

## Social Media Use and HIV-Related Risk Behaviors in Young Black and Latino Gay and Bi Men and Transgender Individuals in New York City: Implications for Online Interventions

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**ABSTRACT** *Urban young men who have sex with men (YMSM) and transgender women continue to experience high rates of new HIV infections in the USA, yet most of this population is not reached by current prevention interventions. The rate of Internet and social media use among youth is high. However, continually updated understanding of the associations between social media access and use and HIV risk behaviors is needed to reach and tailor technology-delivered interventions for those most vulnerable to HIV—racially and ethnically diverse urban YMSM and transgender persons. Thus, we conducted an in-person, venue-based cross-sectional survey among young gay, bisexual, and transgender individuals at locations primarily visited by Black and Latino gay and bisexual and transgender individuals in New York City to understand social media use and how it may relate to HIV risk behaviors to inform social media-based interventions. Among 102 primarily Black and Latino gay and bisexual men (75.5 %) and transgender women (19.6 %), over 90 % were under 30 years of age, 18.6 % reported homelessness in the past 6 months, and 10.8 % reported having HIV. All participants used social media, most accessed these platforms most often via a mobile device (67.6 %) and most logged on multiple times per day (87.3 %). Participants used social media to seek sex partners (56.7 %), exchange sex for money or clothes (19.6 %), and exchange sex for drugs (9.8 %). These results confirm prior studies demonstrating the feasibility of using social media platforms to reach at-risk, urban youth. Of particular concern is the association between recent STI and exchanging sex for money/clothes and drugs. Interventions using social media for young, urban minority MSM and transgender populations should incorporate risk reduction modules addressing exchange partners and promote frequent and regular HIV/STI testing.*

**KEYWORDS** *Social media, Technology, Social networking, HIV, Prevention, LGBT, Gay*

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## INTRODUCTION

Men who have sex with men (MSM) represent 2–4 % of the US population yet account for over 60 % of new HIV infections.<sup>1,2</sup> Adolescent and young adult MSM account for the majority of HIV infections among all persons aged 13–29 years,<sup>3,4</sup> and unlike most groups whose HIV incidence has stabilized or decreased, rates of HIV have increased substantially for young Black and Latino MSM.<sup>2</sup> As a result, these young men of color who have sex with men (YMCSM) now have one of the highest rates of new infection in the USA. The limited epidemiological data currently available suggest even greater disparities among transgender women, who may have HIV prevalence rates up to 60 %.<sup>5–7</sup>

These alarming trends indicate shortcomings of current HIV prevention programs to effectively engage YMCSM and transgender women. Recent data indicate that nearly 75 % of YMCSM in the USA may not be reached current prevention interventions.<sup>8</sup> This may be due in part to difficulty in identifying YMCSM who do not self-identify as gay or bisexual or those who are unlikely to present in person to LBGT-affiliated, HIV-affiliated, or other clinical settings. For these reasons, rapid development and implementation of novel outreach and prevention strategies are urgently needed.

Social media, defined as Internet-based platforms that allow people to create, share, or exchange user-generated contents in virtual public and private communities and networks (e.g., Facebook, Twitter, Tumblr, dating apps), represent emerging technologies that have shown promise as acceptable and effective platforms to disseminate sexual risk reduction interventions.<sup>9–12</sup> The use of social media among adolescents and young adults is nearly universal,<sup>13</sup> with 92 % of adolescents connecting to the Internet daily and about 24 % reporting using the Internet “almost constantly.”<sup>14</sup> Results of national and urban surveys indicate that MSM are more likely to use social media to seek sexual and/or romantic partners when compared to their heterosexual counterparts.<sup>15–17</sup> A growing body of literature exists that has specifically examined social media use and HIV risk behaviors and/or STIs among MSM and transgender populations; in general, these studies indicate a positive association between social media use for partner seeking and HIV risk behaviors.<sup>18–26</sup>

However, a limitation of prior research is that most have largely recruited adult White MSM, in part because of Whites’ initial greater access to and adoption of online social networking sites and also perhaps due to recruitment biases in Internet-based studies.<sup>27</sup> Although more recent studies have included higher proportions of ethnic/racial minority MSM and transgender persons, these studies do not readily report specifically on YMCSM or young transgender women, and how the results of these studies translate into tailored social media-based interventions for urban YMCSM and transgender women is unclear. Given the large disparities in new HIV infections among YMCSM and transgender women,<sup>2,4,28</sup> studies that specifically examine social media use and access among these groups are needed. Therefore, to inform future HIV-related interventions engaging urban, YMCSM, and young transgender women, we conducted a formative study in New York City that assessed how these youth accessed and used social media and the association of self-reported characteristics of social media use with sexual risk behaviors.

