



Acceptability and Usefulness of a Relational Agent-based Mobile Phone App Promoting Healthy Behaviors in Young Black MSM with HIV

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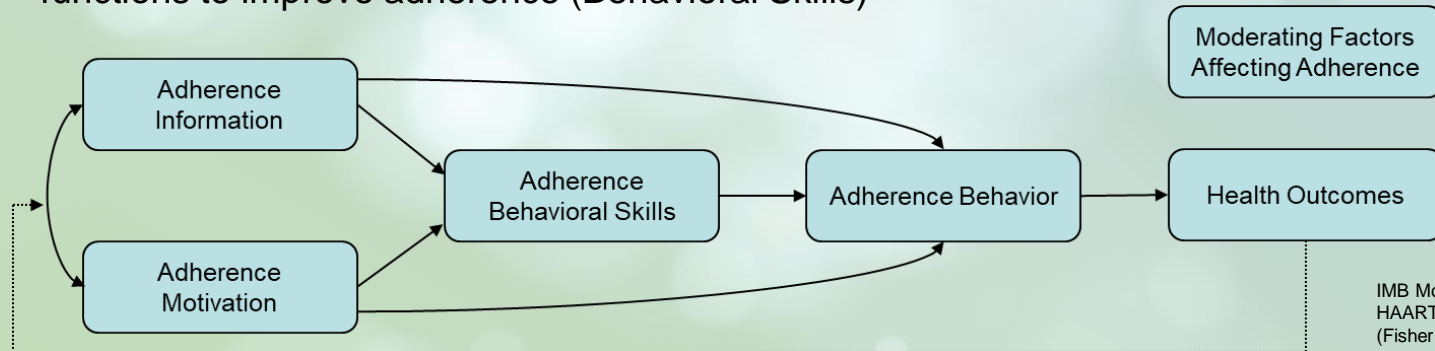


BACKGROUND



Overview

- National HIV/AIDS Strategy lists priority populations that include Black MSM and young persons
 - Black MSM less likely to be retained in care and to achieve viral suppression
- Theory-informed mobile phone app directed at improving ART adherence, viral suppression, and retention in care was developed for young, Black men who have sex with men (YBMSM) living with HIV
 - Designed to provide education (Information), improve self-efficacy (Motivation), and include functions to improve adherence (Behavioral Skills)





My Personal Health Guide



- Customizable realistic relational agent (“avatar”) with plain-speaking, human voice that empathizes, motivates, and relates to user
- Informed by 5 iterative focus groups in Chicago with YBMSM living with HIV
- Pilot study of 32 YBMSM demonstrated high acceptability and preliminary efficacy (pill count adherence >80% improved from 62% at baseline → 88% after 3 months) (NIH R21NR016420)



My Personal Health Guide

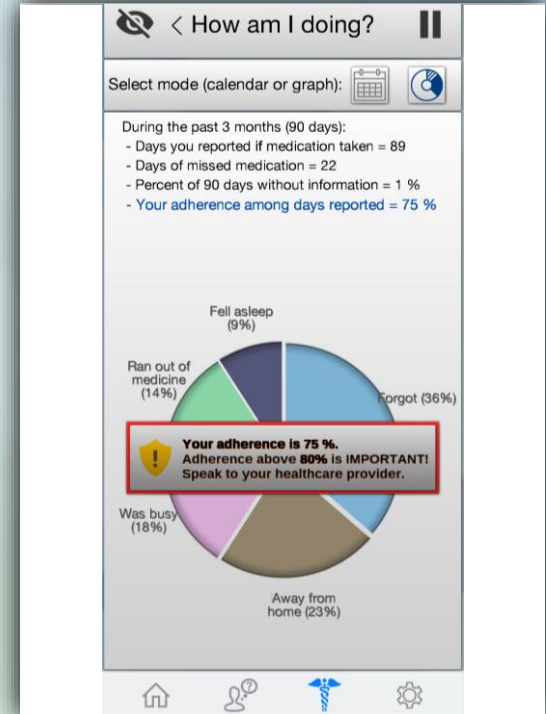
- Avatar asks and answers questions with branching logic
- Recordings of motivational messages from healthcare personnel and community peers living with HIV
- ‘Let Me Explain’ questions the app can answer
- Setting reminders for medication-taking
- Viral load and CD4 count graphs to monitor trends
- ‘Show My Medicine’ to educate about HIV medications





