Sexual Health Information Seeking Online Among Runaway and Homeless Youth

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Abstract

Research shows runaway and homeless youth are reluctant to seek help from traditional health providers. The Internet can be useful in engaging this population and meeting their needs for sexual health information, including information about HIV and other sexually transmitted infections (STIs). Using a sample of homeless youth living in Los Angeles, California in June 2009, this study assesses the frequency with which runaway and homeless youth seek sexual health information via the Internet, and assesses which youth are more likely to engage in seeking health information from online sources. Drawing from Andersen's (1968) health behavior model and Pescosolido's (1992) network episode model, we develop and refine a model for seeking online sexual health information among homeless youth. Rather than testing the predicative strength of a given model, our aim is to identify and explore conceptually driven correlates that may shed light on the characteristics associated with these help seeking behaviors among homeless youth. Analyses using multivariate logistic regression models reveal that among the sample of youth, females and gay males most frequently seek sexual health information online. We demonstrate the structure of social network ties (e.g., connection with parents) and the content of interactions (e.g., e-mail forwards of health information) across ties are critical correlates of online sexual health information seeking. Results show a continued connection with parents via the Internet is significantly associated with youth seeking HIV or STI information. Similarly for content of interactions, more youth who were sent health information online also reported seeking HIV information and HIV-testing information. We discuss implications for intervention and practice, focusing on how the Internet may be used for dissemination of sexual health information and as a resource for social workers to link transient, runaway, and homeless youth to care.

Keywords

Homeless youth; sexual health information; help seeking; online communication; HIV; AIDS

A substantial body of work has examined Internet use and its effect on help-seeking behavior among the general adolescent population. Recent studies have found that adolescents use the Internet to find sexual health information, discuss personal problems, and give advice to peers (Borzekowski & Rickert, 2001; Hansen, Derry, Resnick, & Richardson, 2003; Kanuga & Rosenfeld, 2004; Levine, McCright, Dobkin, Woodruff, & Klausner, 2008; Livingstone, 2003; Subrahmanyam, Greenfield, & Tynes, 2004). Less is known about the role of the Internet among high-risk and homeless adolescents. Existing

research has largely focused on the pathological uses and implications of the Internet (e.g., sexual solicitation and online harassment) for high-risk adolescents (Wells & Mitchell, 2008; Ybarra & Mitchell, 2008). Literature pertaining to sexuality issues (Gray & Klein, 2006)—specifically, how high-risk youth learn about sexuality from the Internet—is scarce (Strasburger, Wilson, & Jordon, 2009).

Recent research has generally reported that runaway and homeless youth (RHY) tend to adopt healthier behaviors related to sexuality and substance use when the youth maintained connections with home-based peers and supportive family members; typically, the youth used the Internet to facilitate communication with these networks (Rice, Milburn, & Rotheram-Borus, 2007; Rice, Stein, & Milburn, 2008). Rice, Monro, Barman-Adhikari, and Young (2010) found that 85% of runaway and homeless youth access the Internet (i.e., "get online") at least once per week. These researchers found that runaway and homeless youth who connected to home-based peers and family not only were less likely to participate in exchange sex but also reported more HIV testing than runaway and homeless youth who were more embedded in their street-based networks. Using the Andersen behavioral model (Andersen, 1968, 1995) and Pescosolido's (1992) network episode model (NEM), we developed a conceptual model for sexual health information-seeking online among runaway and homeless youth. The purpose of this model is to identify conceptually driven correlates of online sexual health information seeking among this subgroup of adolescents. This study addressed the following research questions:

1. What percentage of runaway and homeless youth are using the Internet to seek sexual health information?

2. What are the characteristics of the youth who are most likely to use the Internet to seek sexual health information?

3. How are the structures of these youths' social network ties and their ways of engaging with those social networks associated with the youths' sexual health information seeking online?

Background and Significance

Help seeking has been defined as "seeking assistance from mental health services, other formal services, or informal support sources for the purpose of resolving emotional or behavioral problems" (Srebnik, Cauce, & Baydar, 1996, p. 211). It has been suggested that help seeking varies among people based on a variety of psychological, socio-economic, and demographic correlates (Srebnik et al., 1996). Studies of runaway and homeless youth (RHY) have found that these youth were less likely than other youth to seek help from traditional health providers, choosing instead to rely on informal sources such as friends and television (Malow, Kershaw, Sipsma, Rosenberg, & Dévieux, 2007). Homeless youth are often embedded in an environment that is shrouded in suspicion of authority figures, institutions, and organizations, including social service agencies and health care clinics (Hudson et al., 2010; Kurtz, Lindsey, Jarvis, & Nackerud, 2000). This suspicion is prompted by several factors, including the stigma and discrimination that surrounds the RHY community (Martins, 2008), as well as the general feeling of distrust among this population. In part, this distrust has been fostered by the youths' past. Many RHY come from abusive and dysfunctional families, and have been mired in a life of violence and trauma (Whitbeck & Hoyt, 1999). In addition, RHY are more likely than other youth to report having been involved with the legal system, or in many cases, harassed by law enforcement personnel (deWinter & Noom, 2003). Moreover, many RHY contend that even when youth are willing to seek help from formal agencies, services are often fragmented, leaving youth lost in a maze of bureaucratic red tape (deWinter & Noom, 2003).

Using the Internet to seek sexual health information enables RHY to avoid the hassles and the perceived pitfalls of engaging with formal systems of care. Despite RHY being resource poor, Rice and colleagues (2010) reported that most of these youth get online regularly by using free Internet access at public libraries or youth-friendly social service agencies. Hence, despite their lack of resources, we argue that online sexual health information seeking is common among RHY in urban areas.

Although adolescents tend to use the Internet for an assortment of purposes, one increasing use is to obtain information related to sex and sexual health. Two primary viewpoints have been espoused by scholars, parents, and policy makers in conceptualizing the significance of the Internet in understanding teenagers' sexuality and awareness of sex related issues. One viewpoint holds that Internet use among adolescents is pathological, with the Internet being perceived as mainly a source of addiction and negative influence. An especially persistent concern among parents, teachers, and scholars is the presence of online sexual predators and the potential risks of such contact (McGrath & Casey, 2002; Mitchell, Finkelhor, Jones, & Wolak, 2010; Peter & Valkenburg, 2006; Plasencia, 2000; Sheldon & Howitt, 2007; Ybarra & Mitchell, 2008). These concerns are justifiable because several studies have found that the Internet is increasingly being used by adolescents to solicit multiple sex partners and connect with strangers (Benotsch, Kalichman, & Cage, 2002; Bull & McFarlane, 2000).

However, as espoused by those holding the second viewpoint, online sexuality has been theorized as a natural extension of the developmental trajectory of youth, with a focus on sexual exploration and healthy sexual development (Cooper, Scherer, Boies, & Gordon, 1999; Gross, 2004; Subrahmanyam et al., 2004; Whitlock, Powers, & Eckenrode, 2006). The Kaiser Sex Smarts study found that many teenagers (12 to 17 years) used the Internet for obtaining information on sexually transmitted diseases (Keller, Labelle, Karimi, & Gupta, 2002Keller, Labelle, Karimi, & Gupta, 2004). This finding is not surprising because teenagers often report struggling with their lack of knowledge about sexual health and healthy sexual relationships (Andrew, Patel, & Ramakrishna, 2003; Banister & Schreiber, 2001).

