Virtual reality as a novel therapeutic approach to Hikikomori

*Letter to the Editor*

# Virtual reality as a novel therapeutic approach to Hikikomori

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*Hikikomori* is a Japanese term that has been used to describe a severe form of social withdrawal, in which people isolate in their own homes and have minimal or no interaction with others. This phenomenon, conceptualized by Japanese psychiatrist T. Saito, initially seemed to be unique to Japan, but was later reported in other countries. Recently, research has shown that the *Hikikomori* phenomenon represents an important public health concern that should be properly assessed with more detailed diagnostic criteria and implementation of different therapeutic tools to help people struggling with social withdrawal (Orsolini et al., 2022). Given the aforementioned transdiagnostic nature of the *Hikikomori*, it should be considered more appropriately as a clinical specifier of different conditions, rather than a separate nosological diagnosis, trying to implement pharmacological and non-pharmacological strategies in a personalized, patient-centred approach. Furthermore, as paradigms and expectations for outings and in-person social interactions are shifting globally in our post-pandemic world, a distinction between the 'pathological' Hikikomori, who are individuals experiencing significant distress and impairment of functioning due to their condition of isolation and withdrawal, and the 'non- pathological' *Hikikomori*, stressing the importance of pro- viding support and treatment first and foremost to the former has been described (Kato et al., 2024). Recently, six alternative therapeutic approaches have been proposed: (a) a therapy with 30 min of jogging three times a week, (b) an educational program for family members of *Hikikomori* and community reinforcement and family training with role-play and homework, (c) a music therapy based on cognitive-behavioural therapy, (d) a role-playing therapy with enjoying fictional narratives on empathy, relaxation, depression and anxiety in people with Hikikomori experience, (e) an animal-assisted therapy and (f) a group therapy with group-based interventions that promote identity development for preventing *Hikikomori* symptoms (Takefuji, 2023). When patient refuses to leave the house or interact with people or mental health personnel, other therapeutic approaches should be explored such as home visits, telepsychiatry, games (like Pokémon Go, within the first few days of its release, there have been youth with *Hikikomori* that were able to leave their home apparently as a result of playing Pokémon Go) (Kato et al., 2017; Tateno et al., 2016), pet or robot-based therapies to encourage gradual interaction and social treatment, such as OriHime, a tele-operated robot that is 20 cm tall equipped with a video camera and a microphone, used in adolescents with *Hikikomori* features (Kumazaki et al., 2021; Yoshikawa et al., 2021). A new brand strategy to connect people directly from their home and attract people struggling with these symptoms could be Virtual Reality (VR), especially the metaverse, a shared, interconnected and persistent virtual space that goes beyond individual applications or games where the users can create avatars, socialization, trade, conduct business and engage in various activities within these virtual environments (Navas- Medrano et al., 2024). Prolonged experiences in VR may offer benefits in fostering empathy, potentially profound social change towards a more compassionate modern society (Pinto-Coelho et al., 2023). VR involves an immersion in an interactive, computer-simulated environment via a headset, producing the sensation of being in life-sized new environments and creating interactive computer-generated worlds, which substitute real-world sensory perceptions with digitally generated ones. VR could produce helpful therapeutically situations, if used in the right way, but near impossible to recreate in real life. The new generation of head mounted display (HMD) and associated equipment, emerged as

affordable consumer products due to the investment of global companies, designed an HMD displays images, one for each eye, forming an overall stereo scene. Each image is computed and rendered separately with correct perspective from the position of each eye with respect to a mathematical description of a three- dimensional (3D) virtual scene (Freeman et al., 2017). Such experience-based psychoeducation and social skills training-based intervention could have a particularly beneficial effect in psychiatric disorders, in which the own self-model or reality-model is abnormally changed (i.e. in psychosis or body schema disorders), and where conventional interventions often fail, as in the cluster of symptoms that the Hikikomori patients experience. VR may also be suited to reach Hikikomori patients, particularly, but not restricted to those patients that presents severe pathological fears or clinical dimensions as phobia, social anxiety or relational hypersensitivity. They are much more likely to test out their fear expectations in VR, being aware of the simulative nature and learning to transfer it to the real-world. VR can also include engaging tasks that make the treatment experience much more pleasurable. A graded approach can be easily applied in VR, allowing the individual to repeatedly experience real environmental difficult situations and make new learning (Freeman et al., 2019). VR has the potential to be faster, more efficacious and appealing to patients than traditional face-to-face approaches, especially in situations where several obstacles can be found in engaging the patient. Therefore, VR could ideally be considered as a potential 'social mediatior' for this increasingly prevalent symptomatology in modern society. Although various previous studies have been conducted in Western countries, the potential role of culture-based VR hasn't been fully investigated yet. For example, specific programs may be designed on the basis of traditional games or customs, potentially increasing participants' motivation to attend a VR program (Park et al., 2020).

In conclusion, more cross-sectional and longitudinal studies are needed to further analyse the feasibility of VR intervention in Hikikomori subjects, according also to the cultural context, to reach the metaverse and the other digital spaces where users can interact with each other and digital content in real-time in the treatment of these patients, allowing them to receive effective treatment without the need to leave their home.

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