



## KEY POINT SUMMARY

### OBJECTIVES

This study evaluated the impact of using virtual reality glasses as a distraction technique to address pain and anxiety in children receiving dental treatment.

### DESIGN IMPLICATIONS

This study confirms the efficacy of using virtual reality as an immersive distraction technique (i.e., including audio, visual, and kinesthetic perceptions) for reducing the perception of pain and reducing anxiety levels in children receiving dental treatment. Future design of medical environments should look to find ways to include virtual reality and other immersive distraction techniques into the built environment where painful procedures are administered to children.

## The Impact of Virtual Reality Distraction on Pain and Anxiety During Dental Treatment in 4-6 Year-Old Children: A Randomized Controlled Clinical Trial

Aminabadi, N. A., Erfanparast, L., Oskouei, S. G., Naghili, A.  
 2012 | *Journal of Dental Research, Dental Clinics, Dental Prospects*  
 Volume 6, Issue 4, Pages 117-124

### Key Concepts/Context

Immersive distraction techniques have been shown to be an effective method to control anxiety and pain in children during dental treatment.

### Methods

This study used 120 healthy children between the ages of 4 and 6 with no prior history of anxiety, as assessed through the SCARED questionnaire during the first visit, and the need for two primary molars to have restorative treatment. The children were randomized into two groups and given treatment in three consecutive sessions. The first session consisted of a fluoride treatment for all participants, and the consecutive sessions distributed restorative treatment. Participants were chosen by a randomized single-blind crossover method for use of the virtual reality glasses (with headphones) during their treatment. The virtual reality solution allowed full blocking of surrounding visual fields. Following each session, the participants were asked to assess their pain severity using the FACES pain rating scale by Wong Baker, and rate their anxiety levels through the FACES version of the Modified Child Dental Anxiety Scale.

### Findings

Data was analyzed using SSPS with the statistical significance set at 0.05. There were no statistical differences in the age, gender, or initial SCARED scores between the two groups. Both groups showed a statistically significant decrease in pain perception with the use of the virtual reality glasses. Similarly, both groups also saw



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a statistically significant decrease in anxiety levels with the use of the virtual reality glasses. This is consistent with findings for other medical procedures, such as burn care, chemotherapy, injection, or blood sampling.

### Limitations

This study was done on children between the ages of 4 and 6 and the virtual reality program used was the same for each child (e.g., a cartoon). Further studies would benefit from a wider range of ages in children and the option for the child to choose virtual reality content. Also, the treatments were done on two separate visits for each child. The beginning emotional state of the child prior the each visit was not taken into account for study, which could have an impact on the final anxiety and pain scores. Further studies should begin to look at the impact of virtual reality on a wider array of painful procedures in children.