



PLAYING WITH COGNITION: Considerations for Developing and Utilizing Serious Video Games for Diagnosis and Treatment in Youth Mental Health

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Background

- Video games are nearly ubiquitous among adolescents, with 97% of teenagers in the United States reporting game play on various devices (1).
- They are an increasingly appealing medium for diagnostics and interventions targeted towards youth mental health (2).
- Readily scalable, accessible, and customizable for a highly game-literate audience—youth

Serious Games for Cognition

- Serious games: games developed for purposes beyond entertainment
- Diagnostics: recent work has reviewed the validity of game-based assessments for cognitive function in youth (3)
- Treatment: several clinical trials are evaluating the efficacy of using serious games for cognitive training (4)
- However, literature on the ethics of serious games in this context is limited (5).



Outlining Considerations



Video games as digital health technology



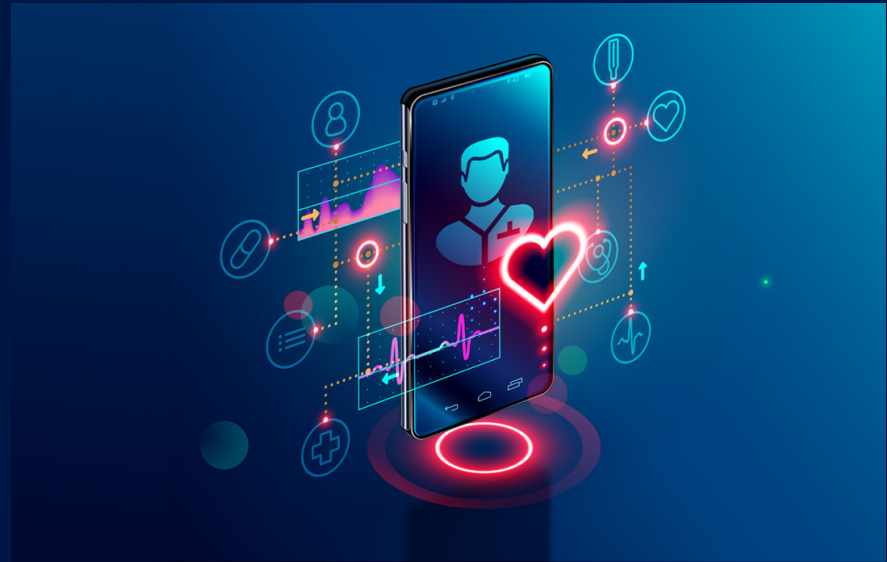
Game content, gameplay, and design elements



Implementation in clinical settings

Video Games as Digital Health Technology

- Serious video games share concerns with non-gaming applications: data privacy, incorporation of artificial intelligence, and regulatory ambiguity
- Youth are vulnerable to exploitation for readily adopting novel technologies before effective safeguards.
- Challenges with advancing tech and evolving diagnostic criteria and treatment standards → how to standardize and ensure validity?



Content, Gameplay, and Design Elements

- Game elements in serious video games can all modify cognition, behavior, and mood.
 - E.g., narrative content, decision-making agency, feedback and reward systems
- Design choices may have a greater impact on youth, given immature brain development and susceptibility to persuasive stimuli.
- Youth with psychological conditions may be especially vulnerable to acquiring maladaptive cognitive habits from games uninformed by best practices.



EndeavorRx from Akili Interactive, FDA-approved as the first game-based digital therapeutic device for children with ADHD

Implementation in Clinical Settings

- As primarily a medium for entertainment, video games for mental health may be perceived as trivializing the burden of illness, especially given existing stigma surrounding video games
- Reconciling the seriousness of clinical application with the creativity and experimental qualities of play
- Imposing value judgments: what is “good” vs. “bad” play, and what patterns of play are “normal” vs. “pathological”?
- Does playing games for diagnosis or treatment still constitute “play”?





Conclusions

- Serious video games entail both shared and distinct features from other digital health applications, presenting unique ethical challenges.
- Future work providing ethical guidelines specific to this medium are necessary for rigorous development and judicious clinical adoption in youth mental health.

References

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