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Mobile Technology Use and Desired Technology-Based Intervention Characteristics among HIV+ Black Men Who Have Sex with Men

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Abstract

HIV positive Black men who have sex with men (MSM) are retained in HIV medical care at suboptimal rates. Interventions targeted to Black MSM are needed to help to improve their retention in care. The purposes of this study were to investigate the use of mobile technology among HIV+ Black MSM and to explore participants' thoughts about the use of mobile technology for HIV retention in care interventions. Twenty-two HIV+ Black MSM completed a technology use survey and participated in a qualitative interview regarding technology-based interventions. The majority of participants (95%) had access to a cellphone, and used their phones frequently (median 3 hours/day). Men preferred interventions that would allow for anonymous participation and that would provide individually-tailored support. Mobile technology is a promising approach to intervention delivery for both younger and older HIV+ Black MSM. These interventions should incorporate features that are desirable to men (i.e., anonymous participation and individual tailoring).

Keywords

HIV; men who have sex with men; Black men; retention in care; continuum of care; mobile technology-based interventions

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Introduction

HIV viral suppression is associated with improved health and reduced HIV transmission (Buchacz et al., 2008; Cohen et al., 2011; Donnell et al., 2010). Only 25% to 30% of HIV+ individuals in the U.S. are virally suppressed (Centers for Disease Control (CDC) 2011; CDC, 2014a; Gardner, McLees, Steiner, del Rio, & Burman, 2011); however, 76% of those retained in medical care are virally suppressed (CDC, 2014d). Among individuals diagnosed with HIV, only 54% are well-retained in care (CDC, 2015). Engagement along the continuum of care is worse for Black, compared to White, men, and only 16% of Black MSM are virally suppressed (Rosenberg, Millett, Sullivan, del Rio, & Curran, 2014). Blacks are disproportionately affected by HIV in the U.S.(CDC, 2014c). In 2012, most new HIV infections in the US were among Black men who have sex with men (MSM) (CDC, 2014b).

Mobile technology-based interventions may be useful for retaining Black MSM in care. These interventions allow for numerous, inexpensive contacts over periods between care appointments, and allow for anonymous delivery, which may be important for stigmatized conditions (i.e., HIV) or stigmatized behaviors (i.e., having sex with men; Bird & Voisin, 2013; Katz et al., 2013; Wohl et al., 2011). In this study, we (a) examine the use of mobile technologies among HIV+ Black MSM and (b) explore participants' thoughts about technology-based HIV retention in care interventions.

Methods

Recruitment took place from January – November 2014 at a University-affiliated infectious diseases clinic and a non-profit agency providing HIV care and comprehensive services. Inclusion criteria were: male; ever had sex with a man; Black race; and receiving HIV care (1 appointment attended). Nurses informed physicians of patients' eligibility. Physicians then asked if patients were interested in learning about the study. Study nurses explained the study to interested patients, provided study flyers, and asked for permission to give patients' contact information to the researchers. The flyer was also posted at the clinics and on the Facebook page of a local agency serving Black men.

Sixty-four men were screened (35 clinic-referred, 22 agency-referred, three by word of mouth, and one from the Facebook posting; referral source was missing for three men). Twenty-seven men were eligible; one man declined and four men no-showed. Twenty-two interviews were completed.

Men provided written, informed consent, then completed a survey and interview. Surveys assessed: a) demographics; b) HIV care and medication history; and c) mobile technology use. Interviews were conducted by a therapist with extensive experience interviewing patients about HIV. Interviews took 30 minutes to 2 hours, and were audiorecorded. A semi-

structured interview guide addressed: a) the value of HIV treatments; b) care access; c) service barriers; d) strategies for overcoming barriers; e) factors that improve retention in care; f) use of technology; and g) preferences for technology-based interventions. Interviews were conducted until saturation was reached. Recordings were transcribed verbatim, with identifying information removed. Procedures were approved by University of Rochester IRB.

Data Analysis

Descriptive statistics were calculated for demographic and technology use data. Analyses determined whether technology use differed by age (median split < 44 vs. > 45 years) and education (< high school vs. high school) using the Wilcoxon-Mann-Whitney test (count data) and Fisher's exact test (dichotomous data).

