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I, Lisa M Godfrey, hereby submit this original work as part of the requirements for the degree of Master of Arts in Psychology.

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Sexual Agreements in Young Male Same-Sex Couples: Associations with Relationship Quality and Stability

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Sexual Agreements in Young Male Same-Sex Couples: Associations with Relationship Quality and Stability

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Abstract

In this study, I investigated whether sexual agreements (monogamous, non-monogamous, or no sexual agreement) were associated with relationship quality and stability in a sample of young men who have sex with men (YMSM). A sample of 312 YMSM in same-sex relationships reported on their sexual agreement and indices of relationship quality (satisfaction, trust, and commitment) at baseline, along with their relationship status (still together or broken up) at 6- and 12-month follow-up. One-way ANCOVAs controlling for age indicated no differences by sexual agreement in concurrent trust, but YMSM with monogamous agreements reported higher satisfaction and commitment than YMSM with non-monogamous agreements and those with no sexual agreement. An interval-censored survival analysis revealed no differences in the occurrence of break-up at 6- or 12-month follow-up by sexual agreement. However, post-hoc analyses indicated that this analysis was underpowered, and indirect effect analyses revealed that having a monogamous agreement (vs. a non-monogamous agreement or no agreement) was indirectly associated with higher relationship stability through relationship commitment. These findings demonstrate that YMSM with monogamous agreements may have higher relationship quality at early relationship stages, and that monogamous agreements may be a protective factor against break-up through the mechanism of relationship commitment.

Table of Contents

List of Tables and Figures

Sexual Agreements in Young Male Same-Sex Couples: Associations with Relationship Quality and Stability

The United States has seen rapid increases in social acceptance and legal recognition of same-sex relationships over recent years, allowing growing numbers of same-sex couples more freedom to publicly acknowledge their relationships (Gates & Newport, 2015). Consequently, clinicians are increasingly likely to work with same-sex couples seeking relationship-focused services, such as relationship education or treatment of relationship distress. Unfortunately, existing evidence-based services for couples are largely based on research regarding the risk and protective factors for married, different-sex (i.e., heterosexual) couples (Whitton & Buzzella, 2012). Although many relationship processes targeted in couple interventions, such as communication, intimacy, and commitment, are similar across same-sex and different-sex couples (Kurdek, 2005) and are predictive of relationship quality in same-sex couples (Khaddouma, Norona, & Whitton, 2015), this may not be true for all couple processes.

One notable difference between male same-sex couples and different-sex couples is that male same-sex couples are much more accepting of consensual non-monogamy and are more likely to adopt a non-monogamous sexual agreement (Hoff & Beougher, 2010; Hosking, 2013; LaSala, 2004). Recent studies have found that anywhere between 26% (Whitton, Weitbrecht, & Kuryluk, 2015) and 55% (Hoff, Beougher, Chakravarty, Darbes, & Neilands, 2010) of male same-sex couples agree to be non-monogamous compared to approximately 4% of different-sex couples (Rubin, Moors, Matsick, Ziegler, & Conley, 2014). According to existing theoretical models of romantic relationship functioning, based almost exclusively on different-sex relationships, sexual fidelity is crucial to relationship health (Conley, Moors, Matsick, & Ziegler, 2013; Drigotas, Safstrom, & Gentilia, 1999). Therefore, practitioners working with couples often

stress the importance of remaining monogamous and view sex with any outside partners as a violation that is likely to lead to break-up or severe distress (Allen et al., 2005). However, many male same-sex couples do not endorse the idea that non-monogamy means lower relationship quality, and some even believe that monogamy is an ideal that is ultimately impossible to keep up over the long-term (Worth, Reid, & McMillan, 2002). Currently, therapists working with sexual minorities do not have a strong empirical basis for how to guide male same-sex couples in their decisions about sexual agreements (i.e., to be monogamous or non-monogamous), despite recognition that sexual agreements are important factors to address in clinical practice with male same-sex couples (LaSala, 2004).

In particular, little is known about sexual agreements at the beginning of relationships and how they may impact couple outcomes. Previous studies on male same-sex couples have used samples of adult males in longer relationships with mean relationship length falling somewhere between 6.5 (Hosking, 2013) and 9.5 years (LaSala, 2004). Several qualitative studies have indicated that many relationships start with total monogamy at the outset, with some couples moving away from sexual exclusivity as the relationship continues (Bonello & Cross, 2009; Hosking, 2014). Because we know that many couples renegotiate their sexual agreements over time, the existing cross-sectional data on adult male same-sex couples may not fully represent what is going on at the beginning of relationships. In samples of men who have been in the same relationship for many years, for example, we do not know what their sexual agreement looked like when they first became a couple.

Furthermore, there are speculations that cohort effects exist (Bricker & Horne, 2007; Worth et al., 2002), such that older men may follow relationship scripts consistent with gay culture whereas younger men who grew up with greater societal acceptance of same-sex

relationships may feel less need for secrecy and may be more open to traditional models of relationships. Consequently, there may be reason to believe that there are differences between younger and older men who have sex with men (MSM) related to sexual agreements. Because previous studies on this topic have used older samples, with mean participant age falling between 35.3 (Hosking, 2013) and 43.1 years old (Whitton et al., 2015), little is known about sexual agreements among young men who have sex with men (YMSM) between the ages of 18 to 25, an age range often referred to as 'emerging adulthood.' This developmental period is considered distinct from adolescence and adulthood (Arnett, 2000) because most people in this age range are more independent than they were in adolescence, but are not yet committed to the responsibilities consistent with a more structured "adult" life, perhaps including marriage, parenthood, and a career (Arnett, 2007). Emerging adulthood is an important developmental period to examine, as this is when many long-term relationships begin and when individuals develop relationship competencies that they will use throughout their lives (Young, Furman, & Laursen, 2011).

The overall purpose of this study is to investigate whether sexual agreements are associated with relationship quality and stability in a sample of YMSM, rather than older MSM, allowing for a better understanding of how sexual agreements may impact relationship outcomes in emerging adulthood. If results show no association between non-monogamy and poorer relationship outcomes (i.e., low quality or break-up), this will indicate that existing theoretical models about romantic relationships, which view monogamy as a crucial element in long-term couple health, may not apply to this population. Rather, it may be appropriate to develop theoretical models of relationship functioning specific to YMSM indicating that non-monogamy at early stages of the relationship is a viable alternative to monogamy. In contrast, if results show

that non-monogamous couples on average have poorer relationship quality and are more likely to break up than monogamous couples, the proposed research will indicate that it may be important for YMSM to learn about the particular risks that may be associated with non-monogamy. In either case, these findings will be significant because they will provide empirical data to inform clinicians in the advice they give to YMSM about the potential benefits and risks of non-monogamy, rather than relying on research that may only be relevant to different-sex couples, or older MSM, to guide their practice.

