The Cellular Generation and a New Risk Environment: Implications for Texting-Based Sexual Health Promotion Interventions among Minority Young Men Who Have Sex with Men

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Abstract

African American and Latino young men who have sex with men (YMSM) are at the forefront of the U.S. HIV epidemic. As members of the "cellular generation," these youth are very likely to use text messaging; yet, relatively little research has explored use of text messaging as a tool for sexual health promotion, particularly among racial ethnic minorities who are also sexual minorities. We report on the results of ten focus groups conducted among African American and Latino YMSM, aged 18-25, regarding their current texting practices and the feasibility/ acceptability of text messaging as a means of conducting sexual health promotion. Our analyses revealed four main themes around their texting behaviors, texting preferences, perceived advantages/disadvantages of texting, and the "etiquette" of texting. We consider implications of these findings for the development of texting-based sexual health promotion interventions, particularly in conjunction with other existing interventions operating in a new risk environment.

Introduction

Minority young men who have sex with men (YMSM) are at the forefront of Human Immunodeficiency Virus (HIV) epidemic in the United States. It is estimated that one third of new U.S. HIV infections are among youth and young adults; 50% of these new infections among youth are among YMSM [1] with a disproportionate burden on African American and Latino YMSM. [2,3] A study of young urban MSM from seven metropolitan centers found HIV prevalence among 3% of white YMSM compared with 7% of Latino YMSM and 16% of Black YMSM.[4] Given that these groups are particularly at risk to contract HIV, there have been numerous calls for developing culturally appropriate targeted and flexible interventions for these groups.[5-8]

The extremely rapid increase in the use of mobile devices for communication, especially among youth and particularly among minority youth may provide an outstanding opportunity to leverage such technology for sexual health communication and prevention efforts.[9,10] Adolescents and young adults are increasingly using information and communication technology applications such as text-messaging, *Facebook*, and other social networking sites. [11] Such usage creates both a more complex risk environment since it may allow more HIV-infected sex partners to meet in different ways but also the potential for more "just in time" interventions to occur.[12] The new risk in this environment can be attributed to how people communicate and interact differently, mediated by a host of different communication technologies. Interventions that target sexual behavior need to accommodate for such changes.

Cell phones are a technology whose usage has substantially increased in the U.S. In 2011, there were 322.9 million wireless users, signifying a 102% penetration of the total U.S. population, with nearly 30% of households using only cell phones. [13] There are some racial differences in usage of cell phones, with nearly half of African Americans and Latinos accessing the internet on their mobile phones as compared to a little over a quarter of the White Americans, signifying the former two groups' relative lack of home-based broadband access[13].

Text messaging, as a means of communication, has seen a tremendous increase from 81 billion texts sent in 2005 to 2.12 trillion texts in 2011, a 2617 % increase over 6 years. [14] The use of text messaging is higher among racial minorities, specifically African American (79%) and English-speaking Latinos (83%) as compared with White Americans (68%) and among young adults aged 18 – 29 (95%).[15] Consequently, it is important to explore the uses of text messaging among young people, and particularly among minority youth, especially with regards to potential use in health interventions.

Among three general categories of mobile phone users, the 18 – 24 year olds have been classified as the "cellular generation" as compared to the "transitioners" (25 – 34 year olds) and the "adult adopters" (35 and older). [16] Whereas the adult adopters tend to use cell phones as a tool for functional purposes, a means to an end, these devices are more seamlessly integrated and embedded in the lives of the cellular generation, who have grown up with cell phones and text messaging. Therefore, in order to develop appropriate sexual health promotion interventions that can be targeted and more easily integrated into the daily lives of at-risk members of the cellular generation, it is essential to understand better the general contexts and circumstances in which they use text messaging.

Unlike other channels of mass communication for the delivery of health promotion and intervention, mobile phones with texting capabilities are unique in a

number of ways. They have immediate two- way, response capabilities; they are wearable and always on – a ubiquitous and pervasive form of communication; they are relatively low cost; they offer a relatively confidential form of communication, particularly given the potential stigma associated with sexual health communication among YMSM; they can offer instant access to health information and cues for action that promote behavioral intervention and change; they could be a tool for social support; and a data collection and feedback tool. [17]

Cell-phone based short messaging service (SMS), or text messaging has been increasingly utilized to support various types of health intervention efforts, including: diabetes management [18]; weight loss [19]; and smoking cessation [20]. A recent review of non-STD/HIV text-message intervention RCTs (focused primarily on diabetes, but also on hypertension, smoking, and obesity) concluded that 13 of the 14 trials had positive short-term behavioral outcomes.[21] There is also research that specifically shows the acceptability of text messaging used in HIV related health interventions, including improving HAART adherence among HIV positive youth [9] and more recently STI prevention and health promotion among youth[22], young adults [23], and hard to reach populations at high risk for HIV and other STIs [24].