Interview data were analyzed using grounded theory (i.e., categories arise inductively from the data, after which key relationships are analyzed; Charmaz, 1990). Transcripts were divided into meaningful units; next, categories and subcategories were created and each unit was assigned to one or more (sub)categories. Responses were compared among transcripts to identify recurring themes, as well as across age groups to detect differences in responses. Codes were iteratively refined, added to, and discarded as coding progressed. Analyses were conducted using NVivo v.10.

Results

Participant Characteristics and Technology Use

Participants were, on average 43 years old, and largely self-identified as Black (91%). Median time since HIV diagnosis was 15 years; median time since beginning HIV care was 9 years (Table 1). Most participants had a cellphone, and used their cellphones regularly (Table 2). Younger men used technology more frequently than older men. There were no differences in technology use by education (Table 3).

Preferences for Technology-Based Interventions

Men suggested numerous technologies that might help men to remain in medical care, including social media, video chats, smartphone apps for education and resources, educational videos, and telephone calls. Most commonly discussed technologies were cellphones to call or text, followed by educational videos. Although suggestions for the method of intervention delivery varied, several themes emerged from interviews: (1) social support was critical; and (2) there were several advantages of technology-based interventions, including anonymity and convenience.

Social support—Both older and younger men expressed a desire for social support. More younger than older men reported having a source of support in their lives. When asked about interventions that could help them to remain engaged in HIV care, several men suggested a social support intervention could be helpful.

I would've liked to have some sort of buddy system. Where people could have called you up and just check on you...And especially if you haven't disclosed to

anyone, you know? Something like that I think would've been very helpful to me.
(61 years old)

Some participants wanted to receive support from someone who had been through similar experiences.

...some type of informal counseling...a mentor, like a big brother-type thing. Somebody that has been in there and knows what they're really talking about because they've been through it and say, "Listen, I'm not a doctor. I've been where you're at." (54 years old)

Many of the men also wanted emotional support:

I have to be I guess someone that people can go to as opposed to me being able to go to other people.... Sometimes I feel like I want to be the person that I can put my head on someone's shoulder... that's completely missing from my life. (41 years old)

Another participant noted:

I think for the most part, being HIV positive, I think the biggest thing is support... Just to know that you have someone that you can just call and just be like, "Yo today I'm having like, the worst day with dealing with this." (39 years old)

Some men suggested educational videos could provide HIV+ men with both education and support:

Yes, showing you how to keep track of it, like for, like if you have a cell phone, you have an alarm clock and you have it set, oh I got to take [medication] at this time, ... and then, other things on the video, like make it seem like it cheer you up. (29 years old)

Several participants, however, preferred personalized, tailored support rather than generalized content. One participant noted, "*I would prefer probably something more personalized... email would be okay, the text reminder would be okay because that's something personal.*" (41 years old)

Advantages of technology-based interventions—Several participants mentioned anonymity as an advantage of technology-based interventions:

Probably the mentoring would work too. If it was going to stay anonymous... I mean because you'd probably get a lot more people who would subscribe to something like that...And who would probably respond in a more truthful manner... (55 years old)

Participants, particularly younger participants, valued the convenience of interventions delivered via cellphones, and noted their potential for providing ongoing support available anytime.

If it was that in your phone all the time, like it was a group, that was, you know, controlling it that could help you - oh my God, that would be - it would be like having a group with you all the time! (26 years old)

Individuals differed, however, in regards to the preferred mobile technology intervention delivery method. Older men discussed the benefits of phone calls as well as texting, whereas younger men primarily favored texting.

Discussion

HIV+ Black MSM thought that interventions providing emotional and practical support may promote retention in HIV care. They noted several advantages of technology-based interventions, including anonymity, tailored content, ease of access, and connecting with other HIV+ men. The strong interest in such interventions among older MSM indicates that research on technology-based HIV-related interventions should not solely focus on younger Black MSM.

Study limitations include a self-selected sample. Furthermore, many participants were older, most participants were diagnosed many years prior, and most were currently well-retained in care, although many reported past problems with retention. Thus, these men may not be representative of all HIV+ Black MSM. In addition, the sample was small, limiting power to detect differences in technology use by demographic characteristics. Finally, reliance on self-report to obtain data may have led to some inaccuracies in the data due to recall and reporting biases.

