The Journal of Sex Research

ISSN: 0022-4499 (Print) 1559-8519 (Online) Journal homepage: https://www.tandfonline.com/loi/hjsr20

Safer Sex Communication and Sexual Health Behaviors Among a Representative Statewide Sample of Homeless Adolescents

Kristyn Kamke, Laura Widman & Mary E. Haskett

To cite this article: Kristyn Kamke, Laura Widman & Mary E. Haskett (2020) Safer Sex Communication and Sexual Health Behaviors Among a Representative Statewide Sample of Homeless Adolescents, The Journal of Sex Research, 57:2, 137-144, DOI: 10.1080/00224499.2019.1577945

To link to this article: https://doi.org/10.1080/00224499.2019.1577945

Published online: 27 Feb 2019.

Submit your article to this journal

Article views: 245

View related articles

View Crossmark data

Full Terms & Conditions of access and use can be found at
https://www.tandfonline.com/action/journalInformation?journalCode=hjsr20

THE JOURNAL OF SEX RESEARCH, *57*(2), 137–144, 2020
© 2019 The Society for the Scientific Study of Sexuality
ISSN: 0022-4499 print/1559-8519 online
DOI: https://doi.org/10.1080/00224499.2019.1577945

Taylor & Francis
Taylor & Francis Group

Check for updates

BRIEF REPORT

Safer Sex Communication and Sexual Health Behaviors Among a Representative Statewide Sample of Homeless Adolescents

Kristyn Kamke, Laura Widman, and Mary E. Haskett
Department of Psychology, North Carolina State University

Homeless adolescents are at substantial risk of human immunodeficiency virus (HIV), other sexually transmitted infections (STIs), and unplanned pregnancy; however, little research has assessed factors, such as safer sex communication, that may protect homeless adolescents against these negative outcomes. Using the 2015 North Carolina Youth Risk Behavior Survey (YRBS; unweighted N = *5,486; ages 12 to 18; 5% homeless), we compared homeless adolescents' primary safer sex communication sources (i.e., health care providers, parents, teachers, peers, religious leaders) to housed adolescents' communication sources and assessed how these sources relate to sexual health behaviors, including condom use, HIV testing, and number of sexual partners. Most homeless adolescents (61%), and 46% of housed adolescents reported having questions about sex. Further, twice as many homeless adolescents communicated primarily with health care providers compared to housed adolescents. Importantly, among homeless adolescents, communicating primarily with health care providers or teachers was related to greater likelihood of condom use and communicating primarily with religious leaders was related to greater likelihood of HIV testing. Parent communication was unrelated to homeless adolescents' sexual health behaviors. Last, communicating primarily with peers was associated with reduced likelihood of HIV testing. Having nonparental adult communication sources, including health care providers, teachers, and religious leaders, may be critical for encouraging safer sex behaviors among homeless adolescents.*

Among the 1.7 million homeless youth in the United States, the risk of human immunodeficiency virus (HIV), other sexually transmitted infections (STIs), and unplanned pregnancy is high (Caccamo, Kachur, & Williams, 2017; Fernandes-Alcantara, 2016). As many as one-third of homeless youth contract an STI in their lifetime (Caccamo et al., 2017), and homeless girls are five times more likely than housed girls to become pregnant (Lacoursiere & Fontenot, 2012). Further, studies suggest homeless youth have a two to 10 times greater risk of HIV infection than housed youth (National Coalition for the Homeless, 2007; Pfeifer & Oliver, 1997; Stricof, Kennedy, Nattell, Weisfuse, & Novick, 1991). Among the general population of youth with HIV, less than half are aware of their status, only 41% are linked to health care, and only 27% have a suppressed viral load (Centers for Disease Control and Prevention [CDC], 2018). Considering the substantial barriers homeless youth experience accessing health care (Edidin, Ganim, Hunter, & Karnik, 2012), homeless youth may be even less likely to be aware of their status, receive HIV treatment, and become virally suppressed. Improving the sexual health of homeless youth must be a priority.

Many studies have examined the factors that place homeless youth at enhanced risk of negative sexual health outcomes, including comparatively high levels of condomless sex, sex with multiple partners, engagement in survival sex or prostitution, and involvement with high-risk social networks (Caccamo et al., 2017; Fernandes-Alcantara, 2016; Tyler, 2008); however, less research has examined factors that may buffer homeless youth against negative sexual health outcomes. Understanding the protective factors possessed by homeless youth that are already engaging in safer sexual behaviors may help us establish supports for other homeless youth.

