

AllyQuest

Engaging HIV+ Young MSM in Care and Improving Adherence through a Social Networking and Gamified Smartphone App

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Background

Addressing antiretroviral therapy (ART) adherence among young men who have sex with men (YMSM) is an urgent public health priority. Technology-based interventions – particularly mobile Health (mHealth) platforms – can provide tailored adherence interventions and allow YMSM to engage and connect with others. AllyQuest (AQ) is a novel, theoretically-based, smartphone app designed to improve engagement in care and ART adherence and social support among HIV-positive YMSM.



Table 1: Ally Quest Intervention Components

Profile Page

Privacy features: Avatars, pseudonyms, confidential pin number to open app, app time-out after 5 minutes of inactivity.

App progression meter: Visual display of current app “level” and in-game currency. Participants level up and earn in-game currency based on app use. Redeem currency to unlock narratives and other app features.

Daily Discussion

Social Prompts: (e.g. How do you remember your meds?) kick-off daily discussions to foster community, sharing, model successful behaviors and provide reinforcement. Notifications when someone has commented or “liked” a particular post.

Medication Tracker

Tailored adherence strategies: Upon initial set-up, participants enter medication details including the number of times/day and preferred time of day taken, and any food restrictions. App provides suggestions on adherence strategies (e.g. Take when I brush my teeth) and participants receive tailored feedback on new strategies and adherence tips.

Medication reminder system: Personalized reminders and habit building solutions to promote ART adherence.

Brain Builder

Daily Quest: Actionable routine tasks help users set goals, build knowledge/skills (e.g. Make a list of ? for your doctor at your next appointment).

Brain games: Quizzes and interactive exercises help users assess and gain knowledge and skills

Knowledge Center

Informational materials: Multi-media presentation of information that includes HIV-related, safer-sex, relationships and general health and wellness. Users prompted with a reflection question after each article to apply the material to their lives.

Character-Based Narratives

“Choose-your-own adventure” narratives feature HIV+ YMSM navigating common situations that impact care engagement & ART adherence (e.g. unstable housing, substance use, disclosure).



Pilot Trial

A 4-week pilot trial was conducted with 20 HIV-positive YMSM to evaluate intervention feasibility and acceptability. Participants completed pre/post-test surveys and a phone-based exit interview.

Table 2: Allyquest Pilot Study Outcomes, n=17

Survey Item	Mean [SD]
Would use this app frequently	4.41 [1.18]
App was easy to use	4.76 [0.56]
Felt very confident using this app	4.47 [1.01]
App is accurate	4.53 [1.01]
Interaction with app is consistent	4.12 [1.11]
Found app unnecessarily complex	1.65 [0.86]
Would need technical assistance to use app	1.71 [1.16]
App features are well integrated	4.53 [0.80]
Most people could learn to use the app	4.65 [0.61]
Found app cumbersome to use	2.76 [1.64]

5-point Likert scale (1-strongly disagree to 5-strongly agree)