Understanding Sexual Agreements in Male Same-Sex Couples

Extradyadic sexual activity is often normalized and considered acceptable in committed male same-sex relationships (LaSala, 2005). Many male same-sex couples create sexual agreements to clarify their expectations about sexual exclusivity (Whitton et al., 2015), though not all couples discuss their expectations and some may not have an explicit sexual agreement. One of the most common types of sexual agreement is monogamy, referring to a committed, exclusive sexual relationship with no outside partners. In monogamous relationships, it is expected that partners refrain from engaging in any sort of romantic or sexual action with other people in order to remain faithful to each other. Non-monogamy is another common sexual agreement. It is important to note that consensual non-monogamy refers to being *sexually* non-monogamous, versus emotionally non-monogamous, meaning that it is acceptable for partners to have sex with others outside of the relationship as long as the emotional bond with the primary partner is protected (Bonello & Cross, 2009). According to the literature, there are two types of typical non-monogamous arrangements among male same-sex couples. The first, often called a *monogamish* arrangement, includes rules about what is allowed and not allowed as part of sexual activity with other men (Grov & Parsons, 2012). Some examples of rules are that the sexual

activity cannot occur at the couple's home or that they cannot see the same sexual partner more than once. In the second typical arrangement, often called an *open* arrangement, partners agree to have sex with others outside of the relationship without any rules or restrictions.

Sexual agreements are often consistent with couples' attitudes towards monogamy. Many male same-sex couples who endorse monogamy believe that it enhances relationships because it builds intimacy and strengthens bonds between partners. Those who hold monogamy-enhancing attitudes are more likely to be satisfied with monogamous or monogamish agreements rather than open agreements (Hosking, 2014). Monogamy-enhancing attitudes are consistent with the current heteronormative view that extradyadic sex is a relationship transgression, perhaps leading to distress or break-up. The opposing view is that monogamy is a sacrifice because it inhibits natural sexual drives and forces the suppression of one's needs for sexual diversity (Schmookler & Bursik, 2007). Sexually non-monogamous male same-sex couples often report that extradyadic sex is solely recreational and is beneficial because it adds variety to their sex lives without hindering emotional commitment to their partner (LaSala, 2004). Those who hold monogamy-sacrifice attitudes are more likely to be satisfied with open agreements (Hosking, 2014). Many male same-sex couples hold monogamy-sacrifice attitudes, which could explain why consensual non-monogamy is often normalized and considered acceptable, and can perhaps explain why some men can engage in extradyadic sex and still have a healthy relationship.

The existing literature on sexual agreements in adult male same-sex couples suggests that, overall, non-monogamous relationships are highly similar to monogamous relationships on many indices of relationship quality (Bricker & Horne, 2007). For instance, there are no differences in frequency of sex with the primary partner, suggesting that non-monogamous partners can successfully engage in sex outside of the relationship without reducing the

frequency of sexual contact with their primary partner (Bricker & Horne, 2007). Whitton et al. (2015) found no differences in hostile conflict, confidence in the relationship, or perceived relationship instability by sexual agreement type and Hosking (2013) found that non-monogamous relationships are no less intimate than monogamous relationships. In addition, there seems to be no difference in psychological adjustment between individuals in monogamous and non-monogamous relationships (Kurdek & Schmitt, 1986; LaSala, 2004; Whitton et al., 2015). Again, these studies were conducted on samples of older MSM (between the ages of 35.3 and 43.1; Hosking, 2013; Whitton et al., 2015) that were in longer relationships (between 6.5 and 9.5 years long; Hosking, 2013; LaSala, 2004).

Relationship satisfaction, perhaps the most widely studied relationship quality construct, captures individuals' subjective global evaluations of their relationship (Graham, Diebels, & Barnow, 2011). Several quantitative studies have found that there are essentially no differences in satisfaction between monogamous and non-monogamous male same-sex couples (Bricker & Horne, 2007; Hoff et al., 2010; Hosking, 2013; LaSala, 2004; Whitton et al., 2015). These findings suggest that consensual extradyadic sex does not indicate dwindling satisfaction with the relationship, but rather that it is possible for male same-sex couples to maintain their emotional bond while getting sexual variety from outside partners (Hosking, 2013).

Although monogamous and non-monogamous male same-sex couples are similar across many relationship quality constructs, there are hints that non-monogamous male same-sex couples could be at greater risk of relationship instability. In particular, studies have found that some relationship quality constructs conceptualized to be risk factors for instability differ by sexual agreement type. Relationship commitment, defined as the desire and intention to maintain a specific relationship for the long-term (Stanley & Markman, 1992), is a powerful and proximal

predictor of relationship stability, even more so than is satisfaction (Le, Dove, Agnew, Korn, & Mutso, 2010). Studies examining the association between sexual agreements and commitment have yielded conflicting findings; some have found that individuals in monogamous relationships report higher commitment to their partners than those with non-monogamous agreements (Hoff et al., 2010; Whitton et al., 2015), while others have found no differences in commitment between men in monogamous and open relationships (Blasband & Peplau, 1985; Hosking, 2014). There also appears to be a difference in trust, which in this context refers to putting confidence into a loved one and feeling safe in the relationship (Worth et al., 2002). Hoff et al. (2010) found that men in monogamous relationships reported higher levels of trust than those in open relationships. Lower trust and commitment among men in non-monogamous relationships could be indications that these relationships will ultimately be at greater risk of breaking up compared to monogamous relationships, despite no differences in current relationship satisfaction.

Little is known about male same-sex couples who have never clearly defined their sexual agreement, as they are usually excluded from analyses. However, qualitative interviews with male same-sex couples who report no sexual agreement suggest that not having an explicit agreement presents the potential for miscommunication and distrust (Hoff & Beougher, 2010). It seems reasonable that clear communication about rules and sexual agreements could help prevent misunderstandings and discrepancies in sexual behavior between partners. Unfortunately, clear communication between partners at the beginning of a relationship is not the norm among emerging adults. Relationship ambiguity is quite typical among emerging adults (Vennum & Fincham, 2011), who often report being confused and uncertain about the state of their relationships, not knowing what their partner thinks about the relationship or discussing

their relationship status with their partner (Banker, Kaestle, & Allen, 2010). For these reasons, it may be common for YMSM to endorse having no sexual agreement. Further, given that the absence of clear communication and active decision-making in newer relationships has been associated with lower relationship quality (Vennum & Fincham, 2011), it is possible that lacking a sexual agreement could be associated with negative couple outcomes. Despite how common such relationship ambiguity is among emerging adults, we do not yet know how a lack of sexual agreement is associated with relationship quality and stability. To explore these issues, a comparison of YMSM with no sexual agreement to those with various types of sexual agreements is needed.

