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Social Networking Technology Use and Engagement in HIV Related Risk and Protective Behaviors among Homeless Youth

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Abstract

Preliminary studies with homeless youth find surprisingly pervasive social media use and suggest youths' online interactions may be associated with their HIV-related risk and protective behaviors. As homeless youth are transient and difficult to engage in place-based services, social media may represent a novel venue for intervention. A critical first step in intervention development is gaining greater understanding of how homeless youth use social media especially as it relates to whom they connect to and around what topics. Given the salience of Social Networking Sites in the lives of these otherwise difficult to reach adolescents, and their potential to disseminate prevention interventions, this study assessed associations between online social networking technology use and HIV risk behaviors among homeless youth in Los Angeles, California. Homeless youth ages 13 through 24 (N=1046) were recruited through three drop-in centers and surveyed about their social media use and self-reported HIV-related risk behaviors. Results suggest that social media use is widely prevalent among this population, and the content of these online interactions is associated with whether or not they engage in risk or protective behaviors. Implications for interventions and further research are discussed.

Keywords

Social Networking Sites (SNSs); Homeless Youth; HIV; Online Communication

Homeless Youth, Social Networking Technology, and HIV

An estimated 1.5 to 3 million youth experience homelessness each year in the United States (Toro, Lesperance, & Braciszewski, 2011). Compared to housed youth populations, youth experiencing homelessness are more likely to engage in behaviors (such as inconsistent use of condoms, having multiple or concurrent sexual partners and trading sexual acts for money, drugs, or shelter) that make them more susceptible to acquiring HIV and other sexual transmitted infections (STI's) (Martino et al., 2011; Tucker et al., 2012). Recent evidence suggests that some new media (such as Social Networking Sites; SNSs) play a dual role in people's lives- while certain dimensions of such technology increase the risks of HIV

among youth, they can also be successfully used as tools to reduce HIV risk (Moreno, 2010). Little is known, however, about how new technology is integrated into the lives of homeless youth and how it can exacerbate or reduce HIV risk in this population.

Social Networking Sites and HIV-Related Risk and Protective Behaviors

Social networking sites (SNSs) such as Facebook and Twitter have proliferated over the past several years and have radically transformed the landscape of human communication and connectivity. Given their status as “digital natives”, youth are avid users of SNSs and recent estimates suggest that around 73% youth use SNSs, an increase of almost 18% from 2008 (Lenhart et al., 2010). However, like any other phenomenon, both positive and negative outcomes have been associated with the SNS use among youth. In particular, SNS use has now been increasingly recognized as a critical factor is shaping youths’ attitudes regarding both HIV related risk and protective behaviors (Young & Jordan, 2013; Bull et al., 2012; Young & Rice, 2011). However, the bulk of these studies have been conducted with housed youth, leaving researchers, providers, and policymakers with little evidence to create programs that can curb the risks associated with problematic SNS use or to leverage the communicative capabilities of SNSs to scale prevention programs that can be delivered online for the homeless youth population.

Because of their ability to spread social influence, social networking activities can influence sexual risk and drug use behaviors linked to HIV among youth. For example, the ability to generate content allows adolescents to display information about their own private lives, which might also include references to risky health behaviors (Moreno & Kolb, 2012). For example, a study of older adolescents on MySpace found that 41% of SNS users posted about substance use, 24% posted about sex, and 14% posted about violent behavior (Moreno, 2010). These public displays have the potential to influence adolescents’ behavior because they provide biased perceptions about what constitutes normative behavior (Huang et al., 2014; Moreno & Kolb, 2012). Extant research demonstrates that perceived norms are strongly associated with HIV behaviors (Latkin et al., 2009; Barrington et al., 2009). Not surprisingly, recent findings suggest that adolescents who are exposed to friends’ risky online displays of behavior are more likely to engage in smoking and drinking (Huang et al., 2014).

It is, however, important to note that SNSs may also serve a positive function. Examples include utilizing SNSs as a tool for delivering and disseminating HIV prevention messages (Bull et al. 2012); using social media feed for remote monitoring and surveillance of HIV risk behaviors and outbreaks (Young et al., 2014); using social media to recruit participants for HIV related studies (Young & Jaganath, 2013), and increasing access to social support (Valkenburg et al., 2006). A relatively new but important area of inquiry examines the ways in which adolescents use social media to access and discuss sensitive sexual health issues (Magee et al., 2012).

