SPARKS Final Report

DIGITAL INTERVENTIONS FOR DISTRACTION DURING PAINFUL PROCEDURES AMONG CHILDREN

Summary

Medical procedures are important sources of pain for children, which may cause anxiety, distress and fear. Distraction is a simple and effective technique that directs children's attention away from noxious stimuli (Koller and Goldeman, 2012) and studies suggest the benefits of decreasing fear, anxiety and distress. A variety of distracters, including kaleidoscopes, virtual reality (VR) glasses and music have been shown to be effective for decreasing distress that can accompany painful medical procedures. The purpose of this review was to examine the effect of digital interventions (such as TV, videos, smart phones, etc.) as distractors when compared to other forms of distraction (digital or non-digital) during painful medical procedures in children.

Implications

Distraction appears to be an effective strategy for decreasing procedural anxiety, fear, and distress. The use of digital technology such as video games and virtual reality may decrease the unfortunate experiences related to painful medical procedures in children.

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What is the current situation?

- Research is needed to investigate the effect of digital interventions as distractors during painful medical procedures in this population.

What is the objective?

- Does the use of digital technology as a distractor decrease children's distress, when compared to other distractors?

How was the review conducted?

- MEDLINE, Embase, and the Cochrane Central Register of Controlled Trials were searched for English studies published in the last 10 years.
- RCTs were eligible if they compared digital technology as a distractor with any other digital or non-digital distractor during a painful medical procedure in children (≤21 years old).
- The outcome of interest was distress.
- One reviewer screened the literature search results and data abstraction and risk-of-bias assessment were conducted by one reviewer and a verifier.
- The standardized mean difference (SMD) was calculated.

What did the review find?

- Four RCTs were included (Appendices 1-4). All RCTs had unclear allocation concealment and selective reporting, as well as high risk of bias on blinding of participants/personnel and outcome assessment (Appendix 5).
- A study that included children with acute burns undergoing dressing changes compared hand-held interactive stories/games versus standard passive distraction found that anxiety scores after the first procedure were at least one point lower when active distraction was received (MD= -1.79; CI: -0.59 to -0.01; p=0.051).
- Another study of children undergoing dental treatment [2] reported a mean change in anxiety score that was significantly lower (p<0.03) in the movie with video eyewear group (MD=15.19; SD=1.02) compared to the no eyewear group (MD=14.86; SD=1.09).
- Nilson (2013) [4] observed a lower level of distress (p=0.22) in the gaming group of children undergoing wound dressings (MD=0.59; range = 0.17–0.79) than in the lollipop group (MD=0.75; range=0.04 to 0.97).
- In the meta-analysis [1, 2], those who watched a movie with video eyewear and hand-held interactive stories/games during a medical painful procedure had decreased anxiety (SMD= -0.15; 95% CI -1.02 to 0.72) compared to a passive distraction group. However it was a small effect and no statistically significant difference was observed. (Appendix 6).
- Preliminary results suggest that distraction may reduce anxiety. However, given that few studies and patients were included, the meta-analysis results should be interpreted with caution. More research is required.

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