While there is some research that shows the acceptability of text messaging used in health interventions among youth [18,25], including as a means of providing sexual health information [7,10,22,26-28], there is no research to date that focuses on the feasibility and acceptability of such interventions among YMSM and particularly at-risk minority YMSM. Previous research has found that YMSM do communicate about sexual health with their friends but that there were misconceptions within their sexual health communication, which may impede communication about safer sex behaviors. [29] Given the potential stigma around same-sex sexual activity, YMSM may be less comfortable receiving sexual health information via text messaging. The widespread availability of mobile phones and text messaging presents a novel consumer health informatics opportunity "to develop mobile-mediated incentives and reinforcers and create new ways of providing support" to at risk populations, especially of the cellular generation.[17] But in order to do so, we need to understand cell phone use in their everyday lives and the acceptability of using this medium for sexual health promotion. This paper is a first effort to address this gap in our understanding of their current texting practices and the feasibility and acceptability of text messaging in sexual health communication and promotion among minority YMSM.

Methods
This project was conducted in greater Los Angeles, an area with sizable Latino and African American populations. The Charles R. Drew University of

Medicine and Science Office for the Protection of Human Subjects Institutional Review Board approved the study.

Study Participants
Participants were recruited via flyers posted at local educational institutions and through direct face-to-face interaction at community based health and social venues. After initial contact and an expression of interest, potential participants underwent eligibility screening and if eligible for the study were invited to enroll. Upon enrolment, eligible men were asked to participate in a brief demographic survey and focus group. A total of 50 minority YMSM men took part in the study. They self-identified as men who have sex with men (MSM) and ranged in age from 18 – 25, with a mean age of 21 years and a mode of 19 years. Fifty-six percent of respondents identified as Latino or Hispanic and 48% as African American or black. (It should be noted that some of the young men claimed multiple racial and/or ethnic identities.)
(See Table 1). All respondents answered either "gay" or "bi-sexual" when asked about sexual orientation. More than half of all respondents reported attending "some college," whereas 6% had completed a college degree. In addition to their minority status and sexual orientation, they were recruited based on a self-reported frequency of texting and sharing of information via their cell phones. Ninety-eight percent of respondents reported owning a cell phone, while 2% (1 respondent) texted using instant messaging on other devices via social networking sites.

Table 1. Characteristics of study respondents

Characteristic	Number	Percent
Race and Ethnicity		
Latino/Hispanic	28	56%
African American	24	48%
Sexual Orientation		
Gay	39	81.3%
Bisexual	9	18.8%
Employment		
Employed	30	62.5%
Unemployed	20	37.5%

Cell Phone Ownership		
Yes	48	98%
No	1	2%
Frequency of Texting		
"many times a day"	48	98%
"once a day"	0	0%
"once or twice a week"	1	2%
Social Networking Sites		
"many times a day"	30	61.2%
"once a day"	12	24.5%
"twice a week"	7	14.3%

Research Design and Implementation

The data and results described here are taken from ten semi-structured focus group interviews conducted between August and December 2010. The focus group method was utilized because, in addition to producing ethnographically rich data, it is useful in eliciting group-level assessments and meanings.[30] All focus groups included an average of five participants and were composed exclusively of either Latino or African American YMSM with the exception of one focus group that was mixed. Focus group sessions were conducted in English by two individuals and, after a brief demographic survey, were guided by a script with questions arranged by category to facilitate content analysis. The focus group script was comprised of predetermined questions organized as introductory, transition, key, closing and summary questions. After an introductory "ice-breaker" question, facilitators posed a series of transitional questions addressing the frequency and content of text messages between the participants and their friends as well as use of social networking sites. The young men were then asked a series of questions related to their comfort level with and the potential benefits of text messaging and sexual health. The focus groups also involved the facilitators distributing a handout containing potential safer sex text messages and asking the participants to review and score each message in terms of its acceptability. This was followed by in-depth discussions of participant's perceptions of these messages, including their thoughts about the meaning of the messages and their potential for impact on risk behavior. Upon each subject's completion of the focus group session, they were provided with $40 cash for their participation.

