

Internet Use and Sexual Health of Young Men Who Have Sex with Men: A Mixed-Methods Study

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Abstract Young gay, bisexual, and other men who have sex with men (MSM) experience sexual health disparities due to a lack of support in settings that traditionally promote positive youth development. The Internet may help to fill this void, but little is known about how it is used for sexual health purposes among young MSM. This mixed-methods study reports quantitative results of a large survey of 18- to 24-year-old MSM in an HIV testing clinic ($N = 329$) as well as qualitative results from interviews. Level of Internet use was high in this sample and the majority of participants reported using the Internet to find HIV/AIDS information. Black and Latino youth used the Internet less frequently than White youth, and after controlling for age, education, and frequency of Internet use, Black youth were 70% less likely to use the Internet to find HIV/AIDS information. Qualitative analyses identified themes related to the role of the Internet in finding sexual health information, sexual minority identity development, and sexual risk taking behaviors. Participants reported that the Internet filled an important and unmet need for sexual health education. It allowed for connections to the gay community and support during the coming out process, but also exposure to homophobic messages. There was no evidence of increased risk behaviors with partners met online, but at the same time

the potential for the use of the Internet to facilitate safer sex communication was largely untapped. Our findings generally present an optimistic picture about the role of the Internet in the development of sexual health among young MSM.

Keywords Internet · HIV prevention · Online · Gay · Bisexual · MSM

Introduction

While many youth face obstacles to the successful development of sexual health, gay and bisexual youth and other young men who have sex with men (MSM) face particular challenges in this respect due to lack of support in the settings that traditionally promote positive youth development. Data show that the vast majority of school-based sex education programs do not address the concerns and questions of young MSM (Santelli et al., 2006), and suggests that they are less likely than heterosexual young men to receive school-based sex education at all (Goodenow, Netherland, & Szalacha, 2002) despite their desire for it (Seal et al., 2000). Parents, who play a critical role in the development of sexual health among heterosexual youth (Miller, Benson, & Galbraith, 2001), may become silent in this respect if they are unaware or unwilling to acknowledge the sexual orientation of their children. Unfortunately, peers may victimize sexual minority youth (Balsam, Rothblum, & Beauchaine, 2005; Savin-Williams, 1994), which can produce shame that inhibits self-acceptance. Most peers also do not serve as potential romantic partners, which can limit the ability of young MSM to explore romantic relationships and develop this competency during adolescence. Finally, there are relatively few community resources to meet the sexual health needs of young MSM despite their elevated risk for some negative health outcomes (Mustanski, Garofalo, Herrick, &

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Donenberg, 2007). With the shortage of positive influences from schools, families, peers, and communities, recent research suggests that the Internet may help fill this void in the development of sexual health of young MSM.

A large online convenience sample of gay, lesbian, and bisexual youth collected in the late 1990s found that the majority of participants “came out” online before doing so in the offline world (!OutProud!, 1998). In the years since this study, use of the Internet in all segments of the population has exploded, but particularly among youth. According to the Pew Internet and American Life Project, 93% of teenagers and 89% of young adults are online (Jones & Fox, 2009). The rise in access is mirrored by the increasing ubiquity of the Internet in everyday life. Young adults are using the Internet to make and maintain friendships and romantic relationships, connect to communities, and find information—all of which have the potential to impact sexual health. Given the anonymity it affords them during this important time of identity exploration, the connections to other MSM who might not be reachable in person, and the ability to find information on topics like HIV and same-sex relationships that may be inaccessible through other means, the Internet may be particularly relevant to the sexual health of young MSM (Brown, Maycock, & Burns, 2005; Garofalo, Herrick, Mustanski, & Donenberg, 2007; McFarlane, Bull, & Rietmeijer, 2002). Not surprisingly then, the rise in Internet use over time is mirrored by a dramatic increase in MSM use of the Internet to meet their first sexual partner (from 2.6% in 1993 to 61% in 2002 according to Bolding, Davis, Hart, Sherr, & Elford, 2007).

The absence of HIV or other sexually transmitted infections (STIs) only represents one dimension of sexual health. According to the World Health Organization’s (2004) definition, sexual health is “a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity.” The WHO definition further states that sexual health requires a positive and respectful approach to sexuality, which we believe should include knowledge about sexuality and health, healthy sexual/romantic relationships, and acceptance of one’s own and others’ sexual orientations. Within this broad conceptualization of sexual health, there are at least three aspects of particular relevance to young MSM and the Internet: (1) sexual behavior with another person, which can produce pleasure and facilitate relationships, but also put one at risk for an STI; (2) knowledge about sexuality and health; and (3) understanding and acceptance of one’s own sexual orientation.

The Internet, Sexual Behavior, and HIV/STI Risk

Research on the Internet and sexual health among MSM has almost exclusively focused on whether meeting sexual partners online is linked to HIV/STI risk. We reviewed studies that recruited their samples of MSM online, and found that between 82 and 97% of the MSM in each study reported

online sex seeking (Mustanski, 2007). A recent meta-analysis of 14 studies that recruited MSM offline found that 40% sought a sex partner online (Liau, Millett, & Marks, 2006), with the difference in frequency likely explained by the fact that samples recruited online are inherently going to use the Internet more often than those recruited offline. This meta-analysis also found that online sex seeking was linked to a greater history of unprotected anal intercourse (odds ratio = 1.68). This association should be interpreted cautiously, however, because it was primarily based on results of retrospective studies that did not always establish that reports of online sex seeking and risky sexual behavior referred to the same episodes, and designs that confounded individual differences in traits (such as sensation seeking) that may lead to both seeking sex online and risky behavior. Studies without these confounds have not supported an association between meeting partners online and increased sexual risk behavior (Chiasson et al., 2007; Mustanski, 2007). The complexity of this pattern suggests the need for a more nuanced interpretation for the Internet as a setting for sexual risk taking. The Internet may facilitate meeting more sexual partners, rather than increased likelihood of risky behavior with those partners. In addition, most of these studies were limited in having been conducted among adult MSM only, being solely quantitative, and exclusively focused on sexual risk behaviors and HIV/STI outcomes. Therefore, less is known about younger MSM and about the broader range of sexual health.