Homeless Youth-The Myth of the “Digital Divide”

Because homeless youth are resource-poor, it is often incorrectly assumed that they have insufficient or no access to technology and are victims of a “digital divide” (Guadagno et al., 2012). However, latest data on technology use among homeless youth has dispelled this notion (Guadagno et al., 2012). Recent studies suggest that over 80% of homeless youth get online more than once per week, and approximately one-quarter use the internet for over one hour daily (Rice et al., 2010). They access technology primarily through social service agencies (60%) or public libraries (54%), and, less often, through Internet cafés (14%) or personal devices (6%; Pollio et al., 2013). More importantly, a recent study found that almost 80% of the homeless youth reported using a SNS every week; with only 9% stating that they did not have an SNS profile (Young & Rice, 2011).

The little work investigating online behaviors among homeless youth does not specifically examine SNS use, and instead has focused primarily on universal Internet use or aggregated non-face-to-face modes of communication, incorporating SNS, email, texting, cell phone conversations (Rice 2010; Rice et al., 2011). This work asserts that connections with home-based peers and supportive family members have a positive function for most homeless youth (Rice et al., 2008; Wenzel et al., 2010; Tyler, 2008). For example, Barman-Adhikari & Rice (2011) found that homeless youth who reported talking to parents or receiving health forwards from their friends (i.e. online messages concerning health) of which could include, but was not limited to SNS, were more likely to look for sexual health and HIV testing information online. Likewise, Rice et al. (2011) found that youth who connected to parents online were 68% less likely to engage in exchange sex than those who did not. However, these online technologies could also reinforce already strong street ties, which often have detrimental effects on youth. Indeed, Rice and colleagues (2011) reported that youth who reinforced their street ties online were 4 times more likely to engage in exchange sex.

To date, only one study (Young & Rice, 2011) specifically explored how homeless youth use SNSs. Social media has changed the extent to which youth’s online interactions occur in a public space rather than private space (as is the case with email and a cell phone). Therefore, it is important to more fully explore how social connectivity promoted through SNSs and the conversations had in these public spaces can impact homeless youth in both positive and negative ways.

Young and Rice (2011) highlight the importance of the content exchanged through interactions homeless youth have in the public spaces afforded by SNS. Their participants reported talking about several issues such as drinking, drugs and parties; sex; love and relationships; being homeless; and school experiences (Young & Rice, 2011). Just like the general adolescent population, the influence that social media communication has on HIV risk behaviors among homeless youth appears to depend on the nature of these online interactions. For example, the study found that youth who used social media to talk about safe sex were more knowledgeable about HIV and those who discussed love were less likely to engage in exchange sex. On the other hand, those youth who talked about drugs and partying were more likely to participate in exchange sex. These preliminary findings indicate that youth’s online communication on SNSs might provide us with important information

about their offline behaviors, and therefore suggest a need for a deeper understanding of the nature and effects of SNS communication among this at-risk population.

Although useful in providing a preliminary understanding of SNS interactions and risk behaviors, these studies have certain limitations. Existing evidence focused on a limited number of outcome variables with very small samples of homeless youth and these studies often aggregated SNS with other modes of non-face-to-face communication. Moreover, these studies used data collected in 2008, and the use of social media has grown significantly since then. It is therefore unclear to what extent these data can be generalized to homeless youth populations today.

The Present Study

The present study expands much needed research on SNS use among homeless youth, in particular, the extent to which homeless youth use SNSs (i.e. prevalence), who they connect to on SNSs (i.e. social connectedness) and the conversations (i.e. content) that they report having on SNSs. Understanding who youth connect to on SNSs and what material they share within their networks can provide important insight into the primacy of these messages and how social networking communication and behaviors can be considered in the context of intervention design and implementation (Bull et al., 2012).