The Current Study

The overall purpose of this study is to evaluate whether sexual agreement type is associated with relationship quality and stability in young male same-sex couples. This study will be the first to investigate these associations in a sample of YMSM, rather than adult male same-sex couples, allowing for a richer understanding of relationship functioning during emerging adulthood. The first aim of this study is to investigate cross-sectional associations between sexual agreements and relationship quality. It is hypothesized that, consistent with previous studies on older MSM, satisfaction will not differ by sexual agreement type, while trust and commitment will be higher among participants with monogamous agreements compared to those with non-monogamous agreements or no agreement.

The second aim of this study is to determine if sexual agreements predict relationship stability (e.g., whether participants are still in a relationship with the original partner at later timepoints), providing greater confidence in potential causal conclusions about the impact of sexual agreements on couple outcomes. One limitation of the current literature on sexual

agreements is that all of the studies have been cross-sectional; thus, we can only speculate that sexual agreements are associated with relationship stability. It is hypothesized that YMSM with monogamous agreements will have greater relationship stability (i.e., more likely to be with the original partner at later timepoints) than YMSM with non-monogamous agreements or no agreement.[1]

Method

Participants

All participants were enrolled in RADAR, a longitudinal cohort study that aims to understand romantic and sexual patterns, STIs/HIV infection, and drug/alcohol use over time among YMSM. Inclusion criteria included being aged 16 to 29, born male, fluent in English, and identification as gay or bisexual or having had a sexual encounter with a man in the previous year. Participants were recruited in the following ways: involvement in an earlier study of YMSM and/or LGBTQ youth (Mustanski, Garofalo, & Emerson, 2010; Mustanski, Johnson, Garofalo, Ryan, & Birkett, 2013), through a partner (i.e., being in a current serious relationship with an existing RADAR cohort member), peer recruitment by an existing RADAR cohort

[1] A third aim of this study was to examine the association between sexual agreements and change in relationship quality over time among YMSM who were still in a relationship with their original partner at later timepoints. However, a preliminary analysis using multilevel modeling in Mplus simply looking at change in relationship quality over time (without including sexual agreement as a predictor) revealed that the average slope of time predicting relationship quality was not significant ($b < .01$, SE $< .01$, $p = .61$), meaning that there was no average linear change over time in the sample. Furthermore, very little variance in the slope of relationship quality over time ($b < .01$, SE $< .01$, $p < .01$) indicated that participants did not differ much from each other in their linear slopes of time. Taken together, these results suggested that there was hardly any within-person variability in relationship quality over time. Thus, it was not possible to examine the association between sexual agreement and change in relationship quality, so this study aim was not pursued. The remainder of this document focuses on the method, results, and discussion relevant to the other two study aims.

member, and online or venue-based recruitment. 1085 participants completed the baseline assessment.

For this study, a subsample of the RADAR cohort was selected, including 467 participants who were in a relationship with a serious romantic partner at the baseline assessment. Because individuals may have different interpretations of serious relationships, the term "serious" was not defined and participants judged if their own relationship was serious. To retain independence of data, 89 participants were excluded because their partner had already completed the survey. In addition, 66 participants under the age of 18 or over the age of 25 were excluded given the study's focus on relationships during emerging adulthood. The final subsample consisted of 312 participants (91.3% male, 6.7% transgender, 1.9% other) with a mean age of 20.9 (*SD* = 2.24). The subsample was ethnically diverse: Black (34.3%), Hispanic/Latino (30.4%), White (26.6%), multiracial (5.4%), Asian (1.9%), and other (1.2%). Participants self-identified as gay (70.5%), bisexual (21.5%), queer (2.6%), or other (5.4%). At the baseline assessment, participants' median relationship length with their partner was 8 months (*SD* = 16.8), and 62.6% of participants were in a relationship less than one year long.

Procedure

Participants were asked to complete an initial baseline assessment with subsequent visits occurring every 6 months. The majority of the visits were conducted at a local LGBTQ community center, although some were conducted at Northwestern University. At each visit, participants completed an interview and a self-report psychosocial survey, and provided a biomedical specimen for HIV, STI, and/or drug screening. The current analyses primarily use data from the self-report surveys. Participants were compensated $50 at each visit for their time. Data collection began in February 2015 and is ongoing. The data used in this study come from

the first three visits; as of September 2017, 274 participants out of the sample of 312 (87.8%) completed the second visit and 217 participants out of 312 (70.0%) completed the third visit.

Measures

Demographic and relationship information. Participants self-reported individual demographic characteristics at baseline including age, race/ethnicity, gender identity, and sexual orientation. Participants provided a self-report of the length of their relationship in months.

Sexual agreement. Participants were asked to select one of the following options to describe their sexual agreement with their partner at baseline: *We cannot have any sex with an outside partner* (coded as monogamous), *we can have sex with outside partners but with some restrictions* (coded as monogamish), *we can have sex with outside partners without any restrictions* (coded as open), and *we do not have an agreement* (coded as no agreement).

Satisfaction. Relationship satisfaction was measured at baseline with a single item taken from the 7-item Relationship Assessment Scale (RAS; Hendrick, 1988), which has demonstrated reliability (α = .86) and high convergent validity (r = .80) with Spanier's (1976) Dyadic Adjustment Scale (Hendrick, 1988). Participants were asked '*How satisfied are you with your current relationship?'* This item had the highest item-total correlation among all of the items on the RAS (r = .76) and had an item-total correlation of r = .75 in another study measuring relationship satisfaction in a sample of YMSM (Mustanski, Johnson, Garofalo, Ryan, & Birkett, 2013). These correlations were deemed high enough to justify administering this single item instead of the entire measure. Participants rated their relationship satisfaction on a 5-point scale (1 = *not at all* and 5 = *very much*).

Trust. Trust was measured at baseline with a single item from the Trust subscale of the Perceived Relationship Quality Components Inventory (PRQC; Fletcher, Simpson, & Thomas,

2000), a 3-item subscale with demonstrated reliability (α = .74 to .78) and construct validity. Participants were asked '*How much do you trust your partner?'* Factor loadings for this item ranged from .64 to .80 (Fletcher et al., 2000); item-total correlations were not reported for this measure. Participants rated trust on a 5-point scale (1 = *not at all* and 5 = *very much*).