It can be argued that both viewpoints are partially true. Regardless, the consensus is that the Internet will continue to function as an invaluable informational resource for most people, especially for younger generations that tend to be the early adopters of new technology (Cooper, Putnam, & Panchon, 1999; Paul & Bryant, 2005).

Given the reported reluctance of RHY to seek help and their lack of access to formal resources for their sexual health needs (Dubow, Lovko, & Kausch, 1990; Gould, Munfakh, Lubell, Kleinman, & Parker, 2002), we consider it essential to study sexual health seeking online behaviors among RHY. The unique and often precarious circumstances of RHY make these youth highly vulnerable to acquiring HIV or AIDS and other sexually transmitted infections (Arnold & Rotheram-Borus, 2009; Booth & Zhang, 1996; Greene & Ringwalt, 1996; Marshall et al., 2009). Relative to their home-based peers, RHY are more likely to engage in unsafe sexual and drug-use practices that render them more vulnerable to HIV and other sexually transmitted infections (e.g., Kipke, Montgomery, Simon, & Iverson, 1997; Milburn, Rotheram-Borus, Rice, Mallet, & Rosenthal, 2006; Whitbeck & Hoyt, 1999). Researchers have estimated that as compared with youth in the general population, homeless youth are 7 times more likely to die from AIDS and 16 times more likely to be diagnosed with HIV (Ray, 2006). As noted, it has been well recognized that formal service utilization among RHY tends to be low (Hudson et al., 2010; Kurtz et al., 2000). Given the vulnerability of RHY to the array of risky behaviors that accompany street living, it is important to understand and document the various channels (in this case the Internet) by

which these youth might seek sexual health information. These channels and information could also be relevant for future intervention efforts.

Conceptual Framework for Help-Seeking Online

Our study relied on two well-known models of health service utilization and help-seeking behaviors: the Andersen behavioral model (Andersen, 1968, 1995) and Pescosolido's (1992) network episode model (NEM). These models were used to guide our conceptual framework and identify some factors associated with sexual health information-seeking online among RHY. Our study objective was to identify and explore conceptually driven correlates that could shed light on the characteristics associated with online health information seeking among RHY rather than to test the predictive power of a particular model.

Andersen's (1968, 1995) behavioral model has been often used as a framework for explaining people's reasons for choosing and using health services. The model categorizes individual predictors of service use into three categories (Andersen, 1968, 1995). The first category comprises *predisposing factors*, such as sociodemographic characteristics (e.g., age, sex, marital status, education, race/ethnicity), social structure, and health-related beliefs that shape attitudes toward service use. The second category includes *enabling factors*, which encompass family and community resources as well as access to those resources that promote or inhibit use. The third category is *need factors*, which encompass the individual's illness or impairment that necessitate use.

Andersen (1995) acknowledged that his model did not capture the full spectrum of social network interactions in which people typically engage, or the influence that those social ties have on individuals' help-seeking attitudes. Therefore, we have augmented Andersen's conceptual framework with Pescosolido's (1992) NEM, placing her work in the second category of enabling factors within the Andersen model. Pescosolido proposed that attitudes toward help seeking were not just the result of rational decisions but were rooted in the person's social network. Therefore, network interactions influence not only identification of a problem but also what should be done about the problem. Specifically, the NEM assumes that the person's social network is an antecedent to an event and that both the structure and the content of these network interactions influence the individual's decision-making process (Pescosolido, 1992). Further, in proposing the NEM, Pescosolido also acknowledged the dynamic nature of social networks and posited that the content of these network interactions could not only alter an individual's social network structure but also modify the norms of an entire social group. It is in this context that we posit that the Internet could be significant for RHY because maintaining connections with home-based peers and supportive family members has a positive function for most homeless youth (Rice et al., 2007; Rice et al., 2008; Tyler, 2008). Based on Pescosolido's theory, we proposed that connecting to these nonstreet-based networks would facilitate RHY help-seeking behaviors in general, including seeking information about sexual health via the Internet.

Whereas RHY's street peers often act as important sources of emotional and social support, being entrenched in street-based social groups reinforces behaviors that are counter to prevailing social norms. However, connections of RHY with family or peers who are not homeless serve not only as sources of positive influence but also as sources of informational support that could trigger a youth's motivation to look for sexual health information.

The content of social interactions, which occur across various types of social ties, is also critical to Pescosolido's (1992) model. Critical elements of help seeking include not only to what others a person connects but also around what topics people connect. Relationships that are the source of help-seeking information and resources are more instrumental to help seeking than relationships that are primarily a source of sociability. We assert that youth

who are receiving health-related information online or who are discussing issues of sex and sexuality online are more involved in interactional content that is relevant to sexual health information-seeking online.

The present study examined how predisposing characteristics, enabling resources, and need are associated with help-seeking behaviors on the Internet among RHY (see Figure 1). The variables that compose the three domains are as follows:

Predisposing characteristics

Sociodemographic characteristics such as age, gender, sexuality, and race/ethnicity have been found to be significantly associated with help-seeking behaviors among RHY. Empirical studies of traditional medical service use among RHY have reported that characteristics such as female gender and younger age were associated with higher service use (Berdahl, Hoyt, & Whitbeck, 2005). In addition, these researchers reported that girls were more likely to have been sexually abused and younger RHYs tended to be more vulnerable to street victimization including sexual assault (Berdahl et al., 2005). Geber (1997) found that because of perceived racial discrimination, minority youth were less likely to use traditional health care services than White youth.

Youths' housing situation has also been found to be significantly associated with service use. Research has generally reported that RHY living in shelters were more likely to use outpatient services relative to their peers who did not use shelters (Klein et al., 2000).

In the context of online help-seeking behaviors, it can be hypothesized that RHY in relatively more stable living situations have greater access to the Internet and, therefore, are more likely to use the Internet to look for sexual health information. Health beliefs influence service use by influencing the extent to which people value the importance of preventative health behaviors (Rosenstock, Strecher & Becker, 1988. Therefore, greater HIV knowledge among RHY may translate into increased frequency of seeking sexual health information from online sources.

Enabling resources

In the context of seeking sexual health information online, it can be safely assumed that access to the Internet is significantly associated with online activity. The NEM model posits that both structure (i.e., network ties and contact) and content (i.e., messages transmitted regarding sexual health) influences help-seeking behaviors (Pescosolido, 1992). We hypothesized that RHY who have more frequent, regular Internet access or who have private Internet access (i.e., not solely dependent on public venues such as libraries) would report greater instances of seeking sexual health information. Further, we hypothesized that contact with prosocial influences such as home-based peers and family via the Internet would facilitate more instances of proactive help-seeking behaviors. Finally, we hypothesized that RHY's receipt of health information or involvement in online discussions of sex and sexuality would facilitate greater sexual health information seeking on the Internet.