Methods

Procedures

Homeless youth (N=1046) attending three drop-in centers in Los Angeles were surveyed between October 2011 and June 2013. Even though these three drop-in centers are located in Los Angeles county and are only 10 miles apart, they look very different in terms of the services available. For example, one of our recruitment sites is located in the Hollywood area, which is where most of the services for homeless youth are concentrated (Brooks et al., 2004). In 1999, the Hollywood Homeless Youth Partnership (HHYP) was founded, bringing together the most prominent homeless youth service agencies in the community that address mental health and medical needs, and offer transitional living and housing programs, sexuality-related services, drop-in services, and art programs (HHYP, 2012). In contrast, our other two recruitment sites are located in LA's Westside beach communities of Santa Monica and Venice Beach. This is another location where these youth gather but homeless youth services in this area are not as comprehensive compared to Hollywood (Buty & Aron, 2006). Non-profits and charitable organizations located in the Beach communities provide only minimal services that meet the subsistence needs of homeless youth. These two service sites will be referred to as "Hollywood" and "Beaches" as we discuss the results of this study.

Data was collected across four different waves; each wave of data was collected 6 months apart from each other. Although youth were invited to participate more than once across the four waves, only the initial interviews of participants across the different waves were included in the current analyses; use of baseline data eliminated the possibility of duplicating these cases.

Any client receiving services at the respective agency during data collection periods was eligible to participate. Youth new to the agency first completed the agency's intake process before beginning the study to ensure they met the eligibility requirements for the agency (and thus the study). All three drop-in-centers embrace a "low barrier service structure" meaning that any youth who walks in and self-identifies as homeless and is between the ages of 13 through 25 is deemed eligible for services (and study participation). Recruitment was conducted for approximately one month at each site. A consistent set of two research staff members were responsible for all recruitment to avoid youth completing the survey multiple times within each data collection period.

Signed voluntary informed consent was obtained from each youth, with the caveats that child abuse and suicidal and homicidal intentions would be reported. Informed consent was obtained from youth 18 years of age and older and informed assent was obtained from youth 13 to 17 years old. The Institutional Review Board (IRB) at the University of Southern California (USC), Los Angeles, CA waived parental consent, as homeless youth under 18 years are unaccompanied minors who may not have a parent or adult guardian from whom to obtain consent.

All surveys were conducted in a private space at the agency. The survey consisted of two parts: a computerized self-administered questionnaire (with the option for an audio-assisted version) and an interviewer-administered social network interview. Data for the present study come from the questionnaire. Study participation lasted about 60–90 minutes. All participants received \$20 in cash or gift cards as compensation for their time. The Institutional Review Board at USC approved survey items and procedures.

Measures

Background characteristics—Basic demographic characteristics were controlled for in the analyses. Participants were asked to identify their age in years; gender (male vs. female); race/ethnicity (1=African American, 2=Latino/Hispanic, 3=White, 4=Asian, 5=Native Hawaiian or other Pacific Islander (NHPI), 6=American Indian or Alaska Native (AIAN), 7=Mixed race, 8=Other race). NHPI, AIAN, and "other" race were then collapsed to form one "other race" category. Participants were also asked about their sexual identity (1=homosexual, 2=bisexual, 3=heterosexual, 4=questioning, 5=queer); dichotomized to reflect two groups, heterosexual and LGBQ.

While there is no consistent definition of homelessness, we chose to follow a fairly well accepted and comprehensive definition of homelessness put forward by Tsemberis and colleagues (2004). This definition acknowledges that homelessness encompasses a broad range of people and not only includes people who live on the streets (considered literally homeless) but also people who might have some stable housing (such as transitional housing, or couch surfing with family/friends) but still are precariously housed. In accordance with this definition, youth experiencing literal homelessness were defined as those who responded that they were currently staying in a shelter (emergency or temporary), a stranger's home, hotel, motel, street, beach, tent or campsite, abandoned building, car, or bus vs. youth who indicated that they were in some kind of stable housing such as a

transitional living home, a relative's or friend's home, or their own apartment (for more than six months).

Additionally, recruitment site (Hollywood vs. Beaches) was retained as a control variable. Given differences in service availability in these two communities, one can assume that youth in Hollywood might be better service engaged and less likely to engage in risk-behaviors than youth at the Beaches.

Social media use—A 6-point Likert scale measured frequency of social media use in the past 30 days, ranging from “never” to “several times a day”. To include this in subsequent bivariate and multivariate models, it was dichotomized to reflect whether youth were daily social network users (0 = no, 1 = yes).

Social media connections—Youth were asked whether (0 = no, 1 = yes) they used social media in the past 30 days to contact certain people, including friends from home, family (parents, siblings, extended family, foster family), partners (boyfriend/girlfriend), people from the streets, people met online, and caseworkers.