The focus groups lasted approximately 90 minutes and were audiotaped and subsequently transcribed by an independent professional transcription service. Transcripts were then analyzed and managed using NVivo qualitative analysis software. A sample of the resulting data was then coded by several team members and indexed in order to develop a preliminary codebook. In an iterative process of coding and discussion and incorporation of emerging codes, all the transcripts were then coded and any disagreements were discussed and resolved by consensus. Ultimately, 24 unique coding categories were identified which were further consolidated into four broad themes. Following this, via an intensive series of discussions with the whole study team, outlines were developed for each theme, the data were summarized, and analytical insights were discussed as they emerged.

Results

The four major themes that emerged are discussed below and include: a) texting behavior; b) perceived advantages and disadvantages of texting; c) texting etiquette and d) preferences in texting. In order to protect the confidentiality of participants, all names and identifying information have been changed.

Texting behavior

One major area the focus groups examined was texting behavior. We explored the pervasiveness of texting, its many uses, and the strategies that individuals adopted to protect their privacy when texting. The young men who were part of the study revealed that technology is a ubiquitous and pervasive part of their everyday lives - this includes text messaging and the use of cell phones as well as those that were more peripheral to the main study such as the use of email or social media such as *Facebook*. These young men have integrated texting into their lives, have grown used to the speed of this mode of communication, and have become very comfortable with its use. As Tommy explained,

> *"It's something that you get used to because it's way easier than talking to people on the phone because it's less interruptive. You can just be like in class or something like that, or just like sitting here, and you cannot know that I'm texting right now." (African-American)*

Many of the young men were also quite proficient in using multiple modes of communication. This includes using various modes of communication simultaneously (chatting and texting at the same time, for example) as well as switching back and forth

between technologies, what we have called "multinetworking" (by analogy to "multitasking"). There is very little "loyalty" to one technology or another. In other words, while participants may be using cell phones to text message one minute, they may switch to laptop or desktop computers for sending text messages the next. Nonetheless, with the advent of "smart" phones, many of the young men in the study had no need for a separate computer. Daniel explained,

"I have a Droid, so it adds so many capabilities where I can like Internet or texting or Facebook all the time, like I can Facebook chat or whatever I have to do, and it's like all on my phone. So, I don't use pretty much any other technology except my phone to do everything including text." (African-American)

Texting was used for a wide variety of recreational and practical purposes. In addition to socializing with friends, texting was an important tool for accessing information (such as job openings) and lending social support (including mentoring younger MSM). Perhaps most significant, for purposes of this paper, is that texting allowed the young men in the study to develop sexual and/or romantic relationships as seen in the following exchange,

Samuel: "I see the whole entire scene on Adam4Adam. I see the whole entire scene on Grindr. There's an app for iPhone. It's called Grindr, and then you'll see how far are gay people – how many feet away from you."
Matt: "Kind of like a GPS system. Like if I'm x feet away. …"
Matt: "The radius of the gay guy next to you. Oh you're here. Oh let's meet up.
Phil: it's an android, there's one called Encounter, and it goes around the people who live around you."
Samuel: "Grindr, the app for the iPhone is also good for the iPod Touch and Blackberry and the new type of phone. They're trying to expand that. Because I can't get it for my Sidekick, but I can get it for my iPod Touch.
Phil: I can't get it on my phone, but I have a different one, and they're free too." (Latino)

The quote above typifies a discussion surrounding the use of internet-based sites for meeting men, such as *Adam4Adam* and *Grindr*. While both sites are certainly aimed more at "hooking up" than for building relationships, men still meet potential suitors that could end up being long-term relationships using such technology. Their discussion of the different types of smart phones and other technological devices again underscores the increasing ubiquitousness of multinetworking in this population and their relative fluency in different types of technologies.