The Internet and Knowledge About Sexual Health

A review of the literature reveals surprisingly little research on the level of sexual health knowledge among young MSM; instead, most research has been conducted among adults. One study of adult MSM in the Netherlands reported a wide range of knowledge in a quiz on HIV (average 83% correct) and STIs (average 63% correct) (van der Snoek et al., 2006). Given its accessibility and the interest of MSM in receiving sexual health education online, the Internet has significant potential to provide sexual health education targeted specifically to young MSM. A recent survey showed that the majority of young adults (68%) have used the Internet to get health information (Jones & Fox, 2009) and a survey of adult MSM found the majority were interested in accessing online sexual health content (e.g., 86% physical sexual health, 69% developing an HIV/STI risk reduction plan; Hooper, Rosser, Horvath, Oakes, & Danilenko, 2008). More research is needed to inform the development of online sexual health education targeting adolescent and young adult MSM.

Sexual Self-Acceptance

Sexual health requires an understanding of one’s own sexual orientation and coming to believe it is acceptable and healthy.

The process of “coming out” to oneself is a primary step in eventual self-acceptance, which is positively associated with self-esteem and mental health (Savin-Williams, 1998). The process of “coming out” to others, however, can be a stressful and tumultuous time for a youth as it opens up the possibility of rejection, victimization, and parental abuse (Anhalt & Morris, 1998). Qualitative research with LGBT youth suggests that websites and Internet-based relationships can facilitate this process and provide scaffolding during this difficult time (Hillier & Harrison, 2007), and therefore the Internet offers great potential to positively impact the lives of sexual minority youth. However, more research is needed to understand how public and mental health agents can utilize the Internet as a means of supporting successful sexual identity development.

The Current Study

The focus of this mixed-methods study was to describe Internet-related behaviors among young MSM that positively and negatively impact their sexual health. Three areas of sexual health were explored: HIV/STI knowledge, sexual self-acceptance, and sexual risk behaviors. A mixed-methods design was used to take advantage of the strengths of both quantitative and qualitative methodologies (Axinn & Pearce, 2006). In this case, quantitative analysis was used to estimate the frequencies and predictors of specific behaviors, whereas qualitative methods were used to explore meanings and subjective understandings for the purpose of hypothesis generation. First, quantitative data are reported from a large sample of young men screened at a community-based HIV testing facility in order to describe patterns of general Internet use and use for finding HIV/AIDS information. Next, we report qualitative analyses of open ended interviews with ethnically diverse young MSM regarding their use of the Internet to find sexual health information, meet partners, and explore their sexual identity.

Method

Participants and Procedure

Participants were recruited from the HIV testing clinics of a large midwest community-based health center as part of a larger study to develop an online HIV/STI prevention program targeted at young MSM. The center has a mission of serving the LGBT community, but as evident from clinic records and descriptive data presented below, people of a wide variety of sexual orientations access services at this clinic. During recruitment, males who received a negative HIV test result were given a brief information sheet about the project by indigenous clinic staff, asked to complete a brief questionnaire including

demographic and behavioral items, and invited to provide contact information if they were interested in participating in a qualitative interview. Using these procedures, 656 young men completed the brief screening questionnaire. Of these, 558 (85%) were in the correct age range of 18- to 24-year-old, of which 269 (49%) identified as gay, 45 (8%) as bisexual, 17 (3%) as queer, and 214 (39%) as heterosexual, with the remaining 13 youth specifying another identity (e.g., questioning, transgender, etc.). Participants who identified as gay, bisexual, or queer were included in further analyses. This sample was ethnically diverse: 158 (48%) identified as non-Hispanic White, 67 (20%) as Black, 66 (20%) as Latino, and 38 (12%) as other (predominantly mixed race identity). In terms of education, 16 (5%) had not completed high school, 46 (14%) had graduated high school, 170 (52%) had completed some college, and 96 (29%) had completed college.

Participants who provided contact information and met initial eligibility criteria (male born and male identified, ages 18–24, and identified as gay, bisexual, or queer) were then invited to complete a more detailed online assessment in order to determine eligibility for participation in the qualitative interview. Additional inclusion criteria for the interview were having had anal sex with two or more male partners in the past three months (48%) and having not used condoms consistently for anal sex in the last three months (45%).

Participants gave informed consent prior to each interview. Sixteen participants completed the qualitative interviews, which were conducted by a single 24-year-old Latino male interviewer with cultural competence to discuss sexuality with gay/bisexual young men. With permission from participants, each session was audio recorded. The interviews began with background information, and went on to an open-ended discussion of (1) sexual identity and coming out; (2) attitudes towards HIV and safer sex, and experience with HIV education programs; (3) use of the Internet for non-sexual purposes, including to obtain health information; (4) use of the Internet to meet sexual partners; (5) specific nature and circumstances of the participant’s past several sexual partners, including condom use. The interviews lasted approximately 90 min. The interview guide is available upon request from the corresponding author.

Qualitative Analysis Plan

Recordings were transcribed and the transcripts read into qualitative analysis software (Atlas.ti). Codes were generated based on the first several transcripts, analyzed, and refined and augmented using the constant comparison method (Taylor & Bogdan, 1998). In this method, the analysis was a dynamic process, with each transcript informing the analysis of further transcripts. This process resulted in a final set of 65 codes, both generated inductively (e.g., “connection to gay community”) and derived from our initial research questions (e.g., “Internet use-sexual”).

Each transcript was independently coded by two coders who then discussed and reconciled their coding. Cohen's kappa was used as an index of inter-rater agreement, with kappas calculated in SPSS for the most frequently coded themes in each transcript. A kappa value of 0.7 or above was deemed to represent adequate agreement between coders. When any code had an initial kappa of less than 0.7, its application was reviewed by both coders and discussed until consensus was reached. Once coding was reconciled, a listing of all the texts with each code was generated, as well as lists of where certain codes overlapped (e.g., condom use and use of the Internet). This output was analyzed qualitatively, focusing on the range of responses to highlight evidence that might seem contradictory to our conclusions as well as the modal response.