Social media communication—Youth were also asked whether they discussed certain topics on social media sites in the past 30 days, including school/work, media, drugs, sex, practicing safe sex, being homeless, school/work, family issues, and goals (0 = no, 1 = yes).

HIV related risk and protective behaviors—Several dichotomized outcome variables (0=no, 1=yes) were used to measure sex risk and protective behaviors, including whether the youth reported: condom use at last sex, recent HIV test (within the last three months), exchange sex (within the last three months), sex with someone met online (within the last three months), and concurrent sex partners (within the last twelve months).

Data Analyses

Data analyses were conducted using SAS Version 9.2 (SAS Institute Inc., 2008). In order to preserve statistical power and degrees of freedom, a statistically accepted two-step strategy (Hosmer & Lemeshow, 2004) was used to reduce the number of variables included in the final multivariate models. First, a series of bivariate logistic regressions were run to determine significant associations ($p < .10$) between the independent variables and the four outcome variables. These bivariate associations were examined in a pair-wise approach, which is logically equivalent to the examination of a correlation matrix. Any independent variable that was found to be significantly associated (i.e., $p < .10$ level) with the specific dependent variable was retained in the final multivariate logistic regression model for that particular outcome (Hosmer & Lemeshow, 2004).

Results

Demographic Characteristics

Demographic characteristics of the sample are presented in Table 1 (n=1046). Average age of participants was 21.34 years old (SD=2.16). Participants were largely heterosexual (75.15%) and male (70.26%). A majority of participants were White (40.15%). About a

quarter (24.76%) of the population reported experiencing literal homelessness. Since there were only 36 youth who identified as transgender and could not be independently included as a covariate, they were dropped from these analyses. Engagement in risk and protective behaviors varied across the sample. Approximately 32 % reported having concurrent sex partners, 36.33% had a recent HIV test, 39.87% reported using a condom during their most recent sexual encounter and 22.85% had sex with someone they met online.

Social Media Demographics

Social Media and technology characteristics are presented in Table 2 (n=829; 88.37%). Youth who reported never using social networking sites were dropped from these analyses leaving us with a sample of 829 youth. Social media use was pervasive in this sample. Approximately one-fifth of the sample reported using social media several times a day (19.33%); one-third reported using social media daily (15.76%) or every couple of days (14.57%). Youth reported contacting a variety of people using social media; 45.60% reported talking to street peers, 62.73% reported talking to family members, 41.74% reported talking to partners, 70.81% reported talking to friends from home, 23.40% reported talking to people met online, and 10.01% reported talking to a caseworker. Additionally, for questions pertaining to topics of discussion on social media sites, 32.57% reported talking about drugs, 26.66% reported talking about sex, 26.18% reported talking about school and/or work, 24.00% reported talking about family issues, 23.88% reported talking about being homeless, 5.32% reported talking about goals and 7.24% reported talking about safe sex.

Correlates of HIV Related Risk and Protective Behaviors

Bivariate associations among social media variables and the four outcome variables are presented in Table 3. Connecting with street friends online was associated with both an increased likelihood of engaging in sex with someone met online (OR= 1.30, $p < .05$) and engaging in concurrent sex (OR=1.46, $p < .01$). Connecting with a boyfriend or girlfriend online was associated with an increased likelihood of getting a recent HIV test (OR=1.38, $p < .05$). Similarly, connecting to a caseworker was also associated with an increased likelihood of getting a HIV test (OR=1.66, $p < .05$).

Among the topics of communication variables, talking about safe sex online was associated with a decreased likelihood of engaging in sex with someone met online (OR=. 55, $p < .05$), but an increased likelihood of engaging in protected sex (i.e. with a condom) (OR= 1.78, $p < .05$) and a recent HIV test (OR=2.76, $p < .0001$). Talking about drugs, drinking or partying online was associated with an increased likelihood of engaging in concurrent sex (OR=2.0, $p < .0001$). Similarly, youth who reported talking about their homelessness online were more likely to report concurrent sex partners (OR= 1.6, $p < .01$). Talking about goals online was associated with a decreased likelihood of engaging in sex with someone met online (OR= . 62, $p < .05$) and an increased likelihood of engaging in protective sex (OR=2.02, $p < .001$). Talking about sex online was associated with an increased likelihood of engaging in sex with someone met online (OR= 1.8, $p < .05$).