Participants also had much to say about how they protect themselves and their personal information when engaged in texting. This extended to protecting their cell phone itself and taking steps to preserve the confidentiality of their messages. Protecting one's cell phone was an important way of preserving privacy and personal space; many young men stated that they kept an eye on their phone at all times, in some cases using password protection as well. Miguel detailed his concerns regarding privacy,

"I'm usually protective of my phone. I try not to let it out of my sight because I don't want people reading my stuff, but if it's something like I don't know – like I wouldn't mind the texts, anything gay or anything like that, I wouldn't mind it, but I'd just be that much more careful of like where I leave my phone or who uses it." (Latino)

These privacy measures were commonly taken because the phone was considered to confer access to private information, as though the phone were an extension of their most personal selves. The young men preserved their confidentiality by ensuring that others do not observe sensitive conversations or view texts containing private information. These concerns tended to be greater for those young men who were not openly gay and thus vulnerable to disclosure. For instance, Xavier related the following example,

"You could lock your texts. So, only you could see them. Also, if it comes from a specific source, let's say you're getting all your gay needs from a certain site; you can obviously use a pseudonym for that. Come on, how many of you guys – I've changed maybe a guy I was dating from like Mario to Maria...because my mom is 65, and she's from El Salvador." (Latino)

Additionally, there appears to be a dependency upon texting technology for what many consider simple day-to-day conversation. In other words, the connectedness of cell phones and the types of interaction that they allow are coming to replace physical "face-to-face" interactions. This says a great deal about how these young men view technology and the place that it has come to assume within their social worlds. There was a sense of anxiety, described by many of the participants, when they were away from their phones. In particular, many young men described the idea that they will miss something important if they do not see and respond to messages right away. These two young men spoke to this idea,

Michael: "I'm like, "Who texted me?" I just like to know." (Latino?)
Carlo: "I keep it in my pocket all the time so I know." (Latino)

There were numerous conversations during the focus groups, which revealed a sense of anxiety when these young men were in situations when they could not text. There were some interesting word choices among participants – "comfortable," "irresistible," "tempted," and "habit." As Alonzo said,

"I [text] all day until my battery dies, and then I turn it off because then I'll be tempted to touch it, and I have to put it under the pillow, and just like an hour later it's charged, and I can text." (Latino)

In fact, many of the young men went so far as to used variations of the word "addiction" to describe the relationship with their phone. Though not "addiction" in the clinical sense of the word, Matt characterized his experience in the following manner:

"At the same time, I believe texting is like pretty much irresistible. When you see it, you read it, and reply back."(African-American)

For many of the young men, texting (or being unable to text) changed the way that they felt. When asked what it felt like if he put down his phone, Alonzo answered,

"I keep looking at it. I need my light to go on to say I got a new text." (Latino)

Advantages and Disadvantages
Participants had much to say about the advantages and disadvantages of texting as a mode of communication. The strengths of texting included increased privacy, control, and convenience, as well as the fact that texting enabled individuals to manage their connectedness with others in a variety of unconventional ways. However, numerous disadvantages of the medium were cited as well, including a feeling that texts were less intimate and concerns that they often displaced valuable opportunities for in-person relating as well as the permanency of text messages.

Text messaging allowed the young men to compartmentalize various aspects of their social communication. Many spoke to the separation that they have created in their lives between the "public" and the "private." This dichotomy extends to how participants *generally* felt regarding when texting was and was not appropriate, especially when it came to conversations of meaningful substance. Richard related the following,

"If somebody sounds depressed over a text message, I would feel like – I'd feel bad. They have to say it to me. If you feel bad, you better call me." (African-American)

The advantages of texting were numerous and included such features as speed and ease of use, which

center on the technological aspects of such communication. However, while this statement holds true in most instances, texting also had other advantages that were not related to the technological aspects of speedy communication. For some "shy" young men, texting allows for easier discussions of "embarrassing" issues with close friends. In reference to a conversation he had with a girlfriend regarding STD's, Cristian said,

"...I do believe in the texting generation, we'll just text as opposed to calling, and then calling and actually saying it's probably much more embarrassing than just texting it." (Latino)

As this quote demonstrates, there are certain topics which these young men felt uncomfortable talking about, especially those surrounding issues of sexual health, and texting about them is much more bearable. Texting thus allows young men to communicate ideas and feelings that they would not or could not tell someone face-to-face. This leads to greater feelings of control.

