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A Pilot Study to Engage and Counsel HIV-Positive African American Youth Via Telehealth Technology

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Abstract

Antiretroviral nonadherence is a strong determinant of virologic failure and is negatively correlated with survival. HIV-positive African American youth have lower antiretroviral adherence and treatment engagement than other populations. We assessed the feasibility and acceptability of a telehealth (remote videoconferencing) medication counseling intervention as an innovative approach to address these disparities. HIV-positive African American youth (18–29 years old) on antiretrovirals were enrolled in a telehealth medication counseling session, followed by a semi-structured qualitative interview to explore likes/dislikes of the format, modality, and content; potential impact on adherence; privacy issues; and interaction quality. Fourteen participants with a mean age of 24 years, who were 86% male, and had a mean self-reported adherence in the past month of 89%, were interviewed. Participants stated that they liked telehealth, would use it if offered in clinic/research settings, and indicated that their privacy was maintained. Participants described telehealth as convenient and efficient, with positive impact on their knowledge. Telehealth provided a modality to interact with providers that participants described as less intimidating than in-person visits. Telehealth is feasible and acceptable for delivering medication counseling to HIV-positive African American youth when conducted in a controlled clinical setting and may improve quality of patient-provider dialogue. Use of telehealth may lead to more disclosure of treatment difficulties, increased patient comfort, and improved health education.

Introduction

TELEHEALTH, THE DELIVERY OF HEALTH-RELATED SERVICES via remote video-conferencing, offers unique benefits and may help address short-comings of clinic-based care. It is possible for behavioral research or aspects of clinical care to be conducted with the researcher/clinician and participant/patient being at different locations. Counseling sessions or support groups can be conducted without the constraints of meeting location or the need to travel. Researchers and clinicians may be better able to connect with those who avoid participation in research or clinic attendance due to fear of HIV-related stigma. Telehealth has shown benefits in chronic diseases, such as chronic obstructive pulmonary disease^{1,2} and heart failure,² and those receiving home care services^{3,4} and housebound chronically ill patients.⁵ Telehealth has also been used within HIV-positive incarcerated populations⁶ and in providing HIV and Hepatitis C care to patients living in rural areas.⁷

In 2009, youth composed 21% of the U.S. population but accounted for 39% of all new HIV infections.⁸ There is a strong association between younger age and lower levels of adherence, as well as increased risk of virologic failure.^{9–11} Additionally, African Americans have an increased rate of HIV infection, enter care later in the course of the disease, are less likely to initiate antiretroviral (ARV) therapy, and have lower levels of ARV adherence in comparison to White individuals.^{12–14} From 2006 to 2009, a major driver of the increased incidence of HIV was a 48% increase in the rate of infection among young African American men who have sex with men.⁸ Taken together, African American youth have a higher rate of HIV infection, have an elevated likelihood of worse outcomes, and have been the target population for much research and interventions to improve engagement in care and enhance adherence to ARV therapy. Therefore, we conducted a pilot study to examine the feasibility and acceptability of the use of telehealth in a controlled clinical setting for medication counseling sessions with HIV-positive African American youth.

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Methods

Selection criteria and recruitment

Participants who identified as African American, were 18–29 years of age, and were taking ARV medications for at least 30 days were included in the study. Individuals unable to give informed consent and those with severe cognitive impairment and active psychosis were excluded. We requested that all HIV clinic teams at the University of California, San Francisco (UCSF) HIV clinics and other San Francisco Bay Area HIV clinics assist in patient referral, and we further recruited participants by posting advertisements in various UCSF research locations and clinic sites. Participants were asked to call our research telephone number, and study staff determined eligibility over the telephone. Those who qualified were scheduled to come to 360: The Positive Care Center at UCSF.

Materials and setting

For this intervention, we used Movi (Cisco, San Jose, CA, USA), a desktop video-conferencing software application that enables an individual to use a computer to participate in telepresence (i.e., technology that allows a person to feel as if they were present at a place other than their true location) video calls with other Movi users. It is the officially supported desktop video-conferencing client for UCSF Telehealth and it has been made available for general use to faculty and staff.

The UCSF Committee on Human Research granted approval for this research, and participants signed an informed consent form prior to study initiation. At 360: The Positive Care Center at UCSF, participants were seated in a private room in front of workstations equipped with Movi equipment. Simultaneously, the health care provider conducting the sessions was located at a remote office by a computer terminal also equipped with Movi.