As noted before in the analyses section, only social media variables that were significant in bivariate models were included in the multivariate models. Demographic variables (i.e. age, gender, sexual orientation, race/ethnicity, and recruitment site) were retained across all models as controls.

Among the social media variables examined in the multivariate models (Table 4), talking about drugs, safe sex, sex and goals/future plans remained significant after adjusting for demographic covariates. Specifically, talking about safe sex was significantly associated with three outcomes. While talking about safe sex online was associated with a decreased likelihood of engaging in sex with someone met online (OR=.37, $p < .0001$), unsurprisingly, it was associated with an increased likelihood of engaging in protective sex (OR=1.93, $p < .05$) and getting a recent HIV test (OR= 2.00, $p < .01$). Talking about goals was associated with an increased likelihood of engaging in protective sex (OR=2.35, $p < .0001$). Talking about drugs or drinking was the strongest covariate of engaging in concurrent sex (OR=1.97, $p < .0001$).

Among the demographic covariates, sexual orientation and recruitment site were significantly associated with some outcomes. Specifically, heterosexual youth were less likely to have met a sex partner online (OR=.55, $p < .01$) and less likely to get an HIV test (OR=.61, $p < .05$). Youth who were recruited in Hollywood were more likely to be tested for HIV (OR=1.65, $p < .001$).

Discussion

This study reinforces and updates many findings from the prior work of Young and Rice (2011), which found that homeless youth are active users of social networking technologies, and they use these sites to communicate with a diverse social network and talk about a range of issues (Barman-Adhikari & Rice, 2011). As such, social media may offer a powerful opportunity for accessing, educating, and intervening with this typically hard to reach group, as their frequent social media use mirrors use among the general population. Furthermore, given the majority of our youth reported connecting via SNS to family and home-based peers, and a substantial subgroup used social media to communicate with caseworkers, social media outlets may offer a promising tool for engaging this transient and hard-to-reach population and bridging youths' connections to non-street networks (Barman-Adhikari & Rice, 2011; Rice & Barman-Adhikari, 2014).

When considering the utility of social media to bridge connections and intervene with homeless youth, our findings suggest not all connections are equal in terms of their association with sex risk behaviors. While connections to caseworkers (in bivariate analysis) were associated with sexually protective behaviors, social media also introduces youth to an online community that, in the current study, was associated with increased sexual risk behaviors. For example, almost a third of the participants indicated that they had sex with somebody they met online. This is especially alarming because studies have found that individuals who seek sex partners online are more likely to have concurrent risk factors that make them more vulnerable to STI/HIV exposure (McFarlane, Bull, & Rietmeijer, 2000).

Thus, interventions aimed at using social media to connect youth to positive adults and peers might also consider integrating content around safely negotiating online relationships.

Just as youth communicated with a diverse network, they also used social media to discuss a wide range of issues. Many youth discussed pro-social topics, such school or work and more importantly, setting goals. They also used social networks to discuss sensitive personal issues such as family problems and homelessness – surprising findings in light of previous findings that homeless youth often try to hide their homelessness (Whitbeck & Hoyt, 1999). Yet, such sharing is consistent with broader social norms where teens are increasingly sharing personal information on social media sites (Pew Internet Project, 2013). These findings suggest that social media may offer an outlet for discussing personal issues, and seeking emotional support for homeless youth who might otherwise feel alienated and are known to distrust formal helpers (Hudson et al., 2010; Kurtz, Lindsey, Jarvis, & Nackerud, 2000).

Comparisons of bivariate and multivariate findings suggest that the topics of communication were more significantly associated with sexual risk and protective behaviors than the type of social network connections. For example, a number of variables indicating who youth connected to online (such as street friends, people met online, caseworkers or partners) were significant in bivariate analyses but lost their significance in subsequent multivariate analyses. This suggests that content of communications rather than who youth communicate to might be a significant driver of behavior. However, both theory and empirical evidence suggest that network structure (i.e. who youth connect to) and network content (what youth communicate about) are interlinked (Pescosolido, 2006). Extant research indicates that one's network members serve as not only conduits of information but also models for behavior (Barrington et al. 2009; Latkin et al., 2003). Therefore, it is possible that while network structure (i.e. who youth communicated with) was not directly connected to behaviors (in multivariate models), it might have been connected to the topics discussed. Specifically, it is possible that youth who communicated about drugs did it with street peers, while youth who communicated about goals did that with family members or caseworkers. The limits of our data do not allow us to connect network structure and content, but is an important issue that should be considered for future studies.