Safer sex communication is one strong predictor of sexual health behaviors—such as condom use—among the general population of adolescents (Bleakley, Khurana, Hennessy, &

Correspondence should be addressed to Kristyn Kamke, 7201 Wisconsin Ave, Rm 533P1, Bethesda, MD 20814. E-mail: kristyn.kamke@nih.gov

Ellithorpe, 2018; Widman, Choukas-Bradley, Noar, Nesi, & Garrett, 2016). Typically, safer sex communication refers to communication about sexual health topics, such as contraception, STIs, and abstinence between adolescents and their dating partners, but it can also refer to communication about sexual topics between adolescents and others in their lives, including their parents, peers, health care providers, teachers, and religious leaders (Byers, 2011). Past research shows that adolescents acquire sexual health information from many interpersonal sources, with most adolescents reporting that they have received information from parents, friends, and teachers (Bleakley, Hennessy, Fishbein, & Jordan, 2009; Bleakley et al., 2018). These experiences can provide sexual health knowledge and also help establish sexual behavior norms, both of which impact adolescents' intentions to engage in safer sex behaviors, as explicated by the reasoned action model (Fishbein & Ajzen, 2010). Indeed, past research shows that adolescents who communicate with parents or other adult relatives generally engage in safer sex behaviors (Bleakley et al., 2018; Widman et al., 2016), whereas those who communicate primarily with friends or peers tend to engage in riskier behaviors (Eversole, Berglas, Deardorff, & Constantine, 2017; Fuxman, De Los Santos, Finkelstein, Landon, & O'Donnell, 2015).

Interpersonal safer sex communication may be especially important for developing sexual health knowledge, skills, and safer sex norms among homeless youth. Homeless youth often attend school sporadically or even drop out (Fernandes-Alcantara, 2016; Ingram, Bridgeland, Reed, & Atwell, 2016) and may miss out on formal school-based sexual education. A study from 1997 found that 60% of homeless youth reported receiving sexual health information from interpersonal sources, such as family, partners, friends, and health care providers (Leach, Wolitski, Goldbaum, & Fishbein, 1997); however, more recent estimates are unavailable. Further, the association between safer sex communication and sexual behavior among homeless youth is unclear. One study found that safer sex communication with peers was associated with greater HIV knowledge but not with any safer sex behaviors (Young & Rice, 2011). Another study, which found that having a peer who practiced safer sex was predictive of one's own safer sex behaviors, found no relationship between peer communication and safer sex (Barman-Adhikari, Hsu, Begun, Portillo, & Rice, 2017). Study findings are also mixed on whether communication with family members is associated with safer sex among homeless youth (Craddock, Rice, Rhoades, & Winetrobe, 2016; Tyler, 2008). In addition, we are not aware of any studies that have explored how safer sex communication with other sources, such as doctors, teachers, or religious leaders, is linked to safer sex behaviors among homeless youth.

Available studies of safer sex communication among homeless youth are also limited by their use of convenience samples of youth recruited from housing programs (Tyler, 2008) or drop-in centers in single cities (Barman-Adhikari et al., 2017), which have not allowed for a generalizable understanding of safer sex communication among homeless youth and how it may differ from that of stably housed youth. Further, many studies define youth to be as old as 24, limiting our understanding of the sexual health of homeless adolescents who are 18 years old and younger. Considering the high rates of sexual risk behavior and, in turn, heightened risk of HIV, other STIs, and unplanned pregnancy among this population, there is a need to understand the process of safer sex communication—an important source of sexual education and protective factor for adolescents—among homeless adolescents and how it is linked to sexual behavior.

Therefore, the purpose of this study was to examine the sources with which homeless adolescents communicated about sexual health issues and how communication with these people was linked to sexual health behaviors (i.e., condom use, HIV testing, and number of sexual partners) using a statewide representative sample of youth attending high school. Because there was limited established knowledge about the safer sex communication of homeless adolescents, we did not make specific predictions; however, we expected that sexual communication patterns among homeless adolescents would differ from those of housed adolescents, given differences in interpersonal relationships. For example, homeless adolescents may have strain in their parental relationships or have limited access to doctors, impacting their likelihood of sexual health communication with these sources. To elucidate these expected differences, we proposed two study aims. The first aim of this study was to explore the primary sources of safer sex communication (health care providers, parents/relatives, teachers, religious leaders, and peers) among homeless adolescents compared to housed adolescents. The second aim was to evaluate how communication with each primary source was related to sexual health behaviors among homeless youth. We believe this study provides important insight into best practices for preventing negative sexual outcomes among homeless adolescents.

