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Unlocking VR Magic: Duration of Anxiety Relief for Pediatric Needle Procedures

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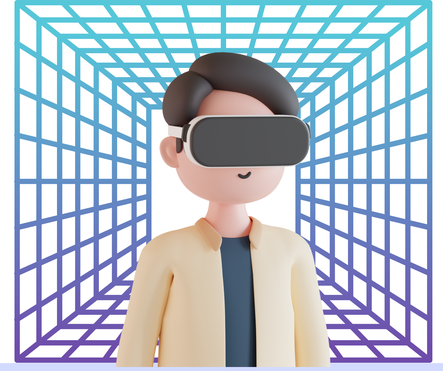

INTRODUCTION

- Pain is an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage
- Pediatric medical treatments frequently involve procedures that can cause discomfort including vaccinations, intravenous injections, laceration repairs, and dressing changes
- The fear of pain can consume a patient leading to both physical and psychological suffering
- Virtual reality (VR) is a sophisticated computer technology that replicates a three-dimensional environment, mirroring real-world experience
- Recent high-quality research indicates that immersing children in a virtual world during needle-related procedures in a hospital effectively reduced or eliminated the typical fear and anxiety they would otherwise experience (Kjeldgaard et al., 2023)

IRB

Personal and identifying information will be left out for the protection of participants. This research proposal will be approved at Dominican University of California's IRB.

METHODS

- Longitudinal study

Sample

- 128 school-aged children (6-12 years old)
  - They will be recruited with posters and flyers at the study location (outpatient infusion center)
  - Participants will be systemically allocated into two groups: VR intervention (experimental) group and standard care (control) group
- Inclusion Criteria:
  - Children's first time to encounter blood draw at the study clinic
  - Participants need to have at least one subsequent encounter within 2 weeks
  - Must be accompanied by parent/guardian

Measurements

- Assessing the participants' anxiety level between the time entering the building and starting the procedure
- Parents/guardians will also rate the child's anxiety levels
  - Assessment Tool: Children's Fear Scale (CFS)
- Assessing pain level immediately after the procedure
  - Assessment Tool: Wong Baker's FACES Pain Scale

Procedures

- The control group will be assessed in Month 1
- The experimental group will be assessed in Month 2
- The participants will be assessed at their first and each subsequent encounter occurring within each group's 1-month study period
- At the end of the study, the intervention group parents/guardians will complete a 10-point scale to evaluate the duration of VR effect

HYPOTHESIS

If VR is used as a distraction method during needle-related procedures for school-aged children, then there will be a positive carry-over effect, which will reduce their anxiety, distress, and pain perception levels. This long duration of effect will enable children undergoing needle-related procedures to feel more safe and comfortable, and staff to be more efficient.

RESULTS

- Statistical analysis will consist of looking at correlation coefficients (Pearson r) the directionality of the relationships
- A t-test will be used to measure the impact of the VR intervention, whether it is statistically significant

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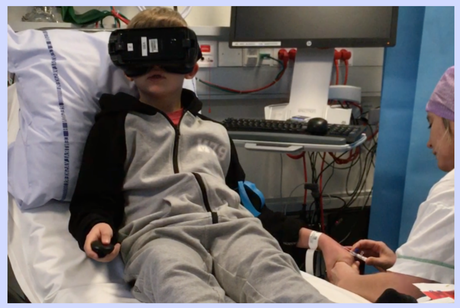
CONCLUSION

Virtual reality should not only be able to reduce fear and anxiety during needle-related procedures but between them as well. When VR's positive effects persist across encounters, children and their caregivers will be more likely to not associate these encounters with stress. These effects will also help maintain a calm and safe environment for everyone. A recommendation for future study is to see how long the duration of effect lasts beyond this experiment's 1-month period. Another recommendation is to see if VR shortened the length of the procedure itself. It would also be prudent to modify the CFS assessment tool to make its pictures more inclusive and pleasant. In conclusion, VR is shown to have evidenced-based practices that will contribute to the reduction of pain and suffering in this clinical setting.



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