Among the topics of discussion, we found that youth who used social network sites to talk about their personal goals were more likely to engage in other protective behaviors like using condoms. Indeed, school-based HIV prevention programming has demonstrated that orientation toward the future and being mentored by adults around future goals can enhance a youth's sense of self-efficacy and reduce HIV risk taking behaviors (Clark, Miller, Nagy et al., 2005). Perhaps an online variant of this intervention could be designed to effectively reach homeless youth, who are typically not in school or who have interrupted schooling.

However, caution is again warranted when considering social media as a forum for connecting homeless youth around coping with certain stressors. Youth used social media to discuss several risk topics. For example, more than one-third of our sample talked about drugs using social networking sites. Previous research has found that when adolescents view references to risky substance use or sexual risk behaviors on social network sites, they often

come to regard these behaviors as normative (Moreno & Kolb, 2012; Huang et al., 2014; Cookingham & Ryan, 2014), and common among others in their networks (Latkin & Knowlton, 2005; Barrington et al., 2009). Since social media communication is simultaneously public and interpersonal, it has been proposed that social network sites act as a “superpeer” because they have the reach of traditional media with the power of interpersonal persuasion (Moreno & Kolb, 2012). Indeed, our study found that youth who use social network sites to discuss such topics as drugs or sex were more likely to engage in sexual risk behaviors such as having sex with someone they met online or engaging in exchange sex. While this is clearly concerning, these results also underscore the prospect of using social media forums to monitor and detect risky health behaviors (Young, Rivers, & Lewis, 2014). Furthermore, because these online communications appear to translate into actual offline behaviors (Cookingham & Ryan, 2014; Huang et al., 2014), this also opens the door for tailoring interventions to fit the online risk profiles of participants based on these online conversations.

In addition to social network characteristics, this study also found associations between demographic indicators and sexual risk and protective behaviors. Notably, non-heterosexual youth in particular were more likely to report meeting sex partners online, perhaps suggesting that LGBQ are using social networking technology to solicit sex online (for food, money or other material things). Therefore, we might need more targeted interventions that are designed to address the specific needs of LGBQ homeless youth especially in preventing these online risks.

However, even though LGBQ youth were exposing themselves to HIV risk by engaging in sex with partners online, findings also indicate that they were also more likely to report getting a recent HIV test. While contradictory, these results might not entirely be surprising. Because of improved testing services and procedures and increased awareness about risks of HIV (Nyamathi et al., 2015) owing to targeted and culturally relevant outreach activities, LGBT youth might be using HIV testing as a way to reduce their risk of HIV. While HIV testing is a recommended harm-reduction strategy, this does however also pose risks (using condoms is the most effective strategy) and therefore interventions might want to promote the use of condoms among this group.

Limitations

The study findings should be interpreted within the context of its limitations. First, because this is cross-sectional data, we cannot make any claims about the causal nature of the relationships. Further longitudinal research is needed to understand the causal pathways through which social media interactions may contribute to risk behaviors among this population. Second, these data are self-reported, and youth may be over- or under-representing their discussion of sensitive topics on these sites. Third, it is likely that youths’ social network communication with street-based peers overlapped with face-to-face communication with these same peers, and it is therefore difficult to disentangle whether the risk associated with connection to street-based peers is related to only online communication or a combination of online and in-person contact.

Furthermore, since a timeframe was not designated in regards to online interaction variables, some of these questions could have occurred prior to homelessness. However, the questions were asked following a question on current Internet access and, therefore, it is likely youth were responding about their current online interactions. Additionally, data for this study were collected over a span of one and half years. It is possible that youth who were enrolled at different time-points in the study might have reported slightly different social networking activities in response to changes in the technology or other life events. However, our findings here are very similar to data collected about social media use among this population in 2008 (Young & Rice, 2011). Therefore, even though the platform through which youth's online interactions take place might have changed (i.e. Facebook being more popular now than MySpace), the social nature of interactions (i.e. who they connect to and what they talk about) has remained stable over time. Finally, even though our study enrolled a large number of youth from three drop-in-centers in Los Angeles, they are not generalizable to all homeless youth. In particular, homeless youth in rural areas might not have the same level of Internet access and therefore not have the same rates of social media use.

