



Published in final edited form as:

*J Youth Adolesc.* 2008 ; 37(4): 456–464.

## Comparison of HIV Risks among Gay, Lesbian, Bisexual and Heterosexual Homeless Youth

Rashmi Gangamma, Natasha Slesnick, Paula Toviessi, and Julianne Serovich

*Department of Human Development and Family Science, The Ohio State University, 135 Campbell Hall, 1787 Neil Ave, Columbus, OH 43210, USA*

### Abstract

Youth who are homeless and gay, lesbian or bisexual (GLB) are one of the most disenfranchised and marginalized groups in our society. The purpose of this study is to examine and compare HIV in GLB homeless youth with their heterosexual counterparts. Participants for this study included 268 youth involved in treatment outcome studies with substance abusing homeless youth. Results suggest that GLB youth have greater HIV risks and that these risks are greater among bisexual females. In examining the predictors of sexual health risks, survival sex emerged as the most significant. Survival sex was high among females regardless of their sexual orientation and also among gay males. Implications of these findings suggest that a greater emphasis needs to be paid to preventive interventions among this population.

### Keywords

Youth; Gay; HIV; Homeless

---

One particularly disturbing consequence of being homeless is engaging in behaviors that put oneself at risk for HIV infection. Overall, the homeless population has a disproportionately higher risk of HIV transmission (Ebner and Laviage, 2003) and substance use (Kipke et al., 1997). Substance abuse has been associated as a risk factor for HIV, both in terms of drug and sexual related risk (Rotheram-Borus et al., 2003). In a recent study designed to explore the differences in sexual health risks and protective factors Rew et al. (2005) found that gay and lesbian homeless youth reported being tested and treated for HIV more than the bisexual or heterosexual youth. This was partially supported by a later study (Solorio et al., 2006) that found that gay and bisexual males were more likely to report being tested for sexually transmitted infections (STIs) when compared to heterosexual males and lesbian and bisexual females. While this could imply that gay and lesbian homeless youth are at a greater risk for STIs, there is currently little empirical evidence to show whether differences in HIV risks among heterosexual and gay, lesbian, and bisexual (GLB) youth exist. Such evidence would be helpful in better understanding the needs of these youth and also to better inform intervention strategies. Thus, the purpose of this study was to bridge this gap by comparing the HIV risks among heterosexual and GLB youth in a population of homeless youth.

Historically, studies comparing GLB and heterosexual non-homeless youth have been primarily conducted with school-based and community-based samples (Bontempo and D'Augelli, 2002; Faulkner and Cranston, 1998; Lock and Steiner, 1999). Findings suggest that GLB youth have greater rates of depression, more suicide attempts (Fergusson et al., 1999), more risk taking behavior (Garofalo et al., 1998), and substance use (Bontempo and D'Augelli,

---

Correspondence to: Natasha Slesnick.

e-mail: Slesnick.5@osu.edu.

2002) than heterosexual youth. Emerging findings also indicate that GLB homeless youth experience greater risks in terms of victimization, substance use and abuse, rates of psychopathology, depression and suicidal ideation (Cochran et al., 2002; Noell and Ochs, 2001; Whitbeck et al., 2004). Gender differences have also been noted by some researchers. For instance, Whitbeck and colleagues (2004) in a longitudinal study of homeless and runaway adolescents found that gay males were more likely to have symptoms of internalization when compared to heterosexual males. Lesbian adolescents were more likely to have symptoms of post-traumatic stress disorder, suicidal ideation, suicide attempts and substance abuse when compared to heterosexual females. In addition, gay and bisexual males were also more likely to have recently used marijuana than any of the other groups. These findings suggest that there are important inter-group differences among the GLB youth. Therefore, in this study we examined differences based on gender in both heterosexual and non-heterosexual youth.

Just as there may be differences based on gender, it is also important that unique factors that may exist when examining homeless youth versus sheltered youth be acknowledged. In one study examining caregivers' factors as predictors of sexual risk behaviors among street youth, Darling et al. (2005) reported that caregiver problems like drug and alcohol problems and legal problems were associated with youth having more sexual partners in the last 30 days and having higher drug use. Interestingly caregiver attributes of warmth and support were also associated with having more sexual partners in the last 30 days. This supports findings of earlier studies among the general homeless youth population that report a positive association between parental rejection, physical and sexual abuse, and depressive symptoms (Whitbeck et al., 2000). However in both the above mentioned studies, a distinction was not made between GLB and heterosexual youth. Considering that report of parental alcohol use and physical abuse are commonly associated with conflict due to their sexual orientation (Cochran et al., 2002) it was deemed necessary in this study to examine whether differences along these factors would contribute to differences in HIV risks.