## METHODS

*Setting.* We conducted an anonymous cross-sectional field-based survey in the Bronx and northern Manhattan, where the vast majority of residents are Black and/or

Hispanic. Between March 2012 and August 2012, we recruited participants at two community-based organizations serving LGBT youth: two bars frequented mainly by minority gay identified individuals and one “Kiki Ball” (a competition-based costume and dance event attended primarily by Black and Hispanic LGBT adolescents and young adults).

*Subject Recruitment.* We used a convenience sample to recruit urban YMCSM and transgender individuals from the targeted venues; there was no easily identifiable sampling frame in this urban environment, and starting from a more strictly self-identified sample may unnecessarily limit the data given differing sexual identity development trajectories in young people.<sup>29,30</sup> Inclusion criteria were (a) being 14 years of age or older and (b) being present at one of the targeted venues. Persons at bars who appeared to be intoxicated were excluded from participation. Individuals were approached by trained research volunteers, provided information about the study objectives, risks, and benefits and then taken to a private area of the venue to complete the survey.

*Procedures.* After obtaining verbal informed consent or assent, participants self-administered the anonymous survey via touchscreen tablet computers using REDCap survey software (REDCap Software, version 6.0, Nashville, TN, USA) containing automated error checks to minimize data collection errors. We designed the survey to be brief to reduce participant burden and increase reliability of responses in this field-based survey; the survey took on average 5 min to complete, and we provided a \$4.50 public transportation pass as an incentive after survey completion. This study was approved by the Albert Einstein College of Medicine IRB.

*Measures.* A 34-item survey instrument included questions on basic socio-demographics, homelessness, HIV testing, HIV status, and STI (sexually transmitted infection) history, Internet access and use, and use of social media to engage in HIV-related risk behaviors. Items were adapted from the CDC’s Youth Behavioral Risk Factor Surveillance Survey and the Pew Internet Life Survey,<sup>31</sup> and social media use and sexual risk behavior questions were developed in partnership with frontline staff at a local community-based organization (CBO) serving LGBT youth. We asked three questions (answered yes or no) to assess the use of social media to engage in HIV-related risk behaviors: “In the last 6 months, have you used social media to find romantic hookups or sex partners?” “...drugs or alcohol?” and “Have you ever been given money, clothes, shoes, or items to have any type of sex by someone you met on the internet?” Two items assessed most frequently used social media sites; the first item asked participants to select up to four sites most frequently used for any purpose out of a potential 14 sites and the second, to select up to four sites most frequently used to meet new people. Categories included both general social networking sites (e.g., Facebook, Twitter) and platforms generally considered to be used for sexual networking (e.g., Grindr, Adam4Adam, etc.) and were developed based on CBO staff input. The survey was pre-tested with five CBO frontline staff (who were all members of the target population) and ten Black and Latino YMSM. Following pre-testing, the instrument was refined to ensure that it was both comprehensible and culturally acceptable. No identifying information was collected.

*Analysis.* Stata IC 11 (College Station, Texas) was used to analyze the data. Data were directly exported from REDCap survey software into Stata. Descriptive statistics were

used to assess socio-demographic characteristics and to evaluate the following primary outcomes: (1) access to and frequency of social media use and (2) use of social media to seek sex partners, exchange sex for drugs, and exchange sex for money or other goods (clothes, shoes). To determine what proportion primarily used sexual networking sites to meet new people, we created a new indicator variable with three categories of the type of social media site used: general social networking sites, sexual networking/dating sites, or did not use social media to meet new people. Next, we conducted exploratory analysis using bi- and multivariate logistic regression to examine associations between these sexual risk behaviors and socio-demographics, HIV status, having a sexually transmitted infection in the past 12 months, and the number of active social media profiles. For the multivariate analyses, we retained variables that were significant at  $p < 0.05$  in the bivariate analyses and adjusted for age. In further exploratory analysis, we used bivariate logistic regression to examine if the use of sexual networking sites for meeting new people (vs. not using them) was associated with our outcomes or other socio-demographic and behavioral characteristics.

