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## Relationship cognitions and longitudinal trajectories of sexual risk behavior among young gay and bisexual men: The P18 cohort study

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### Abstract

This study examines how romantic relationship cognitions are associated with changes of condomless anal sex among emerging adult gay and bisexual men. The sample was drawn from 4-waves of a prospective cohort study (N = 598; Mage = 18.2). Results suggest that condomless anal sex increased over the emerging adulthood period. Romantic relationship fear was associated with increased receptive condomless anal sex. Perceptions of greater romantic relationship control increased the likelihood of having insertive and receptive condomless anal sex. Findings suggest that romantic relationship cognitions are important to consider when understanding longitudinal changes in condomless anal sex in this population.

### Keywords

Romantic relationship cognitions; Emerging Adulthood; young gay men

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Emerging adulthood is the developmental period between 18-29 where youth, who are not out of adolescence but not yet adults, gain new social skills and learn how to navigate the adult world (Arnett, 2000). It is a transition period where peer networks change and many emerging adults begin to refine their beliefs surrounding sex and sexuality based on new life experiences (Arnett, 2004). Researchers suggest that during this time of exploration and instability, many emerging adults engage in sexual behaviors that increase their risk of

STI/HIV (Lefkowitz & Gillen, 2005). This is concerning considering that emerging adults have a high prevalence of STIs in the US (Eaton et al., 2008; Weinstock, Berman, & Cates, 2004). Factors associated with this instability may contribute to increased instances of stress, mental health problems and condomless anal sex behavior, which in turn increase these young men's vulnerability to STI/HIV (Halkitis et al., 2012; Newcomb & Mustanski, 2014). A key avenue of exploration has considered how features of romantic relationships may influence condomless (i.e. anal intercourse without a condom) sex behaviors (Bauermeister, 2012; Bauermeister, Ventuneac, Pingel, & Parsons, 2012; Eyre, Arnold, Pererson, & Strong, 2007; Newcomb, Ryan, Garofalo, & Mustanski, 2014). To date, much of the research in this area has been cross-sectional in nature, and thus unable to capture how romantic ideals may influence condomless anal sex behavior among young gay and bisexual men longitudinally, a issue of critical importance as these young men emerge into adulthood. Utilizing longitudinal data the current study explores how changes in romantic relationship cognitions (e.g., perceptions of perceived relationships fear and control) influence condomless anal sex behavior among emerging adult gay and bisexual men.

Among heterosexual emerging adults, researchers have generally found that condomless anal sex behavior increase during adolescences/early emerging adulthood and decline or remain stable during late emerging adulthood (Moilanen, Crockett, Raffaelli, & Jones, 2010). However, few researchers have attempted to understand patterns of change in condomless anal sex behavior during emerging adulthood (Bailey, Haggerty, White, & Catalano, 2011; Lam & Lefkowitz, 2013). These findings may or may not be consistent among populations of emerging adult gay and bisexual men. It may be the case that patterns of condomless anal sex behavior are different due to the vulnerable social and cultural realities that these emerging adults face (Halkitis et al., 2012).

One framework that can help us understand how romantic relationship cognitions influence changes in condomless anal sex among emerging adult gay men is the Integrated Model of Attachment and Sexual Minority Stress (IASMS) model. Implicit in IASMS is the idea that the integrated process of attachment and sexual minority stress structures romantic relationship cognitions. Further, these processes influence romantic relationship formation and functioning among YGBM. The IASMS model provides a theoretical framework for understanding the process by young gay men develop an adult attachment style in the context of sexual minority stress, and describes how this process is associated with health and well-being in adulthood (Cook & Calebs, 2016). The authors posit that the development of a secure adult attachment style (i.e. the ability to develop trusting and loving relationships with peers and romantic partners) or an insecure adult attachment style (i.e. difficulty in developing trusting and loving relationships with peers and romantic partners) is largely determined by sexual minority stress (i.e. the process through which the negative valuation of same-sex sexuality causes excess stress in persons with a same-sex sexual orientation beyond the level of stress that people, in general, experience: Meyer, 2003) among gay men. The authors posit that during the sexual identity developmental process young gay men who have a secure attachment style may begin to experience increased stigma and discrimination based on their burgeoning marginalized sexual identity. These experiences, in turn, are associated with increased rejection sensitivity, internalized homophobia, and poor mental health. Over time these experiences are associated with a transition from a more secure

