

Immersive Virtual Reality for Well-Being in Long-Term Care: A Pilot Study based on Ryff's Model

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INTRODUCTION & AIM

- **The Problem:** Institutionalization among cognitively intact older adults often leads to environments characterized by rigid routines and dependency, which severely restrict autonomy and access to self-directed, meaningful experiences.
- **Theoretical Framework & Ethics:** Grounded in Ryff's Eudaimonic Model of Psychological Well-being (PWB) and the "Dignity-by-Design" approach. Immersive Virtual Reality (IVR) is proposed as a powerful vehicle for personalized experience, fulfilling the ethical imperative to counter "coded ageism" and restore agency to the user.
- **Research Gap:** There is a critical need to bridge the current gap in literature by conducting rigorous feasibility studies that link IVR interventions with ethical principles and multidimensional well-being in this specific population.
- **The Intervention:** The "REVI" protocol was developed to operationalize key well-being dimensions (autonomy, environmental mastery, personal growth) through immersive and highly personalized virtual environments.
- **AIM:**
 - To evaluate the feasibility, safety, and acceptability of the REVI protocol within a real-world residential care setting.
 - To analyze the preliminary effectiveness of the intervention in enhancing the PWB of the participants.

RESULTS & DISCUSSION

- ✓ **High feasibility**
 - 100% retention
 - No adverse events
- ✓ **High acceptability**
 - Excellent usability
 - Greater engagement in Active IVR
- ✓ **Positive user experience**
 - High engagement
 - Strong value of personalization
- **No significant changes**
 - Trait or state PWB

Why was the intervention so well accepted?

Person-centered design (choice, personalization, agency) → enhances engagement and adherence IVR used as a tool for self-expression, not passive stimulation.

High acceptability explained by:

- **Self-Determination Theory (SDT):**
 - Autonomy → choosing avatars and environments.
 - Competence → mastering VR interaction.
 - Relatedness → social and collaborative experiences.
- **Attention Restoration Theory (ART):**
 - Psychological escape from routine (being away).
 - Immersive and engaging environments (fascination).
 - Coherent virtual worlds (extent).
 - Alignment with user preferences (compatibility).

Result: High engagement, enjoyment, and 100% adherence.

Why were there no changes in psychological well-being (Ryff)?

Ryff measures stable, trait-level well-being.
The intervention targets state-level experiences (momentary effects)
Mismatch between:
What the intervention produces → immediate, meaningful experiences.
What was measured → long-term psychological traits.

The intervention does work, but at a different level:
Generates momentary autonomy, connection, and emotional engagement.
These are valuable outcomes in themselves.

METHOD

Sample:

N=12 (67-95 years). No cognitive impairment

Design:

Group Active IVR (interactive tasks)
Group Passive IVR (observational)
Group Control

Intervention:

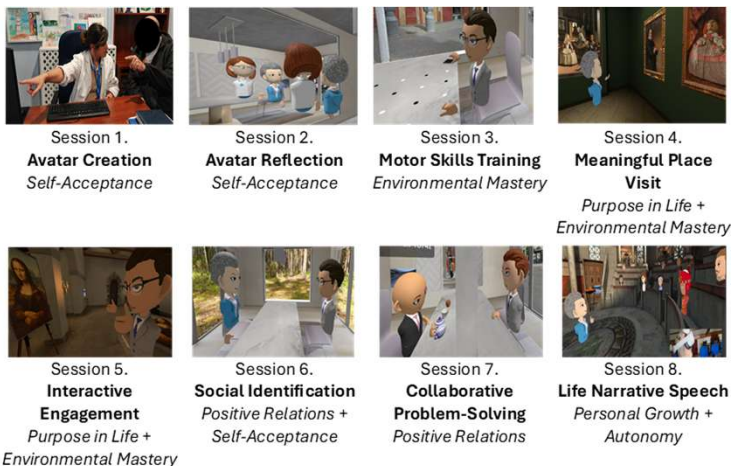
8 sessions.
Meta Quest 2 headsets.
WebXR immersive environments.

Measures:

Ryff PWB Scale (pre–post). NPT-ES (engagement and social interaction).
Presence and Satisfaction questionnaires



IVR Intervention Program (8 Sessions Based on Ryff's Model)



CONCLUSION

- **IVR is feasible, safe, and highly engaging** in long-term care.
- **Person-centered design** drives meaningful experiences at the **state level** of well-being.

FUTURE WORK / REFERENCES

Priority should be given to engagement, acceptability, and need satisfaction as primary outcomes, within dignity-centered IVR designs.

- Ryan et al. (2000) — <https://doi.org/10.1037/0003-066X.55.1.68>
Ryff et al. (1989) — <https://doi.org/10.1037/0022-3514.57.6.1069>
Appel et al. (2020) — <https://doi.org/10.3389/fmed.2019.00329>