Analysis also demonstrated that in addition to the quotidian uses of texting mentioned above, it could be used to give or receive social support and guidance, such as sending encouraging comments or reminding a friend to use condoms. The major theme that resonated throughout was a sense that texting enabled the expression of "caring" amongst friends and a concomitant concern for the well-being of these friends. Francisco spoke to this idea,

"It could be like someone sends you a text and it could be, "Don't forget to try to make a goal to talk to your friend about being there for them in certain situations," like sending a text telling them – not telling them, but asking them to set a goal for the day, and texting someone else, but not forwarding that same message." (Latino)

Far from being solely advantageous, texting was seen as having a number of drawbacks in comparison with other forms of communication. While some young men preferred texting about emotionally difficult topics, the majority, felt that texting is not a suitable medium for discussing "serious" matters, including those involving sexual health. Participants discussed the disadvantages of texting in great detail. For example, what was missing from the texting experience was a feeling of actually connecting with another person - a somatic experience. Communication that takes place across social spaces via texting is still in many respects "meeting face-to-face," but with reconfigured definitions of both "meet" and "face," as this comment from Ricky demonstrates,

"Basically, you can talk as much as you want. You can even talk through a text message. You can fill up the whole page if you would like,

screaming and yelling and telling them off."
(African-American)

Participants also needed the sound and intonation of someone's voice, the look on their face, their bodily comportment etc. in order to feel that they were truly communicating. Across all focus groups, too, was the sense that texting is not "serious," especially in comparison to speaking with someone face-to-face.

Further, a pattern emerged of young men using text messaging to talk about deeper issues, especially relating to "feelings" or circumstances of a personal nature. However, there was a definite limit to the nature of these discussions. Even though the men were open to using texting for social support (including talking about safer sex issues), it was insufficient for more "intense" conversations such as those that are deeply emotional or personal, including those dealing with "coming out" or HIV status. *"...A text can only do so much,"* as one young man put it. Or as Sergio said of his preference for face-to-face or telephone conversations,

"You can actually see their reaction or hear it instead of just like seeing it on text. Some people wouldn't see it the same way." (Latino)

The use of emoticons, "shorthand," and private and semi-private codes and signs, is one way in which participants accommodate this need via texting, but it was sometimes viewed as a poor substitute for face-to-face expressions of emotions. One further disadvantage mentioned by participants related to the fact that messages are stored in the telephone until the user deletes them. This created a potential vulnerability, as a boyfriend or parent might view private messages. Stephen related,

"(I) get some dirty texts, but then the person that's sending the text, they don't know who is reading it. Anybody can read it because I leave my phone anywhere, and then if I'm working, somebody is going through it." (African-American)

Texting Etiquette
Texting etiquette emerged as an important and frequently cited theme across the focus groups. Etiquette included a variety of "do's and don'ts" for texting, as well as strongly held views regarding what kinds of texts were inappropriate and when a response was or wasn't warranted. One of the most striking findings was the intensity of participants' feelings about the importance of etiquette. Because individual participants often differed markedly in their views about etiquette, the focus groups sometimes involved impassioned discussions about what did or did not constitute suitable texting practice.

Generally, participants articulated a range of guidelines for when and how texting should be done. These guidelines included such categories as when they would prefer to receive text messages, the length of such messages, and the types of requests made via text. Many of the young men in the focus groups voiced the opinion that there were certain times of the day (and night) during which they did not want to receive text messages. Trevor detailed his frustration with late night texts:

"When I'm sleeping, that's the most annoying thing when my phone is going off and I'm asleep...I usually leave it on for the fact that if I get an emergency call from a friend, work anything, so it's annoying. I have to hear the text messaging go off."(African-American)

Another category of "don'ts" about which participants had much to say focused on texts that were considered inappropriate or indecent. These included texts whose tone was angry and those that contained "rude" language, as well as those with *"someone cussing you out, starting drama."* Further, many young men stated that they would not respond to texts of a sexual nature ("sexting") or those that contained gossip. The etiquette of texting also encompassed when and how the recipient of a text would be expected to reply, and the circumstances under which a reply would not be necessary or appropriate.

