

Correspondence

Beyond reality: Using the Metaverse to enhance mental health in heart failure patients

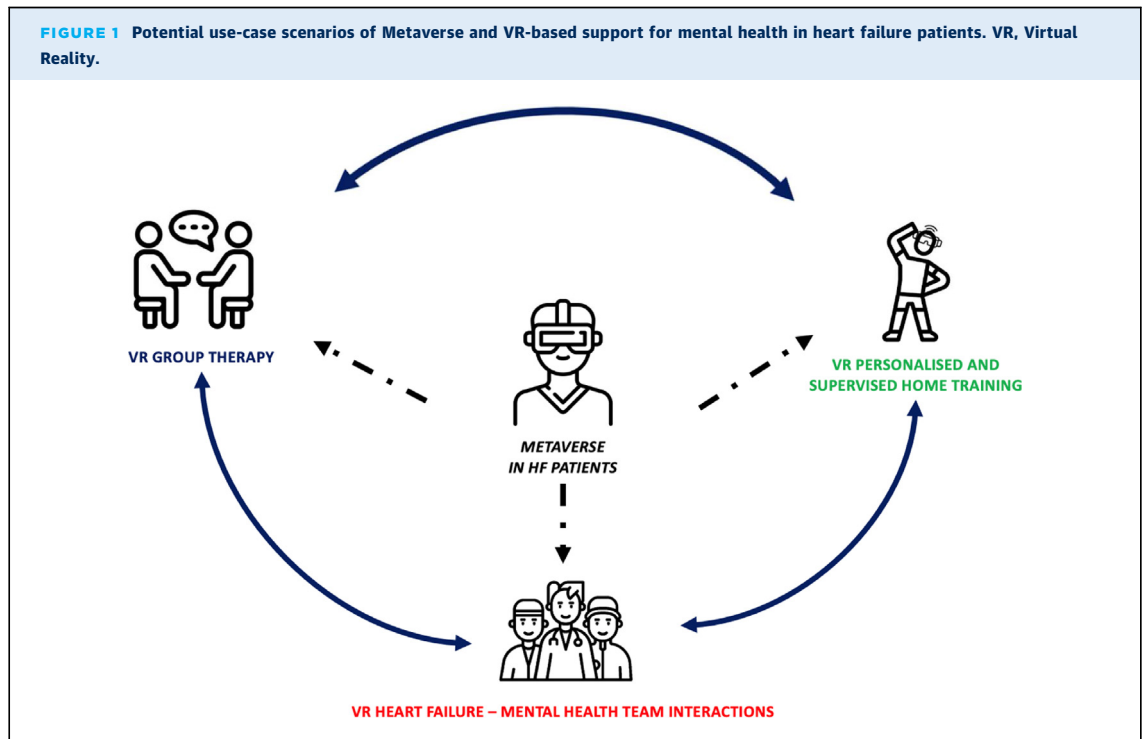


reality (VR) and the Metaverse provide new avenues for improving mental health in this population.

Although VR has already started showing promising results by offering exposure therapy for treating phobias, such as fear of heights, flying, or public speaking^{3,4}, there has been a growing interest in how the Metaverse could impact healthcare. The Metaverse is a virtual interconnected environment that builds on VR technologies, where users are able to interact in real-time via digital avatars, not limited by location or time. Concepts like the CardioVerse have already been introduced and propose the potential application of the Metaverse in Cardiology.⁵ Despite the current literature focusing on areas like medical education and medical teleconsultation⁶, the Metaverse offers additional benefits by leveraging VR in managing mental health in patients suffering from heart failure. It can provide a sense of social connection, reducing feelings of isolation associated with the condition requiring multiple

As the population is aging and the survival of patients with heart failure is being prolonged, its prevalence and public health burden are progressively increasing. Frequent hospitalizations, appointments with medical professionals, multiple medications, and non-negligible health care costs affect the mental health of these patients remarkably. The stress and emotional burden associated with this debilitating condition lead to depression and anxiety, which further worsen the patient's quality of life.^{1,2} While traditional treatments mainly focus on the physical symptoms, emerging technologies such as virtual

FIGURE 1 Potential use-case scenarios of Metaverse and VR-based support for mental health in heart failure patients. VR, Virtual Reality.



hospitalizations, and patients can obtain a feeling of agency over their virtual environment, improving their perception of self-efficacy as they become more dependent on therapies as the disease progresses.

More specifically, it can support group therapy sessions, where patients connect with others who share similar experiences and receive support from mental health professionals. These sessions are able to take place in a variety of environments, from virtual gardens to meditation rooms, providing patients with a variety of options for their mental health care. Additionally, it offers a range of immersive experiences, from guided meditations to interactive games and supervised home training sessions, that could help patients manage their anxiety and depression (Fig. 1). These experiences are tailored to the patient's needs, allowing them to choose the activities that best suit their preferences and comfort level.

Another potential use for heart failure patients is exposure therapy. While traditional VR therapy has been shown to be effective for treating phobias, this futuristic digital world exhibits an even more immersive, personalized experience.^{7,8} For example, a patient with anxiety related to medical procedures could experience a virtual simulation of a hospital room and gradually increase their exposure to medical equipment and procedures.

However, one of the main challenges is that it requires the latest technological equipment, such as high-quality VR headsets or computers capable of running the Metaverse software with 5G connection, with non-negligible cost.⁹ Furthermore, the ability of patients to navigate the complex virtual environment depends on their familiarity with technological innovations, and the oldest generations might struggle more. Last but not least, the privacy of patients' personal health information must be protected in the Metaverse, as this information is sensitive, confidential, and needs to stay anonymized¹⁰

The emergence of the Metaverse has the potential to provide patients with new tools to manage their mental health. Further research is needed to determine the safety and effectiveness of these technologies and to develop personalized therapies that cater to individual patients' needs. As the world moves towards a more digital and connected future, Metaverse offers exciting possibilities for enhancing mental health in heart failure patients and improving their overall quality of life.

DECLARATION OF COMPETING INTEREST

The authors have no disclosures to report.

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