Method

Participants

Participants were high school students who completed the 2015 North Carolina Youth Risk Behavior Survey (YRBS; Kann et al., 2016). The YRBS is a biennial national survey designed by the CDC to monitor health behaviors among students in grades nine through 12. The YRBS uses a two-stage cluster random sampling design to provide a representative estimate of risk behaviors among public and private high school students (Kann et al., 2016). Local procedures for obtaining parental permission are followed prior to survey administration, and participation is anonymous and voluntary. The CDC's Institutional Review Board (IRB) approved the YRBS protocol.

In total, 6,178 youth participated in the 2015 survey in North Carolina; however, 692 participants were excluded from our study because their housing status was unknown (i.e., they did

not respond to the question or selected a response that could not be classified; see Measures section), for an unweighted sample of 5,486 youth. After weighting the data using the complex sampling function in SPSS 24.0, the sample was equal in terms of gender and just over half White (53%). Further, 9% identified as lesbian/gay or bisexual, and 2% indicated they were unsure of their sexual identity. This 11% of participants were classified as LGBQ (lesbian, gay, bisexual, questioning), whereas the remaining 89% were classified as heterosexual. In all, 5% of the sample (unweighted n = 321) were classified as homeless (see Measures section).

Measures

Sociodemographic Characteristics. The YRBS survey captures many sociodemographic and health-related background variables. We were interested in items assessing gender, age, race/ethnicity, sexual identity, sexual activity, and history of sexual education.

Homelessness. The YRBS assessed housing status with the item "Where do you typically sleep at night?" Those who typically slept somewhere other than "at home" or a "foster home/group facility" were considered homeless (e.g., "in a supervised shelter," "in a car, park, campground, or other public place"). Participants who reported they slept "somewhere else" were excluded as their housing status could not be determined (n = 22). The question was developed by experts in youth homelessness to be consistent with the U.S. Department of Education's (2016) definition for homeless education programs. Homeless youth are those without a fixed, regular, and adequate housing arrangement, including adolescents who are "doubled up," or sharing the housing of others, such as friends or family. Including this measure in a statewide representative survey using adolescent self-reports was expected to provide a more accurate depiction of adolescent housing status. Previous estimates of homelessness among high school students relied on parent reports to school personnel, resulting in underestimates.

Safer Sex Communication Source. Participants were asked: "When you have questions about sexually transmitted diseases (STD), HIV, AIDS, or pregnancy prevention, with whom do you usually talk?" Participants could indicate that they did not have questions about sex or indicate a primary safer sex communication source from a list of options: health care provider (i.e., doctor/nurse), parent (i.e., parent/adult relative), teacher (i.e., teacher/adult at school), religious leader, peer (i.e., friend/sibling), other adult, or not sure.

Sexual Health Behaviors. Using a condom at last sex, having been tested for HIV, and having fewer sexual partners were considered to be positive sexual health behaviors and assessed as outcomes, consistent with efficacy trials of adolescent sexual health interventions (e.g., see Johnson, Scott-Sheldon, Huedo-Medina, & Carey, 2011; Mirzazadeh et al., 2017). Condom use was assessed using the item "The last time you had sexual intercourse, did you or your partner use a condom?" (1 = *I have never had sexual intercourse*, 2 = *No*, 3 = *Yes*). Responses were recoded to exclude participants who had never had sexual intercourse (n = 3,579). To assess HIV testing, we used the item, "Have you ever been tested for HIV, the virus that causes AIDS?" (1 = *No*, 2 = *Yes*, 3 = *Not sure*). Participants who were unsure if they had been tested were excluded (n = 391). Last, to assess number of sexual partners, we used the item "During your life, with how many people have you had sexual intercourse?" Responses ranged from 0 (*I have never had sexual intercourse*) to 6 (*6 or more people*).

Analysis Plan

Weighted data were used for all analyses. First, descriptive analyses were conducted to characterize the demographics, sources of sexual information, and sexual behaviors of the full sample (n = 5,486) and examined differences between homeless and housed adolescents on these characteristics using chi-squared tests. Then, a series of multiple logistic regressions (for the dichotomous variables of condom use and HIV testing) and multiple linear regressions (for the continuous variable of number of sex partners) were used to examine the association between primary safer sex communication source and sexual health behaviors among homeless adolescents only (n = 321), with age, race/ethnicity, sexual orientation, and gender as covariates. For analyses with HIV testing as an outcome, sexual activity was used as an additional covariate.