Need

Traditionally, need encompasses self-perceptions (i.e., perceived need) and objective evaluations (i.e., evaluated need) of general population health conditions. For the purpose of this study, only evaluated need was included because of restrictions imposed by our data.

Method

Sample and Procedures

A nonprobability sample of 201 adolescents was recruited during June 2009 in Los Angeles, California at one drop-in agency serving homeless adolescents. Any client, age 13 to 24 years old, receiving services at the agency was eligible to participate. Youth could voluntarily sign up to participate in the survey at the same time they signed up to receive agency services (e.g., shower, clothing, case management). A consistent set of two research staff members were responsible for all recruitment and assessment activities; this staffing ensured that youth did not complete the survey multiple times. The survey was anonymous and youth were read a consent form that they did not sign. A waiver of parental consent was obtained for minors from the Institutional Review Board at the University of Southern California, Los Angeles. The 60-minute survey was a computer administered self-interview, which was delivered at the agency. Participants completing the survey received a $20 gift card. Survey items and procedures were also approved by the University of Southern California Institutional Review Board.

The measurement and definition of homelessness is plagued with ambiguity; therefore, we chose to follow the definition of homelessness put forth by Tsemberis, McHugo, Williams, Hanrahan, and Stefancic (2004) as our criteria for delineating whether youth were homeless. The Tsemberis et al. definition includes categories of *literally homeless*, *temporary homeless, institutional residence, stable residence*, and *functional homeless*. This definition is considered more comprehensive in its criteria and representativeness of homelessness than most other definitions. Moreover, unlike the federal definition of homelessness, which has been accused of obscuring the intensity of the problem, the Tsemberis et al. definition acknowledges that homelessness encompasses a broad spectrum of people. This range of homeless includes not only those living on the streets and in shelters but also those living in motels or with family and friends because of economic hardship. Based on this definition, youth who were literally homeless (i.e., youth living on the streets or in shelters), and youth in temporary housing (i.e., youth living in transitional settings, such as those living with friends or relatives for 6 months or less) were included in the final sample. The 29 youth in stable housing (i.e., transitional living with relatives or friends for 6 months or more) who were accessing services were removed from subsequent analyses, leaving a final sample of 169 youth.

Measures

Predisposing characteristics—Demographic data were gathered via participant self-report; these data included age, race/ethnicity, gender, sexual orientation, and current living situation. Health beliefs were assessed through a 22-item *true/false* HIV-knowledge quiz developed by the research team. Quiz sections were adapted and compiled from scales used in other U.S.-based studies (DiClemente, Zorn, & Temoshock, 1986). The overall 22-item scale had a Cronbach's alpha of 0.80. In addition to the HIV-knowledge quiz, the survey contained additional items specific to HIV and AIDS risk for homeless youth. Andersen (1995) noted the most salient health belief measures are those that assess a specific disease or health issue.

Enabling resources—Internet access was assessed with two items. Response options to the first item assessed the youth's frequency of Internet use:

How often do you use the Internet?: (1) I never get online; (2) Less than once a week; (3) Once a week; (4) A couple times a week; (5) Almost every day; (6) Everyday but less than one hour; (7) More than 1 hour a day.

Responses to this item were recoded as a dichotomous variable for *daily user* and *less than daily user*. The second item asked youth about locations of their Internet access:

> Where do you go to get online? (Check all that apply): (1) A youth service agency; (2) At school; (3) At work; (4) At home, where you are staying; (5) Internet café; (6) Public library; (7) Friend or associate's house/apartment; (8) my cell phone; (9) Nowhere, I never get online.

Responses to the second item were dichotomized as *personal Internet access* by combining Responses 4 and 8 relative to *other access*.

Social network ties—The aspect of Pescosolido's model (1992) designated as "antecedent structure" was assessed using two items: "When you use social networking websites like MySpace or Facebook, who do you communicate with (check all that apply)?" and "Who do you use your e-mail to communicate with (check all that apply)?" The response choices for these items were the following:

> (1) Parents (including foster family or stepfamily); (2) Brothers, sisters, cousins, or other family members; (3) Friends or associates you know from the streets of Hollywood; (4) Friends or associates you know from home (before you came to Hollywood); (5) Friends or associates you met online.

Network variables were created by combining responses across both items according to the relevant social categories captured by the responses to the two items.

The following two items captured the "content-of-interactions" aspect of the Pescosolido (1992) model:

- What kinds of stuff get forwarded to you on the Internet? (check all that apply): (1) YouTube videos, (2) jokes, funny things, (3) inspirational words or cards, (4) music, information about music, (5) health information, (6) links to entertaining websites, (7) links to practical websites (i.e. job search, housing), (8) photographs, (9) other, (10) nothing, I never get stuff forwarded to me online.

- When you use social networking websites, what do you typically "talk" to your friends about (check all that apply)?: (1) videos on YouTube or other video sites, (2) music, (3) movies and television, (4) drinking, taking drugs, or partying, (5) sex, (6) love and relationships, (7) being homeless, needing a place to stay, (8) school, (9) work, (10) nothing, I don't use social networking websites.

Receives health information forwards (relative to does not) was a dichotomous variable coded 1 for those who indicated Response 5 to the first item. *Talks about sex in online social networks* (relative to does not) was a dichotomous variable coded 1 for those who indicated Response 5 for the second item.

Need—Need was assessed with two variables. *Sexually active* (versus *never had sex*) was a dummy variable coded from the following item: "Have you ever had sexual relations with another person, such as oral sex, vaginal sex, or anal sex?" Lifetime history of testing for HIV or other sexually transmitted infections (STIs) was a dichotomous variable coded by combining positive responses to the following two items: "Have you ever been tested for HIV/AIDS?" and "Have you ever been tested for any other sexually transmitted disease (for example syphilis, gonorrhea, chlamydia, HPV [human papillomavirus])?"

The variables for health behaviors (shown in parentheses below) were dummy coded based on four *yes/no* questions:

- Have you ever used the Internet to find out answers about sex and sexuality? (*sex information*);

- Have you ever used the Internet to find out information about HIV/AIDS or other sexually transmitted diseases?" (*HIV/STI information)*;

- Have you ever used the Internet to find out where to get an HIV test? (*HIV testing information*); and

- Have you ever used the Internet to find out information about health questions you had?" (*general health information*).

Questions specific to looking for pornographic material were also asked. Because the primary aim of this study was to understand prosocial behaviors, information related to Internet searches for pornography was excluded from our analyses.

Analyses

The analysis proceeded in two stages. First, a series of bivariate logistic regressions were run to determine significant associations ($p < .05$) between the independent variables (i.e., *predisposing characteristics, social structure, health beliefs,* and *enabling resources*) and the four health behavior variables (i.e., *sex information, HIV/STI information, HIV testing information,* and *general health information*). 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., $p < .05$ level) with any dependent variable was retained in the final multivariate logistic regression models presented in Table 2 (Hosmer & Lemeshow, 1989). In addition, we tested for all two-way interaction effects among race, gender, and sexuality; only the gender by sexuality interactions were significant, and were retained in the final models. The specification of the final four multivariate logistic regression models was the same to assist in cross-model comparisons.