My Personal Health Guide

- 'How am I doing taking my medicines?' to monitor self-reported adherence
- Privacy features (pause/hide screen)
- Customization of app/avatar
- 'The Dating Game' (gamification) to reinforce learning of 'Let Me Explain' questions





Objective

- To determine acceptability of the My Personal Health Guide app and usefulness of app functions among YBMSM living with HIV
- We hypothesize that acceptability and usefulness of the My Personal Health Guide app will be high

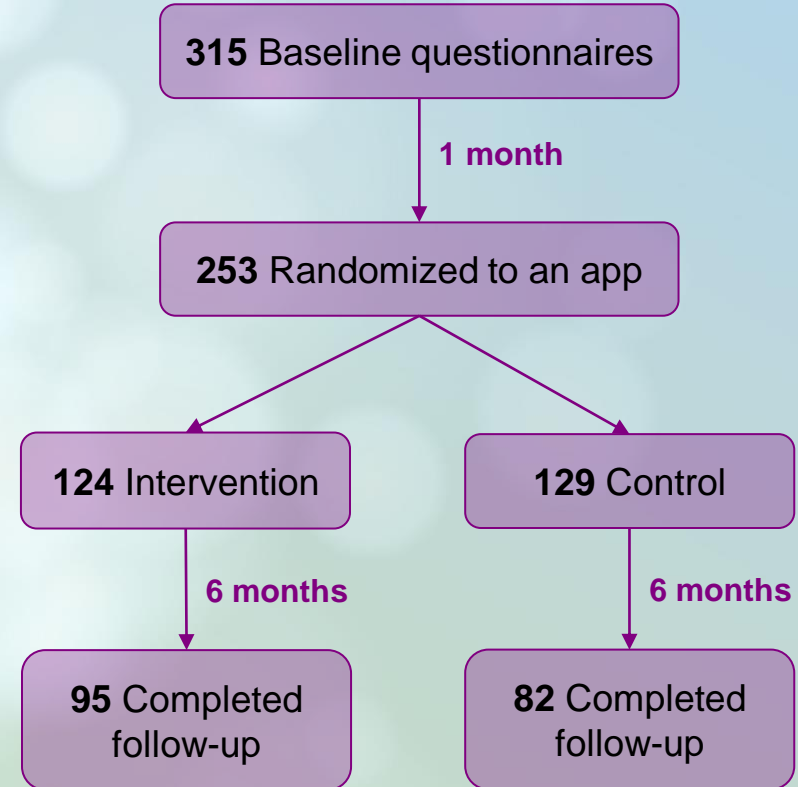


METHODS



Design

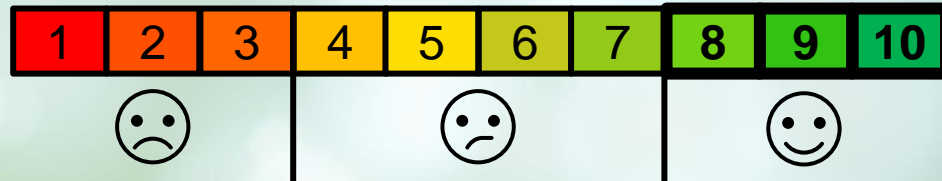
- Data from multi-site randomized controlled trial (NIH R01MH116721)
- YBMSM (18-34 years) prescribed oral ART who self-reported non-optimal adherence or were referred by a healthcare professional as having non-optimal adherence
- Participants recruited from 23 states during Feb 2020 – Sept 2023
- Randomized 1:1 to download either My Personal Health Guide or control app (avatar-based focused on food)
- Intervention participants selected from male or female avatar, while only female avatar was available in the control app