Results

Descriptive Statistics

Full descriptive statistics are reported in Table 1. Approximately 5% of the sample was homeless. Of these youth, 81% reported sleeping primarily in a friend's, relative's, or stranger's home (i.e., doubled up); 7% reported sleeping in a car, park, campground, or other public place; 6% reported sleeping in a hotel or motel; and 6% reported sleeping in a shelter or time-limited housing program. Compared to housed adolescents, homeless adolescents were significantly more likely to belong to a sexual minority group (p < .001) and to be male (p = .04; see Table 1). In addition, homeless youth were significantly more likely to be sexually active (p < .001), but they were less likely to have received sex education in school (p = .006): 70% of homeless youth compared to 89% of housed youth report receiving sex education in school in the past year. In addition, homeless adolescents engaged in more sexual risk behavior than housed adolescents: they were two times less likely to use condoms at last sex (p = .04) and had more lifetime sexual partners (homeless youth, M = 2.73;

Table 1. *Descriptive Statistics for Predictors and Outcomes*

Variables	Homeless Youth (n = 321)	Housed Youth (n = 5,165)	Between Group Comparisons (p)[a]
Demographics			
LGBQ+	22.12%	10.84%	< .001
Female	36.08%	50.13%	.04
Racial/ethnic minority	61.69%	46.35%	.07
Age (M)	16.35	16.01	.16
Sexually active	75.91%	42.06%	< .001
Received sex education in school	70.44%	88.83%	.006
Had questions about sex	60.68%	45.74%	.10
Health care provider as primary source[b]	40.37%	23.77%	.008
Parent/relative as primary source[b]	30.74%	37.84%	.34
Teacher as primary source[b]	8.00%	9.06%	.79
Peers as primary source[b]	16.06%	20.73%	.37
Religious leader as primary source[b]	1.60%	1.02%	.39
Sexual health outcomes			
Condom use[c]	41.17%	63.30%	.04
HIV testing	22.21%	17.39%	.50
Number of lifetime sexual partners (M)	2.73	1.06	< .001

[a]Results calculated using chi-squared test.
[b]Among youth who had questions about sex.
[c]Among sexually active youth.

housed youth, M = 1.06; p < .001). There were no differences between homeless and housed youth in their likelihood of HIV testing (p = .50).

Primary Safer Sex Communication Source

More than half of homeless youth (61%) reported having questions about sex, compared to 46% of housed youth (p = .10; see Table 1). Homeless youth most often indicated that a health care provider was their primary source of safer sex communication, followed by a parent/relative, peer, teacher, and religious leader (see Table 1). In addition, about 1% reported another adult was their primary source, and 2% reported they were not sure.

Homeless youth (40%) reported health care providers as their primary source of communication significantly more often than housed youth (24%; p = .008). There were no other significant differences in safer sex communication source between homeless and housed youth.

Communication Sources and Safer Sex Behavior Among Homeless Youth

As shown in Table 2, among homeless youth, communicating primarily with a health care provider or teacher was related to significantly greater likelihood of condom use at last sex: those who primarily communicated with a health care provider were 16 times more likely to have used a condom compared to those who did not report a health care provider as their primary communication source (p < .001), and those who primarily communicated with a teacher were 73 times more likely to have used a condom compared to youth who did not primarily communicate with a teacher (p < .001). There was no relationship between condom use and communicating primarily with a parent/relative, peer, or religious leader (ps > .05).

With regard to HIV testing, homeless youth who communicated primarily with a religious leader were 17 times more likely to have been tested for HIV in their lifetime compared to those who did not primarily communicate with

Table 2. *Association Between Source of Sexual Information and Sexual Behaviors Among Homeless Youth*

Primary Communication Source	Condom Use	HIV Testing	Sex Partners
	AOR (95% CI)	AOR (95% CI)	B (95% CI)
Health care providers	16.43 (3.38, 80.00)***	2.29 (0.50, 10.61)	0.96 (−0.91, 2.82)
Parent/relative	0.22 (0.02, 2.96)	1.78 (0.17, 18.65)	0.41 (−0.98, 1.80)
Teachers	72.84 (7.40, 716.50)***	0.94 (0.08, 11.52)	0.29 (−1.53, 2.11)
Peers	0.09 (0.005, 1.79)	0.02 (0.001, 0.23)**	−0.38 (−3.15, 2.39)
Religious leader	0.12 (.004, 3.58)	16.78 (3.46, 81.53)***	−0.66 (−2.73, 1.42)

Note. Each analysis was run as an independent model controlling for sexual orientation, race/ethnicity, gender, and age among homeless adolescents only (n = 321).
*p < .05; **p < .01; ***p < .001.

a religious leader ($p < .001$), whereas those who communicated primarily with a peer were 57 times *less* likely to receive HIV testing than those who did not primarily talk to peers ($p = .008$). There was no relationship between HIV testing and communicating primarily with health care providers, parents/relatives, or teachers ($ps > .05$).