## Hypotheses

Studies on stress and coping in adolescence have noted that both acute stressors and daily hassles are associated with maladjustment (Washburn-Ormachea et al., 2004). In this study it was hypothesized that homeless youth who are GLB face additional stressors due to their status, putting them at a greater disadvantage when compared to their heterosexual counterparts. Studies conducted by Morrison and L'Heureux (2001) and Savin-Williams and Rodriguez (1993) conclude that while being homeless makes the youth more vulnerable to mental health and sexual health risks, being GLB further contributes to the stress of life on the streets. A potential explanation for the elevated stress of GLB youth is that they experience a unique set of stressors related directly to being sexual minorities within a heterosexually oriented society (e.g., D'Augelli, 1989). Rosario et al. (2002) refer to gay-related stress as the stigmatization of being, or being perceived to be, GLB in a society in which homosexuality is negatively sanctioned. One aspect of gay-related stress involves the experience of violence, verbal abuse, rejection, and other stressful life events perpetrated by other individuals against persons who are GLB (Meyer, 1995). Another aspect of gay-related stress is the internalization of society's stigmatization of homosexuality (Rosario et al., 2002). Further, studies have noted that adolescent girls in general report more frequent and intense stressful events when compared to adolescent boys (Petersen et al., 1991). Other more recent evidence in the GLB literature also suggests differences based on gender (Busseri et al., 2006). Therefore, in this study we examined differences between youth based on their sexual orientation and gender. We hypothesized that being homeless, non-heterosexual *and* female further increases the risk of HIV related behaviors.

## Methodology

### Participants

Participants for this study included 268 youth involved in two projects investigating treatment outcome with substance abusing homeless youth in the Southwestern United States. All participants were engaged through the only homeless youth drop-in center in a Southwestern urban center. In order to be eligible for participation, youth had to be between the ages of 14–22 years, had been living in the metropolitan area for at least 3 months, with plans to remain for at least 6 months. All youth met DSM-IV criteria for alcohol or other psychoactive substance use disorder as assessed by the Computerized Diagnostic Interview Schedule (CDISC; Shaffer, 1992). They also had to meet criteria for homelessness, that is, in need of shelter or housing where basic needs can be met. Youth were excluded if there was evidence of unremitted psychosis or other condition which would impair ability to understand and participate in the intervention or consent for research participation.

Males comprised 64% of the sample ( $n = 168$ ) and data from 4 participants were missing. The mean age at the time of intake was 18.6 years ( $SD \pm 2.26$  years). Among the adolescents, 115 (43%) identified themselves as being Anglo, 65 (24%) Hispanic, 26 (10%) Native American, 7 (3%) African American, and 32 (13%) 'Other' or mixed ethnicity. On average, adolescents first left home at 14.3 years ( $SD \pm 3.9$ ). A total of 200 (74%) reported having been arrested. More than half the sample (56%) reported having been in jail and a total of 132 youth (49%) reported ever having been at a homeless shelter. The majority of the youth (85%) reported their relationship status as single/never been married, and 18 (7%) reported that they were currently expecting a baby. In addition, most youth (78%) were not currently enrolled in school. A total of 52 (19%) self identified as being GLB, with a majority of them ( $n = 36$ ) identifying as being bisexual. Among this subgroup of bisexuals, 89% ( $n = 32$ ) were females. Only 4 males and 3 females identified themselves as gay or lesbian.

### Procedures

A trained research assistant engaged and screened youth at the drop-in center to determine basic eligibility for the study. Each youth was asked to read a portion of the consent form to ensure comprehension. If reading ability was in doubt, the form was read by the examiner to the youth. The interviewer proceeded to administer the CDISC (Shaffer, 1992) sections on drugs, alcohol, and psychosis to determine formal eligibility. Those not passing inclusion criteria for the project during the diagnostic screening continued with treatment as usual through the drop-in center. Those meeting the criteria for participation in the study continued with the assessment battery (requiring approximately 2 hours) and received a care package with a blanket, toiletries and food items upon completion.

### Measures

**Demographic measures**—A demographic questionnaire designed to characterize and compare participants was administered. Measures included age, gender, self-identified ethnicity, self-reported physical and sexual abuse, number of runaway episodes, economic information, education level, grade point average, suicidality, and arrest history. Information about family structure, annual income, parental substance use and reasons for leaving home were also collected.

**Substance use**—The Form 90, developed for NIAAA funded Project Match (Miller and Del Boca, 1994), was the primary measure of quantity and frequency of drug and alcohol use. This measure uses a combination of the timeline follow-back method (Sobell and Sobell, 1992) and grid averaging (Miller and Marlatt, 1984). This tool has shown excellent test-retest reliability for indices of drug use in major categories (Tonigan et al., 1997; Westerberg et al.,

1998) including with runaway substance abusing adolescents (Slesnick and Tonigan, 2004) with kappas for drug classes ranging from .74 to .95. In this sample, internal reliability for percent days of alcohol and drug use was good ( $\alpha = .77$ ).

**Mental health**—The Youth Self-Report (YSR; Achenbach and Edelbrock, 1982) provides a standardized format to elicit reports of children's behavior across a wide range of problem areas. The 120-item scale includes an assessment of behaviors in children associated with withdrawal, somatic complaints, anxiety/depression, social problems, thought problems, attention problems, delinquency and aggression. The YSR provides factor scores for internalizing, externalizing as well as total behavior problems. The YSR showed a reliability of .70 for this sample.

The Beck Depression Inventory (BDI; Beck et al., 1961) was utilized to identify symptoms of depression. The most frequently used self-report instrument for assessment of mood, cognitive and somatic aspects of depression, the BDI has been used with homeless youth (Maxwell, 1992; Miner, 1991), and has shown good psychometric properties. Estimates of internal consistency and test-retest reliability are high and the measure appears sensitive to depression severity across community and clinical populations (Norman et al., 1983; Rush et al., 1986). The total depression score reliability for this sample was .91.

