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Parental Monitoring Among Young Men Who Have Sex With Men: Associations With Sexual Activity and HIV-Related Sexual Risk Behaviors

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Abstract

Purpose—Young men who have sex with men (YMSM) are at disproportionate risk for HIV infection. Parental monitoring is protective against adolescent sexual risk behavior among heterosexual adolescents, yet it is unclear whether these findings generalize to YMSM. YMSM experience unique family dynamics during adolescence, including coming out to parents and parental rejection of sexual orientation. The present study examined how theoretically derived parental monitoring constructs were associated with sexual activity and sexual risk behaviors among YMSM.

Methods—YMSM aged 14–18 years completed a cross-sectional online survey (n = 646). Factor analysis was completed to determine factor structure of monitoring measure. Sexual behaviors were predicted from monitoring constructs and covariates within regression models.

Results—Parental knowledge and adolescent disclosure, parental solicitation, parental control, and adolescent secret-keeping emerged as four distinct monitoring constructs among YMSM. Higher knowledge and disclosure (b = $-.32$, $p = .022$), higher control (b = $-.28$, $p = .006$), lower solicitation (b = $.31$, $p = .008$), and lower secret-keeping (b = $.25$, $p = .015$) were associated with lower odds of sexual activity with males in the past 6 months. Higher knowledge and disclosure (b = $-.12$, $p = .016$), higher control (b = $-.08$, $p = .039$), and lower secret-keeping (b = $.11$, $p = .005$) were associated with having fewer recent sexual partners. Monitoring constructs were unassociated with condomless anal intercourse instances among sexually active YMSM.

Conclusions—YMSM disclosure is closely tied with parental knowledge, and parents should foster relationships and home environments where YMSM are comfortable disclosing information freely. Effective parental monitoring could limit YMSM's opportunities for sexual activity, but monitoring is not sufficient to protect against HIV-related sexual risk behaviors among sexually active YMSM.

Keywords

Young men who have sex with men; Parental monitoring; Sexual behavior; HIV-related sexual risk behavior; Lesbian; gay; bisexual adolescents

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Young men who have sex with men (YMSM) in the United States are at elevated risk of HIV infection. While HIV incidence rates have remained stable for most populations, incidence among YMSM continues to increase annually [1,2]. Furthermore, HIV prevalence is extremely high among YMSM, and it has been estimated that 7.2%–12.6% of this population will be HIV positive by their 25th birthday [3–5]. Researchers have pointed to parents of YMSM as a largely untapped resource which could help stem the tide of the HIV epidemic within this population [6].

Parents who monitor their children effectively during adolescence have children who engage in fewer risk behaviors, including fewer HIV-related sexual risk behaviors [7–12]. Effectively monitored adolescents report less affiliation with deviant peers [13] and have fewer opportunities to engage in health risk behaviors, including sexual risk behaviors [10,11]. Two separate reviews of parental influences on the sexual behaviors of adolescents found that parental monitoring was protective against early sexual debut, increased sex frequency, sex with more partners, and failure to use condoms [11,12]. Similarly, a recent meta-analysis found that increased monitoring efforts by parents were associated with delayed initiation of sexual activity, increased condom use, and increased contraceptive use [10].

However, it is unclear if findings from research with heterosexual adolescents generalize to YMSM. Lesbian, gay, and bisexual (LGB) youth's relationships with their parents are characterized by unique developmental demands, including revealing their sexual orientation to their parents [14]. Many LGB adolescents experience parental rejection of their sexual orientation [15], and parents report withdrawing from their child after discovering they are LGB [16], straining parent-child relationships during the developmental period when many adolescents are initiating sexual activity. Thus, parental monitoring could be inhibited within families of YMSM.

Only one known study has examined parental monitoring among YMSM. Thoma and Huebner (2014) [17] found monitoring to be unassociated with initiation of sexual activity with other males and sexual activity within the past 6 months. In addition, the association of parental monitoring and sexual risk behavior was moderated by outness to parents in their cross-sectional sample of YMSM. Young men who reported mixed (one parent knew but another did not) or uncertain outness to parents evidenced a positive association between monitoring and condomless anal intercourse (CAI) [17]. In other words, higher perceived monitoring was actually associated with higher likelihood of HIV-related sexual risk behavior among one subgroup of YMSM in the sample, and monitoring did not serve a protective influence for any YMSM in the sample.