## RESULTS

### Socio-Demographic Characteristics

Of the 107 individuals approached, 102 (95 %) completed the questionnaire. Respondents were primarily young (>90 % under 30 years of age), mostly Hispanic or Black (85.3 %), male (80.4 %), and self-identified as gay or bisexual (85.2 %). Nearly 20 % of participants reported being homeless in the past 6 months, over half had Medicaid health insurance (51 %), and almost 20 % were uninsured. Most individuals had seen a doctor in the previous 12 months (85.2 %) and used condoms at their last sexual intercourse (87.3 %). About 15 % reported having an STI in the prior 12 months, and almost 11 % self-reported being HIV-positive (Table 1).

### Social Media Access and Use

Table 2 summarizes how participants accessed the Internet and social media applications and if they used social media to engage in sexual risk behaviors. Most participants (87.3 %) owned an Internet-enabled cell phone or mobile device, and the majority (67.6 %) used these devices as their primary mode of accessing the Internet and social media. All participants reported having at least one social media profile, with most having multiple profiles (83.3 %). The vast majority (87.3 %) accessed the Internet and social media sites multiple times per day. Over a third (34.3 %) primarily used sexual networking sites to meet new people offline versus about half (52 %) that used more general social networking sites (e.g., Facebook, Twitter) to meet new people, and a smaller proportion (13.7 %) did not use social media to meet new individuals. In response to questions about social media use and sexual risk behaviors, 56.7 % used social media to seek sexual partners, nearly 20 % used it to exchange sex for money or clothes, and almost 10 % used it to exchange sex for drugs.

### Association between HIV-Related Risk Behaviors and Social Media Use

In exploratory bivariate and multivariate analyses (Table 3), seeking sex partners online was associated with having a greater number of online profiles (aOR 1.44,

**TABLE 1** Demographic characteristics

	<i>n</i> (%)
	( <i>n</i> = 102)
Age (mean ± SD)	23 ± 4.8
13–17	7 (6.7)
18–24	63 (61.8)
25–29	24 (23.5)
30+	8 (7.8)
Gender	
Male	82 (80.4)
Transgender	20 (19.6)
Sexual orientation	
Gay	69 (67.6)
Bisexual	18 (17.6)
Straight	9 (8.8)
Questioning/other	6 (5.9)
Race	
Black (non-Hispanic)	42 (41.2)
White (non-Hispanic)	5 (4.9)
Other	55 (53.9)
Hispanic	45 (44.1)
Health insurance	
Medicaid	52 (51)
Commercial	26 (25.5)
Unknown type	5 (4.9)
Uninsured	19 (18.6)
Highest education achieved	
Less than HS	24 (23.5)
Completed HS or GED	35 (34.3)
Some college or more	43 (42.2)
Homeless in past 6 months	19 (18.6)
Tested for HIV ever	90 (88.2)
HIV positive (self-report)	11 (10.8)
STI in the past 12 months	15 (14.7)
Condom use at last intercourse	89 (87.3)
Seen a doctor in past 12 months	87 (85.2)

$p=0.01$ ). In bivariate analyses, exchanging sex for money/clothes was correlated with being HIV-positive ( $p=0.02$ ), having an STI in the past 12 months ( $p=0.02$ ), and having a greater number of online profiles ( $p=0.01$ ). In the multivariate analysis (Table 3), only the number of online profiles remained significantly associated with exchanging sex for money/clothes (aOR 1.43,  $p=0.04$ ). Exchanging sex for drugs was associated with being HIV-positive ( $p=0.03$ ) and having an STI in the past 12 months ( $p=0.03$ ) in bivariate analyses and only with having an STI in the past 12 months in the multivariate model. No significant differences in sexual risk behaviors were found to be associated with socio-demographic factors including gender, sexual orientation, race, education, recruitment venue, primary mode of accessing social media (cell phone/mobile devices vs. other), homeless status, or other HIV- and health-related behaviors (condom use and seeing a doctor in the past 12 months).

**TABLE 2 Social media access and use**

	<i>n</i> (%)
Owned an Internet-enabled cell phone or other handheld/mobile device	89 (87.3)
Used a mobile device for more than half of Internet/social media access	69 (67.6)
Have a social media profile	102 (100)
Number of social media profiles (mean $\pm$ SD)	3.5 ( $\pm$ 1.4)
Frequency of Internet/social media use	
Once a week	3 (2.9)
Several times per week	5 (4.9)
Once a day	5 (4.9)
Many times per day	89 (87.3)
Most used social media sites for any reason	
Facebook	88 (86.3)
Twitter	48 (47.1)
Google+	41 (40.2)
Adam4Adam	30 (29.4)
Tagged	26 (25.5)
Grindr	18 (17.6)
BGC Live	18 (17.6)
Most used social media sites to meet new people	
Facebook	69 (67.7)
Adam4Adam	27 (26.5)
Twitter	25 (24.5)
Grindr	16 (15.7)
Tagged	15 (14.7)
BGC Live	12 (11.8)
Downlink	9 (8.8)
Primary type of social media used to meet people	
Social networking (e.g., Facebook, Twitter)	53 (52)
Sexual networking site (e.g., Grindr, Adam4Adam)	35 (34.3)
Did not use social media to meet people	14 (13.7)
Share HIV status on any social media site	
If negative <sup>a</sup>	55 (60.4)
If positive <sup>a</sup>	7 (63.6)
Share self-pictures on any social media sites	98 (96.1)
Use social media to...	
Seek sex partners	58 (56.7)
Exchange sex for money or clothes	20 (19.6)
Exchange sex for drugs	10 (9.8)