Results

Descriptive statistics are presented in Table 1. Youth were primarily from racial/ethnic minority groups, male, heterosexual, categorized as literally homeless or shelter-living, and had an average age of nearly 21 years; only five youth were younger than 18 years old. The mean number of correct answers on the HIV-knowledge quiz was 14.5 out of 22. Most youth (54%) were daily Internet users and relied on public Internet access. Listed in Table 1 under "Antecedent Structure," the youths reported using the Internet to connect to a diverse array of social network ties, including parents, street-based peers, online peers, and home-based peers. With respect to content of interactions, most youth reported having received health information forwards, but did not discuss sex with their online contacts on social networking websites. Approximately 81% of youth were sexually active and 73% reported having been tested for either HIV or another STI in their lifetime. Sexual health information seeking varied by type of information: 61% of respondents had sought general health information, 47% had sought information about HIV or other STIs, 40% had sought information about sex or sexuality, and 23% of respondents had used the Internet to locate HIV-testing services.

All independent variables were significantly associated with at least one outcome in the bivariate analysis, with the exception of the following: *living situation, HIV knowledge, a history of sexual activity*, and *a history of HIV or STI testing*. These four exceptions were never significantly associated with any of the online sexual health information-seeking behaviors and, therefore, these variables were dropped from subsequent multivariate models.

The multivariate models presented on Table 2 revealed several important predisposing characteristics from our model had significant associations with sexual health information-seeking behaviors. Fewer males than females reported looking for sex information (OR=. 28). The male by gay/lesbian/bisexual (GLB) interaction effect was significant for both HIV/STI information seeking (OR=12.1) and HIV-testing information seeking (OR=7.14). African American youth were less likely than White youth to report looking for general health information (OR=.26), and , as compared with White youth, other race/ethnicity youth were also less likely to report looking for general health information (OR=.252). Likewise, we found that mixed race/ethnicity youth were less likely to report looking for sex information (OR=.257) as compared with their White counterparts.

The multivariate model also shows several important associations with enabling resources. Relative to youth who did not access the Internet each day, those who were daily Internet users were more likely to report using the Internet to locate sex information (OR = 2.6). Similarly, youth who had personal Internet access were more likely to seek HIV or STI information (OR=2.8) and HIV testing information (OR = 4.4) than were youth who relied solely on public Internet access. RHY who maintained ties to parents via the Internet were significantly more likely to report seeking HIV-testing information (OR=3.5) than RHY youth who did not have online connections with their parents. Relative to youth who did not receive e-mail forwards of health information, youth who received health forwards were significantly more likely to report seeking HIV-testing information (OR=3.07), sex information (OR=2.8), and general health information (OR=3.2).

Discussion

Homeless youth are regular users of the Internet and are actively engaged in health information-seeking behaviors as part of their online experience. A relatively large percentage of the sampled RHY reported having ever used the Internet to look for sexual health information. Approximately half of the sample reported looking for HIV or other STI related information, and 62% of respondents reported using the Internet to find answers to general health questions. These findings echo those reported for the general adolescent population (Borzekowski & Rickert, 2001; Gould et al., 2002). These results expand the work of Rice et al. (2010), and suggest that RHY use the Internet with great regularity and that seeking sexual health information is among the important tasks in which RHY youth engage when online.

Perhaps the most compelling aspects of these data are the associations among sexual health information-seeking and the content of RHY's online interactions. Notably, 76% of the sample reported receiving health information forwarded by someone they knew. This forwarded information may have prompted RHY to do further investigation because, relative to youth who did not receive such forwards, more of the youth who received health forwards also reported looking for HIV or STI information and HIV-testing information.

Similarly, involvement in online social sites may prompt online health-seeking behaviors. Among the respondents, 27% reported discussing sex in online social networking sites. Relative to youth without this involvement, more of the youth who reported discussing sex online also reported using the Internet to find HIV-testing information

The Internet has been referred to as a "hybrid channel of communication" (Cassell, Jackson, & Cheuvront, 1998) because the Web is not only used for mass communication but also used for interpersonal communication. It is truly an interactive medium. The general adolescent population has been reported to capitalize on the interactive nature of this medium (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005; Greenfield & Yan, 2006;

Pascoe, 2009; Subrahmanyam, Reich, Waechter, & Espinoza, 2008). These findings expand on prior work (Rice et al., 2010) that examined the online access of RHY to explore the interactive nature of the Internet, and how the content of interactions (i.e., what was discussed, forwarded, and received) formed a critical enabling resource in sexual health information-seeking behaviors.

Moreover, as Pescosolido (1992) stressed in her NEM model, in addition to the content of interactions across ties, the antecedent structure of social network ties is a critical correlate of online sexual health information seeking among RHY. Youths' maintaining connections to parents via the Internet was significantly associated with seeking HIV-testing information. Given prior work that has demonstrated the importance of continued ties with parents for positive outcomes, such as housing (Milburn et al., 2009) and sexual risk-taking (Rice et al., 2010), it is not surprising that youth with connections to parents are also engaging in more HIV and STI information-seeking online. This finding may reflect either the positive benefits of continued social support from parents or the noncausal association of two positive online behaviors among prosocial homeless youth: (a) looking for HIV or STI information online, and (b) connecting to home online. In either case, the youth engaged in reaching out to home via the Internet are also the youth who are using online sources to answer their questions about sexual health.

As Andersen's (1968, 1995) health behavior model contends, significant differences exist in the predisposing characteristics of youth who access sexual health information online. Fewer males than females used the Internet to look for information about sex and sexuality, whereas more gay males than any other gender and sexuality subgroup sought HIV testing and HIV or AIDS information. This finding mirrors some work in the general adolescent population that has shown more online health information seeking by females (Fox & Fallows, 2003) and increased use of the Internet for sexuality and sexual health information by GLB youth (Pascoe, 2009). In addition, previous studies have documented that the absence of culturally and developmentally appropriate services for GLB youth deters these youth from accessing services (Wright, Gonzalez, Werner, Laughner, & Wallace, 1998). In a survey of the members of the Gay and Lesbian Medical Association, 67% of the participants reported having observed gay and lesbian patients receiving substandard care because of the patients' sexual orientation (Dean et al., 2000). Moreover, even in situations in which actual discrimination might not exist, GLB youth might perceive discrimination and experience feelings of stigma because of their experiences with the larger social system. Such perceptions or expectations of discrimination might explain, at least to some extent, GLB youth's greater reliance on seeking sexual health information from online resources. These data also suggest that among this sample of RHY, the African American, mixed race/ethnicity, or other race youth were the RHY youth least likely to look for sexual information or general health information. This finding is consistent with prior work on youth in general that suggests White youth in general have disproportionate access to the Internet (Geber, 1997).