Commitment. Relationship commitment was measured at baseline with a single item adapted from the 8-item Commitment subscale of Rusbult's (1983) Investment Model, which has demonstrated reliability (α = .91 to .95) and convergent validity (r = .69) with Spanier's (1976) Dyadic Adjustment Scale (Rusbult, Martz, & Agnew, 1998). Participants were asked *'How committed are you to your relationship with your partner?'* The original item had item-total correlations ranging from r = .84 to .92 (Rusbult et al., 1998). Participants rated their commitment on a 5-point scale (1 = *not at all* and 5 = *very much*).

Relationship stability (vs. break-up). Relationship stability was measured at each timepoint by asking participants whether they were still in a relationship with the same partner from the previous timepoint. The name of the partner was always recorded to ensure that the participant was reporting on the same partner. This variable was coded as 0 = still in a relationship with the original partner and 1 = broken up.

Results

Preliminary Analyses

Descriptive analyses indicated that 69.2% of the participants reported monogamous agreements at baseline (N = 216), 12.5% reported monogamish agreements (N = 39), 2.6% reported open agreements (N = 8), and 15.7% reported having no sexual agreement (N = 49). Because only 8 participants reported having an open agreement, potentially limiting power to detect significant differences, differences were assessed between open and monogamish men on

the dependent variables to determine if it was appropriate to collapse these two sexual agreement types into a single 'non-monogamous' category. T-tests indicated that there were no significant differences between men with open and monogamish agreements in satisfaction (p = .52), trust (p = .29), or commitment (p = .17) and chi-square analyses indicated that there were no differences in relationship stability at times 2 (p = .41) and 3 (p = .29). Thus, it was appropriate to collapse the open and monogamish groups into a 'non-monogamous' category and run the primary analyses with sexual agreement as a 3-level factor (monogamous vs. non-monogamous vs. no agreement).

To determine whether there was a need to control for demographic variables, differences on these variables by sexual agreement type were assessed. Relationship length was also assessed given previous evidence that higher rates of non-monogamy are more common in longer relationships (Bricker & Horne, 2007; Hosking, 2013). ANOVAs were run for continuous variables and chi-square analyses for categorical variables. Relationship length, race/ethnicity, gender identity, and sexual orientation did not differ by sexual agreement (all ps > .10). There were, however, differences by sexual agreement in age, $F(2, 309) = 3.24$, p = .04; participants reporting no sexual agreement were significantly older (M = 21.63, SD = 2.40) than participants with monogamous (M = 20.78, SD = 2.18) and non-monogamous agreements (M = 20.66, SD = 2.24). Based on these findings, age was included as a covariate in the primary analyses.

Primary Analyses

A zero-order correlation table depicting associations among study variables is included in Table 1. One-way ANCOVAs controlling for age were used to test for cross-sectional differences in relationship quality (trust, satisfaction, and commitment) by sexual agreement at baseline. Table 2 displays the means for each sexual agreement group. Contrary to what was

hypothesized, there were no differences in trust between the sexual agreement types, $F(2, 308) = .32$, $p = .72$ ($d = .11$; no effect). In contrast, satisfaction differed by sexual agreement, $F(2, 308) = 3.04$, $p = .05$. Pairwise comparisons using Fisher's LSD demonstrated that men with monogamous agreements were significantly more satisfied than men with no agreement ($d = .32$; small effect) and marginally more satisfied than men with non-monogamous agreements ($d = .29$; small effect). As hypothesized, there were also differences in commitment by sexual agreement type, $F(2, 308) = 8.22$, $p < .01$. Men with monogamous agreements reported significantly higher commitment than both men with non-monogamous agreements ($d = .48$; medium effect) and no agreement ($d = .45$; medium effect).

To determine if sexual agreement was associated with relationship stability (whether or not the participant was still in a relationship with the original partner at times 2 and 3), simple chi-square analyses were run first. Results showed no differences in relationship stability across sexual agreement types at time 2, $\chi^2(2, N = 274) = .79$, $p = .67$, and time 3, $\chi^2(2, N = 217) = .24$, $p = .89$ (see Table 3). Cohen's w effect sizes were calculated by comparing the proportions between expected and observed cell counts at times 2 and 3; small effect sizes are set at $w = .1$, medium at $w = .3$, and large at $w = .5$ (Cohen, 1988). Calculated effect sizes indicated no effect at time 2 ($w = .05$) or at time 3 ($w = .03$).

Next, an interval-censored survival analysis was run to include both timepoints in the same model and to determine if there were differences when controlling for covariates. Survival analysis is a way to analyze the expected duration of time until an event occurs. An interval-censored survival analysis is used when the exact time of the event is not known, but is known to have occurred during a particular interval of time. In this analysis, the event of interest was break-up and the predictor was sexual agreement. Information was therefore obtained on whether

or not break-up occurred in the interval from 0 to 6 months or in the interval from 6 to 12 months, and if sexual agreement at baseline was associated with any differences in break-up. Age was included as a covariate in this analysis, along with satisfaction and commitment because they were found to differ across groups in the cross-sectional analyses. Due to attrition, not all participants had break-up data at times 2 and 3. The participants who did not complete either visit 2 or 3 were excluded from the following analysis, yielding an N of 246. The interval-censored survival analysis showed no differences in break-up between the sexual agreement types controlling for age, satisfaction, and commitment, $\chi^2(2, N = 246) = .14$, $p = .93$, revealing that no relationships were more stable than the others over a one year period.

Additional Analyses

Following the primary analyses, post-hoc indirect effects analyses were run to better understand why sexual agreement was associated with satisfaction and commitment, but not relationship stability, even though satisfaction and commitment were both significantly correlated with relationship stability (see Table 1). Indirect effects can exist even in the absence of a direct or total effect between the predictor and the outcome variables (Hayes, 2009; Rucker, Preacher, Tormala, & Petty, 2011). Thus, even though there was no evidence that sexual agreement type was associated with relationship stability, it was possible that these two variables were indirectly associated through a mechanism such as satisfaction and/or commitment. Two indirect effect analyses were conducted in Mplus using a bootstrap estimation approach with 5000 resamples. In indirect effects analyses, categorical variables with more than two levels must be dummy coded (i.e., a reference group is selected and each other group is compared to the reference group). Because sexual agreement has three levels, there is no single path that represents the predictor's effect on the mediator or the outcome variable. Instead, there are two

paths from sexual agreement to the mediator (represented by *a1* and *a2*) and two paths from sexual agreement to the outcome variable (represented by *c'1* and *c'2*; Hayes & Preacher, 2014). Monogamous agreements were coded as the reference group in this analysis, so the two *a* paths represent differences in the mediator between individuals with monogamous agreements and those with 1) non-monogamous agreements and 2) no agreement. Similarly, the two *c'* paths represent differences in the outcome variable between individuals with monogamous agreements and those with 1) non-monogamous agreements and 2) no agreement. The effect of the mediator on the outcome variable, controlling for sexual agreement, is represented by *b*.