Implications

The findings from this study provide us with important information about the possibility of translating network-based interventions for homeless youth using technology. Importantly, this study demonstrates that connections and communications that youth maintain on social media websites may have a profound influence on these youth, and need to be leveraged in future policy decisions, interventions, and day-to-day social work practice. In particular, the ubiquity of social media use among homeless youth presents an opportunity for delivering interventions through existing SNSs. While social media based interventions are still in their early stages of development, previous studies have found that online social networking sites are viable forums for delivering interventions (Moskowitz, Melton, & Owczarzak, 2009; Bull et al., 2012). Furthermore, on a policy level, given the pivotal role that social media play in homeless youths' lives, it becomes important that Internet accessibility is expanded so that all youth can access such innovative interventions.

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Table 1

Descriptive Statistics of Homeless Youth (N=1046): Los Angeles, CA, 2011–2013

Characteristic	N	%
Gender		
Female	275	26.29
Male	735	70.26
Transgender	36	3.44
Sexual Orientation		
Gay, Lesbian, Bisexual, Questioning	251	24
Race/Ethnicity		
African American	244	37.89
Latino	139	25.79
White	420	40.15
Mixed race/other	243	37.79
Recruitment Site		
Hollywood	549	52.49
Beaches	497	47.51
Housing		
Literal Homelessness	259	24.76
HIV Related Behaviors		
Sex Partner Online	236	22.85
Concurrent Sex Partners	335	32.03
Sex with Condom	412	39.87
Recent HIV Test	380	36.33
Age	Mean	SD
	21.3	2.16

Table 2

Social Media Characteristics of Homeless Youth, Los Angeles, CA, 2011–2013

Characteristic	N	%
Frequency of Social Media Use (n=1046)		
Several times a day	195	19.33
Once a day	147	14.57
Once every couple of days	159	15.76
About once a week	91	9.02
Less than once a week	200	19.82
Never	217	21.51
When you use social networking websites who do you communicate with? (n=829)		
Street Friends	378	45.6
Boyfriend/Girlfriend/Partner	346	41.74
People Met Online	194	23.4
Family	520	62.73
Caseworkers/Socialworkers/Staff	83	10.01
Friends from home	587	70.81
When you use social networking sites what do you typically communicate about? (n=829)		
Drinking, drugs, partying	270	32.57
Practicing safer sex	60	7.24
Being homeless	198	23.88
School/Work	217	26.18
Sex	221	26.66
Family Issues	199	24
Goals/Future Plans	127	15.32

Table 3
 Bivariate Logistic Regression of Social Media Characteristics and HIV Related Behaviors (n=829)

	Sex Partner Online		Concurrent Sex		Protective Sex (with condom)		Recent HIV Test								
	OR	CI	OR	CI	OR	CI	OR	CI							
SNS Use (Daily=1)	1.34	0.96	1.86	#	0.67	0.5	0.91	**	1.5	1.12	2	**			
Who do you talk to on SNS's															
Street Friends	1.3	1.01	1.77	*	1.46	1.12	1.9	**	0.84	0.65	1.09	0.89	0.68	1.16	
Boyfriend/Girlfriend/Partner	1.28	0.95	1.7		1.3	0.99	1.7		0.88	0.68	1.15	1.38	1.06	1.81	
People Met Online	0.94	0.65	1.37		1.03	0.74	1.44		1.24	0.91	1.7	1.43	1.04	1.96	
Family ¹	0.88	0.66	1.17		0.99	0.76	1.28		1.05	0.78	1.28	1.08	0.84	1.39	
Caseworkers/Socialworkers/Staff	0.63	0.39	1.03		0.83	0.51	1.37		0.97	0.61	1.53	1.66	1.06	2.63	
Friends from home	1.15	0.88	1.51		1.22	0.94	1.6		1.04	0.81	1.34	1.18	0.91	1.52	
What do you talk about on SNS's															
Drinking, drugs, partying	0.98	0.7	1.36		2	1.55	2.74	****	1.05	0.8	1.4	1.17	0.88	1.55	
Practicing safer sex	0.55	0.32	0.96	*	1.01	0.58	1.75		1.78	1.06	2.9	*	2.76	1.63	4.67
Being homeless	1.13	0.78	1.64		1.6	1.17	2.2	**	1.01	0.74	1.39	1.02	0.74	1.4	
School/Work	0.88	0.62	1.25		1.04	0.75	1.43		1.43	1.06	1.93	*	1.16	0.85	1.57
Sex	1.8	1.04	3.1	*	1.01	0.58	1.75		1.12	0.82	1.53	1.24	0.9	1.7	
Family Issues	0.7	0.52	0.96	*	0.94	0.67	1.31		0.83	0.6	1.14	1.06	0.77	1.45	
Goals/Future Plans	0.62	0.41	0.94	*	0.82	0.54	1.23		2.02	1.39	2.94	***	0.95	0.65	1.41