childhood attachment style to a more insecure adult attachment style. Therefore, during the emerging adulthood period attachment processes are adapting in accordance with the level and type of sexual minority stress experienced, which can in turn shape romantic relationship cognitions. Based on this framework, romantic relationship cognitions concerning relationship fear and control are integral to relationship formation, maintenance, and sexual behaviors. Indeed, negative cognitions around relationship fear and control may arise from an insecure attachment style.

The development and maintenance of romantic relationships during emerging adulthood is important for well-being and adjustment across the life course (Collins, Welsh, & Furman, 2009). During the emerging adulthood period, youth are more likely to explore new ways of interacting with peers and romantic partners, while relying less on social and emotional support from parents (Arnett, 2000; Collins et al., 2009; Coontz, 2006). Indeed, studies conducted with heterosexual emerging adults have found that during this period ideals concerning sex and romantic relationships change to incorporate new life experiences related to being in college or having a job (Halpern & Kaestle, 2014). Among young and emerging adult gay and bisexual men, researchers have found that certain romantic relationship cognitions are associated with condomless anal sex behavior (Flowers & Davis, 2012). For instance, in a longitudinal study, Newcomb et al. (2014) found that young gay, bisexual and other, men who have sex with men were more likely to participate in condomless anal sex behavior if they were in a serious (e.g., committed) relationship than if they were in a non-serious relationship. Further, Newcomb et al. (2014) found that young men who reported desiring to be in a committed relationship were less likely to participate in condomless anal sex behavior, indicating that desiring to be in a committed relationship (versus actually being in a committed relationship) may be protective against sexual risk taking. This finding supports an important, not well understood, link between romantic relationship cognitions and condomless anal sex behavior among sexual minority young men.

Qualitative work has also supported the link between romantic relationship cognitions and sexual risk behaviors. For instance, Diaz and Ayala (1999) found in a sample of Latino gay men that having low control (e.g. the loss of self-determination to negotiate condom usage) in negotiating romantic relationships was associated with high instances of condomless anal sex behavior in a sample of Latino gay men. Further, less control in romantic relationships concerning the ability to find a romantic partner have been shown to be associated with greater risk behavior among young gay men (Bauermeister et al., 2012).

Although these studies provide valuable information concerning potential links between certain romantic relationship cognitions and condomless anal sex behavior, the cross-sectional nature of the majority of these studies limits the ability to understand the developmental aspects of romantic relationship cognitions on sexual behavior among emerging adult gay and bisexual men. Emerging adult gay and bisexual men are in a developmental period in which they continue to refine their ideals concerning romantic relationships. Ideals pertaining to romantic relationships may adapt over time as sexual identity, for instance, becomes more stable. Therefore, it could be that as emerging adult gay and bisexual men develop, they refine their beliefs concerning romantic relationships, and in turn change their patterns of sexual behavior (e.g., to be more or less risky).

It is also important to note that romantic relationship cognitions may be differentially associated with different condomless anal sex acts. For instance, an emerging adult young gay or bisexual man who has more negative romantic relationship cognitions (e.g., feels he has less control in romantic relationships) may be less able to negotiate condom usage (Bauermeister, 2012) and may be more willing to participate in riskier sexual behaviors (i.e., receptive condomless sex vs. insertive condomless sex). This idea is supported by a recently conducted study utilizing a sample of over 24,000 gay and bisexual men in the United States. The authors found that perceptions of loving or being loved by a romantic partner were associated with different sexual positions (Rosenberger, Herbenick, Novak, & Reece, 2014). For example, men who reported being in love with their sex partner were more likely to have receptive anal or oral sex. Thus, romantic relationship cognitions could be associated with differences in sexual practices (including condomless anal sex).