**High risk behaviors**—The Health Risk Questionnaire (HRQ) incorporated items from the Health Risk Survey (Kann et al., 1991) and the Homeless Youth Questionnaire (Johnson et al., 1996) which, together, address a wide range of HIV-attitudes, knowledge and risk behaviors. Several scales of the Health Risk Survey have been found to have acceptable internal reliabilities (Ashworth et al., 1992; DiClemente, 1991). Moreover, Ashworth and colleagues (1992) found pre-post test reliabilities of .76 and .81, respectively. The Homeless Youth Questionnaire (Johnson et al., 1996) covers a wide variety of topics relevant to the experiences of homeless youth. Johnson and colleagues (1996) examined seven specific HIV/AIDS risk factors that were included in the HRQ: IV drug use; multiple sexual partners; high-risk sexual partners (including prostitutes, IV drug users, and persons who are HIV-positive); irregular condom use, defined as whether or not the respondent or partner usually uses a condom; anal sex; prostitution; and ever having had an STD. These risk factors were aggregated into an overall risk index, which is a simple count of the number of risk factors reported by the youth (range 0–7; Cronbach's  $\alpha = 0.61$ ). The internal reliability for the HIV Knowledge subscale was .57 and .73 for the HIV Risk subscale. Lifetime risk as well as risk within the past 3 months was assessed. Survival sex was assessed through a one item question: "Have you ever engaged in survival sex, that is, the exchange of sex for drugs, food, shelter or money? If yes, have you engaged in survival sex in the past 3 months?"

**Sexual orientation**—Sexual orientation was assessed through one question for self identification which was included in the HRQ. Respondents were asked "Which of these terms best describes how you see yourself: straight, gay/lesbian, or bisexual?" An additional question was asked about the number of male and female sexual partners in the last 3 and 12 months. None of the males who identified as gay or bisexual reported having male sexual partners in the last 12 months. Two females reported having had a female sexual partner in the last 12 months. However, self identification as GLB was used for analyses as it has been considered a more reliable assessment of sexual orientation (Saewyc et al., 2004).

## Results

Differences between GLB and heterosexual youth in the various measures were analyzed using chi-square and independent sample '*t*' test where appropriate. Step-wise linear regression was used to examine predictors of the sexual risk behaviors.

A comparison of the GLB and heterosexual youth on the demographic characteristics was conducted using a chi-square. Significant difference was noted in the number of females in the GLB group,  $\chi^2(2, n = 257) = 27.83, p = 0.000$ . This indicates that a greater number of females identified themselves as being lesbian or bisexual than the males who identified as gay or bisexual. Among GLB youth, arguments with parents was the most frequently cited reason for leaving home (51%) along with verbal abuse (34%), parents' substance use (21%) and own substance use (17%). Table 1 shows the correlation between sexual orientation and risk and problem behaviors. Problem behaviors of withdrawn behavior, somatic complaints, anxiety and depression, social problems, attention problems and internalizing behaviors of YSR were significantly correlated. Among risk behaviors, survival sex and HIV risk over lifetime were significantly correlated.

### Mental health of GLB homeless youth

Table 2 shows the difference in the scores on the YSR. A significant difference was noted in six of the subscales, indicating that GLB youth reported more internalizing symptoms than their heterosexual counterparts,  $t = -2.610, p < 0.05$ . However, no significant difference was found between females and males in the GLB group though females reported more internalizing problems while males reported more externalizing problems. Consistent with this was the finding that a significantly greater number of GLB youth had sought inpatient treatment for emotional disturbances,  $\chi^2(1, n = 250) = 7.63, p = 0.009$ . They were also more likely to report suicide attempts ever in their lifetime  $\chi^2(1, n = 250) = 16.18, p = 0.000$ . Scores on the BDI showed that GLB youth reported more symptoms of depression than the heterosexual youth,  $t = -2.136, p < 0.05$ . Gay and bisexual males ( $M = 22.89, SD = 11.86$ ) had higher scores than lesbian and bisexual females ( $M = 19.91, SD = 9.44$ ); however this was not statistically significant ( $p > 0.05$ ).

### Substance abuse

No significant differences were found in the use of any of the drugs between the two groups, even though the total drug use was slightly higher among the GLB youth. However, heterosexual youth reported more alcohol use in the last 90 days, even though the difference was not statistically significant. No significant difference was found between females and males in the GLB group in their substance use, even though females reported slightly greater use.

### Sexual health risk

Age at first sexual experience for GLB youth was 13 years while for the heterosexual youth it was 13.4 years. The difference was not statistically significant. Gay and bisexual males reported to be younger than lesbian and bisexual females at the age of first sex. The age at which gay and bisexual males first had sex was lower ( $M = 12.6$  years) than among heterosexual males ( $M = 13.5$ ) and females ( $M = 13.1$ ) as well as lesbian and bisexual females ( $M = 13.2$ ). In the entire sample difference between males ( $M = 13.4$ ) and females ( $M = 13.1$ ) was not significant although females initiated sexual activity at a slightly younger age. Heterosexual females ( $M = 13.1$ ) started younger than lesbian or bisexual females ( $M = 13.2$ ), but, again, the difference was not significant.

