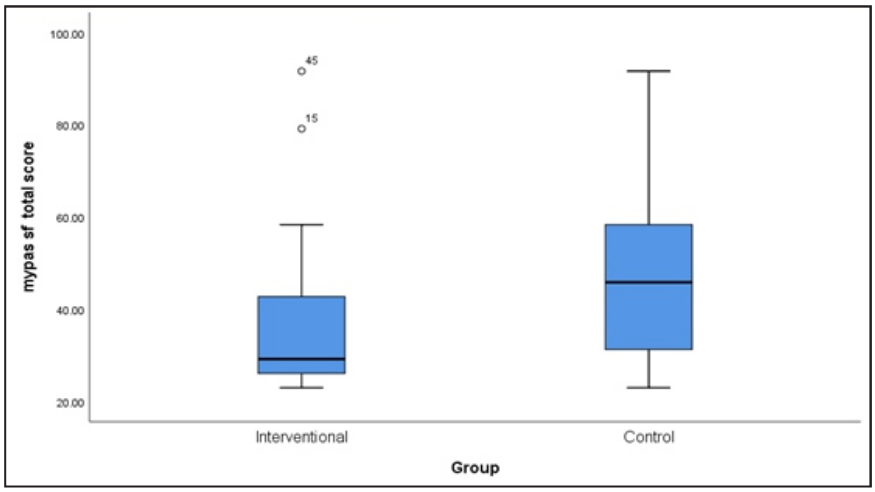

Figure 2:Boxplot showing mYPAS-SF scores comparison between Interventional and Control group

The median mYPAS-SF score of the Intervention group was 29.17 (IQR: 24.47, 44.27) and that of the control group was 45.83 (IQR: 29.16, 58.33), (P 0.017). No significant differences were observed between the groups in terms of age, gender, socioeconomic status or elective surgical procedure .

Table 2: comparing demographics between Interventional and Control group

	Interventional Group (%)	Control Group (%)
Age		
5-7years	41.6	39.1
8-9years	33.3	30.4
10-12years	25	30.4
Sex		
Male	70.8	60.8
Female	29.1	39.1
Socioeconomic Status (Kuppuswamy Scale) [7]		
Upper Lower	8.3	13
Lower Middle	41.7	39.1
Upper Middle	41.7	39.1
Upper	8.3	8.7
Surgical Procedure		
Abdomen	45.8	30.4
Head and Neck	25	26.1

Median age for intervention group was 8.5 years and for control was 9 years, (P 0.755). Gender-based analysis showed males had lower anxiety scores (33.33) compared to females (45.83), (P 0.022) . Age-based analysis revealed no significant differences in anxiety scores between age groups (P 0.137) .

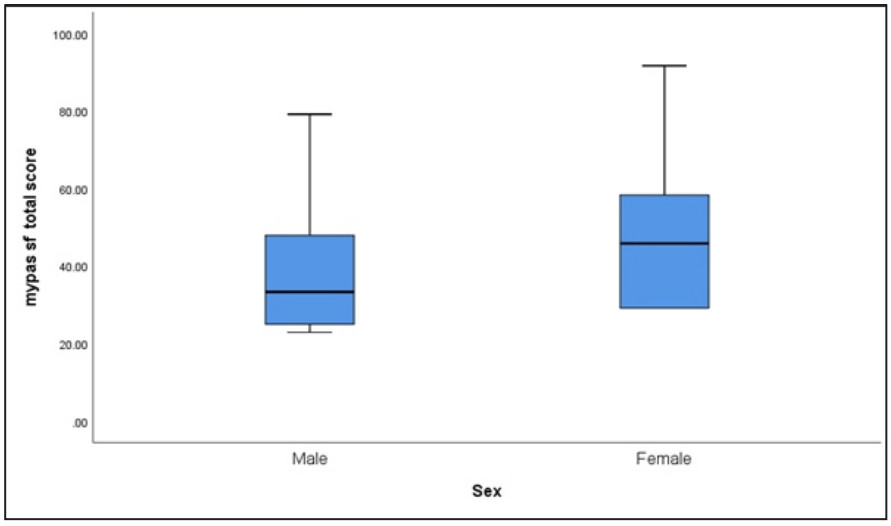

Figure 3:Boxplot showing gender-based comparison with mYPAS-SF scores.

