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Sexual agreements in the partnerships of Internet-using men who have sex with men

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Abstract

Recent studies among men who have sex with men (MSM) have found that the majority of HIV transmission results from sex with a main partner. One factor likely to affect the risk of transmission is the type of agreements the couple has regarding sexual behaviour within and outside the relationship. This study recruited 732 Internet-using MSM through Facebook banner ads. Participants completed an online questionnaire regarding demographic characteristics of the respondent and their main partner, the sexual behaviour of the couple, the existence of a sexual agreement, and the strength of investment in that agreement. The Pearson chi-square test was used to assess the association between sexual agreements (categorized as open, closed, or none) and the predictive variables. Respondents' investment in their sexual agreement was measured using the sexual agreement investment scale (a composite score ranging from 0 to 52). Ninety-one percent of respondents had some form of sexual agreement in place with their main partner. The presence and type of sexual agreement was found to be strongly associated with many characteristics of the individual and couple, including the respondent's HIV status, length of time with the main partner, having unprotected anal intercourse with a man other than their main partner, and happiness in the relationship. Increases in the strength of respondents' investment in their sexual agreement were found to be associated with newness of the relationship, relationship happiness, having a closed relationship, and decreases in risky sexual behaviour. This study offers further evidence of the important role that sexual agreements play in male couples. The overwhelming prevalence of sexual agreements and their association with relationship happiness and risky sexual behaviours has important implications for future HIV prevention and control strategies, including the implementation of couples voluntary counseling and testing.

Keywords

sexual agreements; MSM couples; agreement investment; HIV; CVCT

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Introduction

Since the onset of the HIV/AIDS epidemic in the USA, men who have sex with men (MSM) have been the group most heavily affected by HIV (Hall et al., 2008). In the USA, MSM account for 64% of the people living with HIV, comprising just 4–6% of the total male population (Centers for Disease Control and Prevention, 2007). In 2009, 61% of incident HIV infections were among MSM (Prejean et al., 2011). Most HIV transmission among MSM results from sex with a main partner, largely driven by the higher occurrence of unprotected anal intercourse (UAI) with main partners (Davidovich et al., 2001; Davidovich, de Wit, & Stroebe, 2000; Hall et al., 2008; Johnson et al., 2008; Sullivan, Salazar, Buchbinder, & Sanchez, 2009). Men also report more frequent sex with their main partners and are less likely to use condoms during anal sex with their main partners (Kissinger et al., 1999; Stephenson, Khosropour, & Sullivan, 2010; Wall, Khosropour, & Sullivan, 2010).

Sexual choices within relationships are governed by sexual agreements about whether outside sex partners are allowed and, if so, under what conditions. Studies have found that "agreements" regarding-their sexual behavior, both within and outside of the relationship, are common in male couples (Chiasson et al., 2006; Davidovich et al., 2000; Hoff & Beougher, 2010; Kurth et al., 2004). However, it is unclear whether these agreements reduce the risk of HIV transmission, because risk depends both on the nature of the agreement and whether both members to adhere to the agreement. What is more certain is that we need to better understand the factors that motivate the sexual behavior of male couples, and to assess the possible role of HIV prevention activities that target the couple in a comprehensive approach to HIV prevention for MSM.

The purpose of this descriptive study is to depict the characteristics of male couples who form sexual agreements, the motivating factors behind these agreements, and the associations between these agreements and sexual behaviors. We seek to build on the work of Neilands, Chakravary, Darbes, Beougher, and Hoff (2010), which has looked at sexual agreement investment among male couples in San Francisco, by examining a larger group of MSM from the entire USA. It is hoped that knowledge gained in this study will later be used to help inform the development of future prevention approaches for male couples in the USA.

Methods

Internet-using MSM were recruited for this study via banner ads on Facebook.com. During the recruitment period, from 18 May 2010 to 31 May 2010, the advertisements appeared on users' Facebook homepage; recruitment was targeted to men who reported in their Facebook profile that they were male, 18 or older, resided in the US, and interested in men. A total of 2,373,272 impressions led to 3155 click-throughs (click-through rate: 0.13%). Subjects that clicked on the banner ads were taken to a secure online survey utility.

