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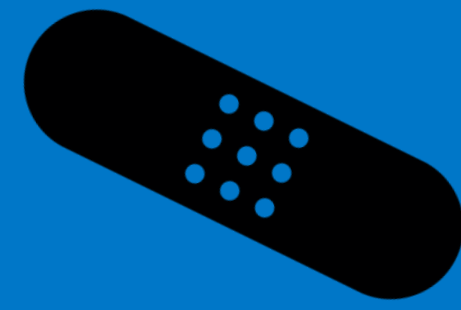
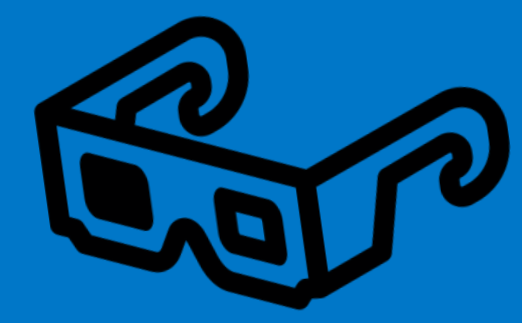
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Virtual Distractions From Reality

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Background:

Patients in the pediatric emergency room are subject to many painful, stressful, and scary procedures. Pediatric patients are always developing, and coping skills will differ amongst ages. “Untreated distress and pain can lead to a scared and uncooperative child, a need for repeated IV attempts, reduced efficiency, and overall dissatisfaction with care for the patient, family, and the healthcare team.”⁽¹⁾ There are many studies regarding distraction techniques used with pediatric patients such as tablet games, music therapy, TV, etc. However, in our project we aimed to look at studies that use virtual reality as a distraction technique with different ages and procedures.

PICOT:

In pediatric patients undergoing painful procedures, how does the use of virtual reality compared to standard distraction techniques affect patient's levels of coping and stress?

Literature Review:

Both PubMed and CINAHL were searched.

Our sources were from Journal of Emergency Medicine, Journal of Child & Adolescent Trauma, British Medical Journal, The Public Library of Science, and Journal of Medical Internet Research. All of our sources were level I-III for strength of evidence, which is the highest levels of evidence of the Stetler Model.



Results:

VR with Intravenous Insertion:

A study in the British Medical Journal looked at how virtual reality related to distress in children ages 6-17 in an emergency department undergoing IV insertion. “Virtual reality has been shown to immerse children into a distracting and safe space.”⁽¹⁾

A research study done on 2-6 year olds getting intravenous placement and using a dome VR headset showed that “0% of the guardians in the intervention group (using VR) felt that their child’s experience was very painful as compared to 22.2% in the control group.”⁽⁴⁾

VR with Injections & Burns:

A study done by the Journal of Emergency Medicine, “virtual reality eyeglasses were found to significantly decrease both anxiety and pain in adolescent patients receiving burn care.”⁽²⁾

Journal of Medical Internet Research conducted a systematic review of studies regarding pediatric pain and fear during needle procedures. They found “the global effect of using VR as a distraction measure was a significant reduction in pain and fear in the children in the experimental group.”⁽⁵⁾

VR with Laceration Repairs:

In a study of 6-16 year old patients in a hospital setting during laceration repairs, “Children liked the VR experience more than other options used (books, TV, games, iPad, parents’ comfort etc.). It is likely that the novelty of the VR system enhanced their experience and resulted in positive feedback by the children.”⁽³⁾

The Journal of Emergency Medicine conducted a study on 40 5-13 year olds in a Pediatric Emergency Department undergoing laceration repair. They used an immersive VR game as the distraction intervention. The findings showed that “98% of both subjects and their parents reported that they want to use VR during future ED visits and 93% of physicians reported that VR helped them with their procedure.”⁽⁷⁾

Conclusion:

Minimizing pain and anxiety during painful procedures with pediatric patients improves patient, parent, and healthcare worker’s overall satisfaction. There are many distraction techniques that have been researched, but virtual reality is a newer idea. Although research with virtual reality is new, our research showed significant satisfaction with patient outcomes while undergoing painful procedures.

Next steps to research would be to potentially implement virtual reality into our pediatric emergency department here at Rochester General Hospital. This would allow us to further evaluate the effectiveness of virtual reality as a distraction technique and improve Press Ganey scores.

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