Intervention

One health care provider (HIV clinical pharmacist) conducted face-to-face videoconferencing sessions using Movi software. The format and content of these sessions were similar to medication counseling sessions conducted in a clinical office setting. During these sessions, the provider reviewed the participant's medication list; reviewed the ARV mechanisms of action using visual aids projected on the computer screen, potential drug–drug interactions, adverse effects, and special instructions; discussed the importance of ARV adherence, patient's reasons for nonadherence, and methods to improve adherence in the future; and inquired about other issues, such as social support, relationships with providers, substance use, and depression. Self-reported ARV nonadherence was assessed as the number of missed doses in the past week and month, and barriers to adherence were evaluated as the reasons for each missed dose and the most important reason for ARV nonadherence. Participants were shown graphs demonstrating the HIV lifecycle and the location in the lifecycle where different ARV classes are effective, what perfect adherence means and how nonadherence can result in drug resistant virus, the changes in CD4+ cell count and viral load over time in the absence of ARV therapy, and what constitutes an AIDS diagnosis.

The counseling sessions were approximately 45 min long and were immediately followed by a 30-min in-person semi-

structured qualitative interview by a trained research assistant. In these interviews, participants were asked to describe their experience and thoughts about the intervention; what they liked or didn't like about it; how they felt it may impact their ability to take medications, their motivation to take medications, and their HIV treatment knowledge; if it resulted in any breach in privacy; if they would consider using it if it were offered in another trial or in a clinical setting; if they would recommend the intervention to any friends, family, or acquaintances; and their past or current use of technology-based methods to maintain or improve ARV adherence. Participants were offered a \$70 compensation for their time.

Analysis

The qualitative interviews were audio-recorded, and recordings were transcribed verbatim by a professional transcriptionist service for analysis in Transana (Wisconsin Center for Education Research, Madison, WI, USA), a qualitative data analysis software. Data analysis was conducted by coding the sessions based on emerging themes using an inductive approach. In the inductive approach, codes are not pre-determined but are developed during detailed readings of the interview transcripts and by comparing passages to derive concepts, themes, or a model.¹⁵ Codes were applied to text using an iterative process of reading and refining the code definitions, adding new codes as needed to capture emerging concepts. Two authors (PS and NS) independently coded all interviews based on interview questions initially and then based on emerging themes that were decided on after discussion.

Results

Fourteen participants attended the telehealth intervention sessions (Table 1). Their mean self-reported ARV adherence in

TABLE 1. DEMOGRAPHICS OF STUDY PARTICIPANTS

Characteristic	N = 14
Mean age (SD), years	23.9 (2.9)
Male gender (%)	12 (86)
Mean number of years since HIV diagnosis (SD), years	6.4 (7.3)
Number of participants who knew their CD ₄ ⁺ cell count (%)	11 (79)
Mean CD ₄ ⁺ cell count (SD), cells/mm ³	607 (284)
Undetectable HIV viral load (%)	9 (64)
Current ARV regimen	
	NNRTI-based
	8 (57)
	PI-based
	4 (29)
	InSTI-based
	2 (14)
Mean ARV adherence in past week, %	87
Mean ARV adherence in past month, %	89

ARV, antiretroviral; InSTI, Integrase Strand Transfer Inhibitor; NNRTI, Non-nucleoside Reverse Transcriptase Inhibitor; PI, Protease Inhibitor; SD, standard deviation.

the past month was 89%. Adherence barriers ranged from pharmacy issues (29% of participants) including difficulty picking up refills, delays in pharmacy mail order, or out-of-stock medications; lifestyle issues (43%) such as difficult living situations, homelessness, drinking alcohol, illicit drug use, "partying," or being out late without medications; physical and emotional side-effects (29%) such as fatigue, nausea, having too many pills, not having enough food, ARVs as constant reminder of HIV status, and feeling depressed. The main methods that participants used to remember to take their ARVs involved pill boxes (57% of participants), establishing routines or associating medication-taking with activities of daily living (57%), and use of mobile telephone reminders (36%) or mobile applications (7%).

All participants stated that they liked the telehealth intervention, that they would use telehealth if offered in their clinic or in other studies, and would suggest it to others. Except for one individual who was interrupted during the session by another clinician, 93% of participants indicated that telehealth was private and maybe somewhat more private in comparison to their clinic because of reduced anxiety regarding encountering any members of their community or acquaintances. Barring a few minor technical difficulties with the picture or the sound, no other complications occurred.

We identified the following themes from our qualitative interviews: convenience; quality of communication/level of disclosure; and impact on HIV-related knowledge, motivation to adhere, and behavioral skills to improve adherence.

Convenience

All but one of the participants stated that the use of telehealth was more convenient and comfortable in comparison to their routine clinic visits. This preference was attributed to not having to wait in clinic waiting rooms, not having additional travel time or cost (if conducted at home), and reducing the risk of encountering acquaintances or people from their community. Participants reported liking being able to chat with providers when they had quick questions or when they were clinically stable and did not require a physical examination. This was an appealing aspect of the intervention and most felt that they would be less likely to miss clinic appointments if some appointments were conducted via telehealth.