## The Present Study

We specifically examine transitions in condomless anal sex behavior and how romantic relationship cognitions related to having control over how a romantic relationship is going, having control over the dissolution of a romantic relationship and romantic relationship cognitions concerning being afraid of not finding a romantic partner influence condomless anal sex behavior. Researchers have noted that during the emerging adulthood period individuals are starting to rely more on peer and romantic partners for socio-emotional support (Hazan & Shaver, 1994). Therefore, it could be the case that while emerging adult gay and bisexual men are developing closer relationships with romantic partners they are also refining their ideals concerning how much control to have when in a romantic relationship and fears concerning finding a romantic partner. Understanding how romantic relationship cognitions are associated with transitions in condomless anal sex behavior is important for understanding how we can promote healthy romantic relationship cognitions. Guided by the IAMAS, we propose three main research questions: First, how does condomless anal sex change over the emerging adulthood period among gay and bisexual men? Second, how do changes in fearful romantic relationship cognitions influence changes in condomless anal sex among gay and bisexual emerging adults. Third, how are perceptions of having more control over how a romantic relationship is going and the dissolution of a romantic relationship associated with changes condomless anal sex among gay and bisexual emerging adult men.

## Method

### Study Design and Overview

The Project 18 (P18) Cohort study is a prospective study that seeks to examine the production of syndemic conditions, including sexual behaviors, substance use and mental health burdens, in a diverse sample of young gay, bisexual, and other YMSM in the New York City metropolitan area. Complete study details and procedures appear in prior publication (Halkitis et al., 2013). Briefly, active and passive recruitment techniques were used from May 2009 to June 2011 to recruit and screen  $n = 2068$  participants for eligibility; of this sample,  $n = 600$  were eligible for participation. Eligible participants had to be

biologically male, 18–19 years old at the time of baseline, report an HIV-negative or unknown status, and at least one reported sexual encounter with a man in the previous 6 months and report residing in the NY metropolitan area.

At the baseline visit, participants completed an audio computer assisted self-interviewing (ACASI) survey with socio-demographic, mental health, and psychosocial measures. In order to obtain data on substance use behaviors for the 30 days preceding interview, a study staff member administered a Timeline Follow-back (TLFB) measure, which is a calendar-based assessment technique used to elicit detailed concerning sexual behavior (Sobell & Sobell, 1992).

## Measures

**Demographic characteristic**—Race/ethnicity, age, and socioeconomic status were assessed during the baseline assessment period.

**HIV status**—HIV status was confirmed utilizing oral fluids and the OraQuick Advance rapid HIV 1/2 antibody test at baseline.

**Relationship status**—During their assessment periods (i.e., baseline, 12, 24, and 36 months), participants were asked if they had a boyfriend, male partner, or male lover in the previous 3 months. Using this variable, relationship status was measured via a dichotomous variable, 0 = in a relationship, 1 = not in a relationship.

**Condomless anal sex behavior**—Participant sexual behaviors during the 30-days preceding the interview were obtained using the Timeline Follow-back method (Sobell & Sobell, 1992). For the present analysis we created total scores for each of the condomless anal sex variables that indicated how many insertive or receptive condomless anal sex encounters participants had during the previous 30 days.

**Romantic relationship cognitions**—Romantic relationship cognitions were measured using a set of 3 items adapted from Diamond and Lucas (2004). Participants were asked questions about their romantic relationship cognitions during baseline, 12-, 24-, and 36-month assessment periods. Two different measures were used to assess romantic relationship cognitions—relationship fear and relationship control. One item assessed participants' fear of not being in a relationship (e.g., *I'm afraid I'll never have the kind of romantic relationship I want*). Two items measured perceptions of relationship control. One item assessed the participants control over relationship functioning (e.g., *I can pretty much control how my romantic relationships are going*) and one item assessed the participants control over relationship dissolution (e.g., *I can pretty much control how my romantic relationships end*). The inter-item reliability was between .6 and .8 over the 4 waves of data for the relationship control measure. All items were measured on a 5-point Likert scale with greater scores indicating more agreement with the statements.