Results

Phase 1: Quantitative Data

Participants were asked to report their frequency of Internet use in the last month, with six response options ranging from never to at least once a day. Most participants used the Internet fairly regularly, with only 6% ($N=20$) not using it at least weekly. Table 1 shows the proportion of participants who reported either multi-week or daily Internet use broken down by race/ethnicity. Daily use of the Internet was the most common (77%) across all ethnic groups. In a general linear model, after controlling for age (*ns*) and education level, $F(1, 321) = 5.74, p < .05$, there were significant differences in the frequency of Internet use by ethnicity, $F(3, 321) = 10.82, p < .001$. Tukey post-hoc comparisons between groups indicated that White participants used the Internet significantly more often than Black ($p < .001$) and Latino ($p < .001$) participants, and other participants had more frequent use than Black participants ($p < .01$), but no other ethnic contrasts were significant. A secondary analysis was performed including the heterosexual young men to explore differences in frequency of Internet use by sexual orientation. Controlling for age, education, and ethnicity, gay and bisexual men reported significantly more frequent Internet use, $F(1, 541) = 18.73, p < .001$.

Table 1 also includes the frequency of Internet use to find information on HIV/AIDS, a practice that was very common among participants. In a logistic regression analysis, after controlling for age ($OR = 1.13, ns$), current education level ($OR =$

$1.34, ns$), and frequency of Internet use ($OR = 1.47, p < .05$), there were significant differences by race; compared to White participants, Black MSM were significantly less likely to use the Internet to find HIV/AIDS information ($OR = .30, p < .01$). No other racial/ethnic groups were significantly different from the White group. A secondary analysis was again performed to explore sexual orientation differences; gay and bisexual young men were significantly more likely to have used the Internet to find HIV/AIDS information than heterosexuals, after controlling for age, Internet use, education, and race ($OR = 4.70, p < .001$).

Phase 2: Qualitative Data

Six non-Hispanic White, six Hispanic/Latino, and four Black young MSM participated in the qualitative interview phase, with the samples having a mean age of 21.7 years. Our analysis of the qualitative interviews focused on three aspects of the Internet and sexual health: (1) finding sexual health information online, (2) the role of the Internet in sexual minority identity development, and (3) sexual behavior with partners met online, particularly the potential of the Internet to facilitate safer sex discussion and screening.

Online Health Information

All participants interviewed indicated that they had used the Internet to find health information. All but one participant stated that they specifically used the Internet to find HIV or STI related information, either for self-diagnosis, to find a testing site, or to get general facts about symptoms, transmission, or prevention. For example, after responding that he used the Internet to find health information, one participant elaborated:

If I ever have, like a problem, just whatever kind of like medical, like if I get a bump somewhere, or like I think something might be happening, I usually look up my symptoms online to see what it is. (Participant 11, White)

In addition to finding facts and symptoms, some participants also talked about using the Internet to obtain prevention information and skills. The importance of the Internet as a source of health information that addresses the unique sexual health needs of MSM was highlighted by another participant, who said:

Table 1 Internet use by race/ethnicity

	All	White	Black	Latino	Other
Daily Internet use	253 (77%)	144 (91%)	38 (57%)	40 (61%)	30 (79%)
At most multi-week Internet use	50 (15%)	11 (7%)	13 (19%)	20 (30%)	6 (16%)
Used Internet to find HIV/AIDS information	288 (88%)	146 (92%)	46 (70%)	63 (96%)	32 (84%)

In high school, I received absolutely no sex education regarding gay people. So, on the Internet, there are all sorts of things that you can be informed about. If I didn't have the Internet, I probably wouldn't know that much about condoms, especially because I wasn't taught about condoms in high school. I was taught abstinence. (Participant 10, Latino)

Participants were asked to describe how they determined the quality of the health information that they found online, and a variety of strategies were reported. One strategy was to rely on the reputation of the website to determine the accuracy of the information it contained. Several participants specifically mentioned the website "WebMD" as being a reliable source because they had "heard of it" and "it has commercials on TV." Information provided on university or government websites was often perceived as reliable:

Something that's affiliated, with a hospital or university. Something that has an amount of works-cited that they got sources from. Not just something that someone just put up there, cause there's so much of that on the Internet. (Participant 4, Black)

Another common strategy to insure that information was of high quality was checking for converging information across multiple websites. One participant stated:

Usually I just look to see like a medical thing, and then I skim through them. Then I look through a few of them, usually just to see, okay, what's similar between the few, what's different between the few... (Participant 2, White)

Participants also talked about the differences between websites that are considered to provide expert facts versus those that were based on opinions or information from peers. For example, one participant said:

Sometimes I do Wikipedia, but because that's peer edited I get that not every article gets quite as much scrutiny as every other. I realize I should use PubMed except that a lot of the times it goes way over my head, or it's not relevant. (Participant 10, Latino)

Sexual Orientation Identity Development and Self-Acceptance

Three themes arose regarding the Internet and its role in sexual orientation identity development and acceptance: connecting to the gay community, accessing information about coming out, and viewing online same-sex erotica. All 16 participants mentioned using the Internet for one of these purposes.

Connecting to the Gay Community: A Tool in Understanding One's Self

Fourteen of the participants said that the Internet played an active role in connecting to other people, in particular other gay or bisexual youth. Several participants stated that, at one point in their life, they did not have any immediate gay friends or that they did not know how to find other gay friends or young men grappling with their identity. The Internet thus served as a tool to reach out to other young men in similar situations. In terms of connecting to the gay community, three sub-themes emerged: (1) participants used the Internet to find other gay people and verify that others like them existed; (2) participants used the Internet to network with other LGBT youth through social networking sites (like Myspace, Facebook, etc.) or through chatting online; (3) participants used the Internet as a means to seek sexual partners.

Five participants mentioned using the Internet to seek other people like themselves and by doing so confirmed they were not alone in their identity. These participants tended to have lived in non-urban environments, and felt that the Internet helped in exploring both their sexual identity and in realizing that others sexual minorities existed nearby.

I: So in what ways has the Internet played a role in your coming out?

R: I think it makes it easier to like talk to people who are in your same situation, or people who are out and not in your same situation. (Participant 9, Latino)

I: Let's talk about the Internet a little bit and how that's possibly influenced your sexual identity. So has the Internet played a role in your coming out?

R: Well, I think so. It definitely helped a little bit. Just seeing that there was [sic] a lot of people out there that were gay. I lived in a small town. There was [sic] gay people, but you don't know how many there are. Honestly, if I didn't have the Internet, I wouldn't know. (Participant 5, White)

Some relationships established online remained exclusively so and, in other cases, the Internet was used as a tool to find ways to connect with others in real life. One participant used the Internet to find a queer youth group in his home town:

I: Has the Internet played any role in your coming out?