Participants were screened for eligibility criteria; eligible participants were male, 18 or older, and in a relationship with another man whom they considered their main partner ("someone you feel committed to above all others, someone you would call a boyfriend, life partner, significant other or husband") for at least three months. Eligible participants were provided informed consent documents; consenting participants were passed to an online survey. In the survey, participants were asked to give demographic information about themselves and their main partner, as well as being asked questions related to sexual behavior with their main partner and outside partners, perceived stigma, outcome efficacy, couple agreements, communication, conflict style, relationship satisfaction, and HIV health topics.

Measure

To assess sexual agreements, participants were asked which of the following best described their current sexual agreement with their main partner: "both of us cannot have sex with outside partners," "we can have sex with outside partners, without any conditions or restrictions," "we can have sex with outside partners, but with some conditions or restrictions," and "we do not have an agreement." For analytical purposes, men who reported any agreement allowing outside partners (with or without conditions) were considered to be in "open" relationships. To obtain greater detail regarding the characteristics of the sexual agreements of the MSM in this study, participants were asked to list up to five pieces or aspects of the agreement, in order of importance, in open text fields. Research staff read through all the responses and coded them into nine distinct categories: "no outside partners/be faithful/monogamy," "safe sex/use condoms," "threesomes only," "discuss first/both must agree," "no anal sex/no receptive anal sex," "no kissing," "be honest," "no friends, ex's or co-workers," and "other." Respondents listing items from the same category more than once (e.g., "no other partners" and "be monogamous") were only counted once for that category.

Individuals' investment in their current sexual agreement was measured by using the Sexual Agreement Investment Scale (SAIS), developed and validated by Neilands et al. (2010). The 13-item scale measures three domains of agreement investment: value of the agreement, commitment to the agreement, and satisfaction with the agreement. Possible SAIS composite scores range from 0 to 52, with 52 representing maximum investment in one's agreement. A complete version of the SAIS scale can be found in the Appendix 1.

Analysis

All analyses were conducted using SAS (SAS version 9.2; SAS Institute, NC, USA); significant findings were defined at the 95% confidence level. The Pearson chi-square test was used to assess the association between sexual agreements (open, closed, or no agreement) and the individual- and couple-related variables, listed in Tables 1 and 2, respectively. Probabilistic findings are reported in terms of the prevalence ratio, rather than prevalence odds ratio, because the former will result in a more conservative estimate of the measure of effect (Thompson, Myers, & Kriebel, 1998). Logistic regression was used to measure the association between an individual's investment in his sexual agreement (SAIS score) and the following characteristics: having ever broken his sexual agreement, length of time with his main partner, UAI with main partner in the past year, UAI with a man other than his main partner in the past year, HIV status, and happiness in the relationship. These six dependent variables were dichotomously coded and regressed upon the continuous SAIS composite variable. Findings are reported as odds ratios of the dependent (outcome) variable per unit change in SAIS.

Results

A total of 1941 people clicked through the ad and began the eligibility screener. A total of 1372 eligible men consented, and among those, 732 (53%) completed the couples agreement portion of the survey and were included in this analysis. Table 1 contains a summary of the basic demographic information of the participants. The median age of participants included in the study was 29 (range 18–75). Eighty percent of respondents consider their race to be White/Caucasian, followed by 12% Hispanic, 6% other (native American, multiracial, or other), and 2% Black/African-American. The majority of respondents had at least some college education, with 41% reporting college completion or higher. Nearly all respondents (99%) reported being homosexual or gay; four respondents described themselves as bi-

sexual; and three respondents chose the term "other." No respondent reported being heterosexual. Ten percent of respondents reported being HIV positive.