This study may have failed to find results consonant with the larger literature because of the use of a monitoring measure largely limited to assessing parental knowledge. Researchers have advocated for the use of more nuanced and comprehensive measures of parental monitoring which capture the complexities of parent-child interactions inherent within parental monitoring efforts, including separate assessments of parental knowledge, adolescent disclosure to parents, parent solicitation from adolescents, and parental control [18,19]. Stattin and Kerr (2000) [18] found that adolescent disclosure and parental

solicitation both independently predicted parental knowledge, and parent knowledge was more dependent on spontaneous disclosure by adolescents rather than solicitation by parents. Dittus et al. (2015) demonstrated that specific components of monitoring are distinctly associated with adolescent sexual behavior. Within their meta-analysis, adolescents who reported higher perceived levels of parental knowledge also reported delayed initiation of sexual activity, more condom use, and more contraceptive use. On the other hand, greater parental control, or rule enforcement within the household, was associated with only delayed sexual intercourse [10]. Furthermore, researchers recently demonstrated that rules about dating and parental knowledge longitudinally predicted sexual initiation among male adolescents, and the process of solicitation by parents and disclosure by adolescents predicted parental knowledge [20]. Thus, the specific components of parental monitoring outlined by Stattin and Kerr (2000) [18] differentially predict adolescent sexual behaviors, and all aspects of monitoring must be examined to fully discern how monitoring is associated with sexual behaviors among YMSM.

The purpose of the present study was twofold. Because there is reason to believe that sexual orientation could alter how the monitoring constructs described by Stattin and Kerr (2000) [18] function within families of YMSM, the first aim of the present study was to determine the factor structure of a comprehensive measure of parental monitoring among YMSM. The second aim of the present study was to examine how facets of parental monitoring are associated with sexual behaviors of YMSM, including whether they are sexually active, how many sexual partners they have had, and their condom use behavior. Parent-child interactions are known to be altered during the coming out process, and researchers have previously shown that outness to parents moderated the association between monitoring and sexual behavior, so outness to parents was examined as a moderator of these associations.

Method

Procedure

YMSM participated in a cross-sectional online survey from February 2015 to May 2015. Youth were recruited via advertisements on Facebook that were targeted to adolescent males in the United States, ages 14–18 years, whose profiles also included indicators that they would affiliate with keywords such as: “LGBT (lesbian, gay, bisexual, and transgender) community,” “LGBT culture,” “LGBT social movements,” “Gay pride,” “Pride parade,” “Bisexuality,” “Coming out,” “Homosexuality,” “Gay-straight alliance,” “Gay, Lesbian, and Straight Education Network,” and other LGBT-relevant topics. Ads were served a total of 76,106 times, and 6,822 clicks on the ad were recorded during recruitment (9% click-through rate).

Clicking the ad opened the survey webpage, which was hosted on a secure server. Because of the anonymous nature of the survey and because some YMSM recruited had not disclosed their sexual orientation to their parents, a waiver of parental permission to participate was requested and approved by the University of Utah Institutional Review Board. A total of 3,050 participants entered the survey and began responding to survey questions (45% of those who clicked an ad), which took 25–45 minutes to fully complete. Participants completing the survey provided their email address if they wished to be entered into a lottery

for one of 10 \$50 gift cards. The study was approved by the University of Utah Institutional Review Board.

Multiple steps were taken to ensure the quality of collected data. First, Internet Protocol addresses were used to identify potential duplicate cases [21]. Cases with duplicate Internet Protocol addresses were examined by hand, and 176 cases were determined to be duplicates and removed (6% of cases). In addition, outlier analysis indicated that one case represented a pattern of inappropriate responses to survey questions, and this case was removed. Finally, sensitivity analyses were conducted to examine the influence of random or careless responding by participants. Three items from the Minnesota Multiphasic Personality Inventory infrequency scale [22] were included as a means of identifying participants who were responding carelessly or randomly, or who might have been experiencing active psychotic symptoms. The pattern of results did not change in any regression model when YMSM with high scores on this scale were omitted from analysis, so all cases were included.

Participants

YMSM were eligible to participate in the study if they reported their current biological sex was male, were between the age of 14 and 18 years (inclusive), and identified their current sexual orientation as gay, homosexual, or bisexual. Of the 2,874 unique individuals who began the survey, 734 provided sufficient data for analysis (26% of unique respondents). Participants were deemed to have provided sufficient data for analysis if they did not exit the survey before progressing past survey questions for each construct of interest in the present study, regardless of whether they provided complete data on each measure (participants had the option to leave questions unanswered and still progress through the survey). Two percent of eligible participants had missing data on at least one variable of interest. The current analysis included 646 participants who provided sufficient data and met all other eligibility criteria. Demographic characteristics are included in Table 1. Eligible participants who provided sufficient data for analysis were more likely to identify their race/ethnicity as white, less likely to identify as black, and reported lower subjective social status (SSS) compared with those who did not provide sufficient data. There were no other differences between eligible participants who provided sufficient data and those who did not.

