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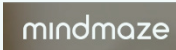
EMERGING SPACE BRIEF

VR Health

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Trending companies



For further analysis of the digital health landscape, please refer to our [Digital Health Launch Report](#).

Overview

Companies in this space are using virtual reality (VR) to provide innovative therapies and treatments for issues including education, therapy, rehabilitation, and even mindfulness.

Background

VR has rapidly advanced in recent years, captivating audiences in various industries. Healthcare is no exception, with VR emerging as a promising tool for both patient treatment and medical training. By simulating realistic environments and scenarios, VR can create immersive experiences that aid in pain management, anxiety reduction, and exposure therapy. It can also provide medical professionals with a safe and controlled setting to practice complex procedures and improve their skills before performing them on actual patients. As VR technology continues to improve, it has the potential to revolutionize healthcare by offering new avenues for treatment, training, and research.

Technologies and processes

VR in healthcare relies on a variety of technologies and processes to create engaging and realistic experiences. Head-mounted displays, the most common VR hardware used in healthcare, provide an immersive visual experience that can be controlled by the user's head movements. Additionally, haptic feedback devices can enhance the sense of immersion by providing tactile sensations, such as vibrations or pressure. The creation of VR software involves designing and customizing 3D models of medical scenarios and environments that can be manipulated to suit different needs. Real-time tracking and monitoring systems can also be used to gather data on patient responses and behaviors during VR experiences. Despite the promising potential of VR in healthcare, it is crucial that it undergoes rigorous testing and validation to ensure its safety and efficacy in medical settings.

Applications

Training better doctors

VR technology is transforming both surgical training and the way doctors understand their patients' conditions. Two studies have shown that medical students trained on VR platforms outperform their conventionally trained peers by

270% on assessments¹ and learn at a 570% faster rate.² Schools such as UCLA and UConn have deployed platforms such as Osso VR and PrecisionOS, respectively, to enhance their medical programs. VR simulations are being used to help doctors better understand various age-related health conditions—such as dementia, sensory loss, and Parkinson’s disease—and have been found to increase students’ empathy for patients.³

Making physical therapy fun

Physical therapy has been transformed into an engaging and enjoyable experience using VR, making the process more bearable for patients while helping them transition back to normal activities. Some therapists claim that VR has a unique ability to motivate patients to perform exercises they might not be able to do otherwise.⁴ One study found that VR treatments significantly improve the motor functions of children with cerebral palsy.⁵ Companies such as AppliedVR and XRHealth offer VR-based physical therapy programs.

Improving mental health

VR has proven to be a promising tool for addressing psychological ailments such as anxiety and depression. One effective application is virtual exposure therapy, where patients can confront and overcome their fears in a safe environment.⁶ Additionally, therapeutic VR is being explored to help people achieve a more peaceful mental state by offering simulations designed to calm the mind.

Pain management

VR shows promise in treating pain, with one study showing a 24% reduction in pain scores for patients using VR programming.⁷ Companies such as HypnoVR have been particularly helpful for those with acute and chronic pain, as well as for children undergoing treatments. VR offers an immersive distraction that can reduce the need for pharmaceutical therapies. Researchers are exploring whether the technology can be used as a long-term solution to chronic pain, as well as how it can improve post-discharge satisfaction scores and allow patients to visit their homes virtually.

1: [“Research: How Virtual Reality Can Help Train Surgeons,” Harvard Business Review, Gideon Blumstein, October 16, 2019.](#)

2: [“Improved Complex Skill Acquisition by Immersive Virtual Reality Training: A Randomized Controlled Trial,” The Journal of Bone and Joint Surgery, Ryan Lohre et al., March 18, 2020.](#)

3: [“Using Virtual Reality in Medical Education to Teach Empathy,” Journal of the Medical Library Association, Elizabeth Dyer et al., October 1, 2018.](#)

4: [“Meet Virtual Reality, Your New Physical Therapist,” The New York Times, Alina Tugend, April 21, 2021.](#)

5: [“Effect of Virtual Reality Therapy on Functional Development in Children With Cerebral Palsy: A Single-Blind, Prospective, Randomized-Controlled Study,” Turkish Journal of Physical Medicine and Rehabilitation, Burcu Metin Ökmen et al., November 22, 2019.](#)

6: [“A New Way for Therapists to Get Inside Heads: Virtual Reality,” The New York Times, Cade Metz, July 30, 2017.](#)

7: [“Enlisting Virtual Reality to Ease Real Pain,” The Wall Street Journal, Lucette Lagnado, July 24, 2017.](#)

Restoring cognitive ability

Startups such as Rendever are using VR to help seniors enhance their memory, cognitive function, rehab therapy, and socialization. VR intervention has been shown to improve cognitive and motor function in older adults with mild cognitive impairment or dementia.⁸ Additionally, a team of researchers from University College London and Cambridge have developed a VR navigation test to identify early Alzheimer's disease.⁹ The test yielded promising results and could be better at identifying early Alzheimer's disease than the tests currently used in clinics and research studies.