R: ...Like I looked [online]. Then I found out about this youth group in [my home town]. Once a week they'll have meetings at a certain place in whatever city they're hosting it in. I would go every Thursday there, and that was my way of finding myself even more and finding other, ya know, queer, how would you say... members? I don't know. Other people! ...

I: Other people your age too?

R: Yeah, yeah, which was actually shocking because I found a whole lot of people and I'm like wow, I'm like, I

thought I was the only one in [home town] (laughs). And, um, it was really interesting... (Participant 6, Latino)

Using the Internet to Network with Other Sexual Minorities: It's Not All About Sex

Thirteen participants reported using either a social networking website or an Internet chat room to connect with other gay people. In this sense, connecting with other people did not mean for sexual purposes. Rather, several participants used the Internet as an easier way to find friends like themselves, to network, and to meet potential dating partners.

I: Has the Internet played a role in you coming out?

R: Yeah. Definitely when I was young and I was very closeted and very repressed. I went online to meet people, chat, talk to many different people. One of my really good friends from Florida I had met when I was 14 online and we would just chat on and off. But now we're like really just good. I've known him for like 8 or 9 years. It's wild. So yeah. It has... (Participant 14, Latino)

I: Specifically, how has the Internet played a role in your coming out, if at all?

R: Well definitely when I was like a teenager. I got to talk to other men on networking websites or like whatever, just holding conversations. Like, I'd ask them a question and things like that, when I was like, I dunno 15 or something, like that or 16. Also just seeing images of men together, cause growing [up] in the suburbs you don't really see that in real life... (Participant 8, Latino)

R: The whole stigma, that it is easier to meet online because it seems like the people they open up and talk more about this or that or whatever. From online, if it goes well, it comes to over the phone or whatever, and talk more about this and that than in person. It's the whole approachable thing, you know. Everybody is afraid to approach somebody they're interested in because of being struck down by society [...] Meeting people online is a stepping stone because from the experience meeting people online became a stepping to knowing a person in person. (Participant 15, Black)

Participants also reported using the Internet as a networking avenue to meet other gay people offline with similar interests. One participant, who was moving to a different state, created a professional webpage to network with other gay people in that area.

[Regarding specific website] so you go on there, and that was basically just for a sense of community because I'm getting ready to move to L.A., and I was trying to find some gay friends that I could hang out with once I get there, cause

I don't really know many gay people there; I just know people from my career. (Participant 4, Black)

Other participants did not feel comfortable or were not old enough to go to gay bars or community centers to meet other men. Participants in these situations felt that the Internet was the primary source of being able to meet other men for both friendship and dating.

I: I want to know if the Internet has played a role in your coming out at all.

R: I have met a couple friends [in offline spaces], gay friends, but still the Internet is like probably the only thing I use to really meet gay guys. (Participant 11, White).

Accessing Information Online: A Tool for Identity Development and Self-Acceptance

A few of the participants used the Internet as a tool prior to, during, and after coming out to access information about being gay or bisexual. The information young MSM sought over the Internet varied, and included community resources, health information, and sexual facts.

I: So let's talk about the Internet and coming out. Has the Internet played a role in your coming out at all?

R: It's helped me just to look at things, like trying to figure out things without actually talking to people [...] You try to figure out a way to find information without letting anything out to someone... Because if I brought it up [with friends], then like that would be my coming out and that would be too solid. So the Internet, look online, go look at pictures, look at, read stories, whatever, and then that's still secret for you. You don't have to tell everyone, yet. (Participant 12, White)

Unfortunately, participants also reported encountering sexual minority stigma on the Internet. Moreover, this stigma reinforced some of their concerns and hesitancy about coming out. For example, while browsing on the Internet, one participant came across information about Matthew Shepard, a young man whose brutal murder for being gay was widely publicized. The participant reported initial feelings of anxiety after reading about the case and stated that he could not believe that people could actually be so cruel. Hearing about Matthew Shepard reinforced this participant's concern about his safety in a non-urban environment and also hesitancy to come out to his family because he was worried about their perception of his own safety as a gay teenager.

When I was coming out, in the process of finding myself, I looked to the Internet for some things. I was just reading a lot. Like one thing that I had knew [sic] about when I was little was the Matthew Shepard case. That was actually one thing that I would say scared me

to come out [...] Like it really did shock me. I didn't think somebody would be so heartless to do that to someone. And that was what the main thing that had like, postponed me like, finding myself and coming out and everything. The fact that I was afraid, ya know? One day that would happen to me and then the news happened to go flow by my family and they hear about it. And it's just something that scared me, for my protection as well as my family's. (Participant 6, Latino)

Another participant reported about his online encounters with an online “ex-gay ministry” or “reparative therapy” group. At the time, he was seriously questioning his sexual orientation and the implications of coming out. He reported that this group made him seriously question his identity.

The Role of Gay Pornography

Four participants reported using the Internet to access gay pornography, and that this served a significant role in their sexual identity development. In general, pornography was used as a tool to confirm their sexual desires. Participants reported that gay pornography was especially taboo (i.e., hiding pictures of naked men from their family) but that exposure to it ultimately reinforced and helped them to better understand their sexual attraction and arousal.

... by the time I had it figured out, I was already looking at porn... The availability of porn, I think, helped accelerate my development... Like the realization I [am sexually attracted to guys]. (Participant 2, White)

And I remember the first day we had the Internet and my parents went to bed. I looked up a gay porn site and was like, “Yup!” (laughs). Yeah... that's it. That's it... that's what I want. Ha-ha. So, yea... Internet definitely had a big role. (Participant 13, White)

The way I came out with my mother is she caught me viewing porn and that (laughs). We talked about that and she basically said that, “it's alright with me, and do what you do and what makes you happy, but just don't bring him around here in that way. And pay the Internet bills as you raised them.” And that was it. That was the conversation. (Participant 15, Black)

Using the Internet to Meet Sexual Partners and Associated Risk

Several themes emerged around using the Internet to meet sexual partners and how this might have been related to HIV/STI risks, including how participants met partners through the Internet, the number of partners they met, how they screened partners, and condom use. All but one participant reported meet-

ing sexual partners on the Internet in the previous three months. In this sample of urban young MSM, meeting partners on the Internet was a great deal more common than meeting them in bars. Those who had lived in rural or suburban areas before moving to the city stated that their sex partners (as well as other connections to the gay community) were found exclusively online during that period:

I: So when you go online to have sex with partners, do you go online specifically for that reason? Or have you gone online to be friends with people? Or both?