Dyadic characteristics of the couples represented by our respondents are listed in Table 2. The median length of subjects' relationship with their main partner (measured from the time of first anal or oral intercourse) was 2.3 years, with a range of 0–30 years. It should be noted that the inclusion criteria for the study only asked subjects, "How long have you been together with your main partner?" There were 33 subjects who reported having been with their partner for more than three months, though it was less than three months since they first had sexual intercourse. A quarter of the subjects were within a year of their main partner's age (26%), with 83% of subjects within 10 years of their partner. Approximately three-quarters of respondents classified themselves as being of the same race as their partner. Eighty-seven percent of subjects reported having UAI with their main partner in the last year, and 14% reported UAI with a man other than their main partner in the past year.

Subjects excluded from analysis for failing to complete the survey ($n = 640$) did not differ significantly from those included with respect to age, race, frequency of sex with main partner, frequency of UAI with main partner, and frequency of UAI with someone other than main partner. Subjects excluded had less education ($\chi^2 = 14.7$, $p = 0.0006$) and were more likely to have a closed sexual agreement in place with his main partner ($\chi^2 = 15.3$, $p = 0.0016$).

Sexual agreement

Nine percent of participants reported not having any agreement in place with their main partner (Table 2). Sixty-four percent of participants reported that they have an agreement toward monogamy (both members of the couple cannot have sex with an outside partner); 24% of agreements allowed for sex with outside partners but with some conditions; and 3% of agreements allowed sex with outside partners without any conditions. Most couples (70%) formed their sexual agreements within the first five months of their relationship. Sixteen percent of respondents reported ever having broken their sexual agreement, and of them 24% of those who broke their agreement told their main partner right away.

Key aspects of agreements are presented in Table 3. Of the 546 participants who had agreements and provided responses, over half stated that "monogamy" or "being faithful" ($n = 306$) was one of the most important characteristics of their agreement, followed by "safe sex" or "use condoms" ($n = 183$) and "threesomes only" ($n = 91$). Because this section of the questionnaire was open-ended, 251 participants listed one or more aspects of their agreement that could not be coded to one of the prespecified categories and were left as "other."

Results from the Pearson chi-square tests for independence can be seen in Tables 4 and 5. For individuals in the study, age, education, and HIV status were all found to be significantly associated ($\alpha = 0.05$) with type of sexual agreement, categorized as "none," "closed," or "open" (Table 4). For couples in the study, there was a significant association between sexual agreement type and length of time as a couple (measured as time since first anal/oral sex), happiness in the relationship, frequency of anal/oral sex with main partner, and UAI with a man *other* than his main partner in the past year (Table 5). Comparing individuals with a sexual agreement (either "open" or "closed") to those without found that the prevalence of being happy in the relationship was 27% higher among men with a sexual agreement (PR: 1.27, CI: 1.10, 1.48). Having a sexual agreement was also associated with a 53% lower prevalence of having had UAI with a man *other* than his main partner in the past year (PR: 0.47, CI: 0.30, 0.73). Among HIV-positive men in the study, the prevalence of having a sexual agreement was 62% less compared to men of negative or unknown status

(PR: 0.38, CI: 0.23, 0.65). No significant association was found between sexual agreement type and age difference, being of the same race, and having had UAI during the last year.

Of the 630 who completed the SAIS, the over-whelming majority was highly invested in their sexual agreement, with a median score of 51 (IQR 46–52) and mean of 48 (a score of 52 indicates maximum investment). Odds ratio results from the logistic regression showed that for every unit increase in sexual agreement investment score there was significant 10% decrease in the odds of having ever broken the sexual agreement (OR = 0.91, CI: 0.88, 0.93, Table 6). Increases in the sexual agreement investment score were also significantly associated with a decrease in the odds of having UAI with a man other than their main partner (OR = 0.94, CI: 0.92, 0.96) and with an increase in relationship happiness (OR = 1.1, CI: 1.08, 1.15). Respondents who had been with their partner for more than a year were less invested in their sexual agreement than respondents who had been with their partner for less than a year (OR = 0.94, CI: 0.91, 0.97). Having a higher sexual agreement investment score was also associated with an increase in the odds of having a closed, as opposed to open, relationship (OR = 1.06, 1.04, 1.09). HIV status and UAI with main partner were not associated with the SAIS score.