Two analyses were conducted examining the indirect effects of sexual agreement on relationship stability through: 1) satisfaction and 2) commitment. Results from the model of the indirect effect through satisfaction (see Figure 1) showed that the *a* paths were only marginally significant; monogamous agreements predicted marginally higher satisfaction than non-monogamous agreements and no agreement. The *b* path showed that satisfaction was a predictor of relationship stability, with higher satisfaction predicting greater relationship stability. The relative indirect effects were not significant, suggesting that sexual agreement type does not indirectly impact relationship stability via satisfaction. Effect sizes of the relative indirect effects were calculated by multiplying the effect size of the *a* path (Cohen's *d*) by the effect size of the *b* path (partial correlation; Preacher & Kelley, 2011). According to Shrout and Bolger (2002), Cohen's (1988) guidelines can be used for indirect effects, with small effect sizes set at $dr = .1$, medium at $dr = .3$, and large at $dr = .5$. Calculated effect sizes indicated essentially no effect through satisfaction when comparing those with monogamous agreements to those with non-monogamous agreements ($dr = .06$) and no sexual agreement ($dr = .06$). Consistent with the results from the chi-square analyses and the interval-censored survival analysis, there was no

association between sexual agreement and relationship stability; that is, the relative direct effects of sexual agreement on relationship stability were not significant when comparing individuals with monogamous agreements to those with non-monogamous agreements and to those with no agreement.

Results from the model of the indirect effect through commitment (see Figure 2) showed that the *a* paths were significant. Specifically, sexual agreement predicted commitment, with monogamous agreements predicting higher commitment than non-monogamous agreements and no agreement. The *b* path showed that commitment predicted relationship stability, with higher commitment predicting greater relationship stability. Further, the relative indirect effects were significant, suggesting that there is an indirect association between sexual agreement and relationship stability through commitment. Calculated effect sizes indicated that having a monogamous agreement predicted greater relationship stability via commitment compared to having a non-monogamous agreement (*dr* = .10; small effect) or having no sexual agreement (*dr* = .09; small effect). Not surprisingly, the relative direct effects of sexual agreement on relationship stability were not significant when comparing individuals with monogamous agreements to those with non-monogamous agreements and to those with no agreement.

The pattern of findings, which demonstrated a significant indirect effect via commitment in the absence of a total effect, suggested that the total effect may have been underpowered (Rucker et al., 2011). To determine if there was sufficient power to detect the relationship between sexual agreement and relationship stability in this sample, post-hoc logistic regression power analyses were conducted using G*Power. Results showed that power to detect a small effect (OR = 1.50) was very low (.30 at time 2 and .23 at time 3), which may explain why there

was no total effect of sexual agreement on relationship stability while the indirect effect through commitment was significant.

Discussion

Overall, these findings demonstrate that sexual agreements are associated with some, but not all, indices of relationship quality among YMSM, and may be indirectly associated with relationship stability through relationship commitment. Cross-sectionally, YMSM with monogamous agreements reported higher satisfaction and commitment than YMSM with non-monogamous agreements or no sexual agreement, although similar levels of trust were found among YMSM with all types of sexual agreements. This pattern of results is quite different from findings based on samples of adult male same-sex couples, which suggest that there are no differences in satisfaction by sexual agreement type (i.e., Bricker & Horne, 2007; Hoff et al., 2010; Hosking, 2013; LaSala, 2004; Whitton et al., 2015), but that trust and commitment may be lower in relationships with non-monogamous agreements (Hoff et al., 2010; Whitton et al., 2015). The different findings may be due to differences between samples; in previous studies, participants were older (falling within a range of 35.3 to 43.1 years old; Hosking, 2013; Whitton et al., 2015) and in longer relationships (falling within a range of 6.5 to 9.5 years; Hosking, 2013; LaSala, 2004) than the YMSM in the current study (mean age of 20.9 and median relationship length of 8 months).

It is possible, then, that sexual agreements have different associations with relationship quality in newer male same-sex relationships than they do in male same-sex relationships that are more established. Perhaps, in early relationship stages only, failing to have a sexual agreement or having a non-monogamous agreement may engender dissatisfaction or interfere with the development of commitment before the couple has built a solid foundation. That is, the reason

that monogamy was associated with satisfaction in the present sample but not in previous samples of longer-term male same-sex couples (Bricker & Horne, 2007; Hoff et al., 2010; Hosking, 2013; LaSala, 2004; Whitton et al., 2015) may be that non-monogamy only becomes a healthy alternative to monogamy later, once a strong foundation has been built in the relationship. An alternative explanation for the differences in relationship quality by sexual agreement type found in this study could be that the YMSM who feel less satisfied and committed in their relationships are less likely to make monogamous agreements than YMSM who are highly satisfied and committed in the first place. This would be consistent with the heteronormative idea that people only have extradyadic sex if they are dissatisfied in their relationship with their primary partner (Conley, Ziegler, Moors, Matsick, & Valentine, 2013). Unfortunately, because of the cross-sectional nature of these findings, it is impossible to know whether sexual agreements influence YMSM's relationship quality or if relationship quality influences the particular sexual agreement YMSM adopt at early stages of relationships.

The pattern of results observed for the three indices of relationship quality among YMSM was quite different from what was anticipated. Based in theory that trust and commitment often go hand in hand, with higher levels of trust contributing to higher levels of commitment (Larzelere & Huston, 1980; Wieselquist, Rusbult, Foster, & Agnew, 1999), trust and commitment were originally conceptualized as constructs more similar to each other than to satisfaction. Consequently, I expected no differences by sexual agreement type in satisfaction but higher rates of trust and commitment among YMSM with monogamous agreements versus other types of agreements. The results, however, suggested instead that satisfaction and commitment – but not trust – showed similar associations with sexual agreements among YMSM. Examination

of the intercorrelations between variables also revealed a stronger zero-order correlation between commitment and satisfaction (r = .52) than between commitment and trust (r = .36; see Table 1).