R: I guess if I'm horny or whatever. And then other times it'll just be like I'm bored and I'll find somebody to talk to. Like I have friends online that I talk to, but hardly ever see out or I probably have never met. [...] Especially in [small college town]. (Participant 9, Latino)

I: Would you use the Internet to get information, to meet friends, to meet sex partners?

R: Back before I moved here?

I: Let's talk about both.

R: Yeah, I did that. I had Internet hook-ups even back when I was living at home. (Participant 5, White)

The websites varied where these connections took place. Most commonly mentioned websites included Manhunt, Gay.com, Myspace, and Craigslist. Some participants strictly partitioned their use of different web sites for different purposes, managed profiles that might be read by family members, etc.

I do have a MySpace, but that's my artist page, so I don't really use that as something to meet people; it's strictly professional. (Participant 4, Black)

Others used several websites at once to meet partners:

R: There's Manhunt, MySpace, Facebook, Dudes Nude.

I: Is there one that you go to more often?

R: No, just whatever. (Participant 9, Latino)

In some cases, participants found partners on websites that were not explicitly devoted to gay men or to making connections online.

My first boyfriend was off of the Internet, a long distance thing...[from] a fan type website. I role-play sometimes online. (Participant 2, White)

Number of Partners

Reflecting the long-tailed distribution in most surveys of sexual behavior (Schroder, Carey, & Vanable, 2003), the number of partners whom participants reported that they met online in the previous three months ranged from 0 to 40. One participant had met no online partners in the previous three months, and had met only one online partner in his lifetime.

While many participants stated they met partners both online and offline, the participant with 40 partners met them exclusively online. The frequency with which participants sought sexual partners on the Internet depended on a number of factors, including whether they were involved in, or were seeking, a more serious romantic relationship.

I: So you definitely don't use these websites to like have a relationship with somebody, it's definitely "just fucking?"

R: Well Manhunt, yeah. Gay.com, umm, I don't even, you know. I'm not really in the position for a relationship right now[...] I tell myself I'm not really looking for anything, you know what I mean? So I mean if I'm horny, I'll log onto Manhunt and do something, but mostly, I'm just, like you know, I'm just chatting... (Participant 11, White)

Some expressed ambivalent feelings about using the Internet to meet sexual partners.

Now that I actually think about it, it's disgusting, it really is. It's like these guys just put themselves out there and I'm like "eww ohh." The pictures that they take and the comments that they write. I'm like, I'm not sure I wanna talk to you, or I'm not sure I want you to know who I am. (Participant 6, Latino)

I: In general, where do you go to meet guys? Is it like the Internet or is it bars?

R: Not at all [in] bars. I mean, I've been an introvert my whole life so...its, I mean, I, at some point I hope it will become bars... (Participant 2, White)

... I definitely don't use [website] for sex partners or anything like that; it's more just like getting to know people who are gay and who might want to hang out. (Participant 4, Black)

This ambivalence did not necessarily translate into not using the Internet to meet partners. The latter participant, for instance, met his two most recent partners at bars, and expressed strong ambivalence and dislike of meeting partners online, but reported half a dozen additional hookups with partners met online.

Screening of Partners

In theory, meeting sexual partners via the Internet might facilitate discussion of HIV status and safer sex practices. Users can place this information in their online profiles or state their preferences upfront in online chat. They can also passively screen for partners who state in their profiles that they use condoms or only have safer sex. Many websites encourage this by offering users the option to state a safer sex preference in their profiles. Accordingly, we asked participants to discuss in detail their safer sex communication

online. In general, screening for HIV status was much more common than online discussion about condoms. A few participants said that they actively discussed HIV status with prospective partners:

I: How do you screen them before you decide to meet them? Or is there a screening thing involved?

R: There's always...I'm trying to think of the best way to word this...there's always the question...there's always the question of when's your last test.

I: And this is on the computer?

R: Yeah, this is this is either on the computer, or through a text conversation over the phone, or actually talking on the phone [...]. [One of my friends has] got to see the written confirmation of the test, and at first I thought that was a little off. I'm like, ok, that's almost too much. But then when I started thinking about it, I'm like, that makes sense. (Participant 1, White)

An effective, passive way to convey safe sex boundaries would be to place them in one's profile or ad.

When I would post a Craigslist ad I would say "safe only" in it ...just, it seems like something you have to establish and you have to be very clear about. (Participant 2, White)

Screening for HIV status passively by looking at the prospective partner's profile, was more frequently mentioned. If someone's ad or profile stated that he was HIV positive, the participant simply did not contact that person.

I think online you can kind of tell right away how somebody is, well I can. What their preference is. Like if somebody is like, "Oh, do you like to do it bareback?" or whatever. Then you kind of have the idea that they probably do it with a lot of people bareback. So that's somebody I wouldn't meet. So, based on that, usually that's how a lot of people—I know people have done it to me too—where they test you. (Participant 9, Latino)

One participant brought up HIV status [whether potential partner was "clean"] in chatting prior to meeting:

I: Do you ever talk about safe sex before meeting a person? I guess what I'm trying to say is how do you screen people before you have sex with them?

R: You ask. I have asked and I have been asked.

I: You just flat out ask?

R: Uhm hm.

I: How does that work?

R: They ask you if you're clean and you say yes, if you are, I guess. I mean, I've always answered honestly, but you can't really be sure of the person's answer so that's why you use condoms. Your best method of...I guess, your seatbelt. (Participant 10, Latino)

In contrast to HIV status, few participants discussed condom usage prior to meeting. The following participant asked a prospective partner whether he was “safe” (the exact meaning of which was not clear).

R: Because usually like I would ask somebody, “Are you clean? Are you safe?”

I: And so you ask these questions before you even meet?

R: Yeah. (Participant 9, Latino)

Participants rarely communicated or screened for condom use online. That is, they never specified their condom use preference either on their online profile or through messaging prior to meeting.

I: Would you talk about condom use or HIV status before you hooked up, or was that not part of it?