Analysis

- Descriptive statistics
- Acceptability and usefulness questions were either dichotomous (Yes/No) or asked on a scale from 1 (low) to 10 (high)
 - Favorable responses defined as rating of ≥ 8 on 10-point scale



- Nonparametric Wilcoxon rank-sum tests used to compare acceptability of the My Personal Health Guide vs. control app
- Average usefulness of each My Personal Health Guide app function is reported

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RESULTS



Selected Baseline Demographics

Intervention
n=95 (53.7%)

Control
n=82 (46.3%)



Region

South: 61%
Midwest: 25%
Northeast: 14%
West: 0%

South: 55%
Midwest: 34%
Northeast: 10%
West: 1%



Education level

College: 24%
Some college: 47%
High school/GED: 24%
Less than high school: 4%

College: 37%
Some college: 37%
High school/GED: 21%
Less than high school: 6%



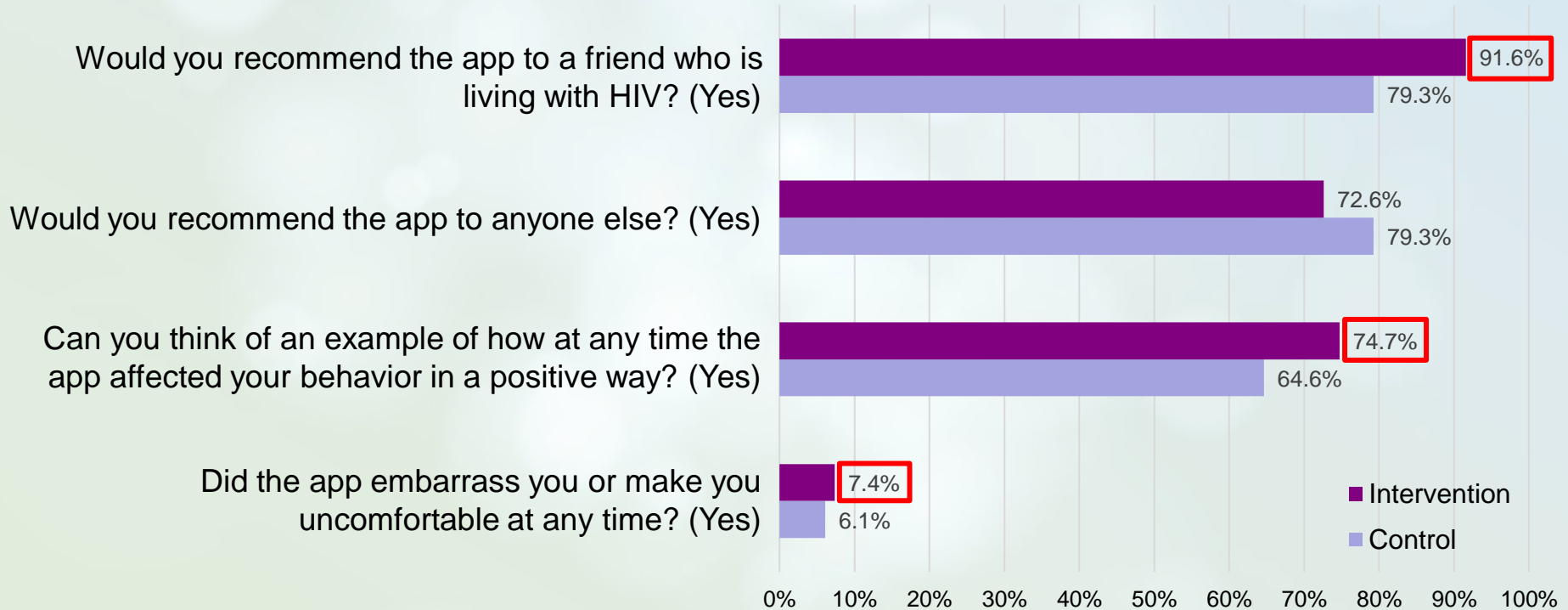
Housing security

Insecure: 47%
Secure: 53%

Insecure: 52%
Secure: 48%



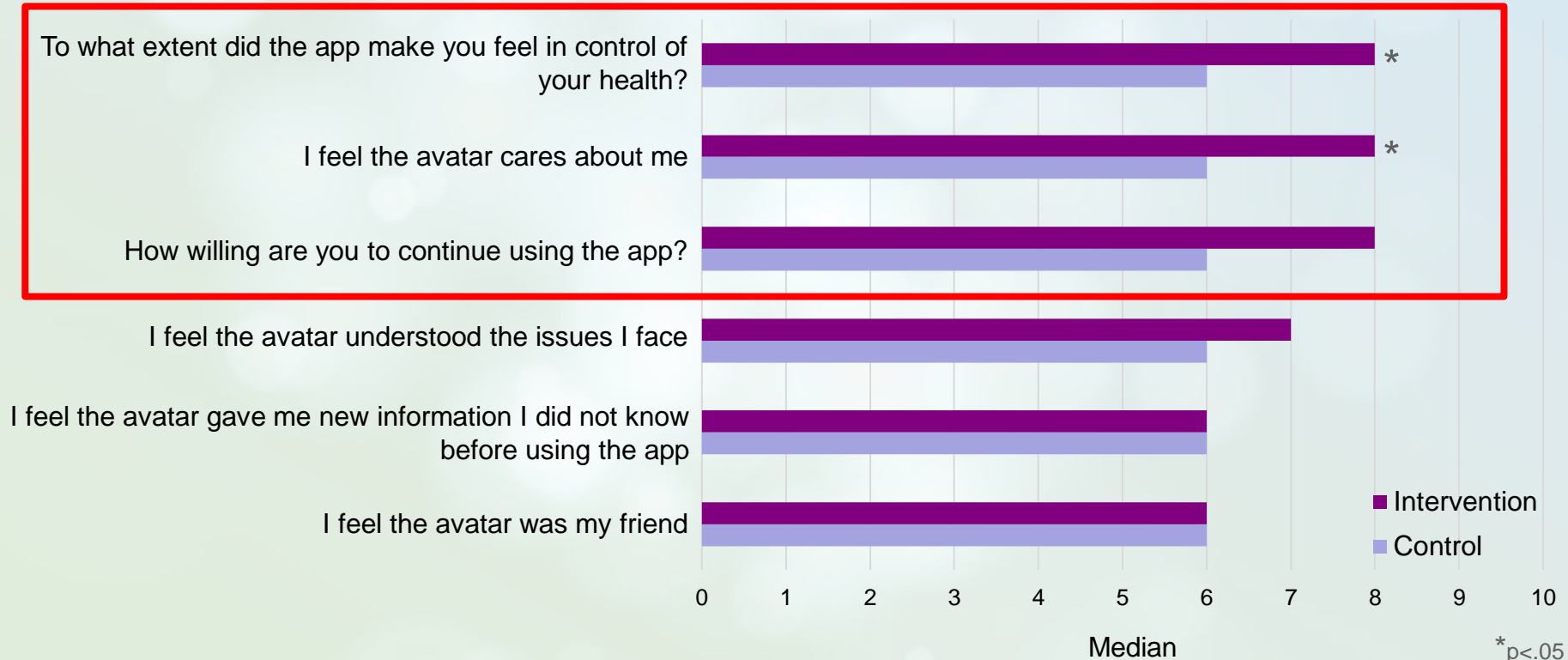
App acceptability by app randomization