Finally, regarding the number of sexual partners, there was no relationship between number of sexual partners and any of the primary communication sources ($ps > .05$).

Discussion

There are clear sexual health disparities between homeless and housed youth. Homeless youth are more likely to acquire HIV and other STIs and to experience an unintended pregnancy (Caccamo et al., 2017; Lacoursiere & Fontenot, 2012), and they have substantially greater barriers to accessing health care (Edidin et al., 2012). To identify a potential protective factor to reduce these disparities for homeless youth, this study investigated to whom homeless adolescents talk about sex and whether communication with these sources is linked to sexual health behaviors. With little research available about factors that help enhance homeless adolescents' sexual health, understanding the potential protective power of safer sex communication in this population is crucial for sexual risk prevention efforts (Tevendale, Lightfoot, & Slocum, 2009).

Consistent with prior studies, homeless adolescents in this study were more likely to be sexually active, have condomless sex, and have more sexual partners than housed adolescents (Barman-Adhikari et al., 2017; Tevendale et al., 2009). Although homeless and housed adolescents had comparable HIV testing rates, less than one-third of homeless adolescents had been tested, despite their heightened sexual risk behaviors. Notably, this study is one of few that compared the sexual behaviors of homeless and housed adolescents, and the only study of which we are aware that used a representative sample for comparisons. In addition, most homeless adolescents reported having questions about sex but were less likely to have received sexual education in school. Given the elevated risk behaviors among homeless adolescents but reduced likelihood of school-based sexual education (Caccamo et al., 2017; Fernandes-Alcantara, 2016; Tyler, 2008), there is a critical need for homeless adolescents to learn about sex from other sources. Thus, our findings regarding homeless adolescents' safer sex communication sources can be used to better target future theory-driven sexual risk prevention efforts for this population.

Our results revealed one key difference in primary communication source between homeless and housed adolescents: Homeless adolescents most often reported health care providers as their primary source and did so more often than housed adolescents. Further, identifying health care providers as their primary source was associated with greater likelihood of condom use among homeless adolescents. Unfortunately, many homeless adolescents experience structural barriers to accessing health care providers, such as lack of transportation, lack of insurance, and inconvenient hours (Edidin et al., 2012). Further, health care providers may be insufficiently educated on the specific needs of homeless adolescents (Zlotnick, Zerger, & Wolfe, 2013). One possible solution is to create partnerships between health care providers and community organizations that provide services to homeless adolescents (e.g., outreach centers, shelters), so that community organizations can educate health care providers on homeless adolescents' needs and link adolescents to these educated providers (Zlotnick et al., 2013).

Further, homeless and housed adolescents reported similar likelihood of primarily communicating with teachers and religious leaders about sexual health topics. Among homeless adolescents, communicating primarily with these sources was associated with positive outcomes: Homeless adolescents who talked to a teacher were significantly more likely to have used a condom at last sex, and homeless adolescents who talked to a religious leader were more likely to have been tested for HIV. Overall, these findings suggest that having a supportive health care provider, teacher, or religious leader as a primary source of information about sex may promote sexual health behavior among homeless adolescents.

It is noteworthy that primarily communicating with a parent/relative was not related to sexual health behaviors among homeless adolescents. This finding stands in contrast to the broader sexual communication literature, often focused on normative samples, showing parent–child communication to be predictive of safer sex behavior such as condom and contraceptive use (Widman et al., 2016). Given that family discord surrounding a child's sexuality is often a precursor to homelessness among adolescents (Rosario, Schrimshaw, & Hunter, 2012), it is possible that even if adolescents report primarily talking to their parents/relatives about sex, these conversations are unhelpful or even harmful. Indeed, recent research has found that parental relationships are not universally associated with safer sex behavior among homeless youth; the degree to which parent influence is positive may be an important factor as to whether parental relationships are protective (Craddock et al., 2016).

This inconsistency in the link between family relationships and safer sex behavior among homeless adolescents raises questions about the utility of family-based sexual health interventions, which are often employed to reduce homeless adolescents' sexual risk (Craddock et al., 2016). Along with the potential for tumultuous relationships between homeless adolescents and their families, homeless adolescents may not have family contacts (i.e., unaccompanied youth). Developing sexual health interventions for homeless adolescents that involve other people, such as

health care providers, teachers, or religious leaders, in their sexual education may be an important avenue of future research. One review of sexual health programs for homeless youth highlighted the importance of helping youth build strong "safety nets," including people who provide social support and who provide services, such as health care or housing assistance (Arnold & Rotheram-Borus, 2009). Randomized controlled trials of sexual health interventions for homeless youth are rare, and more research toward developing evidence-based interventions for this population is needed (Naranbhai, Karim, & Meyer-Weitz, 2011), particularly action-based research that involves working directly with homeless youth to develop programs that address their needs and desires (Slesnick, Dashora, Letcher, Erdem, & Serovich, 2009).