p<.10

* p<0.05.

** p<0.01

*** p<0.001

**** p<0.0001

Table 4
Multivariate Logistic Regression of Social Media Characteristics and HIV Related Behaviors (n=829)

	Sex Partner Online		Concurrent Sex		Protected Sex (with condom)		Recent HIV Test	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Demographics								
Age	1.05	0.97 1.13	1.01	0.93 1.08	0.95	0.88 1.02	1.00	0.93 1.07
Female (Male=1)	1.68	0.93 3.05	0.72	0.52 1.00	0.88	0.61 1.27	0.80	0.57 1.12
LGBQ (Heterosexual=1)	0.55	0.37 0.80 **	0.79	0.57 1.11	0.95	0.69 1.32	0.61	0.43 0.86 **
Race/Ethnicity (Ref=White)								
Latino	1.10	0.65 1.89	1.04	0.63 1.73	1.02	0.60 1.73	1.06	0.65 1.73
African-American	1.11	0.70 1.75	0.71	0.45 1.12	1.39	0.90 2.14	1.20	0.80 1.81
Other Race	0.99	0.64 1.54	0.99	0.66 1.50	1.07	0.70 1.64	1.18	0.79 1.77
Recruitment Site								
Housing	1.14	0.78 1.66	1.03	0.72 1.47	1.00	0.70 1.43	1.65	1.17 2.32 ***
Literal Homelessness	1.48	1.00 2.19	1.26	0.87 1.82	0.88	0.60 1.30	0.97	0.66 1.42
SNS Use (Daily=1)	1.28	0.90 1.81	0.73	0.52 1.02	—	—	0.73	0.52 1.03
Who do you talk to on SNS's								
Street Friends	1.20	0.86 1.68	1.07	0.77 1.49	—	—	—	—
Boyfriend/Girlfriend/Partner	—	—	—	—	—	—	1.10	0.81 1.50
People Met Online	—	—	—	—	—	—	1.23	0.83 1.81
Family ¹	—	—	—	—	—	—	—	—
Caseworkers/Socialworkers/Staff	—	—	—	—	—	—	—	—
Friends from home	—	—	—	—	—	—	1.34	0.81 2.20
What do you talk about on SNS's								
Drinking, drugs, partying	—	—	1.97	1.41 2.76 ****	—	—	—	—
Practicing safer sex	0.37	0.25 0.56 ****	—	—	1.93	1.50 2.85 *	2.00	1.14 3.53 **
Being homeless	—	—	1.09	0.75 1.57	—	—	—	—
School/Work	—	—	—	—	1.21	0.85 1.72	—	—
Sex	1.95	1.37 2.78 ****	—	—	—	—	—	—
Family Issues	0.72	0.49 1.05	—	—	—	—	—	—
Goals/Future Plans	0.73	0.47 1.15	—	—	2.35	1.57 3.51 ****	—	—

	Sex Partner Online		Concurrent Sex		Protected Sex (with condom)		Recent HIV Test	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
<i>n</i>	792		779		779		809	
AIC	938.05		993.33		987.65		1061.33	
SC	1008.17		1054.10		1053.10		1122.37	
-2 log likelihood	908.05		967.33		959.65		1035.327	
Wald chi-square	57.72 ^{*****}	14 ^b	37.47 ^{****}	12 ^b	38.38 ^{****}	12 ^b	37.96 ^{****}	12 ^b

Note

AIC = Akaike information criterion; LGIBQ = lesbian, gay, bisexual, or questioning; CI = confidence interval; OR = odds ratio; SC = Schwarz criterion;

^b df = degrees of freedom

* p<0.05

** p<0.01

*** p<0.001

**** p<0.0001