Enabling resources specifically tied to Internet access were important correlates of sexual health information seeking. Whereas Andersen's model typically is concerned with accessibility of medical services, Internet access is one of the relevant correlates of behavior for the model used in this study. Youth who were daily Internet users reported more sex information seeking than those with less Internet access. More important, as compared with youth who relied on public Internet access, more youth with personal Internet access reported going online to seek sex information, HIV-testing information, and HIV or STI information. This finding suggests that for both the general population of housed youth and for RHY, looking for information online is deeply intertwined with privacy issues. Many youth, whether homeless or not, are reluctant to speak with health care providers about

sensitive issues surrounding sexuality, and in turn, use the Internet to avoid embarrassment and overcome privacy issues (Barak & Fisher, 2001; Borzekowski & Rickert, 2001; Gray & Klein, 2006; Keller & Brown, 2002; Pascoe, 2009; Subrahmanyam et al., 2004; Suzuki & Calzo, 2004; Ybarra & Suman, 2008).

Study Limitations

First, the participants in this study were recruited through a nonprobability sampling strategy and, therefore, the results might not be generalizable to the entire population of homeless youth. Because of housing instability and lack of formal institutional attachments (e.g., school), data collected from RHY are frequently drawn from nonprobability samples (Greene, Ennett, & Ringwalt, 1999; Pollio, Thompson, Tobias, Reid, & Spitznagel, 2006; Tyler, Whitbeck, Hoyt, & Johnson, 2003). However, the demographic characteristics of our participants were highly similar to those reported in a recently published study that used a probability sample of homeless youth in Los Angeles County (Wenzel, Tucker, Golinelli, Green, & Zhou, 2010). In addition, data for this study were collected from an urban sample of homeless adolescents, and it is not known whether these results can be generalized to rural homeless youth, especially given the ample disparity in Internet access between urban and rural areas (Livingstone, 2003). Variables on sexual health information seeking were asked in reference to lifetime searching and could tap into Internet use that occurred before the youth became homeless; however, these questions immediately followed questions on current Internet access and, therefore, it is likely youth were framing their responses to their current situation.

Because these data are cross-sectional, we cannot draw any causal explanations regarding the relationships being investigated. To overcome this limitation, future studies should focus on collecting longitudinal data. In addition, legitimate concerns exist about the validity of self-reported behavioral data. Although it is possible that youth could have either underreported or overreported their Internet use, other studies with adolescents (Halcon & Lifson, 2004; Shew et al., 1997) have found a high degree of accuracy in such survey reports. We measured both structure and content of interactions, but we did not collect detailed social-network level information on these processes. For example, from our data we knew if a youth received health information forwards and whether a youth was connected to his or her parents, but we could not know if parents were the sources of forwarded health information. A future study that collects detailed network-level information on ties and the content of interactions (both face-to-face and online) across those ties would do much to increase our understanding of these processes, which could be critical in informing clinical interventions with youth and families. Another limitation of the study was the lack of a measure for perceived need. Existing research demonstrates that perceived need is significantly predictive of help-seeking behavior among people in general and high-risk adolescents in particular (Andersen 1995; Srebnik et al., 1996).

Implications for Intervention and Practice

Despite the preliminary nature of these data, our findings have significant implications for social work practice. Given that homeless youth are using the Internet to access health and sexual health information, it would seem prudent to make Internet access easier for youth. Many youth must rely on public libraries and youth services agencies to gain Internet access; thus, making free access more widely available would facilitate youths' capacity to search for and disseminate health and sexual health information.

The Internet could emerge as a complementary avenue through which social work interventions can be delivered. The Internet offers some unique advantages relative to

traditional methods of delivering interventions. For example, Facebook or other social media websites could become ideal, youth-friendly environments in which to disseminate relevant health and sexual health information to homeless youth. Social workers could encourage youth to work with their peers to locate and disseminate relevant health and sexual health information online. Giving homeless youth the power to make choices and allowing them to contribute to their own well-being and making them feel like valued members of society could potentially contribute toward improving their self-esteem and a healthy future. In addition, the creation of a LISTSERV or electronic subscription list with RHY youths' e-mail addresses would enable automatic notifications about new services or interventions as well as provide the wide dissemination in the quickest possible manner. The information disseminated could also be used as a conduit to direct these hard-to-reach youth to more formal help-giving resources.

The Internet could also be used as a means of maintaining contact with these youth. Given the large number of daily users reported in this study, the Internet would appear to offer an alternative means for social workers to reach these transient clients. Traditionally, social workers are trained to engage with their clients in person (i.e., face-to-face contact). Although personal meetings remain the ideal desired modality of client contact, social workers should also explore Internet contact because homeless youth tend to be a highly transient population. Social workers could use the Internet to maintain contact over time or to follow-up with clients who do not have stable residences or who can only be engaged when they return for more services. Contact with RHY can be maintained through e-mail or social media sites such as Facebook or Myspace. Moreover, given that RHY might not be reachable via phones or physical addresses, the Internet could also be used to send them e-mail reminders about their upcoming appointments or other service needs.

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References

Andersen, R. A behavioral model of families' use of health services. Chicago, IL: Center for Health Administration Studies, University of Chicago; 1968.

Andersen RM. Revisiting the behavioral model and access to medical care: Does it matter? Journal of Health and Social Behavior. 1995; 36:1–10.10.2307/2137284 [PubMed: 7738325]

Andrew G, Patel V, Ramakrishna J. Sex, studies or strife? What to integrate in adolescent health services. Reproductive Health Matters. 2003; 11:120–129.10.1016/S0968-8080(03)02167-0 [PubMed: 12800709]

Arnold EM, Rotheram-Borus MJ. Comparisons of prevention programs for homeless youth. Prevention Science. 2009; 10:76–86.10.1007/s11121-008-0119-4 [PubMed: 19067164]

Banister E, Schreiber R. Young women's health concerns: Revealing paradox. Health Care for Women International. 2001; 22:633–647.10.1080/07399330127170 [PubMed: 12141841]

Barak A, Fisher WA. Toward an Internet-driven, theoretically-based, innovative approach to sex education. Journal of Sex Research. 2001; 38:324–332.10.1080/00224490109552103

Benotsch EG, Kalichman S, Cage M. Men who have met sex partners via the Internet: Prevalence, predictors, and implications for HIV prevention. Archives of Sexual Behavior. 2002; 31:177–183.10.1023/A:1014739203657 [PubMed: 11974643]

Berdahl TA, Hoyt DR, Whitbeck LB. Predictors of first mental health service utilization among homeless and runaway adolescents. Journal of Adolescent Health. 2005; 37:145–154.10.1016/j.jadohealth.2004.08.030 [PubMed: 16026724]

Booth, RE.; Zhang, Y. Severe aggression and related conduct problems among runaway and homeless adolescents; Psychiatric Services. 1996. p. 75-80.http://ps.psychiatryonline.org/cgi/reprint/47/1/75

Borzekowski DLG, Rickert VI. Adolescents, the Internet, and health: Issues of access and content. Journal of Applied Developmental Psychology. 2001; 22:49–59.10.1016/S0193-3973(00)00065-4

Bull S, McFarlane M. Soliciting sex on the Internet: What are the risks for sexually transmitted diseases and HIV? Sexually Transmitted Diseases. 2000; 27:545–550.10.1097/00007435-200010000-00008 [PubMed: 11034529]

Cassell MM, Jackson C, Cheuvront B. Health communication on the Internet: An effective channel for health behavior change? Journal of Health Communication. 1998; 3:71–82.10.1080/108107398127517 [PubMed: 10947375]