For the most part, these etiquette guidelines are fairly flexible depending on the relationship between the parties. If the message was coming from someone that the receiver was close to or wanted to get closer to, these rules could be waived. For instance, Carlo related the following,

"Like a friend texted me saying, "Hey what's up, you bitch? What are you up to?" That's okay with me because she's my best friend." (Latino)

In contradistinction to those times when respondents did not want to receive texts, there were several situations in which the young men wanted to receive them. In a majority of the cases, participants stated that their willingness to receive texts depended on whom they were from. D'Andre explained his criteria for responding to texts:

"I think I just individually decide how I feel about it, each level I have friendship with. Family friends whoever it is, relationship... it's always different with certain texts you get." (African-American)

In addition to these overall "rules" of texting, participants had much to say about their understanding of the semantic aspects of texting language. The very nature of text-based interaction demands that it be heavily dependent upon conventions such as the use of "emoticons." In this vein, some of our participants felt that professional organization staff should not use

abbreviations even though this is expected from friends. For Luis, taking the time to spell words out completely as opposed to using *"text language"* shows *"that you at least care."* The topic of emoticons elicited the most prolonged discussions among participants. Quite simply, an emoticon is a series of keyed characters used in text messages (as well as in email and/or chat rooms) to indicate an emotion, such as happiness :-) or anger :-(, or the senders' mood or personality. They can also change the tone of a text message as Alejandro described his experience:

"Let's say I'm picking someone up. I can say, "Come out now," like it can sound like "Come out now!" or if I put the smiley face on the end, "Come out now," it's like "Okay, I'm here. So, it's okay."(Latino)

The etiquette of texting also encompassed when and how the recipient of a text would be expected to reply, and the circumstances under which a reply would not be necessary or appropriate. George addressed one significant finding in this area that surrounded issues of time, specifically the importance of the timeliness of response and how it is dependent on different factors,

Mark: That depends. I text back when you text back instantly. If you waited fifteen minutes, I'm waiting thirty, but I will count.
Blake: People really do that?
Mark: I will type the message ready to press send, but I will not send.
Facilitator: Can you tell me why?
Dan: Because it annoys you. Like, why would you text me and then take so long to answer my text messages back?

Preferences in Texting
The young men we spoke with also had clear preferences about text messages – about the kinds of texts they wanted to receive, how, when, and from whom. Preferences differed from etiquette in that they were more flexible and did not represent unwritten codes of conduct, but rather individuals' personal feelings about how they liked to use and receive texts. In general, they enjoyed getting messages that showed the sender cared about them, or that were personalized for the receiver. Nearly everyone seemed to dislike texts that lacked a personal touch, and, like Tommy, they were particularly emphatic in their negative feelings about highly impersonal "chain messages,"

"What I don't like about those is I don't like to see that that text has been sent to a ton of people already, and it's like, 'Well, if we're supposed to be great friends'…"(African-American)

"Caring" messages from friends (or at least people who address them by their first name) are preferable to forwarded messages or messages sent in bulk. Participants stated that when their first name was used, that they felt that the facilitator or sender "knew" them. Nathan explained,

"…if you're going to send me something like that, I'd rather have you personalize it and say my name because I feel like that could be a text that could be sent to a bunch of people to see what they would say, and that's kind of irritating…" (African-American)

Lastly, many of the young men in the study were extremely receptive to receiving sexual health messages from friends. The emphasis here is on the word "friends." All of the comments in this section focus on the idea that these messages are welcome, but only because they are sent and received within a context of "caring" that exists only amongst friends. In all cases, the young men who receive the messages state clearly that the intent is to tell them that (friends) *"still care about you"* and *"this person genuinely cares about me."*

While a very small minority of the young men expressed hesitation at receiving messages dealing with sexual health, the bulk of the young men are open to the idea. Participants in the focus groups spoke of several variations on this theme, but ultimately, it boiled down to the idea that if friends or acquaintances are going to send these young men text messages that they prefer to receive messages that are positive and show a degree of concern. Nathan's comment was exemplary,

"…if it's (from) a best friend who knows your life who grew up with you, you'd be like, "All right, this person genuinely cares about me, so I will listen to that person." (African-American)

Discussion
Using qualitative methods, we report on the results of 10 focus groups conducted among African American and Latino young men who have sex with men regarding their current texting practices and the feasibility and acceptability of text messaging as a means of conducting sexual health promotion. Our analysis resulted in the generation of four main themes around their texting behaviors, texting preferences, perceptions of advantages and disadvantages of texting, and what they consider as texting etiquette. The qualitative nature of our study makes it difficult to generalize to results to a wider population. Below, we consider five key implications of these findings for the development of texting-based sexual health promotion interventions, a topic we intend to address in future research.