Acceptability of relational aspects by app randomization

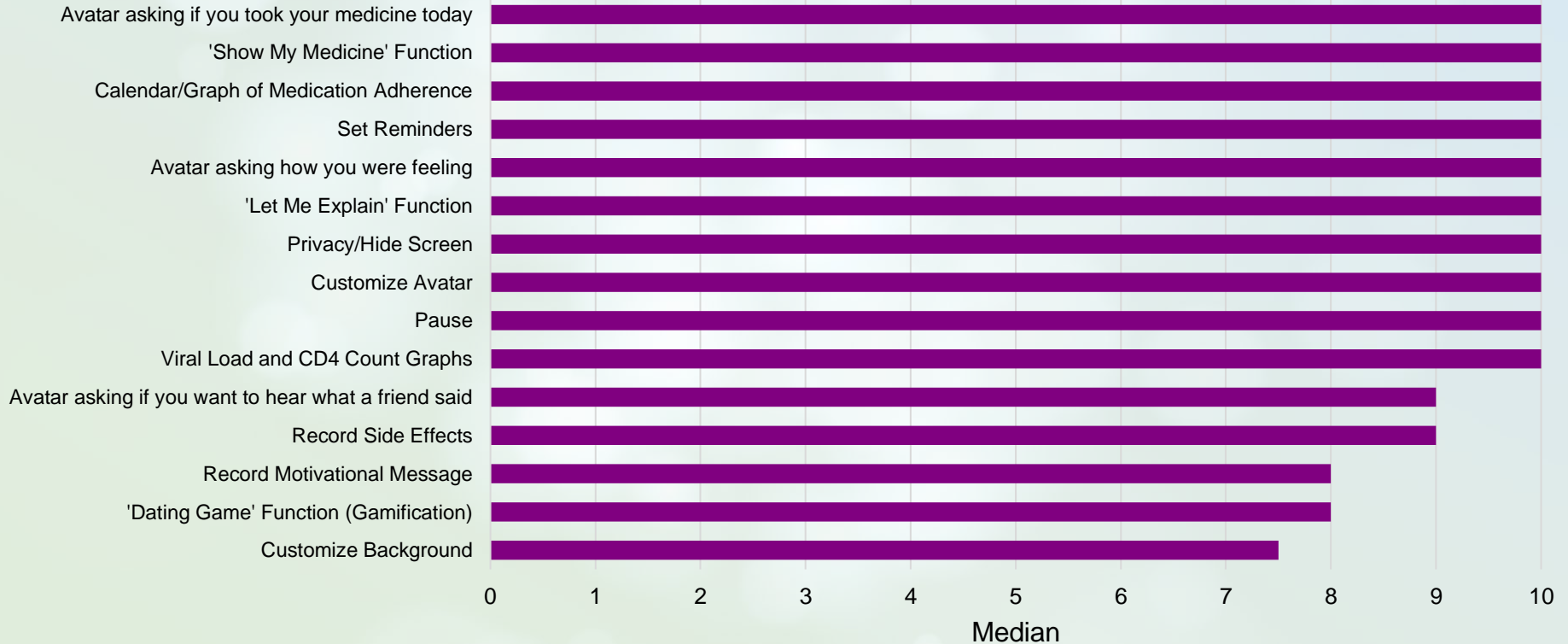
(1 = "not at all", 10 = "very much")





Usefulness of My Personal Health Guide functions

(1 = “not useful”, 10 = “very useful”)



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DISCUSSION



Acceptability and Usefulness

Acceptability of the My Personal Health Guide app

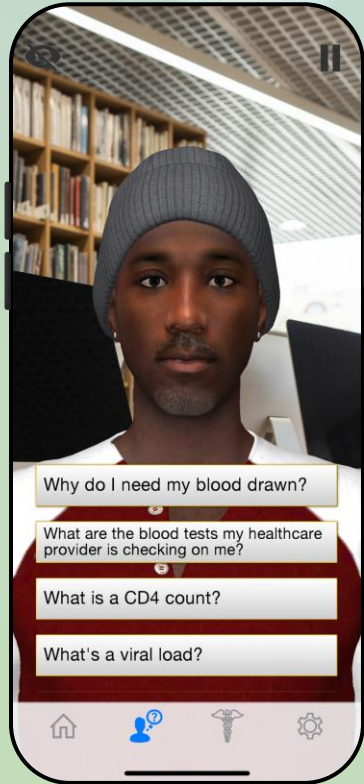
- Majority of participants would recommend the app to someone else
- Most were willing to continue using app
- Low number of concerns reported

