



Technology-Based HIV Interventions for Young Adults



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Introduction

- A growing number of options are available for Pre-exposure Prophylaxis (PrEP) to prevent the acquisition of Human immunodeficiency virus (HIV). Despite the existence of these biomedical prevention options, they are not widely accessible to all populations, and adolescents continue to experience a disproportionate burden of new HIV infections.¹
- For PrEP to be most effective, it requires adherence to medication regimens and regular follow-up visits, which can be difficult depending on the availability and financial costs of PrEP interventions.
- Mobile health (mHealth) tools are highly acceptable to adolescent populations, have been successful at improving adherence to HIV treatment among people living with HIV, and are increasingly being adapted/developed for PrEP.
- To assess this, a literature review of previous interventions will be evaluated for their effectiveness in supporting PrEP adherence amongst adolescent populations. The type of mHealth intervention tools that will be evaluated will include but are not limited to smartphone apps, ingestible sensors, digital pills, digital messaging, games for health, telehealth, and video-directly observed therapy.
- Findings from this paper will bring new data to re-evaluate current prevention protocols and offer a foundation for future medical advancements in HIV prevention as well as improve public health effects for accessibility and affordability of quality care and HIV prevention in adolescent populations.

Methods

The Covidence software was used to conduct the literature review. After pulling sources using Pubmed and utilizing a search strategy (appendix 1), 374 articles were pulled for review. A search strategy was used to refine the search results from Pubmed using keywords such as adherence, PrEP, technology, antiretroviral, etc. When the search strategy refined the search to a more reasonable size, a title and abstract review were conducted. Judgments were made on first only the title and abstract of the 374 articles. To organize the search results, reviewers excluded articles that are not English language publications, no digital health component, no PrEP-related outcomes, and protocols for trials that are ongoing. After the title and abstract review, a full-text review is conducted for the remaining articles. Articles are fully read and annotated. Requirements following the full-text review include having a digital health component, must have at least one medication adherence outcome for PrEP, being inclusive to young adults/adolescents, and being at the randomized control trial (RCT) stage. During the full-text review, articles will be excluded if they focus only on education, testing, and engagement in care.