Measures

Parental monitoring was assessed with items suggested by Stattin and Kerr (2000) [18] for use with adolescents. Twenty-two items assessed parental knowledge, parental solicitation, adolescent disclosure, and parental control efforts, including household rules (see Table 2 for specific items). Participants responded to each item using a five-point Likert scale. General parent-adolescent relationship quality was measured with nine items assessing perceptions of relationships with parents from the Mother-Father-Peer Scale (Epstein S, unpublished, 1983), which has strong psychometric properties within samples of adolescents [23]. Relationship quality items were asked about each parent using a five-point Likert scale, scores were averaged across parents, and one composite mean score was calculated for each participant.

Participants responded to the question “Does your parent know about your sexual orientation?” for each reported parent or caregiver (up to two) with the following response options: “yes,” “no,” or “I do not know.” Participants were classified into three groups according to how much their parents knew about their sexual orientation: 0: not out to parents (all parents did not know about sexual orientation; n = 118); 1: mixed or uncertain outness to parents (participant reported they did not know if parent knew of their sexual orientation for all parents OR there was a mixture of knowledge about their sexual orientation between their parents [e.g., one parent knew and one did not]; n = 182), and 2: out to all parents (all parents knew of their sexual orientation; n = 345). This measure of outness has been used in previous studies of YMSM which demonstrated that it is appropriate to combine YMSM who reported mixed and uncertain knowledge into one group [17], and it was reverse coded before analysis to designate YMSM out to all parents as the reference group.

Each participant reported their sexual activity during the past 6 months, including whether they had had sex (defined as “any activity where you touch your partner and become sexually aroused”) with another male and how many male sexual partners they had. Both total anal intercourse and CAI with male partners were assessed with count variables summing both insertive and receptive instances during the past 6 months.

Race/ethnicity was assessed with one question asking participants to select all races/ethnicities with which they strongly identified. Sexual orientation was measured with one item assessing self-identified sexual orientation. SSS was measured with the McArthur Scale of Subjective Social Status, a measure of adolescents’ perceptions of their family’s social status as compared with all other families in American society, visualized by a 10-rung ladder [24].

Data analysis

First, exploratory factor analysis (EFA) was conducted to determine the factor structure of the measure of parental monitoring. EFA was determined to be an appropriate analytic method for this purpose because the unique context of families with an LGB child could alter how these constructs function, and very limited research has examined monitoring among samples of YMSM. Analysis was conducted using Mplus, version 7.4 (Muthén & Muthén, Los Angeles, CA) [25], using the maximum likelihood estimator and an oblique promax rotation which assumed intercorrelations between factors. Items were retained on each factor if factor loading exceeded .5 with no cross loading exceeding .3, which is in line with recommendations to identify factors which have high likelihood of generalizing to other samples [26]. Number of factors was determined based on the theoretical consistency and ease of interpretation of each factor as well as using eigenvalues above 1.0 as an approximate guideline.

Next, regression models were estimated for each of the four sexual behavior outcomes using SPSS, version 23 (IBM Corp., Armonk, NY). Sexual behaviors were regressed on monitoring scales distilled from above EFA, outness to parents, general parent-child relationship quality, and covariates. Monitoring constructs were standardized to reduce collinearity [27], and interactions between each monitoring construct and outness to parents

were included in each model. Sexual activity with males in the past 6 months was dichotomized and modeled with binary logistic regression. Number of male sexual partners was coded as 0, none; 1, one; or 2, two or more, and this outcome was modeled using ordinary least squares regression (results did not differ when this outcome was modeled using multinomial logistic regression). Finally, total instances of anal intercourse and CAI were coded as count variables, and negative binomial regression was used to regress outcomes on predictors [28] among only participants who reported they were sexually active ($n = 367$). Negative binomial regression was preferred to Poisson regression because the distribution of each count variable evidenced over-dispersion [29].

Results

Factor analysis

Initial analysis indicated that eigenvalues of the first four factors exceeded one. In addition, a four-factor solution was more easily interpreted and consistent with theoretical concepts of parental monitoring than either a three- or five-factor solution, so a four-factor solution was preferred. Two items did not meet the minimum threshold of a primary factor loading of at least .5, and these items were removed from analysis (“How often do your parents talk with your friends when they come over to your house?” and “Do your parents require that you tell them how you spend your money?”).

Final analysis included 20 variables. All variables evidenced primary factor loadings larger than .5 with no secondary loadings exceeding .3 (see Table 2). Based on the content of the factors they were labeled knowledge and disclosure, parental solicitation of information, control, and secret-keeping. The four scales demonstrated strong reliability within the full sample ($\alpha = .90$ for knowledge and disclosure, $\alpha = .81$ for parental solicitation of information, $\alpha = .90$ for control, and $\alpha = .83$ for secret-keeping), and good reliability within each outness group (lowest $\alpha = .78$ for solicitation within the “not out” subgroup).