Innovative interventions are needed to improve health outcomes among HIV+ Black MSM, who have suboptimal rates of retention in HIV care (Rosenberg et al., 2014). Cellphones may be a useful delivery method for retention interventions, because they are commonly used by HIV+ Black MSM, and they allow for the provision of anonymous, tailored support, which men considered important to successful intervention delivery.

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Table 1
Demographic Characteristics

	M	SD
Age (years)	43	12.2
	<i>n</i>	%
Race		
Black	20	91%
Mixed Race	2	9%
Education		
< High School	9	41%
High School	6	27%
Some College	7	32%
Employment Status – Unemployed	18	86%
Health Insurance ^a		
Medicaid	17	77%
Private Insurance	2	9%
AIDS Drug Assistance Program (ADAP)	8	36%
Supplemental Nutrition Assistance Program (SNAP) Eligibility	19	90%
HIV Care Appointment Attendance		
Attended All Appointments	13	59%
Missed Appointments But Rescheduled	9	41%
Taking ART	20	91%
	Median	
Income (\$/month)	\$800	
Time Since HIV Diagnosis (Years)	15	
Time Since Beginning HIV Care (Years)	9	

Note. N= 22.

^aParticipants could select more than one health insurance option.

Table 2
Technology Use

	Frequency	%
Cellphone Access	21	95%
Personal Cellphone (vs. Shared with Others) ^a	19	90%
Can Text on Cellphone ^a	21	100%
Can Access Internet Via Cellphone ^a	14	67%
Ever Used Cellphone to Send or Receive E-Mail ^a	14	67%
Ever Used Cellphone to Download Apps ^a	12	57%
Ever Used Cellphone to Participate in Video Calls ^a	5	24%
Internet Access (Usual Source) ^b		
Cellphone	8	38%
Home Computer	4	19%
Public Computer	3	14%
Other	3	14%
Never/Rarely Accessed Internet	3	14%
Use Social Media Sites	15	68%
Frequency of Checking Personal Email		
Checked More Than Once/Day	7	32%
Checked Daily	6	27%
Less Than Daily	3	14%
Never	6	27%
	Median	Range
Hours Spent on Cellphone/Day	3	.08 - 16
Talking	.75	.03 - 6
Internet	.50	0 – 10
Texting	.34	0 – 8
Apps	.25	0 – 24
Email	.08	0 – 3
Games	0	0 - 7
Hours Spent on Internet	1	0 - 24
Texts Per Day (Sent)	15	0 - 2000
Texts Per Day (Received)	15	0 - 2000

Note. *N* = 22

^aBased on 21 individuals who had access to a cell phone.

^bBased on 21 individuals who responded to this question.

Table 3

Technology Use by Age and Education

	Age < 44 (n=11)		Age > 45 (n=11)		Less than high school (n=9)		High school or greater (n=13)	
	Median	z	Median	z	Median	z	Median	z
Texts/day (no.)	250.0	-2.89**	10.0		8.0		50.0	-1.12
Cellphone hours/day, total	5.0	-2.36*	1.0		3.0		2.8	-0.51
Cellphone hours/day, talking	2.0	-2.16*	0.4		0.4		2.0	-1.12
Cellphone hours/day, using internet	1.5	-2.52*	0.1		0.3		1.5	-1.39
Cellphone hours/day, texting	2.0	-2.69**	0.2		0.2		0.7	-1.03
Cellphone hours/day, email	0.2	-1.30	0.03		0.08		0.05	0.00
Cellphone hours/day, gaming	0.5	-2.25*	0		0		0	-0.09
Cellphone hours/day, using apps	4.5	-2.72**	0		0		0.6	-0.64
Internet hours/day, total	6.0	-2.54*	0.3		0.5		0.6	-1.54
Social media use, hours/day	2.5	-2.58*	0		0		1.0	-1.83

	n (%)	p ^a	n (%)	p ^a
Accessed internet via cell, ever	9 (82%)	0.18	4 (44%)	0.16
Used cell for email, ever	9 (82%)	0.18	6 (67%)	1.0
Used cell to download apps, ever	9 (82%)	0.03*	4 (44%)	0.40
Used cell for video call, ever	4 (36%)	0.31	3 (33%)	0.61
Used social media, ever	9 (82%)	0.36	5 (56%)	0.38
Check personal email daily or more	8 (73%)	0.39	3 (33%)	0.08

Note. N = 22.

* $p < .05$;** $p < .01$.^aBased on Fisher's exact test.