## Analytic Procedure

A major assumption of the Poisson model is that the variance is equal to the mean. In the current study, this assumption was violated for all of our initial Poisson models because we had excessive zero values in the data (> 65-88% across the 4 waves of data). To account for this overdispersion, we utilized a zero-inflated Poisson (ZIP) growth modeling technique. Within the ZIP growth model estimation procedure we conducted unconditional and conditional ZIP growth models for each condomless anal sex behavior (total, insertive, and receptive condomless anal sex). We first specified fully unconditional mixed models to determine the amount of variation in each condomless sex behavior across the 4 waves of data collection. Next we conducted the conditional growth models for each of the condomless sex behaviors. In these models we sought to understand if relationship fear and relationship control were associated with changes the condomless sex behaviors over the 4 waves of data collection. We used the maximum likelihood procedure, which has been shown to produce efficient estimators in models with missing data (Yung & Zhang, 2011). In all the analyses we controlled for demographic characteristics and HIV status. All analyses were completed in MPLUS v7 (Muthén & Muthén, 2010).

## Results

### Descriptive Statistics

Baseline participant demographic information can be found in Table 1. The average age of participant of the analytic sample at baseline was 18.2 (range 18-19). About 38.3% of the participants reported a race/ethnicity of Hispanic, with 28.9% White non-Hispanic, 14.9% Black non-Hispanic, and 17.9% other. Participants also reported on their perceived familial socioeconomic status with 33.4% reporting lower, 37.1% middle, and 29.4% upper class. Utilizing the Kinsey measure of sexual orientation, 84.0% of participants reported being exclusively or predominantly homosexual, 11.7% equally heterosexual and homosexual, and 4.4% predominately heterosexual.

On average, mean levels of all the condomless anal sex variables increased between baseline and 12-month follow up. However, condomless anal sex behavior decreased slightly during 24-month follow up before rebounding during the 36-month follow up. Further, across the 4 waves of data, scores on the romantic relationship cognitions scales were relatively stable. The mean score on the fear measure across the 4 waves of data was 2.90 (SD = 1.41). The mean score on the relationship control measure across the 4 waves of data was 3.14 (SD = 1.02). None of the control variables were statistically significant in any of the ZIP growth models and thus were dropped from the analyses.

### Insertive Condomless Anal Sex

Table 2 presents the results for the growth models predicting insertive condomless anal sex. Model 1 demonstrates that YGBM's insertive condomless anal sex episodes increased over the emerging adulthood period ( $b = .32, p < .001$ ). We also found that the number of initial insertive condomless anal sex episodes differed significantly across YGBM ( $b = 7.13, p < .001$ ). Further, the covariance was negatively correlated, indicating that decreases in insertive



condomless anal sex occurred at a faster rate for young men who initially had many insertive condomless anal sex episodes ( $b = -1.06, p < .001$ ).

Model 2 demonstrates that the number of initial insertive condomless anal sex episodes differed significantly across YGBM ( $b = 5.71, p < .001$ ) after accounting for relationship status, relationship fear, and relationship control. Further, the covariance was negatively correlated indicating that decreases in insertive condomless anal sex occurred at a faster rate for young men who initially had a greater number of insertive condomless anal sex episodes ( $b = -1.36, p < .05$ ). In comparison to young men who were not in a relationship, men who were in a relationship had a greater numbers of initial insertive condomless anal sex episodes ( $b = 2.33, p < .001$ ), but these episodes decreased over the 36-month period ( $b = -.42, p < .01$ ). Further, on average, in comparison to young men higher on the relationship fear measure, young men lower on the relationship fear measure tended to have a smaller number of initial insertive condomless anal sex episodes ( $b = -.37, p < .05$ ), but these episodes increased over time ( $b = 0.09, p < .05$ ).

### Receptive Condomless Anal Sex

Table 3 presents the results for the growth models predicting receptive condomless anal sex episodes. Model 1 shows that receptive condomless anal sex increases over the emerging adulthood period among YGBM ( $b = .30, p < .001$ ). There was significant variation in initial levels of receptive condomless anal sex at across YGBM ( $b = 8.30, p < .001$ ). The covariance was negatively correlated indicating that decreases in receptive condomless anal sex occurred at a faster rate for young men who initially had a large number of receptive condomless anal sex episodes ( $b = -1.25, p < .001$ ).