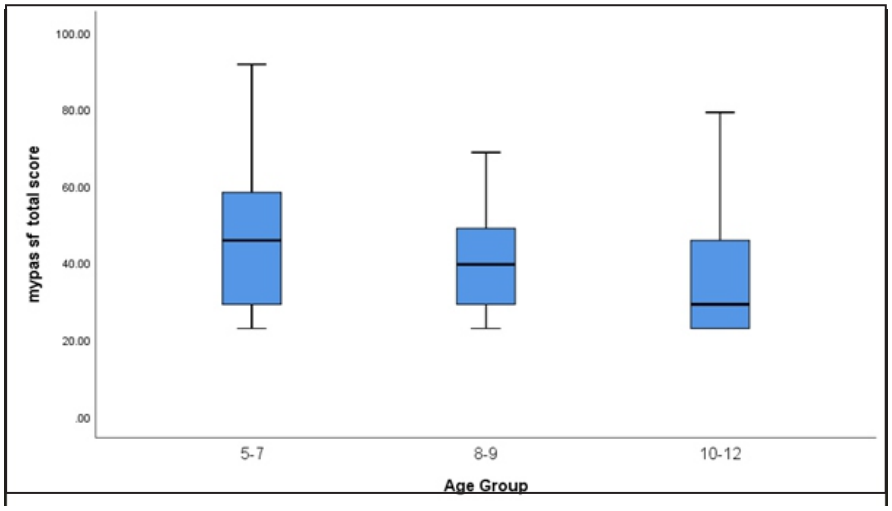

Figure 4: Boxplot showing age-based comparison with mYPAS-SF scores.

DISCUSSION

This study demonstrates the effectiveness of instructional videos in reducing preoperative anxiety among children which has shown to negatively influence both anaesthetic induction and recovery. The use of nonpharmacological interventions like instructional videos offers a cost-effective and safe method to address preoperative anxiety, avoiding the potential side effects associated with anxiolytic medications. The instructional video was designed to be universally comprehensible for children aged 5-12 years.

This study showed a significant reduction in preoperative anxiety measured using mYPAS-SF for the group subjected to video intervention as when compared to the control group.

Comparing the findings of this study with previous research further highlights the utility of video-based interventions. Paripoorani et al. (2015) demonstrated that instructional videos significantly reduced preoperative anxiety among orthopaedic patients, measured using the State-Trait Anxiety Inventory. Similarly, Dehghan et al. (2019) reported the efficacy of Virtual Reality Exposure Therapy in alleviating anxiety in paediatric patients. While virtual reality technology provides an immersive experience, it requires specialized equipment and is less feasible in resource-limited settings compared to instructional videos, which are inexpensive and widely accessible.

Batuman et al. (2016) found that peer-modelling videos significantly reduced preoperative anxiety by allowing children to observe peers in similar situations. Although peer-modelling videos rely on relatable scenarios to create a calming effect, the instructional video in this study focused on familiarizing children with the specific preoperative procedures, thus targeting anxiety triggers directly. This approach ensures that children are not only mentally prepared but also develop a clear understanding of the sequence of events till they are anesthetised, which can foster a sense of control and reduce fear.

The specific usefulness of instructional videos lies in their ability to bridge communication gaps, especially in diverse populations. Unlike verbal instructions, videos transcend language barriers and provide consistent inform-

ation in a visually engaging format. For paediatric patients, who may struggle to comprehend complex medical terminology, the visual depiction of procedures simplifies the information, making it more relatable and less intimidating. Moreover, videos can integrate child-friendly elements such as animations, cheerful music, and age-appropriate language to further reduce anxiety.

A systematic review by Kim et al. (2019) on technology-based preoperative interventions emphasized that video-based preparations consistently reduced anxiety levels in children and their parents. This aligns with the present study's findings, reinforcing the role of videos as an effective educational tool in paediatric anaesthesia. Additionally, Fernandes et al. (2014) demonstrated that educational materials tailored to children's developmental stages were particularly effective in addressing preoperative worries. Although the video in this study was generalized, futurere search could explore age-specific content to maximize its impact.

The observed gender differences, with males showing lower anxiety scores, corroborate findings from Kain et al. (1996) and Fernandes et al. (2014), suggesting that gender may influence anxiety responses. While the reasons for this disparity are not fully understood, cultural and social factors, as well as innate temperamental differences, could play a role.

This study's findings also emphasize the importance of timing. Delivering the intervention the evening before surgery allowed sufficient time for children to internalize the information and ask questions, as opposed to administering it on the day of surgery when stress levels are typically heightened. Similar timing was noted in studies by Batuman et al. (2016) and Paripoorani et al. (2015), further supporting the choice of this time point.

