Psychiatric disorders

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Using AVATAR therapy to conquer auditory hallucinations

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AVATAR therapy, in which patient and therapist interact with a digital embodiment of patients' auditory hallucinations, effectively reduces distress and symptom frequency, which could be a game-changer for patients.

Patients with persistent auditory hallucinations are profoundly affected by their symptoms, often experiencing distress, disruption in daily functioning, and social isolation. Approximately 60–70% of individuals with schizophrenia report auditory verbal hallucinations, typically characterized by derogatory or threatening voices[1]. For a substantial group of individuals with schizophrenia and related disorders, these hallucinations persist despite many years of pharmacological and psychological interventions, underscoring the need for innovative and more effective therapeutic approaches[2–4].

AVATAR therapy enables voice-hearers to create a digital embodiment of their persecutory inner voice. Through a trialogue, in which the therapist alternates between speaking as themselves and as the patient's hallucinatory avatar, the therapist gains direct access to the patient's auditory hallucination world — helping them to confront and challenge the voices (Fig. 1). The AVATAR1 trial previously demonstrated promising results with this approach[5]. Now, the results of the AVATAR2 trial, presented by Garety et al.[6] in this issue of *Nature Medicine*, represent a substantial leap forward in the treatment of auditory hallucinations.

AVATAR therapy was originally developed on the initiative of late professor Julian Leff[7]. The premise is that the patient's inner world has the potential to be a therapeutic space, one that clinicians and caregivers previously had limited access to. Unlike other treatment approaches, AVATAR therapy enables patients to see and interact with their dominating voice, transforming an invisible torment into something tangible and, importantly, something that can be changed. Personalized avatars empower patients to confront their hallucinations in a supportive environment, shifting the power dynamic and offering a promising pathway to symptom relief. In addition, the content and nature of these voices become accessible to relatives as well as the therapist, enabling better understanding and support. The overarching goal is to help voice-hearers to gain control over their symptoms.

AVATAR2 is multi-site, randomized controlled trial that evaluated two forms of AVATAR therapy — a brief version, similar to the format used in AVATAR1, and an extended version — across diverse locations. Both versions were effective, significantly reducing voice-related distress and severity at 16 weeks compared to treatment as usual. Although improvements at 28 weeks did not reach statistical significance, the extended intervention showed sustained reductions in voice frequency compared with usual treatment, an effect that persisted at 28 weeks. Follow-up rates were impressive, with over 85% of participants attending follow-up interviews. These results reinforce findings from the original AVATAR1 trial[5], confirming that AVATAR therapy is effective across key outcomes, including distress, severity and frequency of auditory hallucinations. The consistency in the effectiveness of AVATAR therapy across the AVATAR1 and AVATAR2 trials affirms its potential as a sustainable and meaningful intervention for patients encountering the relentless presence of commanding or critical voices. The results also align with the priorities of service users, who often emphasize reducing or eliminating hallucinations as their main therapeutic goal.

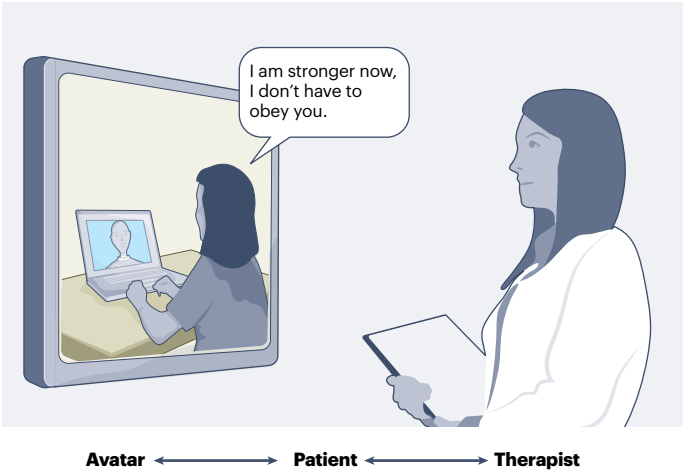

Fig. 1 | AVATAR therapy. The patient confronts and interacts with a digital representation of their hallucinatory voice and, guided by their therapist, they gain power and self-confidence.