Our results also suggest that communicating primarily with peers may be connected to negative sexual health outcomes among homeless youth. Primarily talking to peers about sex was associated with a reduced likelihood of being tested for HIV, and it was unrelated to condom use or number of partners. This finding is consistent with past research that highlights the potentially negative impacts of peers on the sexual health of both the general population of youth and homeless youth (Eversole et al., 2017; Tyler, 2008). However, we recognize this association may vary by the types of peers in adolescents' social networks; for homeless adolescents whose peers are engaging in safer sex behavior, associating with these peers may promote safer sex (Barman-Adhikari et al., 2017). Importantly, past research suggests that youth who are connected to community agencies are more likely to engage with pro-social youth, as these agencies provide a safe space for homeless youth to interact with peers and allow for staff to provide encouragement for youth to engage in healthy behaviors (Rice, Stein, & Milburn, 2008). Connecting homeless youth with community-based services may help counteract negative peer impacts.

Limitations and Future Directions

Although the YRBS is a valuable data source, providing a representative sample of vulnerable groups such as homeless adolescents, there are some associated limitations. First, because the YRBS is administered in school, the data set may not be representative of those adolescents who do not attend school or those who have dropped out. In addition, our definition of homelessness, while more accurate than previous studies, is broad, meaning our sample is heterogenous in regard to living situation. Nevertheless, the demographics of the homeless adolescents in our sample are consistent with a recent study of demographic correlates of homelessness among youth, including that they are more likely to identify as male and LGBTQ+ (Morton et al., 2018), supporting our conclusion that the homeless adolescents in our sample are consistent with the homeless adolescent population.

Second, due to the cross-sectional nature of this data set, the temporal order of communication and sexual behaviors cannot be determined. It may be that homeless adolescents initiate sexual conversations with their primary communication source after engaging in sexual behavior. Future research would benefit from a longitudinal design that can provide greater understanding as to whether there is a causal relationship between safer sex communication and sexual health behavior among homeless adolescents.

Third, this study was limited by the communication question in the YRBS, which assessed only to *whom* participants typically talk about sex; however, assessing the impact of the complex process of communication on homeless adolescents' sexual health requires examining multiple components of communication, such as frequency of communication, content of communication, style of communication, and quality of communication (Guilamo-Ramos, Lee, & Jaccard, 2016). This single-question evaluation limits our theoretical understanding of the mechanisms by which sexual communication impacts safer sex behavior among homeless adolescents. Employing multifaceted questions regarding safer sex communication will be important for the future. Further, the communication question may not have captured all possible support systems that homeless youth have, such as service providers in outreach centers. Future work should question youth directly about their primary sources of safer sex communication so that sexual prevention work can target proper supports.

Finally, in this increasingly digital world, much of adolescents' communication, including that of homeless adolescents, occurs through technology, such as mobile phones and the Internet (Lenhart et al., 2015; Rice & Barman-Adhikari, 2014). However, the question available in the YRBS does not clarify whether adolescents were communicating face-to-face or through technology. Distinguishing the link between these communication methods and homeless adolescents' sexual behavior should be further examined and could shape the platforms through which sexual health interventions are delivered to homeless adolescents. Further, media (e.g., television, Web sites) serves as an additional, influential source of health information for adolescents but was not included as an information source in the YRBS (Strasburger, Jordan, & Donnerstein, 2012). Future research may consider how media supplements, or supplants, sexual health information from interpersonal sources among homeless youth.

Despite these limitations, this study is novel in its use of a large, statewide representative sample to better understand a key protective factor for sexual health—safer sex communication—among a sample of homeless adolescents. Our results suggest that there are several interpersonal sources through which homeless adolescents may acquire sexual health information and that safer sex communication with these sources is linked to sexual health behaviors among homeless adolescents. In particular, health care providers are a critical source of sexual health communication for many

homeless adolescents, with health care providers listed as the primary source of information by 40% of homeless adolescents who had questions about sex. Considering that homeless adolescents are less likely to receive sexual education in school, safer sex communication with knowledgeable adults may be vital for the sexual education of these vulnerable adolescents. Future research and intervention efforts should explore ways to better link health care providers to homeless adolescents. These efforts could also examine the quality of medical care currently being offered to homeless adolescents, as well as how to better train health care providers to provide inclusive and trauma-informed care that appropriately addresses the sexual health needs of this at-risk population.