Initial analyses

Intercorrelations among study variables are included in Table 3. Age, SSS, and sexual orientation (gay/homosexual vs. bisexual) evidenced associations with predictors and/or outcomes, and these variables were included as covariates in subsequent analyses. Analysis of Variance analyses indicated that race/ethnicity (coded as white, black/African-American, Latino/ Hispanic, and other) was associated with study variables, and three dummy codes comparing groups to white participants were included in each model.

Regression analyses

After controlling for covariates, each monitoring construct evidenced a significant association with odds that YMSM were sexually active with males in the past 6 months (see Table 4 for results). Higher perceived levels of knowledge and disclosure as well as higher control were associated with lower odds of sexual activity ($b = -.32$, $p = .022$ and $b = -.28$, $p = .006$, respectively). Higher perceived levels of secret-keeping and solicitation were associated with higher odds of sexual activity ($b = .25$, $p = .015$ and $b = .31$, $p = .008$, respectively). Similarly, higher levels of secret-keeping were associated with reporting more

male sexual partners ($b = .11, p = .005$), and higher levels of knowledge and disclosure as well as higher control were associated with reporting fewer sexual partners ($b = -.12, p = .016$ and $b = -.08, p = .039$, respectively). No interactions between outness and monitoring constructs were detected in the aforementioned two models. Among sexually active participants only, both total instances of anal intercourse and instances of CAI were not significantly predicted by any of the four monitoring constructs (see Table 4 for results). Furthermore, no significant interactions between outness and monitoring constructs were discovered in the prediction of CAI or total anal intercourse (results from models including interactions available from author upon request).

Discussion

YMSM who reported higher levels of parental knowledge and disclosure, higher parental control, lower parental solicitation, and lower secret-keeping had lower odds of reporting recent sexual activity with males. Similarly, YMSM reporting higher knowledge and disclosure, higher control, and lower secret-keeping reported fewer recent male sex partners. These findings held true for all YMSM, regardless of how much their parents knew about their sexual orientation. However, parental monitoring was not associated with specific sexual risk behaviors among sexually active YMSM. Parents can monitor effectively to reduce the number of opportunities YMSM have to engage in sexual behaviors with other males, but monitoring is not sufficient to influence the skills and knowledge YMSM would need for successful condom negotiation and use within specific sexual encounters.

The factor structure of parental monitoring constructs among YMSM was found to be similar to factor structures obtained within presumably heterosexual samples of adolescents [30]. The factorial validity of the Stattin and Kerr (2000) [18] items has previously been found to be highest when disclosure and secrecy are considered as separate factors [30,31], and secrecy was found to be a discrete construct in the current sample of YMSM. Unlike prior studies, adolescent disclosure and parental knowledge coalesced into one factor in the present study, possibly resulting from unique family dynamics among YMSM in which parents withdraw from their adolescents after discovering their sexual orientation [16], creating a greater dependence on adolescent disclosure to gain knowledge rather than parental solicitation.

YMSM who reported higher levels of solicitation were more likely to be sexually active. Because of the cross-sectional nature of these data, it cannot be ruled out that parents are aware of their sons' sexual activity, and they then increase their solicitation attempts in response to this knowledge. Similar positive associations between solicitation and negative adolescent outcomes have been reported in prior cross-sectional studies [18]. However, it is also possible that YMSM desire more privacy from parents about sex and sexuality compared with other adolescents, and efforts by parents to find out more about their personal lives are viewed as intrusive. In addition, factor analysis indicated that parental knowledge of YMSM's activities and whereabouts more often result from adolescent disclosure rather than solicitation by parents, which is in line with prior research [18]. Because of the unique developmental demands of LGB adolescents, parents may not feel comfortable soliciting information from YMSM, and YMSM may feel defensive when parents attempt to solicit

information about their personal lives, especially regarding sex and sexuality. Parents should foster an environment within their family where YMSM find their parents trustworthy, and they are comfortable disclosing information freely. Parents can likely set the stage for such family dynamics by discussing issues related to sex and sexual orientation openly at home and frequently communicating love, affection, and acceptance to their son [32].

In addition, secret-keeping emerged as a distinct construct among YMSM. Secret-keeping is an important parent-adolescent dynamic which has been previously linked with adolescent health behaviors [31,33]. Secret-keeping could be particularly relevant for YMSM and other LGB youth, as disclosing their sexual orientation to parents is one developmental milestone they typically achieve during adolescence. Thus, YMSM who are not out to their parents would conceal information to inhibit parental knowledge of their sexual orientation, and all YMSM could continue to keep secrets from their parents after coming out. YMSM might do this strategically based on whether they believe their parents will act in rejecting or accepting ways upon disclosure of information. It must be noted that secret-keeping was measured with only two items in the present study. While the construct was judged to have acceptable reliability in this sample because the two items were highly correlated ($r=.71$) and constituted a conceptually distinct construct [34], future studies of YMSM should employ a wider range of items designed to measure secret-keeping [31].