These unexpected findings could have been due to the way the relationship quality items were framed. The trust item specifically asked participants to think about how much they trust *their partner*, while the satisfaction and commitment items asked participants to think about how satisfied/committed they are to *their relationship*. It could be that asking a person how much they trust their partner (as was done in this study) makes them think about their partner's traits such as dependability and predictability (Rempel, Holmes, & Zanna, 1985), while asking them how much they trust their relationship requires them to draw on evidence of their partner's commitment, as well as their own commitment, to the relationship (Stanley, Rhoades, & Whitton, 2010). If the trust item had been worded more consistently with the satisfaction and commitment items, asking participants to think about how much they trust their relationship rather than their partner, participants' trust scores may have been more strongly correlated with their commitment scores. In addition, differences in trust (of the relationship) by sexual agreement type may have emerged. Instead, the cross-sectional findings from this study suggest that sexual agreements are associated with how satisfied and committed YMSM are to their *relationships*, but that sexual agreements do not impact how much YMSM trust their *partners*. Perhaps there are no differences in trust (of the partner) by sexual agreement type because the particular sexual agreement that is established does not matter; what is important is that the person trusts their partner to not violate the sexual agreement, whether it is monogamous, monogamish, or open.

Unfortunately, the small number of YMSM who endorsed having an open agreement in this sample (N = 8) prevented potential differences from being detected between YMSM with

open and monogamish agreements. In the current study, no differences in relationship quality or stability were observed between the two groups, but confidence in these null findings is limited due to small group sizes. Past studies have revealed that there may be differences in relationship quality between men with monogamish and open agreements, but it has been difficult to ascertain given that these studies have defined monogamish agreements differently. Studies that have defined monogamish agreements more precisely as a threesome-only option (i.e., '*we can have sex with casual partners, but only when the other member of the relationship is present*') have had higher endorsement of open agreements (27.0% in Hosking, 2013; 13.0% in Parsons, Starks, Gamarel, & Grov, 2012). These studies have shown that men with monogamish agreements reported higher passion (Hosking, 2013; Hosking, 2014), commitment (Hosking, 2014), and sexual satisfaction (Hosking, 2014; Parsons et al., 2012) than men with open agreements. In the current study, a broader definition of monogamish agreements was used ('*we can have sex with outside partners but with some restrictions*'), which may have led more participants to select this option and therefore contributed to the low number of YMSM classifying their sexual agreement as open. Using a similar definition, Whitton et al. (2015) also had a small number of men reporting open agreements. They found that men with monogamish agreements reported higher relationship satisfaction and commitment than men with open agreements, although these differences were not statistically significant (perhaps due to small group sizes). Given that male same-sex couples report a wide variety of rules for acceptable extradyadic sexual behavior (Hosking, 2013), though, it seems important to capture all of these rules and to not limit monogamish agreements to a 'threesome-only' option. Future studies should recruit sufficiently large samples to ensure that men with open agreements are

represented, making it possible to examine relationship quality and stability separately for men with open and monogamish agreements.

Results of the planned longitudinal analyses suggested that sexual agreement type did not impact relationship stability among YMSM, as there were no differences in break-up rates by sexual agreement type at the 6- and 12-month follow-up visits. However, post-hoc power analyses indicated that power was not sufficient to detect the total effect of sexual agreement on relationship stability. Further, additional post-hoc analyses indicated that sexual agreement was associated with relationship stability, but only indirectly through the mechanism of commitment. Despite the lack of a total effect on stability, monogamous sexual agreements do appear to be indirectly associated with higher stability through higher levels of relationship commitment in YMSM. This is consistent with past research on dating couples that has found commitment to be a powerful and robust predictor of relationship stability (Le et al., 2010; Rhoades, Stanley, & Markman, 2010). Commitment, by definition, is the intention to persist in a relationship for the long-term and a desire for relationship stability (Stanley & Markman, 1992), making it much more likely that a relationship will end if one does not have this intention and desire. Having a monogamous agreement is associated with higher relationship commitment among YMSM, which in turn may make monogamous relationships more stable over time.

Taken together, these findings suggest that sexual agreements may be an important predictor of relationship quality and stability among YMSM, with those who have monogamous agreements being more satisfied and committed than those with non-monogamous agreements and no agreement. Further, findings provided preliminary evidence that relationships with monogamous agreements may be more stable than those with other agreement types through the mechanism of relationship commitment. A commonly held view among older MSM is that

extradyadic sex is beneficial to the relationship because it adds variety to their sex lives without hindering emotional commitment to their partner (LaSala, 2004). However, the findings from this study are more in line with existing (admittedly heteronormative) models of relationship functioning, which emphasize the importance of remaining monogamous and associate extradyadic sex with lower relationship quality or break-up (Allen et al., 2005).

Cohort differences among MSM (Bricker & Horne, 2007; Worth et al., 2002) may explain why the present findings differ from studies of older MSM that have generally found little evidence of negative relationship effects associated with non-monogamous agreements. Younger MSM have grown up with greater societal acceptance of same-sex relationships, allowing them more freedom to publicly acknowledge their relationships (Gates & Newport, 2015). For instance, the number of Americans who support marriage equality has doubled over the last two decades (McCarthy, 2017). Furthermore, as of June 2017, there were 547,000 married same-sex couples in the United States, up from 390,000 married couples in June 2015 when the Supreme Court legalized same-sex marriage nationwide (Romero, 2017). Because of rapid societal changes towards acceptance of same-sex couples, gay culture may also be shifting. Historically, same-sex relationships were considered unacceptable; therefore, it may have been in the best interest of MSM to conceal their sexual activities with other men (Lapinski, Braz, & Maloney, 2010). This may have created a culture of discreet, casual sex where sex with other men had to be kept separate from the normative, monogamous relationship in which one might try to settle down and raise a family. This suggests that, until recently, society made MSM feel like they had to hide their sexual encounters with other men and did not easily allow them to develop committed, monogamous relationships. Now, with less pressure to hide same-sex relationships, gay culture may be changing such that YMSM can choose to have relationships

that are more consistent with traditional models of relationships (including monogamy) compared to older MSM.

It is worth noting that, regardless of sexual agreement type, the YMSM in this study were reporting high levels of relationship quality, yet their relationship stability was quite low (53.7% of the sample was broken up by the 6-month visit and 68.2% was broken up by the 12-month visit). This seems counterintuitive, given that satisfaction and commitment tend to be associated with greater relationship stability (Le et al., 2010). In this sample, intercorrelations between the relationship quality variables and relationship stability were relatively low, with zero-order correlations ranging from r = -.06 to -.13 at time 2 and r = -.12 to -.22 at time 3 (see Table 1). The discrepancy between high relationship quality and low relationship stability could be explained by the notion that new relationships are characterized by 'passionate love,' a state of intense longing, attraction, and infatuation with one's partner (Berscheid & Hatfield, 1969; Fisher, 1998). During this passionate stage at beginning of relationships, people tend to see their partner in an overly positive light (Felmlee, 2001), which can lead them to overlook potential warning signs that may be present in their relationship (Weiss, 1980). This is consistent with *positive sentiment override* (Weiss, 1980), a phenomenon suggesting that happy couples ignore relevant information and instead rate every aspect of their relationship as universally positive. Indeed, Markman (1979, 1981) has shown that early relationship satisfaction is not associated with long-term couple outcomes such as relationship satisfaction and problem intensity 2.5 and 5 years later. Because the YMSM in this study were in relatively new relationships, many of them were probably in this passionate stage, making them more likely to endorse high levels of trust, satisfaction, and commitment regardless of their sexual agreement, and less likely to be attentive to potential warning signs that may have later contributed to relationship instability.