A significantly greater number of GLB youth did, however, reported engaging in survival sex,  $\chi^2(1, n = 254) = 9.42, p = 0.007$ . No gender differences were found in the GLB and heterosexual groups. While sexual orientation was not associated with difference in the reporting of survival sex among females in the entire sample, it was significantly different among the males,  $\chi^2(1, n = 167) = 11.77, p = 0.005$ . That is, females were more likely to engage in survival sex, regardless of whether they were gay or heterosexual, while being gay was associated with an increased report for males.

The results also showed that GLB youth had greater HIV risk, both at 3 months,  $t = -2.711$ ,  $p < 0.05$  and lifetime,  $t = -2.690$ ,  $p < 0.05$ , compared to heterosexual youth. Among the heterosexual youth, females had a greater risk at 3 months while compared to males,  $t = -2.451$ ,  $p < 0.05$ . In the GLB group there were no gender differences in HIV risk for both 3 month and lifetime measures. In general, lesbian and bisexual females had a greater risk (lifetime,  $p = 0.05$  and 3 months,  $p < 0.05$ ) compared to the gay and heterosexual males and heterosexual females.

In order to examine predictors of HIV risk, step-wise linear regression was performed. HIV risk at 3 month and lifetime were used as dependant variables while survival sex, substance use, BDI total scores, YSR internalizing scores, parental substance abuse, verbal and sexual abuse were used as independent variables based on the significant differences reported earlier. For the GLB youth, survival sex emerged as the strongest predictor of HIV risk at both 3 month,  $r = 0.569$ ,  $R^2 = 0.324$ ,  $F = 23.038$ ,  $p < 0.001$ , and lifetime,  $r = 0.66$ ,  $R^2 = 0.436$ ,  $F = 37.067$ ,  $p < 0.001$ , measure. Heterosexual youth reported more alcohol use in the last 90 days, however, the difference was not statistically significant. Additionally, use of opiates, alcohol and marijuana in the last 90 days predicted HIV risk at 3 months,  $r = 0.334$ ,  $R^2 = 0.112$ ,  $F = 8.270$ ,  $p < 0.001$ . For lifetime risk of HIV, survival sex and internalizing symptoms played a significant role,  $r = 0.388$ ,  $R^2 = 0.151$ ,  $F = 16.491$ ,  $p < 0.001$ . Further, use of opiates, alcohol and uppers also were significant predictors of HIV risk,  $r = 0.343$ ,  $R^2 = 0.118$ ,  $F = 8.753$ ,  $p < 0.001$ . When analyzed for all female youth, regardless of their sexual orientation, survival sex remained the strongest predictor of HIV risk in the past 3 months,  $r = 0.445$ ,  $R^2 = 0.198$ ,  $F = 21.696$ ,  $p < 0.001$  and over lifetime,  $r = 0.520$ ,  $R^2 = 0.270$ ,  $F = 32.531$ ,  $p < 0.001$ . Tables 3–10 show B, SED and Beta values for the above regression scores.

## Discussion

This study provides an examination of HIV risks among GLB and heterosexual youth. Results from this study support prior research findings that GLB youth are at a greater risk for mental and sexual health problems than heterosexual youth. GLB youth reported more internalizing symptoms, depression, and suicide attempts than heterosexual youth. As noted by some (Wormer and McKinney, 2003), Western society's failure to take a proactive stance in social systems to empower these marginalized youth may be one of the leading causes of negative mental health outcomes. Hence, GLB youth may be suffering from a lack of institutionalized support. Because being homeless further alienates individuals from resources in society, outreach efforts to GLB homeless youth may need to be exceptionally strong.

Prior literature has clearly identified the developmental struggles that gay and lesbian adolescents face (Cass, 1979; Hetrick and Martin, 1987; Trolden, 1989; Zera, 1992). Gay and lesbian adolescents are challenged with the awareness of being different and intense feelings of isolation, which can result in adolescents internalizing some homophobia and even experiencing self-hatred (Zera, 1992).

The numerous stressors experienced by homeless youth in general could lead them to use destructive coping mechanisms to handle this stress. One coping mechanism used by homeless youth to handle stress is the use of substances. In this study, however, there were no significant differences between GLB and heterosexual youth on substance use regardless of gender. This nonsignificant finding is possibly due to the eligibility criteria. All participants in this study were required to meet DSM- IV criteria for alcohol or other substance use disorder, limiting the range of substance use patterns. Thus, both heterosexual and GLB groups used substances frequently. Future research will need to evaluate differences in substance use utilizing a more diverse sample.

As others have noted, the use of substances has serious implications for the use of safer sex techniques (Hirshfield et al., 2004). The use of substances alone can impair judgment and seriously affect the ability to make sexual health decisions among homeless youth. In this study, it was found that for heterosexual youth, the use of opiates, alcohol, and marijuana in the last 90 days were significant predictors of HIV risk. Although we did not inquire if drugs or alcohol were present before sex, these results suggest that under the influence of substances, sexual health decisions could be made that put heterosexual youth at an increased risk for HIV. Education and intervention should therefore focus on the impact of substances on sexual health decisions and the risk associated with sexual behaviors.