Model 2 shows that there was significant variability in initial levels of receptive condomless anal sex ( $b = 6.87, p < .001$ ) after accounting for relationship status, relationship fear, and relationship control. The covariance was negatively correlated indicating that decreases in receptive condomless anal sex occurred at a faster rate for young men who initially had many receptive condomless anal sex episodes ( $b = -1.04, p < .05$ ). In comparison to young men who were not in a relationship, men who were in a relationship had a greater numbers of initial receptive condomless anal sex episodes ( $b = 1.72, p < .01$ ), but these episodes decreased over the 36-month period ( $b = -.25, p < .05$ ). On average, in comparison to young men higher on the relationship fear measure, young men lower on the relationship fears measure tended to have lower initial receptive condomless anal sex episodes ( $b = -.32, p < .05$ ), but these episodes increased over time ( $b = 0.07, p < .05$ ). Further, on average, being more controlling initially was associated with increasing levels of receptive condomless anal sex over the emerging adulthood period ( $b = .04, p < .05$ ).

### Discussion

Overall, our findings suggest that YGBM participate in more sexual risk behaviors as they age. This finding is supported by extant research (Newcomb et al., 2014). Further, these increases in condomless anal sex have been linked to the need to explore sex and sexuality during the emerging adulthood period (Cook, Watkins, Calebs, & Wilson, 2016). Indeed studies have found that as emerging adult gay and bisexual men become more comfortable

with their sexual identity and are more comfortable with exploring different sexual situations, they are able to more fully explore different sexual partnerships (Diamond & Lucas, 2004; Gamarel, Comfort, Wood, Neilands, & Johnson, 2015). Taken together, our findings build on the extant research literature by noting the importance of understanding how condomless anal sex change via specific sexual risk categories during the emerging adulthood period among YGBM.

Emerging adult gay and bisexual men who reported more fear about ever finding a romantic partner were more likely to have receptive condomless anal sex over the 36-month period compared to men who reported less fear. It may be the case that emerging adult gay and bisexual men who are afraid they will not find a romantic partner feel this way because of a myriad of developmental or personality reasons that increase their likelihood to participate in condomless anal sex. For instance, researchers have found that having a more avoidant romantic adult attachment orientation may be associated with increased sexual risk behaviors (Stefanou & McCabe, 2012). Indeed, as described in the IASMS Model, men who reported more fear about finding a romantic partner could endorse a more avoidant attachment orientation, and in turn report more condomless anal sex over time due to their difficulty in forming close romantic bonds with potential male partners. What is less clear is why this finding was not consistent when examining insertive condomless sex. It could be that there was not enough variation in insertive condomless over the 4 waves of data to detect an effect. Future research may want to focus on teasing apart how developmental features, such as attachment, may influence changes, or lack thereof, in how romantic relationship cognitions may inform changes in condomless differences in condomless among emerging adult gay and bisexual men.

Further, YGBM who endorsed perceptions of having more control over how a romantic relationship was going and the dissolution of a romantic relationship were more likely to have receptive and/or insertive condomless anal sex compared to YGBM who endorsed perceptions of having less control. It is plausible that having greater perceptions of control enhances YGBM's ability to negotiate condom usage (or the lack thereof) – he may feel more empowered to manage sexual positioning and if condom's are used or not. This idea is supported by research suggesting that men who have less perceived or actual control in their relationship are more likely to not be able to negotiate condom usage or communicate with their romantic partner concerning condom usage (Adam, Husbands, Murray, & Maxwell, 2005; Bourne, Dodds, Keogh, & Weatherburn, 2015). Therefore, it could be that YGBM who have perceptions of greater relationship control can negotiate more receptive sex. In the future, researchers should focus on identifying the mechanism that explain why relationship ideals associated with control are associated with greater receptive condomless anal sex among emerging adult gay and bisexual men.

Although the study has significant strengths there are limitations to note. First, we collected data from a convenience sample of New York City gay and bisexual emerging adults. Therefore, the results may not be generalizable to emerging adult gay and bisexual men in other settings (e.g., rural). However, in order to be as inclusive as possible we recruited men from a variety of SES and racial/ethnic backgrounds. Second, our measure of relationship control was a 2-item measure and our measure of relationship fear was a 1-item measure.