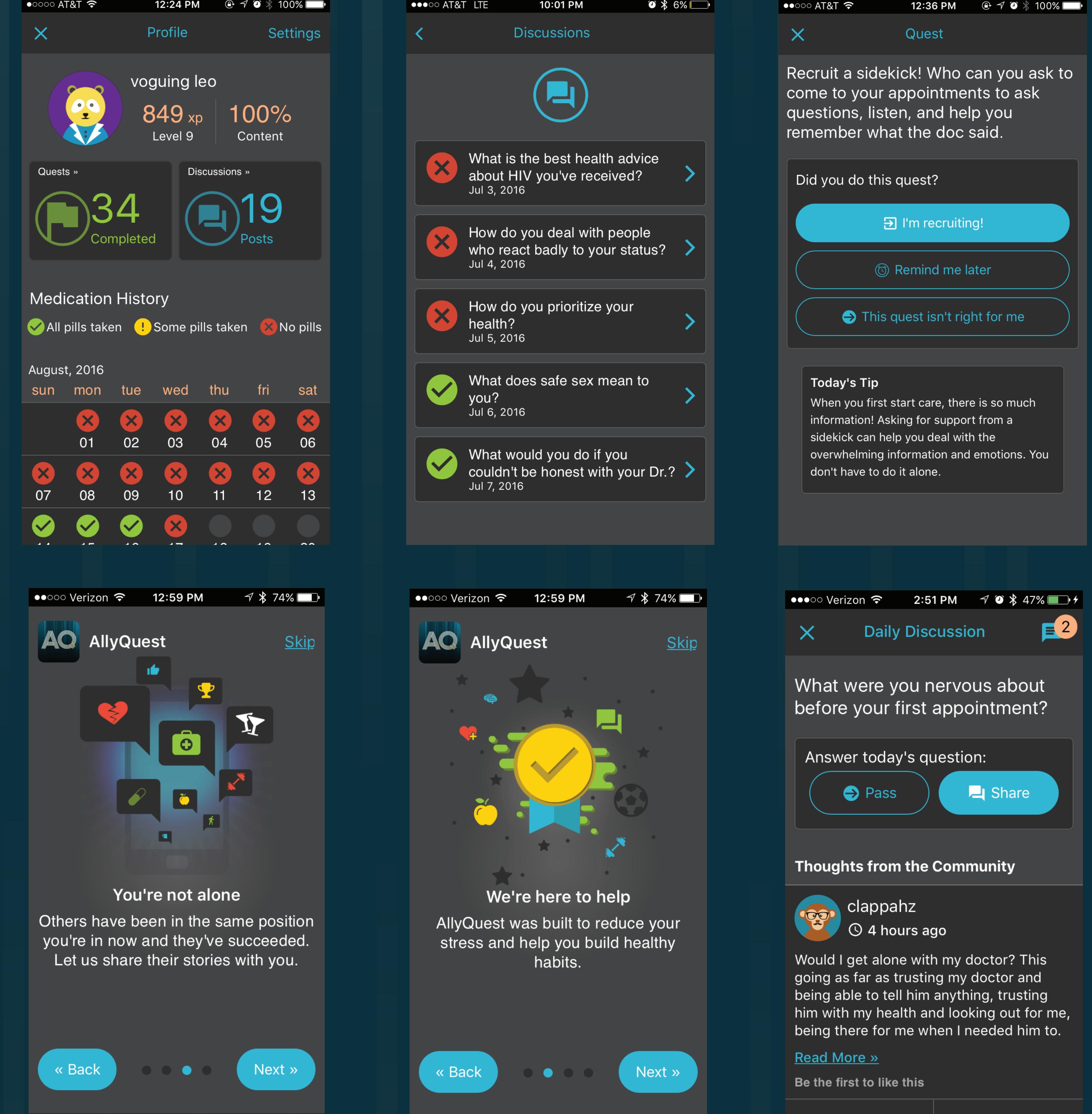
Discussion

- AQ, a novel, theory based ART adherence app for YMSM showed strong acceptability, feasibility, and impact on HIV knowledge and adherence self-efficacy in pilot testing.
- AQ accommodates different learning styles, motivations, and needs among YMSM through features including app-guided tailoring of content, personalized messages, and inclusion of game-based elements. To optimize intervention engagement and impact, AQ integrates health-related challenges, rewards, social connectivity, and “unlocking” character-driven narratives.
- Building off the promising data from this trial, we intend to pursue additional funding to address the suggestions described by participants to further maximize engagement and health benefits. We will then test AQ in a larger, diverse sample to assess not only efficacy but effectiveness as a bridge to widespread dissemination.



Intervention Development

Screenshots



Results

Sample Characteristics

Mean age was 21.8 years (range 19 to 24), 95% were nonwhite, 95% identified as gay, 25% had not completed high school, and 25% reported some homelessness in the past 6 months. Most (80%) participants had been diagnosed in the past year. One-month retention was 85%.

App Acceptability

Acceptability ratings were high. Overall, participants found the app easy to use and navigate, not intrusive, and few reported technical issues (Table 2). Most rated the quality of the app as excellent (n=10) or good (n=7) and overall 15/17 were satisfied with the app.

App Feasibility

The mean time of app use was 158 minutes [SD 114], range 13 to 441 minutes. There was a mean of 21.2 days of use (out of a total possible 28 days) with a mean of 19.4 days of logging medications. There were 225 posts to the Daily Discussion social wall and 275 total health-focused quests completed.

There was a statistically significant ($p<0.05$) positive association between the number of days logged into the app and knowledge and confidence in ability to reliably take HIV medications. At one-month, participants reported feeling more connected to others with HIV, more knowledgeable about HIV, and reported a greater ability to manage their HIV and reliably take ART compared to before using the app.

Conclusion

AQ represents a new, highly scalable solution that is well-suited to meet the specific ART adherence needs of HIV+ YMSM. The development of this intervention is both timely and vital given the urgency of the ongoing HIV epidemic among YMSM.

Table 3: AllyQuest Pilot Study - Qualitative Exit Interview evaluation of app

Area of App	Relevant Quotes
Overall	“But, you know, it did help me to overall accept that I have to take this prescription because it’s only going to help me in the long run. So it was good as far as helping me remember to take the medicine.” (AQ1004)
Narratives	Interviewer: “How did the stories motivate you in the app?” Participant: “It kinda motivated me to be more open with my partner.. I would keep a lotta things from them. Like, I would go through stressful times and I wouldn’t tell them... but after seeing how a lotta that stuff played out, like in the [app] stories, I try to start opening up more, and I think we’re gonna stay together for a long time.” (AQ1002)
Medication Tracker	“I’ve downloaded other apps where _____ like a medicine tracker...it was just a very basic thing. And also I’ve had discussion forums on my phone where it just dove clean into something that was like, I’m not gonna talk about that just yet. So I think the app was, like, right there in the middle. It offered the avenue to go deeper into the conversation and it offered just a safe space at the same time.” (AQ1008)
Daily Discussion	“When I would read other people’s comments on the little discussion panel thing – I would feel like I wasn’t so alone... it made me feel like I was a part of a community that understood how hard it is dealing with something like that, because HIV is, like – it’s something that’s serious, and I always thought it was a death sentence because when I first found out I had it, I literally thought I was gonna die.” (AQ1020)
Brain Builder & Daily Quests	“It’s like setting a goal for yourself. So it was like a short goal. So it was fun because I set it in my mind like, okay, once I do these it’s like a new whole goal in my life that I’m gonna do and it’s a journey and I’m gonna complete it. So it’s been fun. I love it.” (AQ1007)
Knowledge Center	“There’s nowhere you can find this information...like if you do Google it or something like that, you’re getting all of these huge words that you’re like what the hell does that mean? What does that have to do with me? And just the information to be there right on hand, and you don’t have to go through a third-party source or go to your doctor and ask a bunch of uncomfortable questions.” (AQ1012)



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