

# A Randomized Controlled Trial To Evaluate The Effects Virtual Reality Has On Pre-operative Anxiety



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## BACKGROUND

- Millions of children experience anxiety before procedures<sup>1</sup> and endure complicated recovery periods<sup>2</sup>.
- Distraction techniques are theorized to mitigate anxiety without the negative effects of anxiolytic medication.
- No pediatric research has been done to compare medicative protocols to VR.



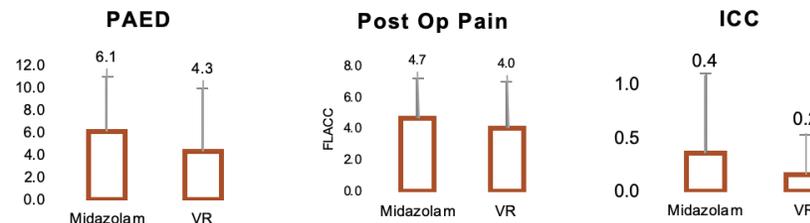
## METHODS

- 5-11 years undergoing first surgery with a baseline modified yale preoperative anxiety scale (mYPAS) score over 40 were selected and randomized.
- Treatment began prior to transport to the OR.
- A standardized anesthesia protocol and induction compliance checklist (ICC) were used.
- Pediatric Anesthesia Emergence Delirium (PAED) scale, pain scores, and analgesic use were recorded postop.

## RESULTS



- 57% of potential candidates had a mYPAS over 40 indicating significant anxiety.
- Both groups showed a *significant reduction* in anxiety:  
Control group (21.7±12.5 points; p<0.001)  
VR group (28.3±9.2 points; p<0.001)



## DISCUSSION

Interim analysis reveals that VR significantly reduced preoperative anxiety and shows promise as an effective alternative to midazolam.

Limitations:

- Small sample size- may not be able to pick up a difference between the groups.
- Population limited to tonsillectomy (+/-) adenoidectomy surgeries.

Future trials may benefit from including patients with developmental delays or previous surgical experience.

## CONCLUSION

Virtual reality significantly reduced preoperative anxiety in pediatric patients undergoing surgery for the first time.

## REFERENCES

1. Kain ZN, Mayes LC, O'Connor TZ, Cicchetti DV. Preoperative anxiety in children: predictors and outcomes. Arch Pediatr Adolesc Med. 1996;150:1238-1245.
2. Kain ZN, Mayes LC, Caldwell-Andrews AA, Karas DE, McClain BC. Preoperative anxiety, postoperative pain, and behavioral recovery in young children undergoing surgery. Pediatrics. 2006; 118(2):651-8.

Image provided by kindVR's UCSF Oakland research patient. Equipment was donated by kindVR for research purposes.