Cooper A, Putnam DE, Planchon LA, Boies SC. Online sexual compulsivity: Getting tangled in the net. Sexual Addiction & Compulsivity. 1999; 6:79–104.10.1080/10720169908400182

Cooper A, Scherer CR, Boies SC, Gordon BL. Sexuality on the Internet: From sexual exploration to pathological expression. Professional Psychology: Research and Practice. 1999; 30:154–164.10.1037/0735-7028.30.2.154

de Winter M, Noom M. Someone who treats you as an ordinary human being: Homeless youth examine the quality of professional care. British Journal of Social Work. 2003; 33:325–337.10.1093/bjsw/33.3.325

Dean L, Meyer IH, Robinson K, Sell RL, Sember R, Silenzio VMB, Xavier J. Lesbian, gay, bisexual, and transgender health: Findings and concerns. Journal of the Gay and Lesbian Medical Association. 2000; 4:102–151.10.1023/A:1009573800168

DiClemente RJ, Zorn J, Temoshok L. Adolescents and AIDS: A survey of knowledge, attitudes and beliefs about AIDS in San Francisco. American Journal of Public Health. 1986; 76:1443–1445.10.2105/AJPH.76.12.1443 [PubMed: 3777294]

Dubow EF, Lovko KR, Kausch DF. Demographic differences in adolescents health concerns and perceptions of helping agents. Journal of Clinical Child & Adolescent Psychology. 1990; 19:44–54.10.1207/s15374424jccp1901_6

Eysenbach G. Medicine 2.0: Social networking, collaboration, participation, apomediation, and openness. Journal of Medical Internet Research. 2008; 10(3):e22.10.2196/jmir.1030 [PubMed: 18725354]

Fox, S.; Fallows, D. Internet health resources. Pew Internet & American Life Project; 2003. Retrieved from http://www.pewinternet.org/~/media//Files/Reports/2003/PIP_Health_Report_July_2003.pdf.pdf

Geber GM. Barriers to health care for street youth. Journal of Adolescent Health. 1997; 21:287–290.10.1016/S1054-139X(97)00111-0 [PubMed: 9358291]

Gould MS, Munfakh JLH, Lubell K, Kleinman M, Parker S. Seeking help from the Internet during adolescence. Journal of American Academy of Child & Adolescent Psychiatry. 2002; 41:1182–1190.10.1097/00004583-200210000-00007

Gray NJ, Klein JD. Adolescents and the Internet: Health and sexuality information. Current Opinion in Obstetrics and Gynecology. 2006; 18:519–524.10.1097/01.gco.0000242954.32867.76 [PubMed: 16932046]

Gray NJ, Klein JD, Noyce PR, Sesselberg TS, Cantrill JA. Health information-seeking behaviour in adolescence: The place of the Internet. Social Science & Medicine. 2005; 60:1467–1478.10.1016/j.socscimed.2004.08.010 [PubMed: 15652680]

Greene JM, Ennett ST, Ringwalt CL. Prevalence and correlates of survival sex among runaway and homeless youth. American Journal of Public Health. 1999; 89:1406–1409.10.2105/AJPH.89.9.1406 [PubMed: 10474560]

Greene JM, Ringwalt CL. Youth and familial substance use's association with suicide attempts among runaway and homeless youth. Substance Use & Misuse. 1996; 31:1041–1058.10.3109/10826089609072286 [PubMed: 8806167]

Greenfield P, Yan Z. Children, adolescents, and the Internet: A new field of inquiry in developmental psychology. Developmental Psychology. 2006; 42:391–394.10.1037/0012-1649.42.3.391 [PubMed: 16756431]

Gross EF. Adolescent Internet use: What we expect, what teens report. Journal of Applied Developmental Psychology. 2004; 25:633–649.10.1016/j.appdev.2004.09.005

Halcon LL, Lifson AR. Prevalence and predictors of sexual risks among homeless youth. Journal of Youth and Adolescence. 2004; 33:71–80.10.1023/A:1027338514930

Hansen DL, Derry HA, Resnick PJ, Richardson CR. Adolescents searching for health information on the Internet: An observational study. Journal of Medical Internet Research. 2003; 5(4):e25.10.2196/jmir.5.4.e25 [PubMed: 14713653]

Hosmer, DW.; Lemeshow, S. Applied logistic regression. New York, NY: Wiley; 1989.

Hudson AL, Nyamathi A, Greengold B, Slagle A, Koniak-Griffin D, Khalilifard F, Getzoff D. Health-seeking challenges among homeless youth. Nursing Research. 2010; 59:212–218.10.1097/NNR. 0b013e3181d1a8a9 [PubMed: 20404776]

Kanuga M, Rosenfeld WD. Adolescent sexuality and the Internet: The good, the bad, and the URL. Journal of Pediatric and Adolescent Gynecology. 2004; 17:117–124.10.1016/j.jpag.2004.01.015 [PubMed: 15050988]

Keller SN, Brown JD. Media interventions to promote responsible sexual behavior. Journal of Sex Research. 2002; 39:1–72.10.1080/00224490209552123

Keller SN, Labelle H, Karimi N, Gupta S. STD/HIV prevention for teenagers: A look at the Internet universe. Journal of Health Communication. 2002; 7:341–353.10.1080/10810730290088175 [PubMed: 12356291]

Keller S, LaBelle H, Karimi N, Gupta S. Talking about STD/HIV prevention: A look at communication online. AIDS Care. 2004; 16:977–992.10.1080/09540120412331292462 [PubMed: 15511730]

Kipke MD, Montgomery SB, Simon TR, Iverson EF. Substance abuse" disorders among runaway and homeless youth. Substance Use & Misuse. 1997; 32:969–986.10.3109/10826089709055866 [PubMed: 9220564]

Klein JD, Woods AH, Wilson KM, Prospero M, Greene J, Ringwalt C. Homeless and runaway youths' access to health care. Journal of Adolescent Health. 2000; 27:331–339.10.1016/S1054-139X(00)00146-4 [PubMed: 11044705]

Kurtz PD, Lindsey EW, Jarvis S, Nackerud L. How runaway and homeless youth navigate troubled waters: The role of formal and informal helpers. Child and Adolescent Social Work Journal. 2000; 17:381–402.10.1023/A:1007507131236

Levine D, McCright J, Dobkin L, Woodruff AJ, Klausner JD. SEXINFO: A sexual health text messaging service for San Francisco youth. American Journal of Public Health. 2008; 98:393–395.10.2105/AJPH.2007.110767 [PubMed: 18235068]

Livingstone S. Children's use of the Internet: Reflections on the emerging research agenda. New Media & Society. 2003; 5:147–166.10.1177/1461444803005002001

Malow RM, Kershaw T, Sipsma H, Rosenberg R, Dévieux JG. HIV preventive interventions for adolescents: A look back and ahead. Current HIV/AIDS Reports. 2007; 4:173–180.10.1007/s11904-007-0025-6 [PubMed: 18366948]