Limitations

The current study should be interpreted in light of several methodological limitations. First, because RADAR is a large cohort study that was not specifically designed to answer research questions about relationship quality, each relationship quality construct was measured with a single item to reduce participant burden. Measuring relationship quality with single items restricted variability because participants could have had one of only five possible scores (i.e., their score was the one value they selected on a 1 to 5 scale), potentially making it more difficult to detect significant differences by sexual agreement type. Using single items may have also lowered power to detect significant effects, as single items can be more vulnerable to random measurement error (Hoeppner, Kelly, Urbanoski, & Slaymaker, 2011), and measurement error reduces statistical power (Kanyongo, Brook, Kyei-Blankson, & Gocmen, 2007).

Another limitation of this study was that individual-level data were used, rather than couple-level data, therefore partner effects and potential discrepancies in reported sexual agreement could not be assessed. Past studies that have asked both members of the couple to report on their sexual agreement show that partners can have discrepant ideas about their sexual agreement; between 5.0% (Hoff & Beougher, 2010) and 19.3% (Parsons et al., 2012) of couples reported sexual agreements that did not match. In addition, participants were not asked about extradyadic sexual behaviors, which would have revealed whether they were adhering to their monogamous agreements or abiding by the rules of their monogamish agreements. Knowing about discrepant and broken sexual agreements would have helped with the interpretation of these results, as both have been found to be associated with lower relationship quality (Hoff et al., 2010; LaSala, 2004).

Finally, because participants were being asked about their sexual agreements and relationship quality as part of a larger study also examining STIs/HIV infection and substance use, it is possible that the context of the study influenced their reporting. Although many MSM couples are motivated to make sexual agreements because of perceived benefits to the relationship (e.g., providing boundaries, increasing sexual satisfaction), sexual agreements are also formed for safety reasons (Hoff & Beougher, 2010). For example, serodiscordant couples are often very explicit about rules around sexual behavior because they are concerned about keeping the HIV-negative partner free from infection and the HIV-positive partner healthy and free of other STIs. Furthermore, rules about substance use may be created given that many YMSM report high rates of recreational drug use, which are associated with engaging in unprotected anal sex and other risky sexual behaviors (Mimiaga, Closson, Kothary, & Mitty, 2014). Reminding participants of their partner's and their own HIV status and substance use patterns could have influenced how they were thinking about their relationship quality, perhaps reporting more positively or negatively depending on if there have been any threats to health in the relationship or if these are areas of conflict in the relationship.

Clinical Implications

Previous studies have suggested that consensual non-monogamy can be a healthy alternative to monogamy among adult male same-sex couples (e.g., Bricker & Horne, 2007; Hoff et al., 2010; Hosking, 2013; LaSala, 2004; Whitton et al., 2015). In contrast, this study suggests that monogamous agreements may actually provide advantages to YMSM's relationships (higher concurrent relationship satisfaction and commitment, and therefore greater relationship stability). However, these advantages may only be of interest to couples who want to stay together long-term. Emerging adulthood is a period of life characterized by exploration (Young et al., 2011);

YMSM may be looking for dating experiences that are more casual and fun, and may not be ready to find the one person they want to settle down and spend the rest of their life with. Thus, breaking up might not be an inherently negative outcome among this population. Study results suggest that, if YMSM couples are indeed interested in a stable relationship lasting a long time, clinicians may want to encourage YMSM couples to consider adopting a monogamous sexual agreement during early stages of their relationship, as this could strengthen their relationship quality earlier and possibly be a protective factor against break-up. If YMSM couples would like to establish a non-monogamous agreement, it may be useful for them to be made aware of the risks that are associated with non-monogamy among this population (i.e., lower satisfaction, commitment, and stability), and for clinicians to work with the couple to find ways to build up their relationship quality to compensate.

Not only can the present findings inform how clinicians work with YMSM couples in a therapy context, it would also be appropriate to incorporate this information in HIV prevention efforts commonly targeted at this population. HIV prevention activities can include, but are not limited to, one-on-one conversations with outreach workers, organized sessions involving small groups of people, or organized sessions online (Mustanski, Newcomb, Du Bois, Garcia, & Grov, 2011). Sexual agreements are often presented as an HIV prevention tool already (Hoff et al., 2010), where concordant HIV-negative couples are encouraged to either be monogamous or to "negotiate safety" to reduce infection if they agree to have extradyadic sex (i.e., always using condoms or avoiding anal sex altogether with outside partners; Hoff & Beougher, 2010). Providing YMSM with information about the benefits of monogamous agreements from a relationship functioning perspective may give them further motivation to establish monogamous agreements, lowering HIV transmission risk. Sensitive psychoeducation and encouragement of

clear communication about sexual agreements may be particularly helpful for YMSM, since relationships during emerging adulthood are often full of ambiguity and lack clear communication (Banker et al., 2010).

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Table 1.
Zero-order correlations between all dependent variables and covariates

	Age	Trust	Satisfaction	Commitment	Time 2 Stability	Time 3 Stability
Age	--	-.06	-.09	-.02	-.14*	-.17*
Trust		--	.57**	.36**	-.06	-.12
Satisfaction			--	.52**	-.13*	-.22**
Commitment				--	-.07	-.21**
Time 2 Stability					--	.73**
Time 3 Stability						--
M(*SD*)	20.90(2.24)	4.21(1.03)	4.15(1.03)	4.43(.92)	--	--

Note. *$p < .05$, **$p < .01$. Relationship stability was coded as 0 = still in a relationship with the original partner and 1 = broken up. Age, trust, satisfaction, and commitment were assessed at Time 1.

Table 2.