R: Usually I ask HIV status. But I don’t ever bring up protection, because if they say they’re positive, I’m not doing anything. I don’t really like using protection. (Participant 7, Latino)

Condom use, if it occurred, was then negotiated at the face to face meeting.

I: How do you decide, like somebody comes over. You’ve sent a couple emails back and forth, so how do you decide whether or not to use a condom?

R: (long pause). Like I would get that instinct, that feeling from them, like it would be more than a one-night kind of thing. And most of the time it’s been right. And, uh, so from there I would... (pause; does not finish sentence). (Participant 6, Latino)

Condom Usage and the Internet

In accord with research cited above (Chiasson et al., 2007; Mustanski, 2007), patterns of condom usage in this sample seemed to have little to do directly with whether the sexual partner had been met via Internet. With partners met for the first time, most participants stated they used condoms. The participant mentioned above, who had 40 partners, reported using condoms with each of them:

I: You never slip up?

R: No.

I: And so there’s not a person where you decide you will versus you won’t?

R: No. I always use a condom unless I’ve known the guy for a while. (Participant 9, Latino)

As the preceding quotation suggests, and most of the transcripts confirmed, condoms were less likely to be used when the sexual partner was a primary or longer-term partner (i.e., someone who has been “known for a while”) than with a first-time partner, whether met online or not. Some websites

were more geared toward those seeking longer term relationships (such as OkCupid.com, Yahoo! Personals, and to some extent Gay.com) and some Internet users were seeking longer-term relationships:

I: And do you think one of the goals or purposes of meeting guys online, in this way, is to have a long-term relationship, or not really?

R: Yeah. I would say so.

I: And it seems like, in your case, that that’s worked, right?

R: Yeah. It’s happened. (Participant 9, Latino)

However, primary partners met via the Internet just as often originated as hookups, which later developed into longer term relationships. One participant met his boyfriend on Craigslist, which many others described as primarily a hookup site. It is unclear whether primary partners met originally as hookups online would differ from those met offline. In addition to partner type, in terms of inconsistent condom use, participants mentioned low self image/depression, drug and alcohol use, dislike of the sensation of using a condom, and pressure from the partner.

Discussion

Using a mixed-methods approach, we explored the role of the Internet in the sexual health of ethnically diverse young MSM. Quantitative results from a large survey of young MSM that tested HIV negative in a community clinic demonstrated high level of Internet use. The vast majority of the participants used the Internet a minimum of several times each week. Similarly, use of the Internet to find HIV/AIDS information was very common. However, large demographic differences existed in these two behaviors. White participants used the Internet more often than their racial minority peers, with the largest contrast with Black youth. Although Latino youth were less likely to use the Internet on a daily basis compared to their White peers, the differences in use patterns became negligible when using the Internet multiple times a week was collapsed together with daily use (White = 98%, Latino = 91%). Our findings of ethnic differences in patterns of Internet use reflect those found in larger population-based surveys (e.g., Pew Internet and American Life Project, 2009). A finding unique to our study was the sexual orientation differences in frequency of Internet use, with MSM using the Internet significantly more frequently (daily use MSM = 77%, non-MSM = 60%). While there has been some speculation that members of the LGBT population are more likely to use the Internet than their heterosexual counterparts, our study is one of the first to confirm this with quantitative survey data.

Demographic differences were also found in Internet use to find HIV/AIDS information. Even after controlling for

frequency of Internet use, age, and education level, Black participants were significantly less likely to use the Internet for this purpose. Because the model controlled for frequency of Internet use, this racial difference cannot be simply attributed to less use among Black young MSM. While the source of this ethnic difference is unclear based on these data, it is of concern given the significantly higher prevalence of HIV among Black young MSM compared to other ethnic groups (Valleroy, MacKellar, & Karon, 2000). Given this racial disparity in HIV prevalence and the potential of the Internet to provide targeted HIV prevention programming to young MSM, further research should seek to understand why Black participants were less likely to seek HIV/AIDS information online and how to reverse this trend.

Data from our qualitative interviews mirror the quantitative findings of high levels of Internet use to find sexual health information, but provide greater detail about patterns of use and their meaning. Participants described a range of uses of the Internet, including searching for specific facts about HIV or STIs, attempting self-diagnoses of symptoms they might be experiencing, finding health centers that offered HIV/STI testing and affordable care, and learning about risk reduction techniques. While these kinds of searches may be common to most youth, the Internet also provided access to information developed specifically for the sexual health needs of MSM—information that was described as unavailable in other settings. The desire to find MSM-specific health information dovetails with a recent online sexual health needs assessment among adult MSM, which found that MSM used LGBT-specific sites more to find sexual health information compared to general health sites (Hooper et al., 2008). MSM may be seeking out this information on LGBT-specific sites because their needs are not sufficiently addressed on other websites focused on sexual health. For example, a content analysis of interactive safer sex websites found that, out of hundreds identified, few (14%) were targeted specifically at MSM and none tailored intervention materials to user characteristics (Noar, Clark, Cole, & Lustria, 2006). Public health researchers and policy makers should take note of the desire for tailored information online and support the development of HIV prevention websites specifically for MSM.

A large number of websites with information about HIV and other STIs already exist on the Web; a Google search for the term “HIV” produced over 65 million hits and 14 million hits for “HIV prevention.” However, quantity does not equal quality. In a recent meta-analysis, 70% of the 79 studies reviewed concluded that much health information on the Web was inaccurate, out-of-date, or incomplete (Eysenbach, Powell, Kuss, & Sa, 2002). This mixed quality of information requires users to be able to discern the differences between websites that provide accurate information from those that do not. In the current study, when asked how they evaluated the reliability of a website’s health information, participants

described a wide variety of strategies. Relatively effective approaches included looking for converging information across sites and relying on information provided by hospitals and universities; other approaches that were less likely to be effective included trusting a website they had heard of before or not using any strategy at all. While most participants reported using one of the more effective strategies, there was enough variability to suggest the need for further education in how to apply critical thinking skills when seeking information online.