ORCID

Kristyn Kamke http://orcid.org/0000-0002-3075-6381
Laura Widman http://orcid.org/0000-0001-8117-5467

References

Arnold, E. M., & Rotheram-Borus, M. J. (2009). Comparisons of prevention programs for homeless youth. *Prevention Science*, *10*, 76–86. doi:10.1007/s11121-008-0119-4

Barman-Adhikari, A., Hsu, H.-T., Begun, S., Portillo, A. P., & Rice, E. (2017). Condomless sex among homeless youth: The role of multidimensional social norms and gender. *AIDS and Behavior*, *21*, 688–702. doi:10.1007/s10461-016-1624-2

Bleakley, A., Hennessy, M., Fishbein, M., & Jordan, A. (2009). How sources of sexual information relate to adolescents' beliefs about sex. *American Journal of Health Behavior*, *33*, 37–48. doi:10.5993/ajhb.33.1.4

Bleakley, A., Khurana, A., Hennessy, M., & Ellithorpe, M. (2018). How patterns of learning about sexual information among adolescents are related to sexual behaviors. *Perspectives on Sexual and Reproductive Health*, *50*, 15–23. doi:10.1363/psrh.12053

Byers, E. S. (2011). Beyond *the birds and the bees* and *was it good for you?* Thirty years of research on sexual communication. *Canadian Psychology*, *52*, 20–28. doi:10.137/a0022048

Caccamo, A., Kachur, R., & Williams, S. P. (2017). Narrative review: Sexually transmitted diseases and homeless youth – What do we know about sexually transmitted disease prevalence and risk? *Sexually Transmitted Diseases*, *44*, 466–476. doi:10.1097/olq.0000000000000633

Centers for Disease Control and Prevention. (2018). HIV among youth. Retrieved from https://www.cdc.gov/hiv/group/age/youth/

Craddock, J. B., Rice, E., Rhoades, H., & Winetrobe, H. (2016). Are parental relationships always protective? A social network analysis of Black, Latino, and White homeless youth and sexual risk-taking behaviors. *Prevention Science*, *17*, 914–924. doi:10.1007/s11121-016-0684-x

Edidin, J. P., Ganim, Z., Hunter, S. J., & Karnik, N. S. (2012). The mental and physical health of homeless youth: A literature review. *Child Psychiatry & Human Development*, *43*, 354–375. doi:10.1007/s10578-011-0270-1

Eversole, J. S., Berglas, N. F., Deardorff, J., & Constantine, N. A. (2017). Source of sex information and condom use intention among Latino adolescents. *Health Education & Behavior*, *44*, 439–447. doi:10.1177/1090198116671704

Fernandes-Alcantara, A. L. (2016). *Runaway and homeless youth: Demographics and programs*. Washington, DC: Congressional Research Service.

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. New York, NY: Psychology Press.

Fuxman, S., De Los Santos, S., Finkelstein, D., Landon, M. K., & O'Donnell, L. (2015). Sources of information on sex and antecedents of early sexual initiation among urban Latino youth. *American Journal of Sexuality Education*, *10*, 333–350. doi:10.1080/15546128.2015.1069231

Guilamo-Ramos, V., Lee, J. J., & Jaccard, J. (2016). Parent-adolescent communication about contraception and condom use. *JAMA Pediatrics*, *170*, 14–16. doi:10.1001/jamapediatrics.2015.3109

Ingram, E., Bridgeland, J., Reed, B., & Atwell, M. (2016). *Hidden in plain sight: Homeless students in America's public schools*. Washington, DC: America's Promise Alliance.

Johnson, B. T., Scott-Sheldon, L. J., Huedo-Medina, T. B., & Carey, M. P. (2011). Interventions to reduce sexual risk for human immunodeficiency virus in adolescents: A meta-analysis of trials, 1985-2008. *Archives of Pediatrics & Adolescent Medicine*, *165*, 77–84. doi:10.1001/archpediatrics.2010.251

Kann, L., McManus, T., Harris, W., Shanklin, S., Flint, K., Hawkins, J., … Zaza, S. (2016). Youth Risk Behavior Surveillance — United States, 2015. *MMWR Surveillance Summaries*, *65*, 1–174. doi:10.15585/mmwr.ss6506a1

Lacoursiere, T., & Fontenot, H. B. (2012). The impact of running away on teen girls' sexual health. *Nursing for Women's Health*, *16*, 411–417. doi:10.1111/j.1751-486X.2012.01764.x

Leach, M. P., Wolitski, R. J., Goldbaum, G. M., & Fishbein, M. (1997). HIV risk and sources of information among urban street youth. *Psychology, Health & Medicine*, *2*, 119–134. doi:10.1080/13548509708400570