Further analysis revealed that lesbian and bisexual females were at the greatest risk for HIV compared to gay males and heterosexual males and females. This finding is contrary to the idea that lesbian women are at a low risk for contracting HIV based upon sexual risk behaviors and that gay males are at the greatest risk because of sexual risk behaviors. Prior research has suggested that lesbian and bisexual women have the lowest risk for HIV because female-to-female transmission is rare (Lemp et al., 1995). Results from this study suggest that they are not immune, as many lesbians might believe (Stevens and Hall, 2001). This study negates the idea of lesbian immunity and urges for an examination of sexual risk behaviors of lesbian and bisexual women to understand the impact of HIV transmission in this population. Fishman and Anderson (2003) state that HIV transmission statistics for women who have sex with women are unknown and that the CDC only recently added an HIV reporting category for lesbian women. This also suggests that clinicians in part have adopted the idea of lesbian immunity, which has serious implications for the way lesbian and bisexual women are educated about HIV transmission. Further, lesbians with HIV are a hidden and isolated population and therefore more marginalized and isolated (Travers and Paoletti, 1999). Results from this study imply that it may be just as important to provide accurate education, testing, and interventions targeting lesbian and bisexual youth. It should also be noted that most of the females in the GLB group self-identified as being bisexual. This could mean that their increased risk is associated with male-to-female transmission. Further, an interesting finding was that females were more likely to engage in survival sex, regardless of whether they were gay or heterosexual. This supports the need for investigation into the impact of survival sex on the labeling of sexual orientation. Questions such as whether one identifies as gay, bisexual, or heterosexual based upon survival sex behaviors should be examined.

Prior research comparing heterosexual and non-heterosexual youth have noted that bisexual youth may experience the greatest levels of risk (Busseri et al., 2006). Findings from this study however, suggest that both lesbian and bisexual female youth faced greater sexual health risks, with females in general reporting more high risk behaviors. This confirms our hypothesis that being female further increases the risks of lesbian and bisexual homeless youth. However, this difference was not significant for mental health and substance use behaviors. Though future research will need to explore this further, the finding suggests that variables other than substance use and mental health contribute to the greater HIV risk among lesbian and female bisexual youth.

Emerging findings indicate an association between depression and increased HIV risk among young MSM (men who have sex with men) (Perdue et al., 2003). Among GLB youth in this study, however, survival sex emerged as the strongest predictor of HIV risk. Among heterosexual youth, survival sex remained a strong predictor, but substance use and internalizing symptoms also emerged as predictors of HIV risk. In sum, even though heterosexual youth did not report greater mental health and substance abuse problems as compared to the GLB youth, mental health and substance use problems appear to exert a stronger role in predicting survival sex. Clearly, the association between mental health, substance use and survival sex among these groups needs further exploration.

## Limitations

It is important to consider limitations of this study when interpreting the findings. One was that of a small sample size; a larger sample size could have generated more comparable group sizes and greater power to detect differences. However, a small sample size is a frequently reported limitation in studies conducted on this population (Cochran et al., 2002; Garofalo et al., 1998). Another limitation of this study is the fact that the original study was designed to examine treatment modalities for substance abusing homeless adolescents and not for comparison among the sample on sexual orientation. Therefore certain questions that would have enriched our data on GLB youth such as one's comfort with sexual orientation, age of coming out, or examination of the identification versus sexual behaviors were not asked. The inclusion criteria of the study required that all youth meet criteria for a substance use problem, thus, this is a select group of homeless youth and non-substance abusing youth may report different patterns of risk and problem behaviors. Additionally, youth were included in the study only if they agreed to participate in treatment, thus these youth may not represent other GLB and non GLB homeless youth who avoid or refuse treatment services. Further, we are aware of the movement towards adopting a strengths-based approach in researching GLB youth (Busseri et al., 2006). In this study, however, the focus was essentially to examine problem-behaviors in order to facilitate formulation of intervention programs.

## Conclusion

Despite these limitations, the study makes two important contributions to the field of HIV prevention among homeless youth. First, lesbian and bisexual females reported the greatest risk for HIV. Second, female youth, regardless of their sexual orientation, were more likely to engage in survival sex. Intervention efforts should target these young women by focusing on their unique risk patterns and life situation. The role of prevention programs to empower GLB youth cannot be overemphasized. Furthermore, stabilizing youth may be a vital component of intervention efforts when attempting to successfully intervene in high risk behaviors.

## Acknowledgements

This study was supported by funding from NIDA (R01 DA13549) and CSAT (T112503) to Natasha Slesnick.

## References

- Achenbach, TM.; Edelbrock, CS. Child Psychiatry. University of Vermont; Burlington, VT: 1982. Manual for the child behavior checklist and child behavior profile.
- Alonso AG. A program design for homeless gay, lesbian, bisexual, and transgender youths. Dissertation Abstr Int: Section B: Sci Eng 2004;64(8B):4020.
- Ashworth CS, DuRant RH, Newman C, Gaillard G. An evaluation of a school-based AIDS/HIV education program for high school students. *J Adolesc Health* 1992;13:582–588. [PubMed: 1420212]
- Beck AT, Ward C, Mendelson M, Mock J, Erlbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry* 1961;4:53–63.
- Bontempo ED, D'Augelli RA. Effects of at-school victimization and sexual orientation on Lesbian, Gay, or Bisexual youths' health risk behavior. *J Adolesc Health* 2002;30:364–374. [PubMed: 11996785]
- Busseri MA, Willoughby T, Chalmers H, Bogaert AR. Same-sex attraction and successful adolescent development. *J Youth Adolesc* 2006;35:561–573.
- Cass V. Homosexual identity formation: A theoretical model. *J Homosex* 1979;4:219–235. [PubMed: 264126]
- Cochran BN, Stewart JA, Ginzler JA, Cauce AM. Challenges faced by homeless sexual minorities: Comparison of gay, lesbian, bisexual, and transgender homeless adolescents with their heterosexual counterparts. *Am J Public Health* 2002;92:773–777. [PubMed: 11988446]
- D'Augelli AR. Lesbians' and gay men's experiences of discrimination and harassment in a university community. *Am J Community Psychol* 1989;17:317–321. [PubMed: 2801627]