<sup>a</sup>Percentage reported is of all individuals reporting being either negative or positive

### Association between Sexual Networking Site Use and Online Behaviors

In additional exploratory analysis, primarily using sexual networking sites to meet new people was associated with seeking sex partners online (OR 11.14, 95 % CI 4.17–29.75,  $p=0.00$ ) and using social media to exchange sex for drugs (OR 4.51, 95 % CI 1.08–18.73,  $p=0.04$ ). Sexual networking site use was not associated with using social media to exchanging sex for money/clothes or with other socio-demographic characteristics.

**TABLE 3 Association between online HIV-related risk behaviors and socio-demographics**

	Seeking sex partners online			Exchanging sex for money/clothes			Exchanging sex for drugs		
	OR (95% CI)	p value	aOR (95% CI)	OR (95% CI)	p value	aOR (95% CI)	OR (95% CI)	p value	aOR (95% CI)
Age	0.93 (0.84–1.07)	0.12	—	0.98 (0.87–1.11)	0.55	—	0.97 (0.84–1.13)	0.71	—
Years of education	1.17 (0.93–1.46)	0.17	—	0.95 (0.72–1.24)	0.70	—	1.18 (0.74–1.45)	0.68	—
Homeless	1.48 (0.51–4.30)	0.47	—	2.1 (0.62–7.01)	0.26	—	1.1 (0.21–5.54)	0.94	—
HIV positive	1.7 (0.45–6.43)	0.43	—	5.1 (1.27–20.31)	0.02	4.72 (0.87–25.57)	5.83 (1.14–29.72)	0.03	4.37 (0.68–27.96)
STI in the past 12 months	1.86 (0.59–5.83)	0.29	—	4.25 (1.25–14.4)	0.02	3.78 (0.88–16.21)	4.93 (1.18–20.56)	0.03	5.81 (1.06–31.74)
No. of online profiles	1.43 (1.10–1.84)	0.007	1.44 (1.09–1.89)	1.51 (1.10–2.07)	0.01	1.43 (1.00–2.05)	1.3 (0.89–1.91)	0.17	—

## DISCUSSION

We found that among low-income, urban, racial/ethnic minority young gay and bisexual men and transgender individuals, social media access and use was universal and that a large proportion of this population used these applications to engage in behaviors related to HIV risk. This study found that in a field-based sample of young, poor, primarily Black and Latino MSM and transgender women, social media access and frequent use were widely prevalent, which have important implications for outreach and engagement for HIV prevention and other health interventions. This is in contrast to prior studies of social media use and HIV risk behaviors by sexual minorities, which have largely been comprised of white and/or older MSM<sup>19,32,33</sup> with higher socioeconomic status<sup>25</sup> with few or no transgender individuals included. Additionally, we found that while majority of respondents reported using social media to meet sexual partners, the types of sites primarily used for this purpose varied (Table 2) and that different types of social media platform use (e.g., sexual networking versus more general sites) was associated with exchange sex, which has implications for developing tailored social media-based interventions targeting different risk groups within urban youth and young sexual minority populations.

Young MSM and transgender women, especially those who are Black or Latino and poor, bear a disproportionate burden of HIV compared to other subgroups of MSM; likewise, YMCSM have been the only group to experience increases in HIV incidence.<sup>2,4,34</sup> Consistent with epidemiological data, our study sample had a high self-reported prevalence of HIV and STIs and also reported engagement in certain high-risk behaviors (e.g., transactional sex involving money or other material goods and drugs). However, our sample also had relative high rates of condom use at last sexual encounter, ever being tested for HIV, and having seen a physician within the past 12 months, suggesting that individuals do engage in positive health behaviors and social media could be used to continue supporting such behaviors over time. A noteworthy and concerning finding in this study was that exchanging sex for money/clothing or drugs was associated with recent STIs; this suggests that we could use social media to efficiently find YMCSM and transgender women who have exchange partners and develop effective and tailored HIV/STI testing interventions for these groups, as well as risk reduction modules to address condomless sex, particularly with exchange partners. Though social media use in the context of seeking sexual partners may potentially confer additional risk in this already vulnerable population, our findings indicate a new opportunity to mitigate these risks by engaging these young people online into various prevention and health promotion activities.