Lenhart, A., Duggan, M., Perrin, A., Stepler, R., Rainie, H., & Parker, K. (2015). *Teens, social media & technology overview 2015*. Retrieved from: http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/

Mirzazadeh, A., Biggs, M. A., Viitanen, A., Horvath, H., Wang, L. Y., Dunville, R., … Marseille, E. (2017). Do school-based programs prevent HIV and other sexually transmitted infections in adolescents? A systematic review and meta-analysis. *Prevention Science*. doi:10.1007/s11121-017-0830-0

Morton, M. H., Dworsky, A., Matjasko, J. L., Curry, S. R., Schlueter, D., Chávez, R., & Farrell, A. F. (2018). Prevalence and correlates of youth homelessness in the United States. *Journal of Adolescent Health*, *62*, 14–21. doi:10.1016/j.jadohealth.2017.10.006

Naranbhai, V., Karim, Q. A., & Meyer-Weitz, A. (2011). Interventions to modify sexual risk behaviours for preventing HIV in homeless youth. *Cochrane Database of Systematic Reviews*, *1*. doi:10.1002/14651858.CD007501.pub2

National Coalition for the Homeless. (2007). *Homeless youth*. Washington, DC: Author. Retrieved from http://www.nationalhomeless.org/publications/facts/youth.pdf

Pfeifer, R. W., & Oliver, J. (1997). A study of HIV seroprevalence in a group of homeless youth in Hollywood, California. *Journal of Adolescent Health*, *20*, 339–342. doi:10.1016/s1054-139x(97)00038-4

Rice, E., & Barman-Adhikari, A. (2014). Internet and social media use as a resource among homeless youth. *Journal of Computer-Mediated Communication*, *19*, 232–247. doi:10.1111/jcc4.12038

Rice, E., Stein, J. A., & Milburn, N. (2008). Countervailing social network influences on problem behaviors among homeless youth. *Journal of Adolescence*, *31*, 625–639. doi:10.1016/j.adolescence.2007.10.008

Rosario, M., Schrimshaw, E. W., & Hunter, J. (2012). Risk factors for homelessness among lesbian, gay, and bisexual youths: A developmental milestone approach. *Children and Youth Services Review*, *34*, 186–193. doi:10.1016/j.childyouth.2011.09.016

Slesnick, N., Dashora, P., Letcher, A., Erdem, G., & Serovich, J. (2009). A review of services and interventions for runaway and homeless youth: Moving forward. *Children and Youth Services Review*, *31*, 732–742. doi:10.1016/j.childyouth.2009.01.006

Strasburger, V. C., Jordan, A. B., & Donnerstein, E. (2012). Children, adolescents, and the media: Health effects. *Pediatric Clinics of North America*, *59*, 533–587. doi:10.1016/j.pcl.2012.03.025

Stricof, R. L., Kennedy, J. T., Nattell, T. C., Weisfuse, I. B., & Novick, L. F. (1991). HIV seroprevalence in a facility for runaway and homeless

adolescents. *American Journal of Public Health*, *81*, S50–S53. doi:10.2105/AJPH.81.Suppl.50

Tevendale, H. D., Lightfoot, M., & Slocum, S. L. (2009). Individual and environmental protective factors for risky sexual behavior among homeless youth: An exploration of gender differences. *AIDS and Behavior*, *13*, 154–164. doi:10.1007/s10461-008-9395-z

Tyler, K. A. (2008). Social network characteristics and risky sexual and drug related behaviors among homeless young adults. *Social Science Research*, *37*, 673–685. doi:10.1016/j.ssresearch.2007.09.004

U.S. Department of Education. (2016). *Education for homeless children and youths program non-regulatory guidance*. Retrieved from: https://www2.ed.gov/policy/elsec/leg/essa/160240ehcyguidance072716.pdf

Widman, L., Choukas-Bradley, S., Noar, S. M., Nesi, J., & Garrett, K. (2016). Parent-adolescent sexual communication and adolescent safer sex behavior: A meta-analysis. *JAMA Pediatrics*, *170*, 52–61. doi:10.1001/jamapediatrics.2015.2731

Young, S. D., & Rice, E. (2011). Online social networking technologies, HIV knowledge, and sexual risk and testing behaviors among homeless youth. *AIDS and Behavior*, *15*, 253–260. doi:10.1007/s10461-010-9810-0

Zlotnick, C., Zerger, S., & Wolfe, P. B. (2013). Health care for the homeless: What we have learned in the past 30 years and what's next. *American Journal of Public Health*, *103*, S199–S205. doi:10.2105/AJPH.2013.301586