"The doctors are always busy. The pharmacists are always busy. The nurses are always busy. So, let's say you just want to come in for something real quick and simple, easy, or just want to ask a question..." (27 year-old male)

"...and traveling, that's another thing. Sometimes the doctor's...far...you might not have the money just to go all the way down there, and you might miss your appointment." (21 year-old male)

Quality of communication/level of disclosure

Without probing, 57% of participants spontaneously stated that because they weren't talking in-person to someone, they felt more at ease about discussing issues that they may not bring up in a physician's office and could communicate more efficiently about their HIV status and living situation.

"Sometimes [office visits] can be a little intimidating. I think the fact...[that] you're not actually in the room together at the same time..., there is...a screen...there is that disconnect. It implies...[that] there's not that intimidation so I would say, more

candid about how I feel or the questions that I have without being as nervous." (23 year-old male)

"It was kind of better than talking to somebody face-to-face because I get nervous or I don't look at the person. But in a screen, they're there but they're not there. And it's kind of like being in the middle of talking to somebody on the phone and talking to somebody face-to-face." (24 year-old male)

Impact on HIV-related knowledge, motivation, and behavioral skills

Over 64% of participants stated that the telehealth intervention improved their HIV-related knowledge, gave them motivation to adhere to ARVs, and provided them with skills to minimize ARV non-adherence.

"...I'm very visual, so it helped that she showed me the graph...it was just making me more aware to make sure I take my meds." (26 year-old male)

"It sort of motivated me more to be more open with my doctor and more open with myself and to learn about what's going on, and so, I can do what I have to do." (23 year-old female)

"One thing that we did talk about is possibly...put that [refill dates] in my calendar at home or in my smartphone. So, it will set a reminder, like: 'Hey, a week in advance or two weeks in advance, you should request this day off, or move this around at work so that you're able to get your refill on time, and not have that issue.'" (24 year-old male)

Discussion

Based on our interviews with HIV-positive African American youth, the use of telehealth for clinical counseling sessions is feasible and acceptable. Individuals considered this modality private and were receptive to its use. Participants considered the use of telehealth as a convenient method that has the potential to reduce missed clinic visits due to travel, cost, or privacy concerns. They noted improvements in their HIV-related knowledge, motivation to take ARVs, and problem-solving skills to maintain high levels of adherence. An unexpected theme of our interviews was that participants felt they could disclose their problems and situations in a more direct and transparent manner.

Telehealth has most commonly been used for consultations between health care providers for expert consultation and education,^{16,17} however, telehealth could also serve as an innovative tool to connect patients and providers. This approach allows for more robust interactions that other technology-delivered interventions (such as text messaging, gaming, and interacting through online social networks) cannot achieve. These interactions afford the capability to perceive nonverbal communications and facial expressions, the sharing of tailored visual graphics and educational material, and the ability to monitor patients' attention and understanding, as well as medication adherence (through conducting pill counts or observing pill-taking).

Increased administrative and teaching responsibilities and cost constraints are considerably impinging on the amount of time health care providers are able to spend with patients.¹⁸ Therefore, scheduled telehealth appointments could provide an efficient and economical means of conducting clinical appointments with patients who are clinically stable but who may benefit from further education or motivation, those who may require a brief follow-up visits, or individuals who may

miss clinic visits due to social or structural barriers. In a real-world setting, issues such as patient and provider comfort with the use of technology, as well as billing for this service would need to be addressed.

The main limitation of this study included our inability to conduct this intervention with participants at their homes. Given unknown security risks with free online videoconferencing applications and our lack of knowledge of the participants' ability to download these applications, we used a secure software approved by UCSF and conducted the intervention in a controlled clinical setting. Therefore, we can only conclude that telehealth is a feasible and acceptable method of conducting medication counseling sessions in a clinical setting; future studies should examine the feasibility of conducting similar sessions with participants at their homes. Additionally, we conducted a single telehealth session to assess the general feasibility and acceptability of the intervention; therefore, the long-term impact or novelty of this method could not be examined. We hope to evaluate the use of this technology in real-world clinical settings in future studies.

Because of the increasingly high rate of HIV infection among African American youth, secondary HIV prevention is an important issue that requires immediate attention. Due to growing up in a technology-dominated era, young individuals may be more comfortable with computer-mediated forms of communication than face-to-face interactions. It is possible that youth are more apt to appreciate the strengths of technology to eliminate geographic barriers to communication, increase access to information, and reduce social and class barriers to communication. In our study, participants reported high quality of communication and provider-patient dialogue through the visual aid and convenience of telehealth and high patient comfort leading to more disclosures, decreased intimidation, and improved health education. Additionally, telehealth may help in improving appointment attendance, enhance treatment engagement, and minimize cost and wait time for patients.

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Author Disclosure Statement

The authors have no conflict of interest.

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