- Darling N, Palmer RF, Kipke MD. Do street youth's perceptions of their caregivers predict HIV-risk behavior? *J Fam Psychol* 2005;19:456–464. [PubMed: 16221025]
- DiClemente RJ. Predictors of HIV-preventive sexual behavior in a high-risk adolescent population: The influence of perceived peer norms and sexual communications on incarcerated adolescents' consistent use of condoms. *J Adolesc Health* 1991;12:385–390. [PubMed: 1751507]
- Ebner DL, Laviage MM. The parallel universe of homeless and HIV-positive youth. *Semin Pediatr Infect Dis* 2003;14:32–37. [PubMed: 12748920]
- Faulkner AH, Cranston K. Correlates of same-sex sexual behavior in a random sample of Massachusetts high school students. *Am J Public Health* 1998;88:262–266. [PubMed: 9491018]
- Fergusson DM, Horwood LJ, Beautrais AL. Is sexual orientation related to mental health problems and suicidality in young people? *Arch Gen Psychiatry* 1999;56:876–880. [PubMed: 10530626]
- Fishman S, Anderson E. Perception of HIV and safer sexual behaviors among lesbians. *Assoc Nurses AIDS Care* 2003;14(6):48–55.
- Garofalo R, Wolf CR, Kessel S, Palfrey J, DuRant HR. The association between health risk behaviors and sexual orientation among a school-based sample of adolescents. *Pediatrics* 1998;101:895–902. [PubMed: 9565422]
- Greene JM, Ringwalt CL. Youth and familial substance use's association with suicide attempts among runaway and homeless youth. *Subst Use Misuse* 1996;31:1041–1058. [PubMed: 8806167]
- Hetrick E, Martin A. Developmental issues and their resolution for gay and lesbian adolescents. *J Homosex* 1987;14:25–43. [PubMed: 3655346]
- Hirshfield S, Remien R, Humberstone M, Walavalkar I, Chiasson M. Substance use and high-risk sex among men who have sex with men: A national online study in the USA. *AIDS Care* 2004;16(8):1036–1047. [PubMed: 15511735]
- Johnson TP, Aschkenasy JR, Herbers MR, Gillenwater SA. Self-reported risk factors for AIDS among homeless youth. *AIDS Educ Prev* 1996;8:308–322. [PubMed: 8874648]
- Kann L, Anderson JE, Holtzman D, Ross J, Truman BI, Collins J, Kolbe LJ. HIV-related knowledge, beliefs, and behaviors among high school students in the United States: Results from a national survey. *J Sch Health* 1991;61:397–401. [PubMed: 1800843]
- Kipke MD, Montgomery SB, Simon TR, Iverson EF. Substance abuse disorders among runaways and homeless youth. *Subst Use Misuse* 1997;32:969–986. [PubMed: 9220564]
- Lemp G, Jones M, Kellogg T, Nieri G, et al. HIV seroprevalence and risk behaviors among lesbians and bisexual women in San Francisco and Berkeley, California. *Am J Public Health* 1995;11:1549–1552. [PubMed: 7485670]
- Lock J, Steiner H. Gay, lesbian and bisexual youth risks for emotional, physical, and social problems: Results from a community-based survey. *J Am Acad Child Adolesc Psychiatry* 1999;38:297–304. [PubMed: 10087691]
- Maxwell BE. Hostility, depression, and self-esteem among troubled and homeless adolescents in crisis. *J Youth Adolesc* 1992;21(2):139–150.
- Meyer IH. Minority stress and mental health in gay men. *J Health Soc Behav* 1995;36:38–56. [PubMed: 7738327]
- Miller, WR.; Marlatt, GA. Manual for the comprehensive drinker profile. Psychological Assessment Resources; Odessa, FL: 1984.
- Miller WR, Del Boca FK. Measurement of drinking behavior using the Form 90 family of instruments. *J Stud Alcohol (suppl)* 1994;12:112–118. [PubMed: 7722987]
- Miner MH. The self-concept of homeless adolescents. *J Youth Adolesc* 1991;20(5):545–560.
- Molnar BE, Shade SB, Kral AH, Booth RE, Watters JK. Suicidal behavior and sexual/physical abuse among street youth. *Child Abuse Negl* 1998;22:213–222. [PubMed: 9589175]
- Morrison LL, L'Huereux J. Suicide and gay/lesbian/bisexual youth: Implications for clinicians. *J Adolesc* 2001;24:39–49. [PubMed: 11259069]
- Noell JW, Ochs LM. Relationship of sexual orientation to substance use, suicidal ideation, suicide attempts, and other factors in a population of homeless adolescents. *J Adolesc Health* 2001;29:31–36. [PubMed: 11429303]