Limitations

Despite its potential, VR still faces barriers to widespread adoption in healthcare. These challenges include a lack of extensive clinical trials and empirical evidence to support its effectiveness, regulatory uncertainty and lack of standardized billing codes, affordability, data privacy concerns, and the risk of VR addiction. Adoption rates will also be driven partly by practitioners, who may favor existing modalities. Additionally, integrating VR technology with existing healthcare systems can be complex and costly. Overcoming these challenges is crucial to making VR-based treatments more accessible to patients and to realizing the potential benefits of this technology.

Recent deal activity and market outlook

Two companies in this space, BehaVR and OxfordVR, announced a merger in December 2022 along with a \$13.0 million Series B investment led by UnitedHealth's Optum Ventures and Oxford Science Enterprises, creating a clear category leader.¹⁰ The market outlook for VR in healthcare is positive, with significant growth projected in the coming years. According to IDC, the worldwide spend on AR/VR is projected to reach \$20.0 billion with a forecasted 390% growth in VR headset volume between 2023 and 2028.¹¹ The IDC also predicts that one out of 10 large hospitals and one out of eight medical education providers will be using VR technology by 2028. However, several limiting factors could slow down the widespread adoption of VR in healthcare. These include the lack of clinical trials and empirical evidence, regulatory uncertainty, affordability, data privacy concerns, and complex integration with existing healthcare systems. Despite these challenges, the potential benefits of VR in pain management, cognitive rehabilitation, and mental health treatment make it a promising technology for the future of healthcare.

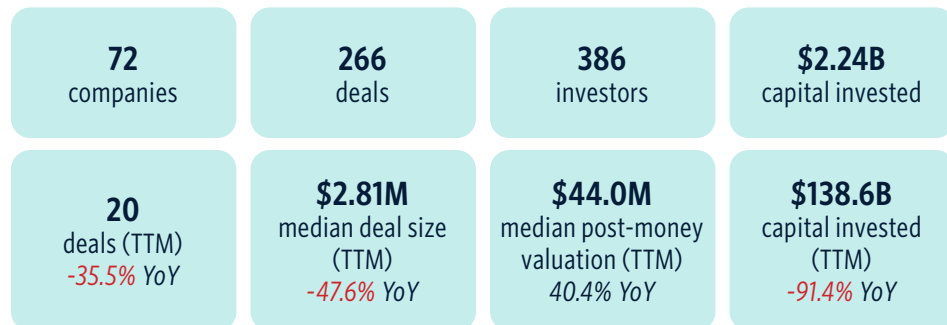
8: "Effects of Virtual Reality Intervention on Cognition and Motor Function in Older Adults With Mild Cognitive Impairment or Dementia: A Systematic Review and Meta-Analysis," *Frontiers in Aging Neuroscience*, Shizhe Zhu et al., May 5, 2021.

9: "Virtual Reality Can Spot Navigation Problems in Early Alzheimer's Disease," *UCL News*, May 24, 2019.

10: "BehaVR and OxfordVR Combine and Raise Series B to Create Largest VR Delivery Platform for Evidence-Based Digital Therapeutics," *Behav*, December 13, 2022.

11: "IDC FutureScape: Worldwide Healthcare Industry 2023 Predictions," IDC, Mutaz Shegawi et al., October 2022.

Quantitative perspective



*As of March 2, 2023

Recommended reading

[“Digital Therapeutics and Virtual Reality Therapies Can Revolutionize the Healthcare Industry,” Medium, Mehmet Yildiz, February 18, 2023.](#)

[“How Virtual Reality Is Transforming Healthcare,” US Chamber of Commerce, Diya Li, July 7, 2022.](#)

[“Virtual Reality in Healthcare,” Jelvix, Vitaliy Ilyukha, 2023, accessed March 7, 2023.](#)

[“VR and the Future of Healthcare,” Cedars Sinai, September 1, 2020.](#)

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