Researchers have previously found that monitoring was not linked with being sexually active among YMSM [17], but the current analysis indicates monitoring constructs have several associations with sexual activity and number of sexual partners. These findings could diverge because of the disparate measures used to assess monitoring in each study. Researchers have previously used only a measure which assessed parental knowledge [17]. While this is one important aspect of monitoring, the present study indicates that items measuring knowledge coalesced with items measuring disclosure, and each monitoring construct, including knowledge and disclosure, evidenced independent associations with sexual behavior. Furthermore, the previous study enrolled participants at LGB community centers, and the current sample was collected online. Online samples of LGB youth have been shown to be more diverse in terms of outness about sexual orientation and involvement with the LGB community [35], and the current sample evidenced more variability in sexual activity (57% sexually active in current sample vs. 80% in Thoma and Huebner [2014]) [16].

Outness did not moderate associations between monitoring and sexual behavior in this sample of YMSM. Results indicate effective parental monitoring could inhibit YMSM sexual activity for all YMSM regardless of outness, but other interpretations are possible. First, some parents react negatively to sexual orientation disclosure, a variable not measured in the present study that is known to have associations with sexual risk behavior [15]. In addition, outness was associated with higher parent-adolescent relationship quality, and it is likely that a supportive and trusting parent-adolescent relationship facilitated disclosure of sexual orientation among many YMSM [14]. Thus, it is possible that outness to parents could signify the presence of either risk or protective factors within families of YMSM, and assessments of relationship quality, monitoring, parental reactions to sexual orientation disclosure, and sexual behaviors at multiple time points would be helpful to fully

characterize how outness to parents unfolds over time and influences sexual health among YMSM.

The contributions of the present study must be understood within the context of methodological limitations. As noted previously, bidirectional effects between YMSM sexual behavior and parental monitoring cannot be ruled out within the cross-sectional design. While logic would not support reversed effects in most cases in the current analyses (e.g., YMSM having more sexual partners leading parents to monitor less closely), future studies should employ longitudinal designs which would allow researchers to disentangle complex bidirectional influences within parent-adolescent interactions as well as how these interactions influence health behaviors. Furthermore, the monitoring items used were an aggregate measure across all parents, making it impossible to discern differential influences of maternal and paternal monitoring. In addition, only adolescent perceptions of monitoring were assessed, and future studies should triangulate data from multiple reporters within the household to discern a more thorough portrait of parent-adolescent interactions. Finally, in addition to monitoring, future studies of YMSM should include assessments of a variety of parent-adolescent interactions which could influence sexual risk behaviors, including parent rejection of sexual orientation, parent-adolescent communication about sex, parent disapproval of teen sex, and parent-child attachment [11,12,36].

Parents can broadly influence YMSM sexual behaviors by monitoring effectively, enforcing clear rules at home, and creating a household environment where adolescents feel comfortable talking openly with their parents about their personal lives. Health care providers working with YMSM and their families can provide guidance in this process and use family systems intervention approaches to facilitate in vivo discussions between YMSM and their parents, including roleplays of difficult conversations as well as addressing barriers to open communication, which could prove useful in opening lines of communication within families [37]. For families of LGB adolescents, including YMSM, this likely includes parents building comfort with and knowledge of sexual orientation so adolescents feel comfortable discussing their personal lives with their parents. Parents need to go beyond effective monitoring efforts if they hope to contribute to lower HIV-related sexual risk behaviors among sexually active YMSM, and possible effective interactions include communicating with their son about sex, reducing rejection of sexual orientation, and increasing acceptance and support for sexual orientation.

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References

1. CDC. HIV among gay, bisexual, and other men who have sex with men. Atlanta, GA: U.S. Department of Health and Human Services: Centers for Disease Control and Prevention; 2015.