Usefulness of My Personal Health Guide functions

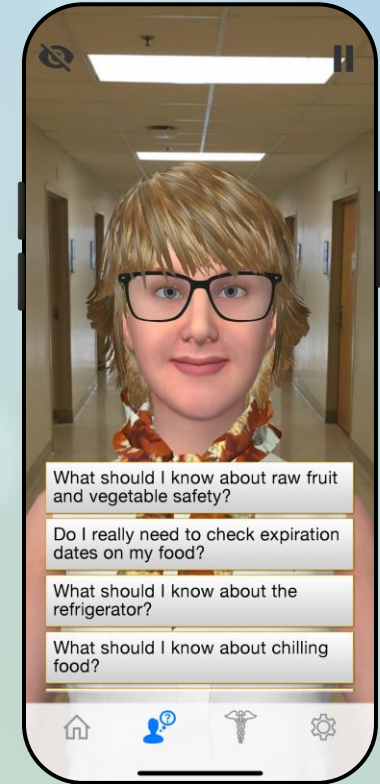
- HIV Continuum of Care, relational functions were among most useful
- Customizing avatar, privacy settings also important to this population



Acceptability of the Avatar



- Overall, avatar was well-rated by participants in both groups
- My Personal Health Guide avatar received high relational ratings for feeling that the avatar cares about them and feeling that the avatar understands the issues they face
- Participant suggestions included expanding customization options such as clothing and appearance





Limitations



App use was voluntary, resulting in high variability in overall app experience



Length of follow-up time led to lower app use throughout follow-up period



Adapting to COVID meant new challenges for technology-based intervention

Strengths



Overrepresentation of YBMSM in the South



Conclusions

- ✓ Both My Personal Health Guide and control apps were well-received in this population of YBMSM
- ✓ Relational agent-based digital health approach to health promotion is promising
- ✓ Future research to explore acceptability of My Personal Health Guide app in broader population of people living with HIV and other areas of prevention



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Appendix

Table 1. Baseline characteristics of all study participants who completed the 6-month follow-up visit, 2020–2023

Characteristic	Intervention app n=95 (53.7%)	Control app n=82 (46.3%)
Median age in years (IQR)	30 (27-32)	30 (26-32)
Region of residence		
Northeast	13 (13.7%)	8 (9.8%)
Midwest	24 (25.3%)	28 (34.1%)
South	58 (61.1%)	45 (54.9%)
West	0 (0%)	1 (1.2%)
Education level		
College degree	23 (24.2%)	30 (36.6%)
Some college*	45 (47.4%)	30 (36.6%)
High school or GED	23 (24.2%)	17 (20.7%)
Did not finish high school	4 (4.2%)	5 (6.1%)
Employment status		
Employed (full or part-time)	60 (63.2%)	47 (57.3%)
Student (full or part-time)	5 (5.3%)	4 (4.9%)
Unable to work/unemployed	27 (28.4%)	27 (32.9%)
Other	3 (3.2%)	4 (4.9%)

Abbreviations: IQR, interquartile range

*Includes Associate's degree and/or Technical School

Table 1 (cont). Baseline characteristics of all study participants who completed the 6-month follow-up visit, 2020–2023

Characteristic	Intervention app n=95 (53.7%)	Control app n=82 (46.3%)
Income level		
<\$10,000 yearly	27 (28.4%)	20 (24.4%)
\$10,000 to \$29,999 yearly	28 (29.5%)	28 (34.1%)
\$30,000 to \$49,999 yearly	19 (20.0%)	12 (14.6%)
≥\$50,000 yearly	17 (17.9%)	18 (22.0%)
Don't know	4 (4.2%)	4 (4.9%)
Housing insecurity		
Insecure	45 (47.4%)	43 (52.4%)
Secure	50 (52.6%)	39 (47.6%)
Incarceration history		
Ever	33 (34.7%)	18 (22.0%)
Never	62 (65.3%)	64 (78.0%)
Substance use in past 2 weeks		
Alcohol	72 (75.8%)	54 (65.9%)
Marijuana	62 (65.3%)	43 (52.4%)
Other substances	36 (37.9%)	21 (25.6%)
None	9 (9.5%)	12 (14.6%)