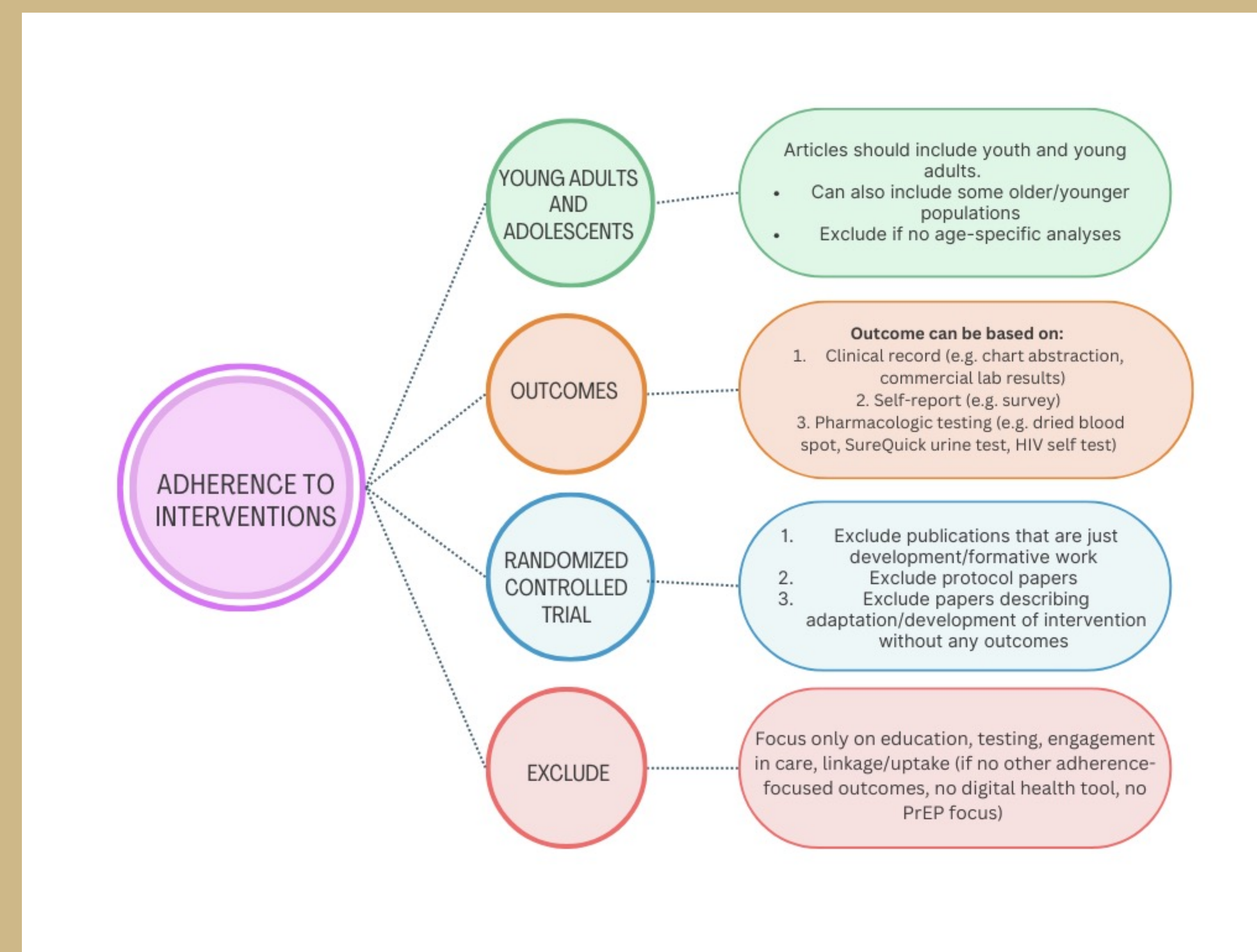


Figure 1: Diagram of Pubmed search strategy

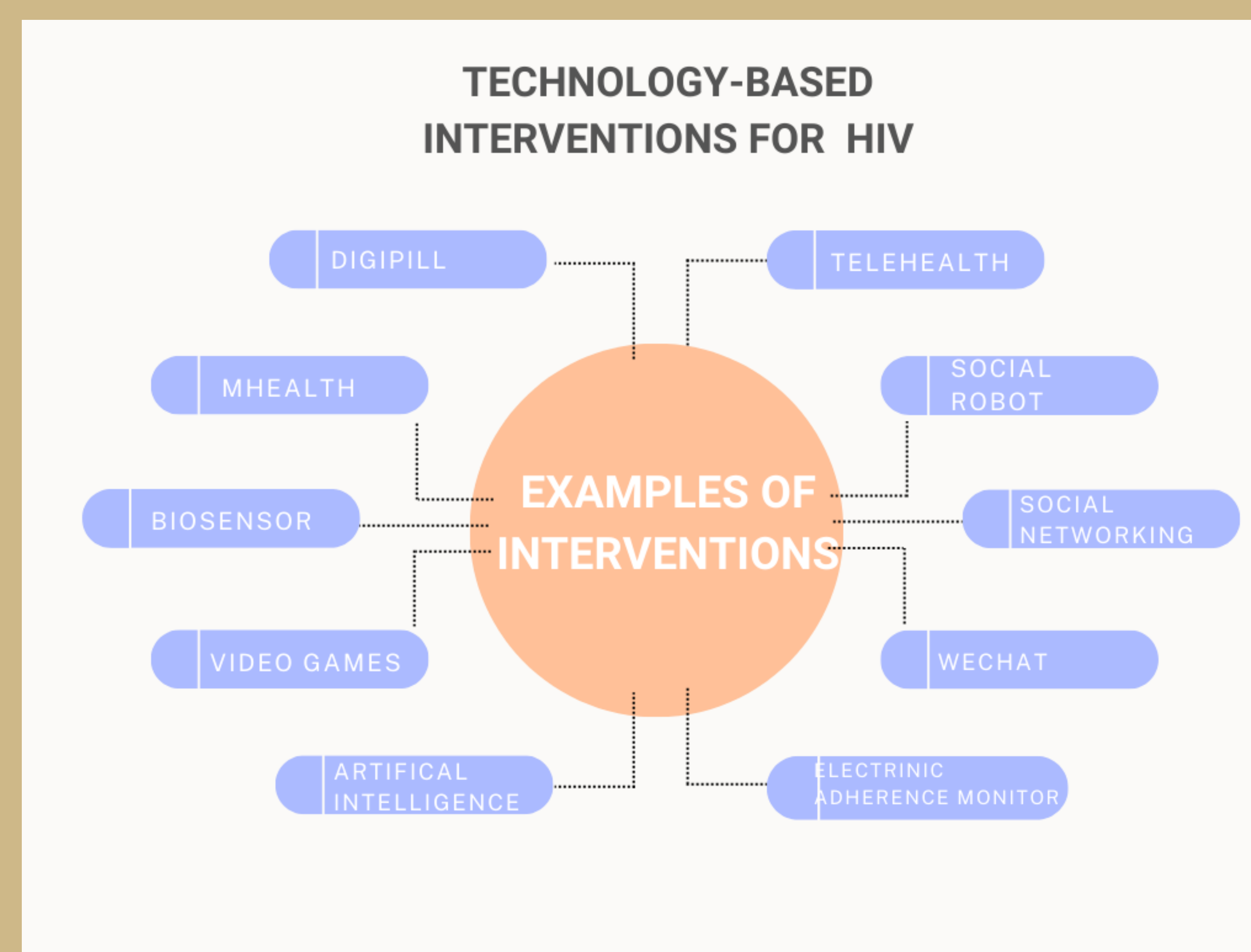


Figure 2: Examples of Technology-Based PrEP Interventions

Early Results

This project's literature review remains ongoing. Preliminary results suggest that digital interventions show promise for supporting PrEP adherence, education and care engagement. Technology-based interventions offer convenience and tools for self-management. Many digital tools remain in the development or pilot testing phase. Future results will be highly valuable for better understanding the impact and limitations of these tools, especially as artificial intelligence and technology continue to be on the rise. Adoption of these technology-based interventions may also be successful in developing countries, with the correct program implementation. Once accessibility and cost of care are accounted for, this was a common theme in the reviewed literature: implementation of programs in countries where HIV disproportionately impacts the young adult population.

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References

1. Yusuf H, Fields E, Arrington-Sanders R, Griffith D, Agwu AL. HIV preexposure prophylaxis among adolescents in the US. JAMA Pediatrics. 2020 May 1;174(11):1102. doi:10.1001/jamapediatrics.2020.0824