Patients often live in a terrifying world in which voices criticize, command and belittle them. In some cases, the voices reflect previous experiences of bullying or harassment, whereas in others, they are associated with poor self-esteem and negative thoughts. These voices are often perceived as dominant or omnipotent, with the hearer assuming a submissive role, marked by feelings of inferiority and powerlessness[8]. Exploring why patients hold negative self-beliefs can help develop interventions that address the underlying causes of these harmful patterns. Cognitive behavioural therapy (CBT) can assist patients in challenging distressing beliefs about their voices[8], and therapies focused on low self-esteem can address the pervasive negative self-perceptions that accompany these experiences[9]. Dialectical behavioural therapy can offer skills for emotional regulation and distress tolerance[10]. These frameworks can inspire and support AVATAR therapy, offering avenues for further development.

Implementing AVATAR therapy requires highly skilled therapists, much like surgeons mastering advanced operations. Therapists need to be trained not only in the technical use of the avatar technology

but also in the nuanced therapeutic skills required to guide patients through this deeply personal and emotionally charged experience. Ongoing supervision and mentorship can help to maintain high-quality care, ensuring that therapists are adept at navigating the complexities of the intervention.

Furthermore, the technical infrastructure supporting AVATAR therapy must be robust, flexible and adaptable to various clinical settings. Lessons from the pandemic, such as the value of scalable digital health solutions, underscore the need for technology that can deliver high-quality care across different settings. Developing user-friendly software and platforms to support AVATAR therapy will be crucial for its widespread adoption and success.

Future studies should investigate whether booster sessions can maintain and enhance the benefits of AVATAR therapy over time, exploring the long-term sustainability of this intervention. Related to this, the adaptability and flexibility of AVATAR therapy could pave the way for tailored treatment plans that evolve with patient needs over time. Other approaches under investigation include AVATAR therapy integrated with virtual reality, which can make the experience more immersive and offers opportunities for placing the avatar in a real-time environment[11]. Looking ahead, the potential applications of AVATAR therapy are vast; we are just beginning to explore how technology can further enhance therapeutic interventions for psychosis and other mental disorders.

AVATAR therapy represents a transformative approach to treating auditory hallucinations, offering hope and tangible relief to those who have long struggled with persistent voices. By integrating established therapeutic frameworks and embracing technological innovations, AVATAR therapy has the potential to become a cornerstone and an integral component in the treatment of psychosis, offering new opportunities for relief and a brighter future for patients living with these challenging symptoms.

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References

1. Waters, F. et al. *Schizophr. Bull.* **38**, 683–693 (2012).
2. Leucht, S. et al. Sixty. *Am. J. Psychiatry* **174**, 927–942 (2017).
3. Turner, D. T. *Front. Psychiatry* **11**, 402 (2020).
4. Kohler-Forsberg, O., Madsen, T., Behrendt-Moller, I. & Nordentoft, M. *Schizophr. Res.* **243**, 385–391 (2022).
5. Craig, T. K. et al. *Lancet Psychiatry* **5**, 31–40 (2018).
6. Garety, P. A. E. et al. *Nat. Med.* https://doi.org/10.1038/s41591-024-03252-8 (2024).
7. Leff, J. et al. *Br. J. Psychiatry* **202**, 428–433 (2013).
8. Birchwood, M. et al. *Lancet Psychiatry* **1**, 23–33 (2014).
9. Fennell, M. *Overcoming Low Self-Esteem* 2nd edn (Robinson, 2022).
10. Linehan, M. M. *BullMenninger Clin.* **51**, 261–276 (1987).
11. Smith, L. C. et al. *Trials* **23**, 773 (2022).

Competing interests

M.N. is a principal investigator for a trial examining the effects of avatar treatment in a virtual reality environment.