Using measures with few items can hinder internal validity. However, we are measuring individual thoughts and beliefs at multiple time points, which increases the validity of our measures. Third, although our measurement of relationship control did not suppose that young men were currently in a relationship, the items may have been more salient and easier to answer for young men who were currently in a relationship. Therefore, there could have been differences in responses between young men in a relationship and those not in a relationship. To address this limitation, we conducted an analysis to test if there were statistically significant differences in relationship control between young men currently in a relationship versus those not currently in a relationship. We found that there was not a statistically significant difference. Fourth, 4.4% of participants identified as exclusively heterosexual. Thus, there could be theoretical differences in young men who identify as gay or bisexual versus young men who identify as heterosexual. However, in a follow-up analysis there was not a statistically significant difference in condomless sex between heterosexual and same-sex participants. Fifth, our results relied on quantitative data only. With different types of data, such as qualitative data, we could have provided richer details relate to romantic relationship cognitions and changes in sexual risk behavior over the emerging adulthood period. Lastly, we collected the condomless anal sex behavior information utilizing the TLFB, which is an interviewer-administered assessment and therefore only conducted during on-site interviews. Thus, we were unable to collect data from individuals who moved away or were not able to come back to the office for their follow up visit. This may indicate that the missing data is not missing completely at random, which may bias some of the study findings.

Despite the limitations, our results have several strengths. First, we utilized a large diverse sample of gay and bisexual emerging adults. Second, this study was the first to identify how romantic relationship cognitions influence patterns of condomless anal sex behavior among gay and bisexual men during and extended emerging adult period (i.e., 36 months). Third, our results suggest that it may be important to promote skills and strategies aimed at forming and maintaining positive romantic relationship cognitions during the beginning of emerging adulthood in order to reduce HIV vulnerability among gay and bisexual men long-term.

## References

- Adam BD, Husbands W, Murray J, Maxwell J. 2005; Aids optimism, condom fatigue, or self - esteem? Explaining unsafe sex among gay and bisexual men. *Journal of sex research*. 42:238–248. [PubMed: 19817037]
- Arnett JJ. 2000; Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist*. 55:469–480. [PubMed: 10842426]
- Arnett, JJ. *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press; USA: 2004.
- Bailey JA, Haggerty KP, White HR, Catalano RF. 2011; Associations between changing developmental contexts and risky sexual behavior in the two years following high school. *Archives of Sexual Behavior*. 40:951–960. [PubMed: 20571863]
- Bauermeister JA. 2012; Romantic ideation, partner-seeking, and hiv risk among young gay and bisexual men. *Archives of Sexual Behavior*. 41:431–440. [PubMed: 21394660]
- Bauermeister JA, Ventuneac A, Pingel E, Parsons JT. 2012; Spectrums of love: Examining the relationship between romantic motivations and sexual risk among young gay and bisexual men. *Aids and Behavior*. :1–11. [PubMed: 21476006]

