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In the virtual hospital: Shared virtual spaces for patients with chronic pain

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1. Introduction

Chronic low back pain (cLBP) remains a societal challenge due to its high disease burden and years lived with disability. There is strong evidence that a multidisciplinary approach may benefit patients who suffer from cLBP compared to unimodal interventions, but coordinating multidisciplinary meetings can be difficult and presential meetings are often inconvenient for patients, who may have trouble attending due to problems with mobility and geographical isolation. As an alternative, this study aimed to explore the potential **feasibility of conducting meetings in shared virtual reality (VR) spaces.**

2. Methods

- Patients with cLBP, along with clinicians, researchers, and VR developers, participated in a **series of virtual focus groups.**
- The purpose of these groups was to attain feedback on a prototype of a therapeutic VR application for low back pain.
- In a private non-commercial shared virtual space, participants were represented by a **look-alike virtual avatar** generated from a single front-facing photograph.
- The sessions involved interactive dialogue guided by researchers, where patients provided feedback on their experience using the virtual rehabilitation program.
- A **face-to-face meeting** with participants was held several days later to discuss the experience of the virtual meeting focusing on its acceptability, feasibility and tolerability.

3. Results

3.1. Overall positive feedback

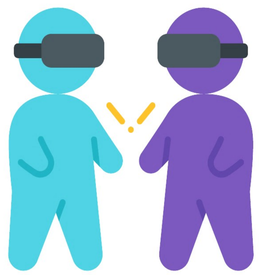
- The virtual focus group experience was **positively received by patients, researchers, and clinicians.**
- Participants
  - Had a strong sense of embodiment over their virtual avatar, and presence in the virtual meeting room
  - felt that others were really there with them
  - valued the convenience of attending the meeting from home
  - found the interaction between participants to be **comfortable and natural.**

3.2. High levels of engagement and sense of group

At the face-to-face meeting performed three days after the virtual meeting, **patients recognized each other** and had the feeling that they had already met. The immersive VR environment provided **heightened levels of engagement** and focus and potential distraction from pain, highlighting its potential feasibility over the conventional non-immersive virtual meetings.

3.3. Mild side effects

Some technical glitches and discomfort with VR headsets were reported with prolonged use but did not impact the overall experience.



1. **Increased accessibility**
2. **Reduced costs**
3. **Improved engagement**
4. **Enhanced patient support**

5. Conclusion

- Shared virtual spaces such as the metaverse show promise for conducting patient focus groups, in particular in chronic pain and patients with reduced mobility
- The **strong sense of embodiment and presence** potentially makes them superior to videoconferencing technologies, with the immersive VR environment enhancing engagement and participation.
- Future expansion of the metaverse can include various types of patient support and information groups, leading to improved healthcare delivery, patient satisfaction, and treatment outcomes.

6. Ethical permission

Study approved by the ethical committee of Hospital Clinic de Barcelona (HCB/2019/0396).

Our latest published paper!

Amestoy-Alonso B., Donegan T., Calvis I., Swidrak J., Rodriguez E., Vargas-Reverón C.L., Combalia A., Oliva Martinez, R., Sanchez-Vives M.V. **Focus groups in the metaverse: shared virtual spaces for patients, clinicians, and researchers.** Frontiers in Virtual Reality 5 (2024) https://www.frontiersin.org/journals/virtual-reality/articles/10.3389/frvir.2024.1432282. DOI=10.3389/frvir.2024.1432282

7. Relevance to patient care

Shared virtual spaces have the potential to significantly improve chronic pain care in several ways:

- **Increased Accessibility:** Virtual meetings eliminate the need for physical travel, making participation easier for patients with mobility limitations or those living in remote areas.
- **Reduced Costs:** VR meetings could potentially lower healthcare costs compared to traditional in-person meetings, reducing burden on both patients and healthcare systems.
- **Improved Engagement:** The immersive nature of VR may lead to higher patient engagement and focus compared to conventional video conferencing.
- **Enhanced Patient Support:** The study suggests VR could be used for various patient support groups beyond research purposes, fostering a sense of community and potentially improving treatment outcomes.

8. References

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