AppliedVR, Kernel join forces to measure how VR treatment affects brain activity

Article

The news: Virtual reality (VR)-based digital therapeutics (DTx) startup **AppliedVR** teamed up with noninvasive neuroimaging startup **Kernel** to study how brain activity changes after VR

treatment for chronic pain.

How it works: AppliedVR and Kernel are conducting a clinical study examining how users' brain activity changes before, during, and after the VR treatment.

RelieVRx is an FDA-approved VR treatment that helps patients manage their chronic pain through immersive virtual environments. RelieVRx engages patients in interventions like cognitive behavioral therapy, relaxation-response training, breathwork, mindfulness, and more.

Kernel's **FlowVR** headset will be used in tandem with the VR treatment to measure different brain biomarkers associated with chronic pain. The headset uses functional near-infrared spectroscopy (fNIRS) to measure hemoglobin changes. These can indicate which parts of the brain may see higher blood flow in response to certain stimuli (like different parts of a VR program). Researchers can use this information to understand how changes in brain activity are correlated with changes in pain perception.

Why it's worth watching: Hard clinical evidence proving that VR therapies can positively impact patients' health is paramount for these DTx to make it to the mainstream.

More healthcare execs say they're planning to deploy some type of VR tools within their organization:

- In January 2021, **only 23% of healthcare executives said they were using VR** in their organization—**but 51% said they planned on ramping up** their VR investments within the next year, per BDO's 2021 Healthcare Digital Transformation survey.

- But even if health execs invest in VR tech to treat chronic pain, the tech won't reach patients unless doctors prescribe it. And that's something they're wary of doing without proof that VR is a viable tool for managing pain.

This joint study is interesting, because unlike some previous clinical validation studies of VR DTx, this study digs into how patients are also affected during the treatment rather than just before and after. And it's also directly measuring brain activity as opposed to other health data measurements that may be more indirect indicators of pain, like heart rate.

Current vs. Planned Technology Deployment in Healthcare Organizations According to US C-Level Healthcare Executives, Jan 2021

% of respondents

	Current	Planned
Cloud computing	78%	20%
Data analytics	66%	30%
Enterprise resource planning software	60%	31%
Internet of things (IoT)	59%	35%
Blockchain/digital ledger technology	46%	37%
AI/machine learning	38%	61%
AR/VR	23%	51%
3D printing	23%	17%
Robotic process automation	21%	64%
5G	20%	57%

Source: BDO USA, "2021 Healthcare Digital Transformation Survey" conducted by Rabin Research Company, June 15, 2021

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