Our participants' description of their texting behaviors confirms their membership in what has been described as the cellular generation in that they reported a high level of integration and embeddedness of cell

phones and texting practices in their daily lives. The relative speed, ease of use and greater connectivity afforded by smart phones and other such cellular technology results in a pervasive and ubiquitous use of cell-phone based communication, demonstrated in comments about "sleeping with my phone," anxiety about missing a text and feeling "addicted to my phone." However, texting, along with other types of ICTs, also facilitates a more complex risk environment even as it increases potential for "just in time" interventions and for social support. This was evident from our participants' descriptions of the use of GPS-enabled smart phones and Internet sites for "hooking up" with other men even as they supported friends with safe-sex texts. The fact that texting at once facilitated flirtatious exchanges and sexual encounters while at the same time being utilized in sexual health promotion is demonstrative of the power as well as the complex implications of the expanding use of such communication technology. Sexual health promotion interventions using such technology need to identify new ways to incentivize and reinforce provision of social support while promoting avoidance of potential risky behaviors.

Second, for many YMSM, since their selves maybe under siege, their phones and text messages they receive on their phones can become an arena requiring intense protection as seen in our results above. Because cell phones can become an extension of the self, protecting their phones became representative of protecting themselves. In the case of text message -based sexual health promotion interventions, privacy and confidentiality can have greater import for these populations because being associated with interventions targeted for YMSM may have the potential to be stigmatizing. Unlike other texting-based health interventions such as for diabetes, any breaches in confidentiality could have serious consequences for these sexual minorities. Consequently, texting-based sexual health promotion interventions need to take extensive measures to ensure confidentiality and communicate these efforts to their targeted population to promote their buy-in.

Third, the use of cell phones and texting tended to occur within the context of their use of multiple forms of information and communication technologies (ICTs), such as internet-based social networking sites, email, instant messaging, etc. Being multinetworked in this manner, they displayed little allegiance to any one type of technology. Consequently any texting-based intervention effort may be more effective when integrated with other commonly used modes of communication by the targeted population, such as social networking sites like Facebook.

Fourth, while our study participants were constantly texting on their cell phones and for many, it is the accepted mode of communication, yet it often "fails" or is felt by them to be insufficient for "serious" or "intense" conversations. Notwithstanding the small

minority of our participants who preferred to communicate "embarrassing" emotional messages via texting, the majority preferred face-to-face interaction when addressing "deeper issues." Furthermore, they also preferred personal texts to mass or chain texts, where personalization was seen as a sign of caring. The importance of caring being communicated in texts, particularly when receiving sexual health promotion, became a recurring theme in our conversations with these young men, which is, perhaps, a reaction to the lack of intimacy that accompanies texting. Of special significance here is the finding that many of the young men are receptive to receiving sexual health messages from friends. These messages are welcome if they are sent and received within the context of "caring" that exists amongst friends, consistent with previous research on sexual communication between young gay men and their friends. [29] Consequently, sexual health promotion interventions based only on text messages as a mode of communication maybe limited in the scope of content and depth of communication that can be achieved through this singular form of communication. Given their equation of personalization with caring, text message-based interventions that find ways to personalize content to the degree possible and to engage social networks so that messages are being sent to and from friends will be likely more effective with this population. Furthermore, the importance of conveying caring in sexual health promotion efforts suggests that text-message-based interventions would be more acceptable to this population if combined with face-to-face intervention components.

Lastly, one of the most remarkable findings of our study was the presence of a texting etiquette that was uncovered through the analysis of our conversations with our study participants. While this etiquette consists of unwritten and informal codes of conduct, its importance became confirmed in the intensity of participants' feelings about it. Interventions employing texting-based messages that are interactive would require sensitivity to the norms of such etiquette, such as timeliness of response and appropriateness of texting language. That this etiquette is unwritten and dynamic suggests that any texting- based intervention would need to do the context specific ethnographic work to develop an understanding of the specific codes of texting etiquette for such subpopulations within their geographical and lifestyle specificities.

On a final note, we were not able to find any thematic differences between African Americans and Latino groups; however, we believe that future research with larger numbers of focus groups may identify currently undetectable differences.

Conclusion

Any texting-based interventions targeted to minority YMSM would be well served in investing the effort to understand cell phone use in their everyday lives because their texting contexts, etiquette, and meanings

of use are embedded within beliefs and behaviors that are highly meaningful to members of this cellular generation. Such understanding will facilitate the development of better strategies on how to deliver "just-in-time interventions" in the face of an increased ICT-mediated risk environment. Our study points to the need for integration of texting-based interventions with both other ICT media and face-to-face intervention components.

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