- Bourne A, Dodds C, Keogh P, Weatherburn P. 2015 Non-condom related strategies to reduce the risk of hiv transmission: Perspectives and experiences of gay men with diagnosed hiv. *Journal of health psychology*.
- Collins WA, Welsh DP, Furman W. 2009; Adolescent romantic relationships. *Annual review of psychology*. 60:631–652.
- Cook SH, Calebs B. 2016; The integrated attachment and sexual minority stress model: Understanding the role of adult attachment in the health and well-being of sexual minority men. *Behavioral Medicine*. 42:164–173. [PubMed: 27337620]
- Cook SH, Watkins D, Calebs B, Wilson PA. 2016 Attachment orientation and sexual risk behavior among young black gay and bisexual men. *Psychology & Sexuality*.
- Coontz S. 2006 Romance and sex in adolescence and emerging adulthood.
- Diamond LM, Lucas S. 2004; Sexual - minority and heterosexual youths' peer relationships: Experiences, expectations, and implications for well - being. *Journal of Research on Adolescence*. 14:313–340.
- Diaz RM, Ayala G. 1999; Love, passion and rebellion: Ideologies of hiv risk among latino gay men in the USA. *Culture, Health & Sexuality*. 1:277–293.
- Eaton DK, Kann L, Kinchen S, Shanklin S, Ross J, Hawkins J, Chyen D, et al. 2008; Youth risk behavior surveillance--united states, 2007. *MMWR Surveillance summaries: Morbidity and mortality weekly report Surveillance summaries/CDC*. 57:1–131.
- Eyre S, Arnold E, Pererson E, Strong T. 2007; Romantic relationships and their social context among gay/bisexual male youth in the castro district of san francisco. *Journal of Homosexuality*. 53:1–29.
- Flowers P, Davis MM. 2012; Understanding the biopsychosocial aspects of hiv disclosure amongst hiv-positive gay men in scotland. *Journal of health psychology*. 18:711–724. [PubMed: 22935480]
- Gamarel KE, Comfort M, Wood T, Neilands TB, Johnson MO. 2015 A qualitative analysis of male couples' coping with hiv: Disentangling the "we". *Journal of health psychology*.
- Halkitis PN, Kapadia F, Siconolfi DE, Moeller RW, Figueroa RP, Barton SC, Blachman-Forshay J. 2013; Individual, psychosocial, and social correlates of unprotected anal intercourse in a new generation of young men who have sex with men in new york city. *American Journal of Public Health*. 103:889–895. [PubMed: 23488487]
- Halkitis PN, Moeller RW, Siconolfi DE, Storholm ED, Solomon TM, Bub KL. 2012 Measurement model exploring a syndemic in emerging adult gay and bisexual men. *Aids and Behavior*. :1–12. [PubMed: 21476006]
- Halpern CT, Kaestle CE. 2014 Sexuality in emerging adulthood.
- Hazan C, Shaver RP. 1994; Attachment as an organizational framework for research on close relationships. *Psychological Inquiry*. 5:1–22.
- Lam CB, Lefkowitz ES. 2013; Risky sexual behaviors in emerging adults: Longitudinal changes and within-person variations. *Archives of Sexual Behavior*. 42:523–532. [PubMed: 22576250]
- Lefkowitz, ES, Gillen, MM. Emerging adults in america: Coming of age in the 21st century. In: Arnett, JJ, Tanner, JL, editors. *Coming of age in the twenty-first century: The lives and contexts of emerging adult*. Washington, DC: American Psychological Association; 2005. 235–255.
- Moilanen KL, Crockett LJ, Raffaelli M, Jones BL. 2010; Trajectories of sexual risk from middle adolescence to early adulthood. *Journal of Research on Adolescence*. 20:114–139.
- Muthén, LK, Muthén, BO. *Mplus user's guide: Statistical analysis with latent variables: User's guide*. Los Angeles, CA: Muthén & Muthén; 2010.
- Newcomb ME, Mustanski B. 2014 Developmental change in the relationship between alcohol and drug use before sex and sexual risk behavior in young men who have sex with men. *Aids and Behavior*. :1–10. [PubMed: 23321946]
- Newcomb ME, Ryan DT, Garofalo R, Mustanski B. 2014; The effects of sexual partnership and relationship characteristics on three sexual risk variables in young men who have sex with men. *Archives of Sexual Behavior*. 43:61–72. [PubMed: 24217953]
- Rosenberger JG, Herbenick D, Novak DS, Reece M. 2014; What's love got to do with it? Examinations of emotional perceptions and sexual behaviors among gay and bisexual men in the united states. *Archives of Sexual Behavior*. 43:119–128. [PubMed: 24287965]

- Sobell, LC, Sobell, MB. Measuring alcohol consumption. Springer; 1992. Timeline follow-back; 41–72.
- Stefanou C, McCabe MP. 2012; Adult attachment and sexual functioning: A review of past research. *The journal of sexual medicine*. 9:2499–2507. [PubMed: 22759319]
- Weinstock H, Berman S, Cates W. 2004; Sexually transmitted diseases among american youth: Incidence and prevalence estimates, 2000. *Perspectives on Sexual and Reproductive Health*. 36:6–10. [PubMed: 14982671]
- Yung, Y; Zhang, W. Making use of incomplete observations in the analysis of structural equation models: The calis procedure's full information maximum likelihood method in sas/stata® 9.3. Paper presented at the Proceedings of the SAS® Global Forum 2011 Conference; Cary, NC: SAS Institute Inc; 2011.