2. CDC. New HIV infections in the United States. Atlanta, GA: U.S. Department of Health and Human Services: Centers for Disease Control and Prevention; 2012.
3. Balaji AB, Bowles KE, Le BC, et al. High HIV incidence and prevalence and associated factors among young MSM, 2008. *AIDS*. 2013; 27:269–78. [PubMed: 23079807]
4. CDC. HIV infection risk, prevention, and testing Behaviors among men who have sex with men—National HIV Behavioral Surveillance, 20 US Cities, 2014, in HIV surveillance special report. Atlanta, GA: Centers for Disease Control; 2016.
5. Valleroy LA, MacKellar DA, Karon JM, et al. HIV prevalence and associated risks in young men who have sex with men. *JAMA*. 2000; 284:198–204. [PubMed: 10889593]
6. Garofalo R, Mustanski B, Donenberg G. Parents know and parents matter; Is it time to develop family-based HIV prevention programs for young men who have sex with men? *J Adolesc Health*. 2008; 43:201–4. [PubMed: 18639797]
7. Coley RL, Votruba-Drzal E, Schindler HS. Fathers' and mothers' parenting predicting and responding to adolescent sexual risk behaviors. *Child Dev*. 2009; 80:808–27. [PubMed: 19489905]
8. Han W-J, Miller DP, Waldfogel J. Parental work schedules and adolescent risky behaviors. *Dev Psychol*. 2010; 46:1245–67. [PubMed: 20822236]
9. Donenberg GR, Pao M. Youths and HIV/AIDS: Psychiatry's role in a changing epidemic. *J Am Acad Child Adolesc Psychiatry*. 2005; 44:728–47. [PubMed: 16034275]
10. Dittus PJ, Michael SL, Becasen JS, et al. Parental monitoring and its associations with adolescent sexual risk behavior: A meta-analysis. *Pediatrics*. 2015; 136:e1587–99. [PubMed: 26620067]
11. Bui ER, Goodson P. Predictors of adolescent sexual behavior and intention: A theory-guided systematic review. *J Adolesc Health*. 2007; 40:4–21. [PubMed: 17185201]
12. Markham CM, Lormand D, Gloppen KM, et al. Connectedness as a predictor of sexual and reproductive health outcomes for youth. *J Adolesc Health*. 2010; 46(3 Suppl):S23–41. [PubMed: 20172458]
13. Dishion TJ, Nelson SE, Bullock BM. Premature adolescent autonomy: Parent disengagement and deviant peer process in the amplification of problem behaviour. *J Adolescence*. 2004; 27:515–30.
14. Heatherington L, Lavner JA. Coming to terms with coming out: Review and recommendations for family systems-focused research. *J Fam Psychol*. 2008; 22:329–43. [PubMed: 18540762]
15. Ryan C, Huebner D, Diaz RM, Sanchez J. Family rejection as a predictor of negative health outcomes in white and Latino lesbian, gay, and bisexual young adults. *Pediatrics*. 2009; 123:346–52. [PubMed: 19117902]
16. Saltzberg S. Narrative therapy pathways for re-authoring with parents of adolescents coming-out as lesbian, gay, and bisexual. *Contemp Fam Ther An Int J*. 2007; 29:57–69.
17. Thoma BC, Huebner DM. Parental monitoring, parent-adolescent communication about sex, and sexual risk among young men who have sex with men. *AIDS Behav*. 2014; 18:1604–14. [PubMed: 24549462]
18. Stattin H, Kerr M. Parental monitoring: A reinterpretation. *Child Dev*. 2000; 71:1072–85. [PubMed: 11016567]
19. Kerr M, Stattin H. What parents know, how they know it, and several forms of adolescent adjustment: Further support for a reinterpretation of monitoring. *Dev Psychol*. 2000; 36:366–80. [PubMed: 10830980]
20. Ethier KA, Harper CR, Hoo E, Dittus PJ. The longitudinal impact of perceptions of parental monitoring on adolescent initiation of sexual activity. *J Adolesc Health*. 2016; 59:570–6. [PubMed: 27567066]
21. Bauermeister JA, Pingel E, Zimmerman M, et al. Data quality in HIV/AIDS web-based Surveys: Handling invalid and suspicious data. *Field Methods*. 2012; 24:272–91. [PubMed: 23180978]
22. Arbisi PA, Ben-Porath YS. An MMPI-2 infrequent response scale for use with psychopathological populations: The Infrequency-Psychopathology Scale, F (p). *Psychol Assess*. 1995; 7:424.
23. Palmer DL, Osborn P, King PS, et al. The structure of parental involvement and relations to disease management for youth with type 1 diabetes. *J Pediatr Psychol*. 2011; 36:596–605. [PubMed: 20360016]

