VIRTUAL REALITY AS AN INNOVATIVE TOOL FOR ALCOHOL USE PREVENTION AMONG ADOLESCENTS: A PILOT STUDY IN LITHUANIA

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INTRODUCTION

Adolescent alcohol consumption is a major global public health concern, contributing to a range of negative outcomes, including cognitive impairment, mental health disorders, risky behaviors, and social marginalization (World Health Organization [WHO], 2018; Jacobus, Tapert, 2013). Early initiation of alcohol use is associated with an increased risk of long-term dependency and neurodevelopmental disruptions, particularly affecting memory, attention, and executive functioning (Reyes et al, 2011; Perkins, 2002).

According to the WHO Global Status Report on Alcohol and Health (2018), harmful use of alcohol accounts for 5.3% of all deaths worldwide and significantly impacts youth morbidity and mortality. Prevention strategies targeting adolescents must therefore be innovative, engaging, and tailored to developmental needs.

Traditional educational methods often fail to capture adolescents' attention effectively. Emerging evidence suggests that digital technologies, including virtual reality (VR), can enhance educational interventions by offering immersive, experiential learning opportunities that increase emotional engagement and knowledge retention (Clark, 2012).

Given the preliminary success of VR-based interventions in health promotion and the limited research specifically targeting adolescent alcohol use (Aliwi et al., 2023; Kershner et al., 2024), this study explores VR's potential as an innovative prevention tool within the Lithuanian context.

AIM OF THE STUDY

This pilot study aimed to assess adolescents' perceptions of a VR-based educational intervention and evaluate its potential as an innovative method for alcohol use prevention among Lithuanian youth.

METHODS

- Participants: 16 adolescents (aged 16–17 years), mixed gender.
- Intervention: VR experience simulating alcohol's effects on five key brain regions using an interactive "rollercoaster" scenario.
- Data collection: Structured observations and focus group discussions were conducted immediately after the VR experience to capture cognitive, emotional, and sensory responses.

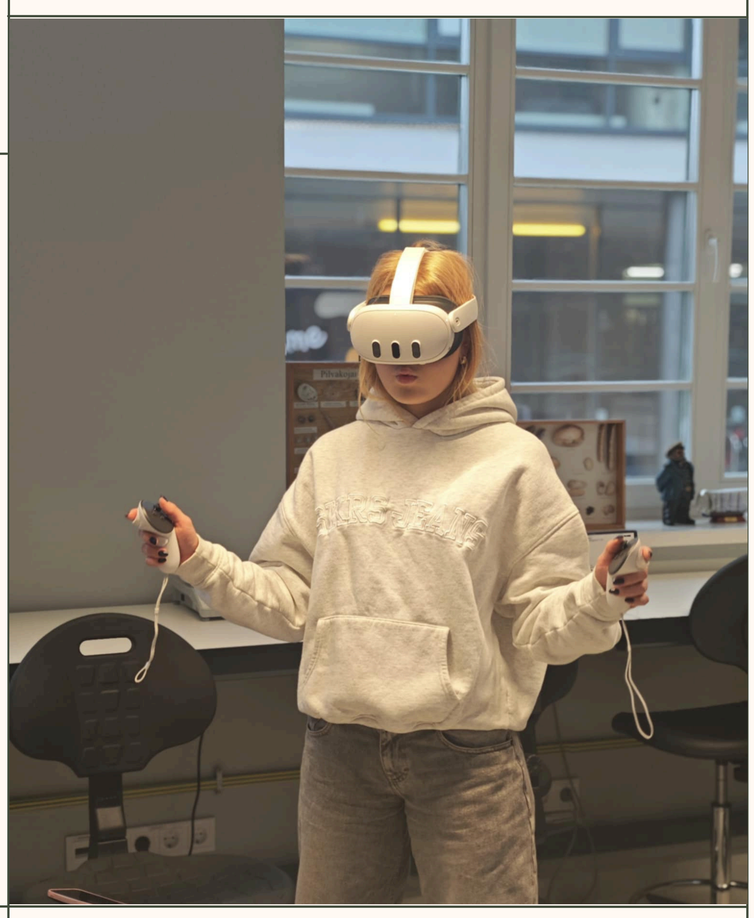
VIRTUAL REALITY EXPERIENCE

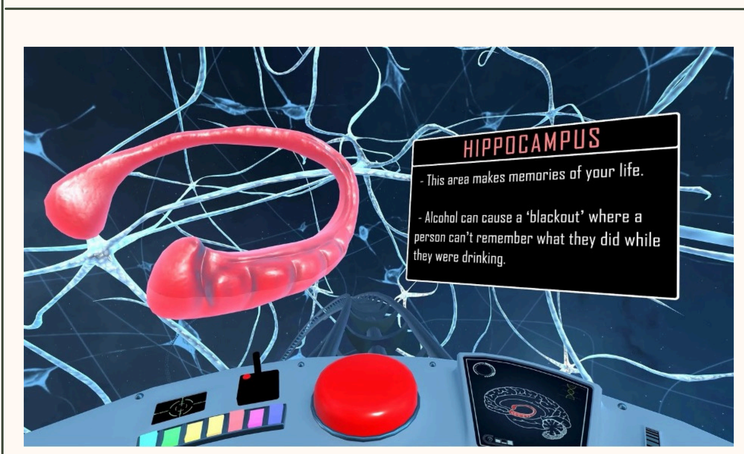
Participants engaged in a dynamic VR simulation that allowed them to:

- Visually and interactively experience how alcohol affects cognitive and emotional brain functions.
- Navigate stops along the rollercoaster ride where educational content about alcohol's impact was provided.
- Feel mild physical sensations (e.g., dizziness), enhancing realism and emotional engagement.

FINDINGS

- High engagement: Participants found the VR experience more memorable and exciting than traditional educational formats.
- Enhanced information retention: Interactive visuals and emotional stimuli facilitated better recall of information.
- Emotional and sensory reactions: Physical sensations increased the realism of the experience.
- Language accessibility: Participants emphasized the need for native language (Lithuanian) VR materials to maximize effectiveness.





DISCUSSION

The pilot study suggests that VR technologies can substantially enhance adolescents' learning experiences by combining cognitive education with emotional and sensory engagement. VR is a promising complementary tool to traditional alcohol prevention programs, particularly suited for Generation Z learners who are native technology users.

CONCLUSION

Virtual reality offers a socially innovative, impactful medium for health education, capable of addressing contemporary challenges in adolescent alcohol prevention. Future research should focus on developing culturally adapted VR programs and evaluating long-term behavioral outcomes.

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