The high incidence of HIV in ethnic minority LGBT youth<sup>35,36</sup> suggests that current HIV prevention programs may not be reaching them. Unsurprisingly, recent data indicate that 82 % of all MSM and 74 % of YMSM in the USA are not reached by evidence-based prevention interventions,<sup>8</sup> This may be due in part to YMSM who do not identify as gay or bisexual and/or are unlikely to present in person to LGBT- or HIV-affiliated settings.<sup>8,37</sup> Given that we found high rates of access to and use of social media and the Internet by low-income YMCSM and transgender women, groups most vulnerable to HIV in the USA, social media may be a particularly effective and efficient tool for reaching and engaging this population in health-related interventions.<sup>38</sup>

Although many studies of Internet-based behavioral interventions for HIV have been published,<sup>39</sup> only a handful of social media-based HIV interventions



exists<sup>9,10,40–43</sup> with several more in the pipeline.<sup>12</sup> Behavioral interventions leveraging online social networks have the potential to affect population health dramatically, given their capacity to disseminate information virally, facilitate social support, and modify norms.<sup>38,44</sup> However, best practices for this field are unknown and still evolving, and developmental research is needed to understand how to more effectively harness social media to create more impactful behavioral interventions. Similar to in-person interventions tailored for a given physical venue (e.g., clinics, bars, schools, etc.), social media “venues” are very diverse and interventions will need to take this into account. In our study, Facebook was used by most participants, consistent with national trends;<sup>14</sup> however, there was variable use of other social media sites including variable use of the numerous MSM-specific sexual networking/dating platforms, suggesting that similar to in-person outreach, no one online venue or strategy will reach all members of a target population and online outreach interventions will need to use multiple platforms to reach a broad segment of any given target population.

Additionally, the rapid evolution of technology and shifts in use patterns pose challenges for the intervention development and dissemination, and this calls for development of intervention components that transcend reliance on specific platforms or virtual venues. Focusing on social media elements likely to exist in the future (e.g., leveraging online social networks<sup>45,46</sup> or global positioning system (GPS)-based technology<sup>47</sup>), interventions are more likely to remain relevant.<sup>48</sup> Furthermore, tailoring social media-based interventions to both the specific target population and individual behaviors (e.g., online outreach messages specific to young Black MSM engaged in exchange sex) may hold the greatest potential for efficacy; methodologies for development and evaluation are needed though to develop these types of tailored interventions that are also easily scalable.

This study had several limitations. Our findings may not be generalizable to all Black and Latino young gay, bisexual, and transgender individuals, as we used a nonprobability-based sampling approach, given that no such sampling frame exists for sexual minority young people. We also sampled from venues that were LGBT-identified and therefore may have selected for a population that feels more comfortable accessing these physical spaces. In this study, only a few individuals were less than 18 years of age, as they are less likely to be “out” and accessing services at community agencies as well as unlikely to be present at bars. Future studies may overcome such sampling limitations by reaching LGBT youth online.<sup>49</sup> And while our survey was anonymous and self-administered, we relied on self-reported HIV status, which is likely to have underestimated true HIV prevalence.

## CONCLUSIONS

Our study adds to a growing body of literature describing how various subpopulations of MSM and transgender individuals access and use social media and its relationship to engagement in HIV-related risk behaviors. Our study sample comprised primarily of young and poor Black and Latino gay and bisexual men and transgender individuals, the groups most vulnerable to HIV and related poor health outcomes, and we found that this otherwise historically difficult-to-reach group had high rates of social media access and use and engaged in online behaviors associated with HIV risk. Our findings suggest that urban Black and Latino MSM and transgender youth and young adults use diverse types of social media to meet partners and that venue types are differentially associated with different risk

behaviors. Our findings support the use of social media as a tool to identify and engage MSM and transgender youth, specifically racial/ethnic minorities and lower-income persons in HIV prevention and treatment activities. Further work is needed to understand how to better design and deliver behavioral interventions tailored to a given type of social media platform to help reduce the burden of HIV and improve health outcomes in vulnerable populations.

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