24. Goodman E, Adler NE, Kawachi I, et al. Adolescents' perceptions of social status: Development and evaluation of a new indicator. *Pediatrics*. 2001; 108:e31. [PubMed: 11483841]
25. Muthén LK, Muthén BO. *Mplus*. 2012
26. Comrey, AL., Lee, HB. *A first course in factor analysis*. New York, NY: Psychology Press; 2013.
27. Cohen, P., Cohen, J., West, S., Aiken, L. *Applied multiple regression/ correlation analysis for the behavioral sciences*. Mahwah, NJ: Lawrence Erlbaum Associates; 2002.
28. Hilbe, JM. *Negative binomial regression*. New York, NY: Cambridge University Press; 2011.
29. Gardner W, Mulvey EP, Shaw EC. Regression analyses of counts and rates: Poisson, overdispersed Poisson, and negative binomial models. *Psychol Bull*. 1995; 118:392. [PubMed: 7501743]
30. Lionetti F, Keijsers L, Dellagiulia A, Pastore M. Evidence of factorial validity of parentalk, control and solicitation, and adolescent disclosure scales: When the ordered nature of Likert scales matters. *Front Psychol*. 2016; 7:941. [PubMed: 27445909]
31. Frijns T, Finkenauer C, Vermulst AA, Engels RC. Keeping secrets from parents: Longitudinal associations of secrecy in adolescence. *J Youth Adolescence*. 2005; 34:137–48.
32. Ryan C, et al. Family acceptance in adolescence and the health of LGBT young adults. *J Child Adolesc Psychiatr Nurs*. 2010; 23:205–13. [PubMed: 21073595]
33. Finkenauer C, Engels RC, Meeus W. Keeping secrets from parents: Advantages and disadvantages of secrecy in adolescence. *J Youth Adolescence*. 2002; 31:123–36.
34. Worthington RL, Whittaker TA. Scale development research: A content analysis and recommendations for best practices. *Couns Psychol*. 2006; 34:806–38.
35. Hoffman ND, Freeman K, Swann S. Healthcare preferences of lesbian, gay, bisexual, transgender and questioning youth. *J Adolesc Health*. 2009; 45:222–9. [PubMed: 19699417]
36. Widman L, Choukas-Bradley S, Noar SM, et al. Parent-adolescent sexual communication and adolescent safer sex behavior: A meta-analysis. *JAMA Pediatr*. 2016; 170:52–61. [PubMed: 26524189]
37. Prado G, Pantin H, Huang S, et al. Effects of a family intervention in reducing HIV risk behaviors among high-risk Hispanic adolescents: A randomized controlled trial. *Arch Pediatr Adolesc Med*. 2012; 166:127–33. [PubMed: 21969363]

IMPLICATIONS AND CONTRIBUTION

Young men who have sex with men (YMSM) are at extremely high risk for HIV infection via male-to-male sexual contact. Effective parental monitoring could limit YMSM's opportunities for sexual activity, but monitoring is not sufficient to protect against HIV-related sexual risk behaviors among sexually active YMSM.

Table 1

Demographic characteristics of sample

	n	Percent
Race/ethnicity		
White	340	52.6
Black/African-American	90	13.9
Latino/Hispanic	87	13.5
Asian/Pacific Islander	18	2.8
Native American	8	1.2
Mixed	101	15.7
Other race	2	0.3
Sexual orientation		
Gay/homosexual	459	71.1
Bisexual	187	28.9
Living situation ^a		
Live with both parents full time	323	62.7
Single-parent household	83	16.1
Split time between parents	84	16.3
Do not live with parents	25	4.9
Outness to parents		
Out to all parents	345	53.4
Mixed/uncertain outness	182	28.2
Not out to parents	118	18.3

^aLiving situation was assessed near end of survey, resulting in higher proportion of missing data. Percentages reported represent valid percent who responded to item (n = 515).

Table 2

Monitoring items included in analysis, including factor loadings from EFA and composition of each factor

	<u>Promax</u>	<u>Rotated</u>	<u>Factor</u>	<u>Loadings</u>
	1	2	3	4
Parental knowledge and disclosure to parents				
Do your parents know what you do during your free time?	.61	.11	-.05	.09
Do your parents know who you have as friends during your free time?	.64	.01	-.08	.08
Do your parents know what type of homework you have?	.68	-.05	-.03	.01
Do your parents know what you spend your money on?	.71	.05	.03	-.04
Do your parents know how you do in different subjects at school?	.68	-.13	.04	.06
Do your parents know where you go when you are out with friends at night?	.77	.08	.18	-.14
Do your parents know where you go and what you do after school?	.77	.02	.17	-.13
Do you spontaneously tell your parents about your friends (which friends you hang out with and how they think and feel about various things)?	.60	-.07	-.14	.12
How often do you usually want to tell your parents about school (how each subject is going; your relationships with teachers)?	.63	-.07	-.05	.09
Do you tell your parents about what you did and where you went during the evening? Parental control	.58	.17	.06	.14
Must you have your parents' permission before you go out during the weeknights?	.10	-.06	.79	-.01
If you go out on a Saturday evening, must you inform your parents beforehand about who will be there and where you will be going?	.11	-.01	.84	-.02
If you have been out past curfew, do your parents require that you explain why and tell who you were with?	-.04	.03	.70	.07
Do your parents demand that they know where you are in the evenings, who you are going to be with, and what you are going to do?	-.03	.00	.80	.06
Must you ask your parents before you can make plans with friends about what you will do on a Saturday night?	.01	.03	.83	-.01
Parental solicitation				
How often do your parents ask you about what happened during your free time?	.19	-.04	.04	.68
During the past month, how often have your parents initiated a conversation with you about your free time?	.01	.02	.02	.83
How often do your parents have extra time to sit down and listen to you when you talk about what happened during your free time?	.15	.06	-.02	.55
Secret-keeping from parents				
Do you keep secrets from your parents about what you do during your free time?	-.02	-.88	-.01	-.06
Do you hide things from your parents about what you do during nights and weekends?	-.20	-.71	.06	.08

EFA = exploratory factor analysis.

