

Peer Review

Review of: "A Case Series of Virtual Reality-Based Social Interactions for Adolescents with Psychiatric Disorders in a Television Program: Insights from NHK's Project Aliens"

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This is a very interesting manuscript that explores an innovative combination of virtual environments, adolescent psychiatry, and public media. The case series provide an interesting insight into the VR-facilitated television program—*Project Aliens*—which served as a social intervention for adolescents with psychiatric disorders. The study presents an innovative intervention with detailed qualitative insights.

Below, I provide some suggestions for potential improvement:

Abstract/ Introduction:

- While the title and abstract use the term “Virtual Reality,” the study seems to utilize virtual environments presented to the participants in desktop form (on a computer screen) rather than HMDs. For clarity, I suggest explicitly stating that no VR headsets were used and that participants interacted via flat-screen presented avatars in both the abstract and early in the introduction section to help readers better contextualize the findings.
- The introduction could also benefit from a clearer differentiation between immersive VR (with HMDs) and non-immersive social metaverse-style interactions (provided via desktop). It may also help to briefly highlight prior work that uses avatar-based social 2D or 3D platforms in mental health, to better situate this project as an innovative approach combining virtual environments with a TV-based therapeutic program:
 - Review: Fajnerova I, et al. JMIR 2024^[1]

- [2] Knowles et al., 2017, study with a 3D VR intervention
- [3] Nosek et al., 2016 – Virtual world for group support
- [4] Galliers, et al., 2017, – Multi-User Virtual World for Aphasia.
- [5] Crowell et al., 2020 – Mixed Reality Social intervention for Autism

Methods

- The description of Moon Rabbit as an interactive guide facilitating the therapeutic process seems innovative. This detail could be emphasized further as a key component of the intervention's therapeutic structure.
- The authors should provide more details on the apparatus used – on how the participants accessed the intervention (such as how participants interacted with the avatars, via computer screen and keyboard or VR headset, how the interaction was controlled, whether their voice was present in the social intervention or was it modulated, etc...). It is also not clear whether the interaction in the three-step program took place in three separate sessions or during one session?

Results

- The patient narratives are compelling and offer unique insight into the participants' psychological development. The custom sentiment lexicon used for sentiment analysis is innovative; however, a brief justification for the choice to avoid modifying an existing validated Japanese text analysis tool might strengthen credibility. The inter-rater agreement should be reported.

Discussion

- The discussion touches on the potential influence of the television context (camera presence, production staff), but this could be slightly expanded, as it remains unclear how much of the observed improvement may be attributed to the VR environment versus the novelty or attention inherent in media participation.
- The incorporation of the Proteus Effect is very relevant. Would it be possible to link this concept to specific participant behaviors or statements?
- Ethical considerations of combining therapeutic interventions with media content intended for public viewing might be discussed in the limitations. The potential effect of VR novelty on individual participants could also be discussed.

The manuscript concludes with a call for more rigorous research. A recommendation for future studies in respect to study designs could be suggested by the authors. Including physiological or behavioral outcomes (e.g., HRV, social network mapping) would also enhance future studies.

References

1. [△]Iveta Fajnerova, Lukáš Hejtmánek, Michal Sedlák, Markéta Jablonská, et al. (2024). The Journey From Non immersive to Immersive Multiuser Applications in Mental Health Care: Systematic Review. *J Med Internet Res*, vol. 26, e60441. doi:10.2196/60441.
2. [△]Lindsey M. Knowles, Eva-Maria Stelzer, Krystal S. Jovel, Mary-Frances O'Connor. (2017). A pilot study of virtual support for grief: Feasibility, acceptability, and preliminary outcomes. *Computers in Human Behavior*, vol. 73, 650–658. doi:10.1016/j.chb.2017.04.005.
3. [△]Margaret A. Nosek, Susan Robinson-Whelen, Rosemary B. Hughes, Thomas M. Nosek. (2016). An Internet-based virtual reality intervention for enhancing self-esteem in women with disabilities: Results of a feasibility study. *Rehabilitation Psychology*, vol. 61 (4), 358–370. doi:10.1037/rep0000107.
4. [△]Julia Galliers, Stephanie Wilson, Jane Marshall, Richard Talbot, et al. (2017). Experiencing EVA Park, a Multi-User Virtual World for People with Aphasia. *ACM Trans. Access. Comput.*, vol. 10 (4), 1–24. doi:10.1145/3134227.
5. [△]Ciera Crowell, Batuhan Sayis, Juan Pedro Benitez, Narcis Pares. (2020). Mixed Reality, Full-Body Interactive Experience to Encourage Social Initiation for Autism: Comparison with a Control Nondigital Intervention. *Cyberpsychology, Behavior, and Social Networking*, vol. 23 (1), 5–9. doi:10.1089/cyber.2019.0115.

Declarations

Potential competing interests: No potential competing interests to declare.