- Norman WH, Miller IW, Klee SH. Assessment of cognitive distortion in a clinically depressed population. *Cogn Therapy Res* 1983;7:133–140.
- Perdue T, Hagan H, Thiede H, Valleroy L. Depression and HIV risk behavior among Seattle-area injection drug users and young men who have sex with men. *AIDS Educ Prev* 2003;15:81–92. [PubMed: 12627745]
- Petersen AC, Sarigiani PA, Kennedy RE. Adolescent depression: Why more girls? *J Youth Adolesc* 1991;20:247–271.
- Rew L, Whittaker TA, Taylor-Seehafer MA, Smith LR. Sexual health risks and protective resources in gay, lesbian, bisexual, and heterosexual homeless youth. *J Specialists Pediatr Nurs* 2005;10:11–19.
- Rosario M, Schrimshaw E, Hunter J, Gwadz M. Gay-related stress and emotional distress among gay, lesbian, and bisexual youths: A longitudinal examination. *J Consult Clin Psychol* 2002;70(4):967–975. [PubMed: 12182280]
- Rotheram-Borus MJ, Koopman C, Ehrhardt AA. Homeless youths and HIV infection. *Am Psychol* 1991;46:1188–1197. [PubMed: 1772156]
- Rotheram-Borus MJ, Song J, Gwadz M, Lee M, Van Rossem R, Koopman C. Reductions in HIV Risk among runaway youth. *Prev Sci* 2003;4(3):173–187. [PubMed: 12940468]
- Rush AJ, Giles DE, Schlessner MA, Fulton CL, Weissenburger J, Burns C. The inventory of depressive symptomatology (IDS): Preliminary findings. *Psychiatry Res* 1986;18:65–87. [PubMed: 3737788]
- Saewyc EM, Bauer GR, Skay CL, Bearinger LH, Resnick MD, Reis E, et al. Measuring sexual orientation in adolescent health surveys: Evaluation of eight school-based surveys. *J Adolesc Health* 2004;35:345.e1–345.e15. [PubMed: 15830439]
- Savin-Williams, RC.; Rodriguez, RG. A developmental, clinical perspective on lesbian, gay male, and bisexual youths. In: Gullota, TP.; Adams, GR.; Montemayor, R., editors. *Adolescent sexuality: Advances in adolescent development*. Sage; Newbury Park, CA: 1993.
- Shaffer, D. The diagnostic interview schedule for children -2.3 Version. Columbia University; New York: 1992.
- Slesnick N, Tonigan JS. Assessment of alcohol and other drugs used by runaway youths: A test-retest study of the Form 90. *Alcohol Treat Q* 2004;22:21–34. [PubMed: 18563208]
- Sobell, LC.; Sobell, MB. Timeline follow-back. In: Litten, R.; Allen, J., editors. *Measuring alcohol consumption*. Humana Press; Totowa, NJ: 1992. p. 41–72.
- Solorio MR, Milburn NG, Weiss RE, Batterham PJ. Newly homeless youth STD testing patterns over time. *J Adolesc Health* 2006;39:443.e9–443.e16. [PubMed: 16919810]
- Stein JA, Rotheram-Borus MJ, Swendeman D, Milburn NG. Predictors of sexual transmission risk behaviors among HIV-positive young men. *AIDS Care* 2005;17:433–442. [PubMed: 16036228]
- Stevens P, Hall J. Sexuality and safer sex: The issues for lesbians and bisexual women. *J Obstet, Gynecol, Neonatal Nurs* 2001;30(4):439–447.
- Tonigan JS, Miller WR, Brown JM. The reliability of Form 90: An instrument for assessing alcohol treatment outcome. *J Stud Alcohol* 1997;58:358–364. [PubMed: 9203116]
- Travers R, Paoletti D. Responding to the support needs of HIV positive lesbian, gay and bisexual youth. *Canadian J Hum Sex* 1999;8:271–283.
- Troiden R. The formation of homosexual identities. *Journal of Homosexuality*. 1989;17:43–73
- Tyler KA, Cauce AM. Perpetrators of early physical and sexual abuse among homeless and runaway adolescents. *Child Abuse Negl* 2002;26:1261–1274. [PubMed: 12464300]
- Washburn-Ormachea JM, Hillman SB, Sawilowsky SS. Gender and gender-role orientation differences on adolescents' coping with peer stressors. *J Youth Adolesc* 2004;33:31–40.
- Westerberg VS, Tonigan JS, Miller WR. Reliability of form 90D: An instrument for quantifying drug use. *Subst Use* 1998;19:179–189.
- Whitbeck LB, Chen X, Hoyt DR, Tyler KA, Johnson KD. Mental disorder, subsistence strategies, and victimization among gay, lesbian, and bisexual homeless and runaway adolescents. *J Sex Res* 2004;41:329–342. [PubMed: 15765273]
- Whitbeck, L.; Hoyt, D. *Nowhere to grow: Homeless and runaway adolescents and their families*. Aldine de Gruyter; New York: 1999.