Means and standard deviations of relationship quality variables by sexual agreement (N = 312)

	Sexual Agreement		
	Monogamous ($N = 216$)	Non-monogamous ($N = 47$)	No agreement ($N = 49$)
Relationship Quality			
Trust	4.21(1.04)	4.29(.95)	4.12(1.05)
Satisfaction	4.25(1.00)[a]	3.95(.98)[b]	3.92(1.16)[b]
Commitment	4.57(.80)[a]	4.11(1.07)[b]	4.12(1.11)[b]

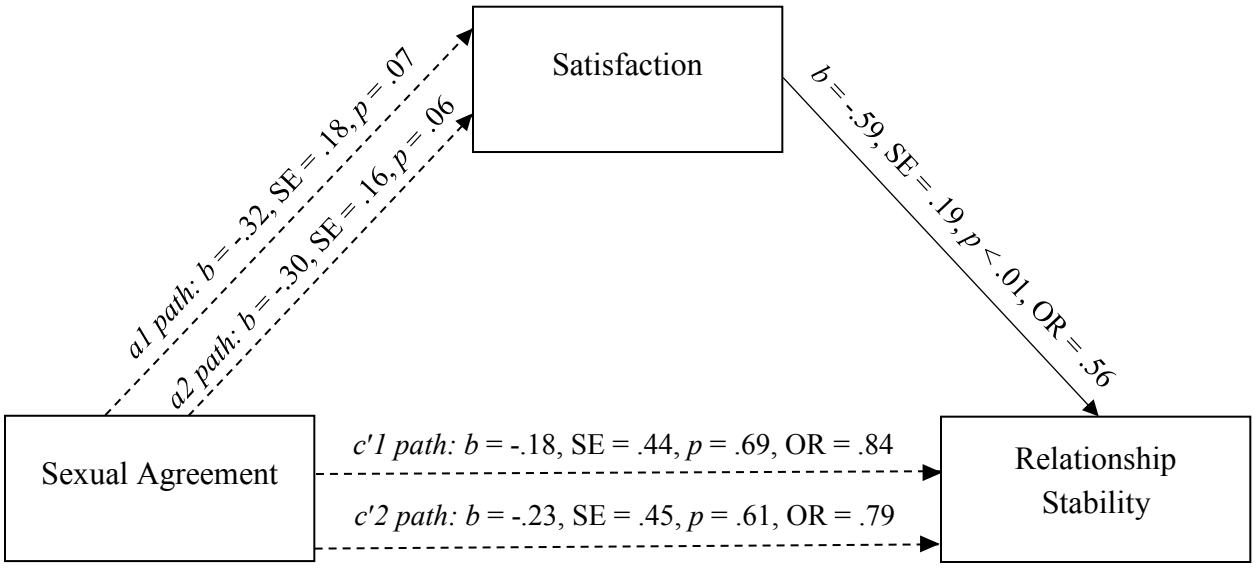
Note. All means are adjusted for age. Means with different superscripts differ significantly from each other at $p < .10$.

Table 3.

Percentage of participants who were still together by sexual agreement type

	Sexual Agreement Types		
	Monogamous	Non-monogamous	No agreement
Time 2 Stability			
N	*166*	*36*	*44*
Still in a relationship	47%	47%	43%
Time 3 Stability			
N	*144*	*36*	*37*
Still in a relationship	31%	31%	35%

Figure 1.
Indirect effect model through satisfaction

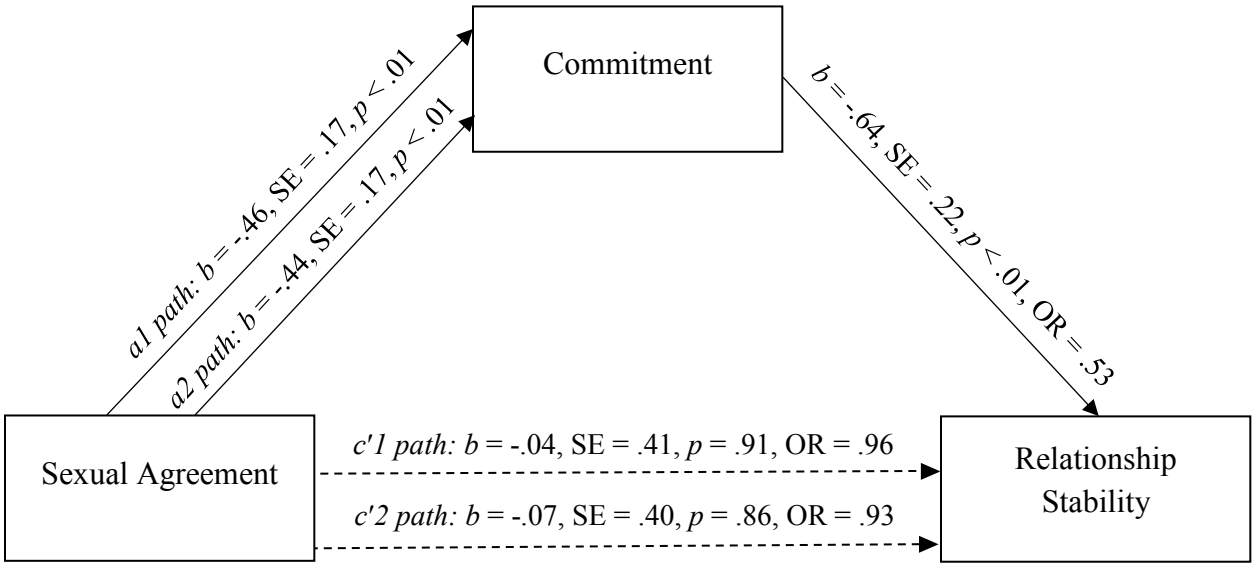


Note. The *a1* and *c'1* paths represent differences between YMSM with monogamous and non-monogamous agreements. The *a2* and *c'2* paths represent differences between YMSM with monogamous agreements and no agreement. Solid lines represent significant paths at $p < .05$ and dotted lines represent non-significant paths.

The relative indirect effects through satisfaction were not significant when comparing individuals with monogamous agreements to those with non-monogamous agreements, $b = .17$, SE = .12, 95% CI = -.01, .46, and those with no agreement, $b = .19$, SE = .14, 95% CI = -.01, .51.

Figure 2.

Indirect effect model through commitment



Note. The *a1* and *c'1* paths represent differences between YMSM with monogamous and non-monogamous agreements. The *a2* and *c'2* paths represent differences between YMSM with monogamous agreements and no agreement. Solid lines represent significant paths at $p < .05$ and dotted lines represent non-significant paths.

The relative indirect effects through commitment were significant; having a monogamous agreement predicted greater relationship stability through commitment compared to having a non-monogamous agreement, $b = .30$, SE = .15, 95% CI = .07, .68, and having no agreement, $b = .28$, SE = .15, 95% CI = .06, .64.