

Streaming Weekly Soap Opera Video Episodes to Smartphones in a Randomized Controlled Trial to Reduce HIV Risk in Young Urban African American/Black Women

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Objectives

- Describe the development of a mobile platform to stream HIV prevention videos to smartphones
- Assess advantages and disadvantages of using smartphones to implement a streaming video-based intervention to reduce HIV risk in young adult women

Background

- Unprotected sex with an infected male partner accounts for 90% of HIV transmission in 13-24 year old women, and 87% in 25-34 year old women
- Entertainment, Education (EE) communicates pro-social messages and entertains
- Love, Sex, and Choices*, is a 12-episode soap opera video series created as an approach to reduce HIV sex risk in urban women, and evaluated in a randomized controlled trial
- To provide convenient, on-demand access to *Love, Sex, and Choices*, the weekly video episodes were streamed to study-provided smartphones held by 238 participants

Methods

Study Design

Prospective randomized controlled trial

Block randomization into one of two groups:

- 12-weekly episodes of soap opera, *Love, Sex and Choices*, or
- 12-weekly HIV risk reduction written messages
- Both groups received the video or message on smartphones

Eligibility Criteria

- Screening: Women, 18-29, in a sexual relationship with a male partner, past 3 months.
- Inclusion criteria for 6-month long study: Unprotected vaginal or anal sex with a male partner perceived to have engaged in sex with other women, sex with men, or injected drugs, in past 3 months.
- Using audio computer assisted self-interview (ACASI), the level of HIV risk was categorized from no risk to high risk based on responses to the screening interview. Only those with high risk were invited to participate in the 6-month long full study.

Data Collection

- Urban Northeast contiguous cities: Newark, Jersey City, East Orange, Irvington, NJ
- On-site screening and 3 & 6 month follow-up interviews were conducted using ACASI on laptops and netbooks

Smartphone and Mobile Platform: Considerations

- Worked with in-house Information Technology (IT) team
- Criteria for smartphone: email & Internet access, flexible contract, reasonable costs, high resolution screen, flexible operating system for programming, fast processor, long battery life and slide-out QWERTY keyboard. Decided on Motorola DROID™
- Helix™ Media Server to stream over RTSP network
- At the time, 3GP video format best to stream video to phones
- Extensive pilot testing required on various phones, codecs, and formats until optimal viewing experience was determined
- Email via Gmail™ sent to participants weekly for 12 weeks with a link to video or written message; 24/7 access
- Helix™ Session Manager was used to track the start -stop time whenever a video episode was watched. Users were identified by assigned static Internet Protocol (IP) address.
- Evaluation data specific to video group offered insight into the experience of watching videos on smartphones; evaluation by the full sample concerned acceptability of smartphones

Results

- Sample of 238, majority African American ($n = 210, 88.2\%$), mean age = 22
- Nearly all of the 117 in the video group enjoyed watching the video on smartphones ($n = 113, 96.6\%$), found it easy to access the video ($n = 116, 99.1\%$), felt privacy ($n = 113, 96.6\%$).
- Most wanted to continue watching on the cell phone ($n=107, 91.4\%$) and would participate again ($n = 112, 95.7\%$)
- 50 (40.6%) had asynchronous video and audio on the 3G network at times. Nearly all replayed. Corrected by rebooting the server once/week
- According to tracking data: Only 1 or 2 missed an episode, nearly all watched each episode fully once or more than once
- Common problem: misplaced login information
- Sizable number of phones were reported lost, stolen, or were damaged: 55 (34%) of 161 phones were functioning by the end of year-long study

Examples of Problems Encountered and the Number of Incidences Reported While Using the Smartphone

Problem	Solution	*N of incidences
Problem accessing email		
Did not receive emails with link to video or text	Device was restarted, email received after reboot	30
Email inbox was not synchronized with Gmail	Resolved by going into email settings to automatically synchronize with the Gmail network	5
User accidentally deleted message	Resent email. Resolved by adopting a new procedure to "confirm delete" before a message could be deleted	39
Access denied. Research team in the midst of sending out weekly emails	Participant advised of the first available hour that message could be accessed	29
Video not streaming properly (asynchronous audio video or choppy video stream)		
Server stopped syncing	Server was reset on a weekly basis	72
Poor reception; less than four bars of service	Suggested to change location and problem was resolved	17
Log-in problems	Reviewed directions. Provided username and password	56
Stolen phone	Team contacted Verizon to report the phone as stolen and to the suspend line	23
No network coverage, service was shut off	User put phone into Airplane mode (all connections turned off). Reinforced instructions on how to avoid airplane mode	11
Damaged phone		
Fluid or hardware damage to device	Reissued a new phone and reviewed instructions on care and proper storage	21
User set a password on the phone, now locked out of phone - attempted to access several times- phone locked	The Project Director unlocked the phone and advised the participant not to lock the phone or select a memorable password	33
Can't charge phone – lost charger	Issued a replacement charger	25
Battery not charging	Replaced battery	11
Forgot how to re-watch episode	Resent link to re-watch the videos	16

*N is the number of calls, emails, and/ or texts to research team

Discussion

Represents the first effort to move a soap opera video series created as an intervention to reduce HIV risk to a smartphone while providing a high quality, enjoyable viewing experience in privacy and with convenience.

Advantages of Streaming a Weekly Video Intervention to a Smartphone:

- Can access video episodes or text on-demand, 24/7
- Smartphone is inconspicuous, private, and portable
- Smartphone provides a quick mobile connection to the Internet, increasing likelihood of carrying & using phone for the study
- IT Specialist can troubleshoot and implement corrections from the server
- Study team can communicate with a participant via email
- Unique static IP address, provides data on who accessed the intervention and unauthorized use
- Helix log tracked video viewing start -stop time, providing data to establish intervention fidelity – whether the episode was watched and for how long
- Available, cost effective month-to-month data only plan
- Standardizing the intervention assures internal validity
- Inexpensive to disseminate once it has been developed

Disadvantages:

- Lengthy, costly development phase
- Extensive internal and pilot testing, correction, and retesting
- Monthly phone carrying charges
- Moderate risk of phone loss: damage and theft
- Occasional asynchronous audio and video streaming on a 3G network

Implications

- Once developed, the intervention is standardized, can be widely distributed, and access can be tracked
- Smartphone ownership continues to grow considerably, increasing potential to access health promotion videos on one's own phone
- Moving towards networks with faster data speeds; fourth generation (4G) technology. With faster data transmission, asynchronous video/voice problems will diminish
- Currently, a video intervention can be delivered in various formats, platforms, media environments, and wireless Internet-ready devices, meaning greater flexibility in streaming to various mobile environments
- May stream on-demand from a website or a social networking video service, such as, YouTube™. Present as a miniseries; access may be private or public
- Video-based interventions can be more widely available without monthly carrying costs over Wi-Fi
- Streaming video to smartphones or other mobile devices opens-up a new channel to address health disparities in traditionally underserved populations

For more info or to watch a sample video visit:

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