Instructional videos represent a simple, cost-effective, and widely accessible method of intervention. Despite its strengths, this study has limitations. Observer bias in mYPAS-SF scoring could influence results, and the small sample size limits generalizability. Future studies could incorporate pre- and post-intervention measurements to better assess the immediate impact of the instructional video. Additionally, tailoring video content to different age groups could address the cognitive and emotional differences within the paediatric cohort, enhancing its effectiveness.

CONCLUSIONS

Instructional videos are an effective nonpharmacological intervention for reducing preoperative anxiety in paediatric patients. Their ability to visually depict complex procedures, address specific anxiety triggers, and provide consistent information makes them a valuable tool in paediatric anaesthesia practice. Future studies should explore tailoring video content to different age groups and providing video access at home to enhance patient and parent preparation.

REFERENCES

1. Ellen McCann M, Kain ZN. The Management of Preoperative Anxiety in Children: An Update. Anesthesia & Analgesia. 2001 Jul;93(1):98105.
2. Tan L, Meakin GH. Anaesthesia for the uncooperative child. Continuing Education in Anaesthesia Critical Care & Pain. 2010 Apr 1;10(2):4852.
3. Mulugeta H, Ayana M, Sintayehu M, Dessie G, Zewdu T. Preoperative anxiety and associated factors among adult surgical patients in Debre Markos and Felege Hiwot referral hospitals, Northwest Ethiopia. BMC Anesthesiology. 2018 Oct 30;18(1):155.
4. Wang R, Huang X, Wang Y, Akbari M. Non-pharmacologic Approaches in Preoperative Anxiety, a Comprehensive Review. Front Public Health. 2022 Apr 11;10:854673.
5. Jenkins BN, Fortier MA, Kaplan SH, Mayes LC, Kain ZN. Development of a Short Version of the Modified Yale Preoperative Anxiety Scale. Anesthesia & Analgesia. 2014 Sep;119(3):64350.
6. Lee JH, Jung HK, Lee G geun, Kim HY, Park SG, Woo SC. Effect of behavioral intervention using smartphone application for preoperative anxiety in pediatric patients. Korean J Anesthesiol. 2013 Dec;65(6):50818.
7. Sood P, Bindra S. Modified Kuppuswamy socioeconomic scale: 2022 update of India. International Journal Of Community Medicine And Public Health. 2022 Sep 28;9:3841.
8. Buffett-Jerrott SE, Stewart SH, Finley GA, Loughlan HL. Effects of benzodiazepines on explicit memory in a paediatric surgery setting. Psychopharmacology (Berl). 2003 Aug;168(4):37786.
9. Paripoorani D, Babu V, Poongodi K, Cherian VM. Effectiveness of instructional video on preoperative anxiety of patients undergoing orthopedic surgery. Indian Journal of Continuing Nursing Education. 2015 Jul 1;16(2):36.
10. Dehghan F, Jalali R, Bashiri H. The effect of virtual reality technology on preoperative anxiety in children: a Solomon four-group randomized clinical trial. Perioperative Medicine. 2019 Jun 4;8(1):5.
11. Batuman A, Gulec E, Turktan M, Gunes Y, Ozcengiz D. Preoperative informational video reduces preoperative anxiety and postoperative negative behavioral changes in children. Minerva Anestesiol. 2016 May;82 (5):53442.
12. Kim J, Chiesa N, Raazi M, Wright KD. A systematic review of technology-based preoperative prepar-ation interventions for child and parent anxiety. Can J Anaesth. 2019 Aug;66(8):96686.
13. Fernandes SC, Arriaga P, Esteves F. Providing preoperative information for children undergoing surgery: a randomized study testing different types of educational material to reduce childrens preoperative worries.

Health Educ Res. 2014 Dec;29(6):105876.

14. Kain ZN, Mayes LC, OConnor TZ, Cicchetti DV. Preoperative anxiety in children. Predictors and outcomes. Arch Pediatr Adolesc Med. 1996 Dec;150 (12):123845.

How to cite: Paul Thomas Aliyattukudy, Sara Vergis, Saira M Nazar, Dona Marie, Moses Reji Chandy, Samuel Thomas Aliyattukudy. Effectiveness of Instructional Video on Preoperative Anxiety in Children: A Randomized Controlled Trial. *International Medicine*, 2025;11 (1) :1-6