Table 3

Descriptive statistics and intercorrelations among primary study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	16.59	1.21	-	.01	-.04	.04	-.03	-.16 ^{**}	.01	.06	-.31 ^{**}	.22 ^{**}	.25 ^{**}	.02	.08
2. Subjective social status	5.84	1.63		-	-.01 ^{**}	.28 ^{**}	-.02	.24 ^{**}	.25 ^{**}	-.08 [*]	-.05	-.05	.05	-.05	-.06
3. Sexual orientation	.29	.45			-	-.01	.33 ^{**}	-.07	-.07	-.02	.00	-.04	-.11 ^{**}	-.10	-.08
4. Relationship quality	3.43	.83				-	-.17 ^{**}	.53 ^{**}	.43 ^{**}	-.42 ^{**}	.02	-.06	-.05	-.10	-.12 [*]
5. Outness to parents ^a	.65	.77					-	-.18 ^{**}	-.11 ^{**}	-.14 ^{**}	.02	.14 ^{**}	-.11 ^{**}	-.12 [*]	-.12 [*]
6. Knowledge and disclosure	3.18	.91						-	.60 ^{**}	-.44 ^{**}	.36 ^{**}	-.16 ^{**}	-.18 ^{**}	-.10	-.15 ^{**}
7. Solicitation	2.89	1.05							-	-.20 ^{**}	.24 ^{**}	-.01	-.04	-.04	-.08
8. Secret-keeping	3.20	1.16								-	.04	.13 ^{**}	.15 [*]	.05	.09
9. Control	3.29	1.21									-	.19 ^{**}	.19 ^{**}	-.04	-.05
10. Recent sexual activity	.58	.49										-	.86 ^{**}	<i>b</i>	<i>b</i>
11. Number of partners	.81	.82											-	<i>b</i>	<i>b</i>
12. Anal sex instances	20.78	52.22												-	.85 ^{**}
13. CAI instances	12.11	35.26													-

* $p < .05$,

** $p < .01$.

CAI = condomless anal intercourse; M = mean; SD = standard deviation.

^a Outness to parents was reverse coded, such that higher scores indicated parents knew less about sexual orientation.

^b Correlations between risk behaviors and sexual activity items not calculated because risk was only assessed when participants reported sexual activity.

Table 4
Results from regression models predicting sexual behaviors from monitoring constructs and covariates

Predictor	Sexual activity ^a			No. of partners ^a			Anal sex instances ^b			CAI ^b		
	b	SE	p value	b	SE	p value	b	SE	p value	b	SE	p value
Age	.255	.076	.001	.117	.028	<.001	-.106	.109	.331	.315	.111	.004
Subjective social status	-.051	.057	.950	-.013	.021	.537	-.007	.074	.929	-.140	.084	.097
Sexual orientation												
Gay	Ref			Ref			Ref			Ref		
Bisexual	.139	.206	.500	-.048	.075	.523	-.597	.230	.009	-.315	.249	.206
Race/ethnicity												
White	Ref			Ref			Ref			Ref		
Black/African-American	.063	.272	.816	.013	.102	.901	.184	.406	.650	.331	.478	.488
Latino/Hispanic	-.298	.270	.271	-.020	.100	.840	.480	.301	.111	.242	.315	.441
Other	-.261	.228	.253	.026	.085	.760	.078	.253	.759	-.362	.276	.191
Outness to parents												
Out to all parents	Ref			Ref			Ref			Ref		
Mixed/uncertain	-.643	.211	.002	-.299	.078	<.001	-.383	.250	.126	-.770	.309	.013
Not out to parents	-.965	.251	<.001	-.422	.091	<.001	-.964	.329	.003	1.837	.313	<.001
Relationship quality	-.065	.136	.631	.006	.049	.897	-.258	.159	.105	-.304	.184	.099
Knowledge and disclosure	-.318	.139	.022	-.119	.050	.016	-.141	.163	.386	-.184	.188	.326
Solicitation	.307	.115	.008	.059	.042	.163	.114	.137	.405	-.134	.142	.344
Control	-.278	.102	.006	-.077	.037	.039	-.102	.101	.316	.003	.114	.979
Secret-keeping	.254	.104	.015	.106	.038	.005	.004	.098	.964	.120	.117	.306

CAI = condomless anal intercourse; SE = standard error.

^a Analyses conducted on full sample (n = 646).

^b Analyses conducted on subsample reporting sexual activity with male in the past 6 months (n = 367).