

# Using augmented reality to reduce stress for patients preparing for surgery

August 21 2023, by Bob Yirka

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Credit: Unsplash/CC0 Public Domain

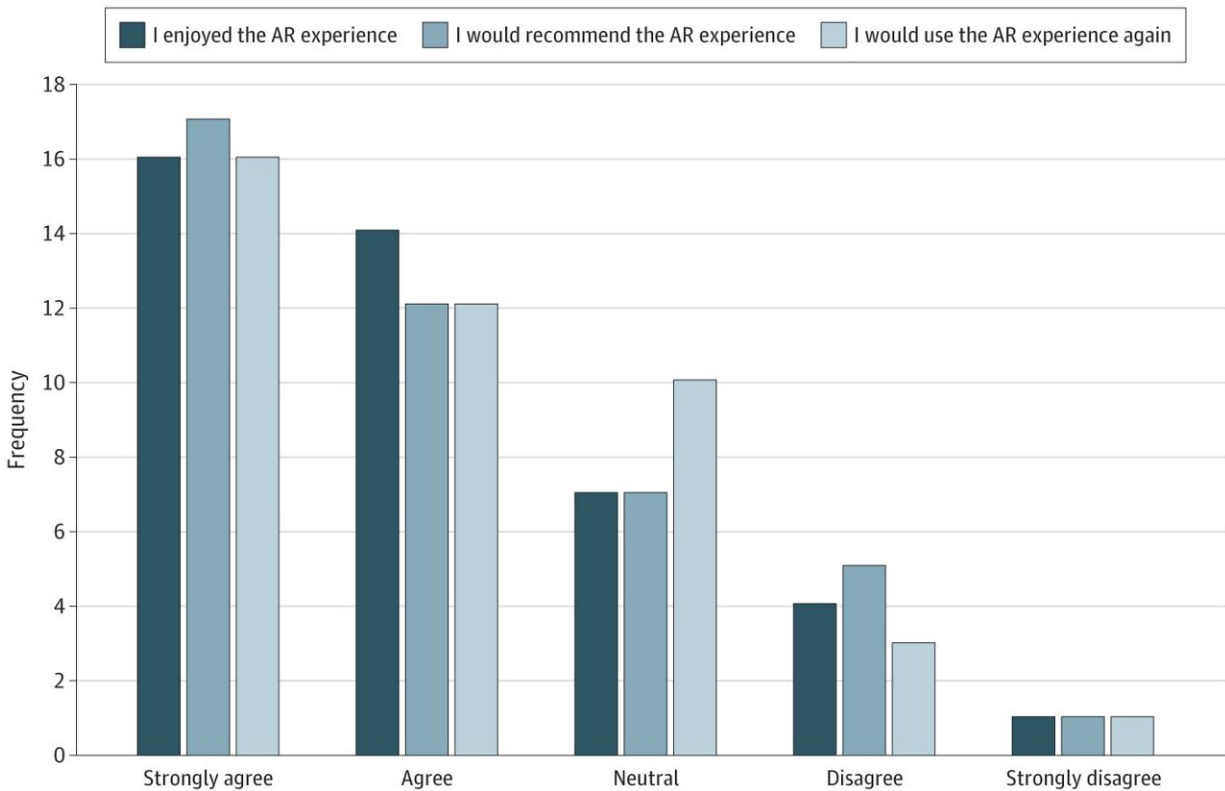
A team of medical specialists and computer scientists at the University of Miami has found that walking patients through an upcoming surgical procedure using augmented reality (AR) reduces anxiety levels. In their

study, reported in *JAMA Network Open*, the group outfitted patients with AR gear prior to an orthopedic procedure and compared their anxiety levels against a control group.

Prior research has shown that most people experience some degree of anxiety as they are prepped for a surgical procedure. While some of the anxiety is obviously due to fear of being cut open, some of it is due to fear of the unknown. Undergoing surgery is not a common activity for most people; thus, they do not know what to expect.

To alleviate some of that anxiety, scientists have been looking for ways to help patients. One such approach has involved having them engage in a [virtual reality](#) dry run, an approach that has shown some promise. But VR is a passive experience. In this new effort, the researchers sought to determine whether using AR might be a better approach.

To find out, the research team asked 140 people who were scheduled to undergo elective, outpatient [orthopedic surgery](#) to take part in an AR experiment—45 were excluded, leaving 95 patients to undergo the AR experience. The volunteers were split into two groups—those who were given the standard pre-operative instructions and those who were given both standard pre-op instructions and a three-minute AR experience that was narrated by the surgeon who was going to perform their surgery.



Augmented Reality (AR) Group Experiences With the AR Application. Credit: *JAMA Network Open* (2023). DOI: 10.1001/jamanetworkopen.2023.29310

All the volunteers were queried four times at different points in their experience regarding their [anxiety levels](#)—two times before the surgery, and two times after. The researchers found that those in the AR group reported lower levels of anxiety and stress compared to those in the [control group](#).

The research team concludes that AR can be an effective tool for reducing pre-op stress and anxiety, though they note more work is required to determine if it works as well in more generalized settings.

**More information:** Michael G. Rizzo et al, Augmented Reality for

Perioperative Anxiety in Patients Undergoing Surgery, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.29310](https://doi.org/10.1001/jamanetworkopen.2023.29310)

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