All of the participants reported the Internet facilitated their sexual identity development by connecting them to the gay community (online or in real life), finding information about coming out, or viewing gay pornography to validate their sexual attractions. Participants described the Internet as a unique medium to realize they are not alone, which in itself is likely to have positive mental health effects. Most participants went further than using the Internet to connect virtually, but also used it as a medium to meet friends offline or find gay community resources. Unfortunately, the online experiences of these young men were not universally positive, and several of them recounted finding information online that either negatively portrayed homosexuality, or described the victimization of LGBT people. Participants reported that these negative experiences led them to question their sexual orientation and whether to disclose it to others. Therefore, while the Internet can provide a relatively safe space for identity exploration, it is by no means entirely free from negative and blatantly homophobic encounters.

Several of the participants reported that viewing gay pornography online played an important role in their sexual identity development or coming out. First, the sexual arousal and attraction experienced when viewing gay pornography confirmed for these young men that they were attracted to men. Such use of pornography has been previously described. For example, when the Canadian Supreme Court was asked to determine whether gay male pornography violated the sex equality protections guaranteed by the Canadian Charter of Rights and Freedoms, some argued that gay male pornography should not be restricted because it serves as a learning tool for young men and, in so doing, may improve their mental health (Kendall, 2004). Second, some participants reported that the use of pornography influenced their coming out simply because others found out about their viewing of gay pornography and questioned them about it. Little is known about the potential positive and negative effects of viewing pornography on the development of sexual health among MSM, an issue that warrants further study.

Consistent with previous quantitative studies that found it was common for MSM to use the Internet to meet sexual partners (Garofalo et al., 2007; Liao et al., 2006; Mustanski, 2007), all but one of the young MSM reported that they had met a sexual partner online in the last three months. Participants

consistently described the Internet as the means most often used to meet other MSM, and some described it as the only means when they were living outside of urban areas that have developed gay communities. In discussing the use of the Internet to meet partners, participants described substantial differences in website content and purpose. Some websites were used exclusively for meeting partners for immediate sex, whereas others were multipurpose and could be used for networking, staying in touch with existing friends, and/or forging new relationships. Participants did not always have clear intentions when accessing multipurpose websites: they may have started a chat with someone they were interested in romantically, and this could lead to an immediate sexual encounter or to a sustained online chatting relationship that might or might not eventually turn into an offline relationship. The variety of websites speaks to the need for researchers to be sophisticated in studying the Internet and sexual behavior; just as offline settings differ in their norms and behavioral scripts, different websites may engage different setting-level processes that are relevant to sexual health.

One unexpected finding from the qualitative interviews was the ambivalence that participants expressed about using the Internet to meet sexual partners. While almost all of them recently used it for this purpose, it was sometimes described as “disgusting” or a strong preference was espoused for meeting other MSM in offline settings. The source of the ambivalence seemed to be the conflict between the desire to meet other MSM to fulfill sexual and romantic needs, versus guilt about the brazen and sometimes explicit nature of the websites dedicated to this pursuit. Interestingly, expressions of ambivalence did not appear to be related to a reduced frequency of using the Internet to meet sexual partners.

A major focus of these interviews was how meeting partners online was related to sexual risk-taking behaviors. Participants were asked how they screened potential sexual partners. While a few participants talked about actively discussing HIV status with a prospective partner, most described more passive approaches, like searching a potential partner’s online profile for his status or searching for evidence of past high risk behaviors, such as a preference for “bareback” sex. Few participants mentioned screening explicitly for condom use, stating that they used condoms in their profiles, or discussing it in online chats prior to meeting—even though these could be effective safer sex strategies because they may be less awkward than such discussions face to face. Many of the participants talked about having unprotected anal sex with a partner assumed to have an HIV negative status, which is unfortunate from a public health standpoint because, unlike some demographic groups where the majority of HIV positive people know they are positive (Hall et al., 2008), among young MSM as little as 18% may know they are positive (Valleroy et al., 2000). Given these findings, it is critical that future HIV prevention programs targeting young MSM highlight the importance of not relying on a partner’s self-

reported serostatus when making decisions about condom use during sex.

Finally, our qualitative findings replicate quantitative event-level research (Chiasson et al., 2007; Mustanski, 2007), which has found no relationship between whether a partner was met online and increased unprotected sex relative to partners met in other settings. Instead, the most salient predictor of unprotected sex from the qualitative interviews was relationship status. Several participants described stopping condom use once they considered the relationship to be “serious.” Our qualitative findings regarding the importance of relationship status in the decision to use condoms replicate the quantitative research of Crepaz et al. (2000), who found that sexual risk behaviors with primary partners were substantially more prevalent among MSM younger than age 25 than among older MSM. HIV prevention programs targeted at young MSM must address relationships and condom use, instead of incorrectly assuming that most young MSM are not in relationships they perceive to be serious or that the context of being in a relationship is irrelevant.

Our mixed-methods findings must be interpreted within the context of study limitations. While our sample size for the quantitative portion was large for a study of young MSM, we were limited to only two items related to Internet use and sexual health. In terms of sample size, there were too few participants in the qualitative interview phase to allow for exploration of group differences in themes, such as ethnic differences. Future qualitative studies in this area would benefit from a larger sample in each ethnic group in order to help explain why Black young MSM appear to be less likely to use the Internet to find HIV/AIDS information. All participants were recruited from HIV testing centers in the midwest and therefore our findings cannot be generalized to other MSM that may not seek HIV testing. Finally, our mixed-methods approach relied entirely on self-report. We were not able to directly observe Internet use and instead relied on the descriptions provided by participants.

Our findings generally present an optimistic picture about the role of the Internet in the development of sexual health among young MSM. Using the Internet to meet sexual partners, an increasingly common phenomenon, does not appear to potentiate sexual risk taking. On the positive side, young MSM made extensive use of the Internet to find sexual health information and facilitate their identity development. On the negative side, youth reported negative experiences online and were not consistently using effective strategies for communicating about safer sex (i.e., condom use). Our findings suggest there is a great, but largely untapped, potential for the promotion of sexual health online.