Marshall BDL, Kerr T, Shoveller JA, Patterson TL, Buxton JA, Wood E. Homelessness and unstable housing associated with an increased risk of HIV and STI transmission among street-involved youth. Health and Place. 2009; 15:753–760.10.1016/j.healthplace.2008.12.005 [PubMed: 19201642]

Martins DC. Experiences of homeless people in the health care delivery system: A descriptive phenomenological study. Public Health Nursing. 2008; 25:420–430.10.1111/j. 1525-1446.2008.00726.x [PubMed: 18816359]

McGrath, M.; Casey, E. Forensic psychiatry and the Internet: Practical perspectives on sexual predators and obsessional harassers in cyberspace; Journal of the American Academy of Psychiatry and the Law Online. 2002. p. 81-94.http://www.jaapl.org/cgi/reprint/30/1/81

Milburn NG, Rotheram-Borus MJ, Rice E, Mallet S, Rosenthal D. Cross-national variations in behavioral profiles among homeless youth. American Journal of Community Psychology. 2006; 37:63–76.10.1007/s10464-005-9005-4 [PubMed: 16680537]

Mitchell KJ, Finkelhor D, Jones LM, Wolak J. Use of social networking sites in online sex crimes against minors: An examination of national incidence and means of utilization. Journal of Adolescent Health. 2010; 47:183–190.10.1016/j.jadohealth.2010.01.007 [PubMed: 20638011]

Pascoe, CJ. Keynote Lecture: Virtual Sex Ed: Youth, Race, Sex and New Media: Section of Family Planning and Contraceptive Research. Chicago, IL: University of Chicago; 2009 June 4. Encouraging sexual literacy in a digital age: Teens, sexuality and new media. Retrieved from http://hivdatf.files.wordpress.com/2011/03/pascoe2009.pdf

Paul B, Bryant JA. Adolescents and the Internet. Adolescent Medicine Clinics. 2005; 16:413–426.10.1016/j.admecli.2005.03.001 [PubMed: 16111625]

Pescosolido BA. Beyond rational choice: The social dynamics of how people seek help. American Journal of Sociology. 1992; 97:1096–1138.10.1086/229863

Peter J, Valkenburg PM. Adolescents' exposure to sexually explicit material on the Internet. Communication Research. 2006; 33:178–204.10.1177/0093650205285369

Plasencia, MM. Internet sexual predators: Protecting children in the global community; Journal of Gender Race & Justice. 2000. p. 15-36.http://heinonlinebackup.com/hol-cgi-bin/get_pdf.cgi?handle=hein.journals/jgrj4&section=7

Pollio DE, Thompson SJ, Tobias L, Reid D, Spitznagel E. Longitudinal outcomes for youth receiving runaway/homeless shelter services. Journal of Youth and Adolescence. 2006; 35:852–859.10.1007/s10964-006-9098-6

Ray, N. Lesbian, gay, bisexual and transgender youth: An epidemic of homelessness. New York, NY: National Gay and Lesbian Task Force Policy Institute and the National Coalition for the Homeless; 2006. Retrieved from http://www.thetaskforce.org/downloads/HomelessYouth.pdf

Rice E, Milburn N, Rotheram-Borus M. Pro-social and problematic social network influences on HIV/ AIDS risk behaviours among newly homeless youth in Los Angeles. AIDS Care. 2007; 19:697–704.10.1080/09540120601087038 [PubMed: 17505933]

Rice E, Monro W, Barman-Adhikari A, Young SD. Internet use, social networking, and HIV/AIDS risk for homeless adolescents. Journal of Adolescent Health. 2010 Advance online publication. 10.1016/j.jadohealth.2010.04.016

Rice E, Stein JA, Milburn N. Countervailing social network influences on problem behaviors among homeless youth. Journal of Adolescence. 2008; 31:625–639.10.1016/j.adolescence.2007.10.008 [PubMed: 18076981]

Rosenstock I, Strecher V, Becker M. Social learning theory and the health belief model. Health Education & Behavior. 1988; 2:175–183.10.1177/109019818801500203

Sheldon, K.; Howitt, D. Sex offenders and the Internet. West Sussex, England: Wiley; 2007.

Shew ML, Remafedi GJ, Bearinger LH, Faulkner PL, Taylor BA, Potthoff SJ, Resnick M. The validity of self-reported condom use among adolescents. Sexually Transmitted Diseases. 1997; 24:503–510.10.1097/00007435-199710000-00002 [PubMed: 9339967]

Srebnik D, Cauce A, Baydar N. Help-seeking pathways for children and adolescents. Journal of Emotional and Behavioral Disorders. 1996; 4:210–220.10.1177/106342669600400402

Strasburger, VC.; Wilson, BJ.; Jordan, AB. Children, adolescents, and the media. 2. Thousand Oaks, CA: Sage; 2009.

Subrahmanyam K, Greenfield PM, Tynes B. Constructing sexuality and identity in an online teen chatroom. Journal of Applied Developmental Psychology. 2004; 25:651–666.10.1016/j.appdev. 2004.09.007

Subrahmanyam K, Reich SM, Waechter N, Espinoza G. Online and offline social networks: Use of social networking sites by emerging adults. Journal of Applied Developmental Psychology. 2008; 29:420–433.10.1016/j.appdev.2008.07.003

Suzuki LK, Calzo JP. The search for peer advice in cyberspace: An examination of online teen bulletin boards about health and sexuality. Journal of Applied Developmental Psychology. 2004; 25:685–698.10.1016/j.appdev.2004.09.002

Tsemberis S, McHugo G, Williams V, Hanrahan P, Stefancic A. Measuring homelessness and residential stability: The residential time-line follow-back inventory. Journal of Community Psychology. 2007; 35:29–42.10.1002/jcop.20132

Tyler KA. Social network characteristics and risky sexual and drug related behaviors among homeless young adults. Social Science Research. 2008; 37:673–685.10.1016/j.ssresearch.2007.09.004 [PubMed: 19069065]

Tyler KA, Whitbeck LB, Hoyt DR, Johnson KD. Self-mutilation and homeless youth: The role of family abuse, street experiences, and mental disorders. Journal of Research on Adolescence. 2003; 13:457–474.10.1046/j.1532-7795.2003.01304003.x

Wells M, Mitchell KJ. How do high-risk youth use the Internet? Characteristics and implications for prevention. Child Maltreatment. 2008; 8:227–234.10.1177/1077559507312962 [PubMed: 18349302]

Wenzel SL, Tucker JS, Golinelli D, Green HD Jr, Zhou A. Personal network correlates of alcohol, cigarette, and marijuana use among homeless youth. Drug and Alcohol Dependence. 2010; 112:140–149.10.1016/j.drugalcdep.2010.06.004 [PubMed: 20656423]

Whitbeck, LB.; Hoyt, DR. Nowhere to grow: Homeless and runaway adolescents and their families. Hawthorne, NY: Aldine de Gruyter; 1999.