- Whitbeck LB, Hoyt DR, Bao WN. Depressive symptoms and co-occurring depressive symptoms, substance abuse, and conduct problems among runaway and homeless adolescents. *Child Dev* 2000;71:721–732. [PubMed: 10953939]
- Wormer KV, McKinney R. What schools can do to help gay/lesbian/bisexual youth: A harm reduction approach. *Adolescence* 2003;38:409–420. [PubMed: 14768989]
- Zera D. Coming of age in a heterosexual world: The development of gay and lesbian adolescents. *Adolescence* 1992;27(108):849–855. [PubMed: 1471564]

## Biographies

**Rashmi Gangamma** is a Ph.D student in the Department of Human Development and Family Science at The Ohio State University. She completed her Masters in Social Work at Mangalore University, India, and M.Phil in Psychiatric Social Work from the National Institute of Mental Health and NeuroSciences (NIMHANS), Bangalore, India. Her research interests include qualitative research methodology, family therapy process and GLBT issues.

**Natasha Slesnick**, Ph.D. is an Associate Professor of Human Development and Family Science at the Ohio State University. She received her Ph.D. in 1996 from the University of New Mexico. Her research and clinical focus is on families and adolescents with issues pertaining to homelessness, substance use, childhood abuse, depression and high risk behaviors. Her current research projects concentrate on the development and evaluation of effective interventions for runaway and homeless youth and their families.

**Paula Toviessi** is a Ph.D candidate in the Department of Human Development and Family Science at The Ohio State University. She completed her B.S. in Psychology at Norfolk State University and her M.S. in Marriage and Family Therapy at Purdue University, Calumet. She is currently conducting research on family health and the health decision-making process.

**Julianne Serovich**, Ph.D., is Professor and Chair in the Department of Human Development and Family Science, The Ohio State University. She received her Ph.D. in 1991 from the University of Georgia. Her primary program of research centers on investigating the role of HIV disclosure to family and friends in reducing sexual risk related behaviors in men and mental health outcomes in women. To this end she has conducted 3 major studies investigating HIV disclosure behaviors in gay males, and heterosexual males and females.

**Table 1**

Pearson correlation scores for risk behaviors and sexual orientation

	Sexual orientation
YSR withdrawn	.165**
YSR somatic complaints	0.127*
YSR anxiety depression	0.154*
YSR social problem	0.159*
YSR thought problems	0.111
YSR attention problems	0.127*
YSR delinquent behaviors	0.033
YSR aggressive behaviors	-0.039
YSR internalizing	0.162*
YSR externalizing	-0.016
BDI total score	0.123
Alcohol use	-0.089
Survival sex	0.209**
HIV risk (lifetime)	0.201**
HIV risk (Past 3 months)	0.031

\*  $p \leq 0.05$ .\*\*  $p \leq 0.001$ .

**Table 2***t* values and mean difference in YSR scores between GLB and heterosexual youth

YSR subscales	<i>t</i> value	Mean difference
Aggressive behavior	.374	.39
Delinquent behavior	-.714	-.45
Attention problems	-2.17*	-1.28
Thought problems	-1.35	-.77
Social problems	-2.95*	-2.11
Anxiety/depression	-2.40*	-2.37
Somatic complaints	-2.15*	-1.09
Withdrawn behavior	-2.78*	-1.24
Internalizing scores	-2.61*	-3.92
Externalizing scores	.065	.09

\*  $p \leq 0.05$ .

**Table 3**

Step-wise Linear Regression predicting HIV Risk in GLB youth within the last three months

Predictor	B	SEB	Beta
Constant	0.846	.0184	
Survival sex	1.881	0.392	0.569

 $p < 0.001$ .

**Table 4**  
Step-wise Linear Regression for predicting HIV Risk in GLB youth over lifetime

Predictor	B	SEB	Beta
Constant	1.846	0.173	
Survival sex	2.245	0.369	.660

$p < 0.001$ .

**Table 5**

Step-wise Linear Regression predicting HIV Risk in Heterosexual youth within the last three months

Predictor	B	SEB	Beta
Constant	0.823	0.071	
Survival sex	0.820	0.262	0.223

 $p < 0.001$ .



**Table 6**

Step-wise Linear Regression for predicting HIV Risk in Heterosexual youth over lifetime

Predictor	B	SEB	Beta
Constant	1.236	0.197	
Survival sex	1.546	0.326	0.322
Internalizing symptoms	0.026	0.009	0.197

 $p < 0.001$ .

**Table 7**

Step-wise Linear Regression for substance abuse predictors of HIV Risk in Heterosexual youth within the last three months

Predictor	B	SEB	Beta
Constant	0.882	0.116	
Opiate use	0.024	0.007	0.241
Alcohol use	0.006	0.002	0.187
Marijuana use	-0.004	0.002	-0.153

$p < 0.001$ .

**Table 8**

Step-wise Linear Regression for substance abuse predictors of HIV Risk in Heterosexual youth over lifetime

Predictor	B	SEB	Beta
Constant	1.543	0.106	
Opiate use	0.029	0.009	0.226
Alcohol use	0.008	0.003	0.175
Uppers use	0.015	0.006	0.173

 $p < 0.001$ .

**Table 9**

Step-wise Linear Regression predicting HIV Risk in female youth within the last three months

Predictor	B	SEB	Beta
Constant	0.949	0.128	
Survival sex	1.635	0.351	0.445

 $p < 0.001$ .

**Table 10**

Step-wise Linear Regression predicting HIV Risk in female youth over lifetime

Predictor	B	SEB	Beta
Constant	1.756	0.138	
Survival sex	2.160	0.379	0.520

 $p < 0.001$ .