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References

- !OutProud! (1998). *Internet survey of queer and questioning youth*. Retrieved from <http://www.outproud.org/>.
- Anhalt, K., & Morris, T. L. (1998). Developmental and adjustment issues of gay, lesbian, and bisexual adolescents: A review of the empirical literature. *Clinical Child and Family Psychology Review*, 1, 215–230.
- Axinn, W. G., & Pearce, L. D. (2006). *Mixed method data collection strategies*. Cambridge: Cambridge University Press.
- Balsam, K. F., Rothblum, E. D., & Beauchaine, T. P. (2005). Victimization over the life span: A comparison of lesbian, gay, bisexual, and heterosexual siblings. *Journal of Consulting and Clinical Psychology*, 73, 477–487.
- Bolding, G., Davis, M., Hart, G., Sherr, L., & Elford, J. (2007). Where young MSM meet their first sexual partner: The role of the Internet. *AIDS and Behavior*, 11, 522–526.
- Brown, G., Maycock, B., & Burns, S. (2005). Your picture is your bait: Use and meaning of cyberspace among gay men. *Journal of Sex Research*, 42, 63–73.
- Chiasson, M. A., Hirshfield, S., Remien, R. H., Humberstone, M., Wong, T., & Wolitski, R. J. (2007). A comparison of on-line and off-line sexual risk in men who have sex with men: An event-based on-line survey. *Journal of Acquired Immune Deficiency Syndromes*, 44, 235–243.
- Crepaz, N., Marks, G., Mansergh, G., Murphy, S., Miller, L. C., & Appleby, P. R. (2000). Age-related risk for HIV infection in men who have sex with men: Examination of behavioral, relationship, and serostatus variables. *AIDS Education and Prevention*, 12, 405–415.
- Eysenbach, G., Powell, J., Kuss, O., & Sa, E.-R. (2002). Empirical studies assessing the quality of health information for consumers on the world wide web: A systematic review. *Journal of the American Medical Association*, 287, 2691–2700.
- Garofalo, R., Herrick, A., Mustanski, B., & Donenberg, G. R. (2007). Tip of the iceberg: Young men who have sex with men, the Internet, and HIV risk. *American Journal of Public Health*, 97, 1113–1117.
- Goodenow, C., Netherland, J., & Szalacha, L. (2002). AIDS-related risk among adolescent males who have sex with males, females, or both: Evidence from a statewide survey. *American Journal of Public Health*, 92, 203–210.
- Hall, H. I., Song, R., Rhodes, P., Prejean, J., An, Q., Lee, L. M., ... For the HIV Incidence Surveillance Group. (2008). Estimation of HIV incidence in the United States. *Journal of the American Medical Association*, 300, 520–529.
- Hillier, L., & Harrison, L. (2007). Building realities less limited than their own: Young people practicing same-sex attraction on the Internet. *Sexualities*, 10, 82–100.
- Hooper, S., Rosser, B. R., Horvath, K. J., Oakes, J. M., & Danilenko, G. (2008). An online needs assessment of a virtual community: What men who use the Internet to seek sex with men want in Internet-based HIV prevention. *AIDS and Behavior*, 12, 867–875.
- Jones, S., & Fox, S. (2009). *Generations online in 2009*. Retrieved from the website of the Pew Internet and American Life Project: <http://www.pewinternet.org/Reports/2009/Generations-Online-in-2009.aspx>.
- Kendall, C. N. (2004). Educating gay male youth: Since when is pornography a path towards self-respect? *Journal of Homosexuality*, 47, 83–128.
- Liau, A., Millett, G., & Marks, G. (2006). Meta-analytic examination of online sex-seeking and sexual risk behavior among men who have sex with men. *Sexually Transmitted Diseases*, 33, 576–584.
- McFarlane, M., Bull, S. S., & Rietmeijer, C. A. (2002). Young adults on the Internet: Risk behaviors for sexually transmitted diseases and HIV. *Journal of Adolescent Health*, 31, 11–16.
- Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family relationships and adolescent pregnancy risk: A research synthesis. *Developmental Review*, 21, 1–38.
- Mustanski, B. S. (2007). Are sexual partners met online associated with HIV/STI risk behaviours? Retrospective and daily diary data in conflict. *AIDS Care*, 19, 822–827.
- Mustanski, B., Garofalo, R., Herrick, A., & Donenberg, G. (2007). Psychosocial health problems increase risk for HIV among urban young men who have sex with men: Preliminary evidence of a syndemic in need of attention. *Annals of Behavioral Medicine*, 34, 37–45.
- Noar, S. M., Clark, A., Cole, C., & Lustria, M. L. A. (2006). Review of interactive safer sex web sites: Practice and potential. *Health Communication*, 20, 233–241.
- Pew Internet and American Life Project. (2009). *Trend data*. Retrieved 4/9/09 from www.pewinternet.org.
- Santelli, J., Ott, M. A., Lyon, M., Rogers, J., Summers, D., & Schleifer, R. (2006). Abstinence and abstinence-only education: A review of U.S. policies and programs. *Journal of Adolescent Health*, 38, 72–81.
- Savin-Williams, R. C. (1994). Verbal and physical abuse as stressors in the lives of lesbian, gay male, and bisexual youths: Associations with school problems, running away, substance abuse, prostitution, and suicide. *Journal of Consulting and Clinical Psychology*, 62, 261–269.
- Savin-Williams, R. C. (1998). *“...And then I became gay”: Young men’s stories*. New York: Routledge.
- Schroder, K. E., Carey, M. P., & Vanable, P. A. (2003). Methodological challenges in research on sexual risk behavior: I Item content, scaling, and data analytical options. *Annals of Behavioral Medicine*, 26, 76–103.
- Seal, D. W., Kelly, J. A., Bloom, F. R., Stevenson, L. Y., Coley, B. I., & Broyles, L. A. (2000). HIV prevention with young men who have sex with men: What young men themselves say is needed. *AIDS Care*, 12, 5–26.
- Taylor, S. J., & Bogdan, R. (1998). *Introduction to qualitative research methods: A guidebook and resource* (3rd ed.). New York: Wiley.
- Valleroy, L. A., MacKellar, D. A., & Karon, J. M. (2000). HIV prevalence and associated risks in young men who have sex with men: Young Men’s Survey Study Group. *Journal of the American Medical Association*, 284, 198–204.
- van der Snoek, E. M., de Wit, J. B., Gotz, H. M., Mulder, P. G., Neumann, M. H., & van der Meijden, W. I. (2006). Incidence of sexually transmitted diseases and HIV infection in men who have sex with men related to knowledge, perceived susceptibility, and perceived severity of sexually transmitted diseases and HIV infection: Dutch MSM-Cohort Study. *Sexually Transmitted Diseases*, 33, 193–198.
- World Health Organization. (2004). Sexual health—a new focus for WHO. *Progress in Reproductive Health Research*, 67, 1–7.