Whitlock JL, Powers JL, Eckenrode J. The virtual cutting edge: The Internet and adolescent self-injury. Developmental Psychology. 2006; 42:407–417.10.1037/0012-1649.42.3.407 [PubMed: 16756433]

Wright ER, Gonzalez C, Werner JN, Laughner ST, Wallace M. A model for responding to the HIV risk behaviors of gay, lesbian, and bisexual youth in the heartland. Journal of Adolescent Health. 1998; 23S:83–95.10.1016/S1054-139X(98)00056-1 [PubMed: 9712256]

Ybarra ML, Mitchell KJ. How risky are social networking sites? A comparison of places online where youth sexual solicitation and harassment occurs. Pediatrics. 2008; 121:e350–e357.10.1542/peds. 2007-0693 [PubMed: 18227194]

Ybarra ML, Suman M. Help seeking behavior and the Internet: A national survey. International Journal of Medical Informatics. 2006; 75:29–41.10.1016/j.ijmedinf.2005.07.029 [PubMed: 16129659]

Predisposing Characteristics
    Demographics
        (Age, Gender, Sexuality, Race/Ethnicity)

    Social Structure
        (Housing Situation)
    Health Beliefs
        (HIV/AIDS Knowledge)

Enabling Resources
    Internet Access
    Social Network Ties
        (Antecedent Structure, Content of Interactions)

Need
    Sexually Active
    History with HIV & STI's
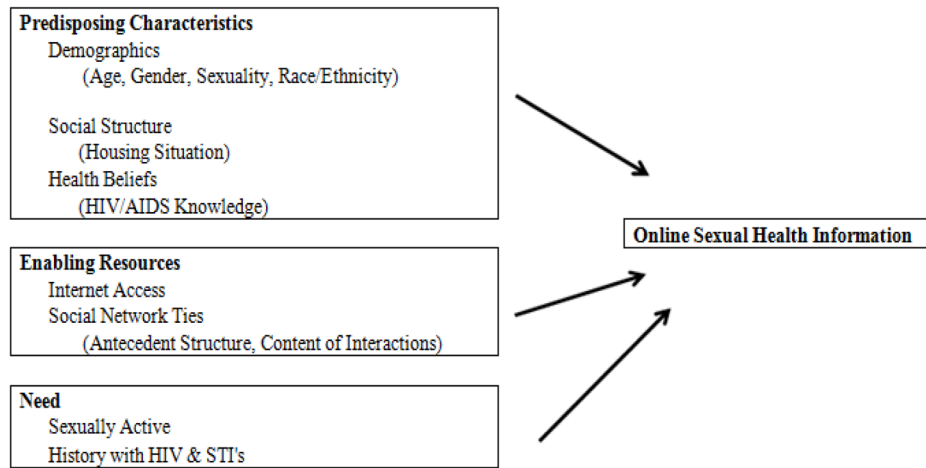
Online Sexual Health Information

Figure 1.
Conceptual model for online sexual health information seeking among runaway and homeless youth.

Table 1

Descriptive Statistics of Homeless Youth (n=169) in Los Angeles

Predisposing Characteristics		
	M	*SD*
Demographics		
Age	20.9	2.1
Race/Ethnicity	*n*	%
African American	52	31
Latino	21	12.6
White	45	26.9
Mixed Race	31	18.5
Other/None Identified	18	10.8
Male	114	68.2
Female	53	31.7
Heterosexual	115	68.9
Gay/Lesbian/Bisexual (GLB)	52	31.1
Social Structure - Living Situation		
Literally homeless	85	52.3
Temporary housing situation	75	46.9
Enabling Resources- Internet Access		
Daily user	91	54.4
Personal Internet access	54	32.3
Social Network Ties		
Antecedent Structure		
Connect with parents online	57	34.1
Connect with home-based peers online	111	66.4
Connect with online peers online	87	47.9
Connect with street-based peers online	88	52.7
Content of Interactions		
Receive health information forwards	126	75.4
Talk about sex in online social networks	46	27.5
Need	*n*	%
Sexually active ever	134	80.2
Lifetime history of testing for HIV or STI's	121	72.4
Health Behaviors		
Ever looked online for:		
Sex Information	68	40.7
HIV/STI Information	79	47.3
HIV Testing Information	39	23.3
General Health Information	102	61
Health Beliefs	*M*	*SD*

Predisposing Characteristics		
	M	*SD*
HIV knowledge score (22 max)	14.5	3

Table 2

Multivariate Logistic Regression of Online Sexual Health Information Seeking of Homeless Youth (n=169)

Predisposing Characteristics	Sex Info OR	CI	HIV/STI Info OR	CI	HIV Testing Info OR	CI	General Health Info OR	CI
Demographics								
Male	0.29	[0.10, 0.88]	0.27	[0.09, 0.79]	0.38	[0.11, 1.37]	0.32	[0.10, 1.07]
GLB	0.73	[0.21, 2.46]	0.38	[0.11, 1.31]	0.33	[0.07, 1.50]	0.36	[0.09, 1.41]
Interaction: Male*GLB	3.81	[0.75, 19.47]	12.11	[2.27, 64.70]	7.15	[1.02, 50.30]	5.00	[0.86, 28.96]
Race [contrast = White]								
Latino	0.45	[0.13, 1.54]	0.55	[0.16, 1.93]	0.74	[0.16, 3.55]	0.53	[0.14, 1.97]
African American	0.45	[0.17, 1.23]	1.31	[0.49, 3.46]	1.43	[0.42, 4.94]	0.27	[0.09, 0.75]
Mixed Race	0.26	[0.08, 0.82]	2.35	[0.82, 6.76]	1.57	[0.40, 6.11]	0.52	[0.17, 1.57]
Other Race	0.54	[0.14, 1.99]	1.54	[0.45, 5.32]	2.62	[0.56, 12.19]	0.25	[0.07, 0.90]
Enabling Resources								
Internet Access								
Daily Internet User	2.61	[1.08, 6.31]	1.73	[0.73, 4.09]	2.08	[0.78, 5.50]	1.82	[0.71, 4.65]
Personal Internet Access	1.56	[0.66, 3.69]	2.83	[1.25, 6.42]	4.43	[1.67, 11.79]	1.78	[0.76, 4.18]
Social Network Ties [Antecedent Structure]								
Parents	1.17	[0.52, 2.66]	0.70	[0.31, 1.57]	3.54	[1.34, 9.36]	0.99	[0.44, 2.22]
Home-Based Peers	0.42	[0.17, 1.04]	1.62	[0.68, 3.86]	0.49	[0.16, 1.47]	1.53	[0.66, 3.54]
Online Peers	1.92	[0.87, 4.22]	1.28	[0.60, 2.74]	2.19	[0.85, 5.62]	1.97	[0.91, 4.27]
Street-Based Peers	0.96	[0.41, 2.24]	1.11	[0.48, 2.56]	0.39	[0.13, 1.12]	0.53	[0.22, 1.26]
Content of Interactions								
Receive Health Forwards	2.84	[1.21, 6.64]	1.96	[0.83, 4.62]	3.08	[1.14, 8.29]	3.20	[1.19, 8.64]
Talk About Sex Online	2.25	[0.96, 5.26]	0.85	[0.36, 1.98]	1.50	[0.54, 4.19]	1.20	[0.50, 2.89]
−2 Log Likelihood	186.38		193.18		140.76		186.99	
n in final model	167.00		167.00		167.00		167.00	