**Table 1**

## Sample Characteristics (N = 598)

	<b>m (sd) / % (n)</b>
<b>Age</b>	<b>18.2</b>
Race/ethnicity	
Hispanic	38.3 (229)
White non-Hispanic	28.9 (173)
Black non-Hispanic	14.9 (89)
Other	17.9 (107)
Socioeconomic Status (SES)	
Lower	33.4 (200)
Middle	37.1 (222)
Upper	29.4 (176)
Relationship Status <sup>a</sup>	
Not in a relationship	29.6 (156)
In a relationship	70.5 (372)
Confirmed HIV serostatus	
HIV positive	1.0 (6)
HIV negative	99.0 (592)
Sexual Orientation	
Exclusively/ predominantly homosexual	84.0 (502)
Equally heterosexual and homosexual	11.7 (70)
Predominately heterosexual	4.4 (26)

<sup>a</sup>Baseline only

**Table 2**

Zero-inflated Growth Curve Model Estimates for Insertive Condomless anal sex Among Young Gay and Bisexual Men

	Model 1 (N = 599)		Model 2 (N = 527)	
	Intercept	Slope	Intercept	Slope
<b>Poisson Model</b> (log odds of inflated)				
In a Relationship	-	-	2.33 <sup>***</sup>	-0.42 <sup>**</sup>
Relationship Fear	-	-	-0.05	0.01
Relationship Control	-	-	-0.37 <sup>*</sup>	0.09 <sup>*</sup>
Means	-2.17 <sup>***</sup>	0.32 <sup>***</sup>	-2.49 <sup>**</sup>	0.12
Variance	7.13 <sup>***</sup>	0.25 <sup>***</sup>	5.71 <sup>***</sup>	0.21 <sup>***</sup>
COV		-1.06 <sup>***</sup>		-1.36 <sup>*</sup>
<b>Logit Model</b> (log count from Poisson)				
In a Relationship	-	-	0.44	-0.14
Relationship Fear	-	-	0.21	-0.04
Relationship Control	-	-	-0.07	0.001
Means	-	0.07	-	0.30
Variance	-	-	-	-
<b>Model Fit Statistics</b>				
Number of Free		7		19
AIC		5422.90		4678.95
BIC		5453.67		4760.03
Log-Likelihood		-2704.45		-2320.48

*Note.* Standard errors are calculated by robust estimation. “-” indicates parameters not in the model or fixed to 0. COV = error variance; AIC = Akaike’s Information Criterion; BIC = Bayesian Information Criterion.

\*\*\*  
 $p < .001$ ,

\*\*  
 $p < .01$ ,

\*  
 $p < .05$

**Table 3**

Zero-inflated Growth Curve Model Estimates for Receptive Condomless anal sex Among Young Gay and Bisexual Men

	Model 1 (N = 599)		Model 2 (N = 527)	
	Intercept	Slope	Intercept	Slope
<b>Poisson Model</b> (log odds of inflated zero)				
In a Relationship	-	-	1.72 **	-0.25*
Relationship Fear	-	-	-0.32*	0.07*
Relationship Control	-	-	-0.05	0.04*
Means	-3.06 ***	0.44 ***	-1.45	0.16
Variance	11.42 ***	1.63 ***	6.87 ***	0.23 ***
COV	-1.66 ***		-1.04 ***	
<b>Logit Model</b> (log count from Poisson)				
In a Relationship	-	-	-0.54	0.12
Relationship Fear	-	-	0.04	0.01
Relationship Control	-	-	-0.02	-0.01
Means	-	.02	-	-0.07
Variance	-	-	-	-
<b>Model Fit Statistics</b>				
Number of Free	7		19	
AIC	8047.25		7388.13	
BIC	8078.02		7469.21	
Log-Likelihood	-4016.63		-3575.07	

*Note.* Standard errors are calculated by robust estimation. “-” indicates parameters not in the model or fixed to 0. Standard errors are calculated by robust estimation. COV = error variance; AIC = Akaike’s Information Criterion; BIC = Bayesian Information Criterion.

\*\*\*  
 $p < .001$ ,

\*\*  
 $p < .01$