Discussion

The results from this study provide further support for the importance of sexual agreements among male couples. Of the Facebook users who participated in this study, 91% had some form of sexual agreement in place with their main partner. The presence and type of sexual agreement (“open” vs. “closed”) were found to be strongly associated with the respondent’s age, education, HIV status, length of time with their main partner, frequency of sex with their main partner, having UAI with a man other than their main partner, and happiness in the relationship.

Respondents’ investment in their sexual agreement, as measured by the SAIS, indicated that the overwhelming majority of respondents were highly committed to their sexual agreements. Increases in sexual agreement investment were found to be significantly associated with decreased odds of having been in the relationship for more than a year, increased odds of happiness in the relationship, increased odds of having a closed relationship, decreased odds of having UAI with a man other than his main partner, and a decrease in the odds of ever having broken the sexual agreement.

The results from this study have some differences from those found by Neilands et al. (2010) during their validation study of the SAIS. Of the respondents in this study with a sexual agreement, 70% classified their agreement as monogamous; in both of the validation studies by Neilands et al. (2010) 49% ($n = 380$ and $n = 1001$) of the respondents reported monogamous relationships. One reason for this difference may be that in the latter two samples, all participants were selected from the San Francisco Bay area, which may have a different culture regarding-monogamy. Both studies found having ever broken a sexual agreement and having UAI with a man other than the main partner to be inversely associated with SAIS score, though the strengths of association were stronger in the Neilands et al. (2010) study.

One concern with the use of the SAIS was the degree to which the results for the composite score were skewed in our analysis. The median response was one less than the maximum, and the mode response was the maximum value. This clustering of scores was more extreme than that found by Neilands et al. (2010) and may have limited our ability to detect significant bivariate associations using the SAIS. Because many of the questions in this survey were focused on aspects of the couple, it is possible that respondents who are not

fully invested in their sexual agreements did not complete the survey and were subsequently excluded from the analysis. Alternatively, it is possible that the SAIS scale is most applicable to measuring investment for MSM living in San Francisco, where the scale was validated.

Another limitation is that these data only represent the perspective of one member of the couple. Ideally, both members of the couple would be asked separately about their sexual agreement, and these data would be analyzed for concordance. A previous study found that 8% of couples (44 of 566) reported discrepant sexual agreements, in which one member of the couple considered the relationship to be open while the other member considered it to be a closed relationship (Hoff, Beougher, Chakravarty, Darbes, & Neilands, 2010).

Our study utilized a novel recruitment strategy that was both cost and time efficient. Online surveys that leverage popular social media sites, like Facebook and MySpace, allow researchers to recruit large samples of participants, hailing from around the country, in a fraction of the time and with no additional per person costs (Stephenson et al., 2010; Wall et al., 2010). In addition, the anonymous and electronic nature of Internet-based surveys may allow researchers to obtain information on sensitive topics, as subjects can answer questions in private (Turner et al., 1998). Threats to validity are always a concern with the anonymous nature of online surveys; however, recent studies have found a higher reporting of sexual risk behavior in online studies as compared to in-person studies in the general population (Kissinger et al., 1999; Kurth et al., 2004; Perlis, Des Jarlais, Friedman, Arasteh, & Turner, 2004).

This manner of data collection also limits the extent to which generalizations can be made about the study's findings. Participants included in this analysis were a convenience sample, self-selected through banner ads on Facebook, and not representative of other Facebook users. Internet-using MSM differ significantly from their non-Internet-using peers: one recent study found that MSM who use Internet to find sex partners are more likely to have sex with men other than their main partner (Smith et al., 2006). Additionally, because this is a cross-sectional study, it is not possible to establish temporality of association. For example, we cannot conclude if forming sexual agreements leads to increased happiness or if increased happiness in the relationship caused participants to form sexual agreements.

Investment in sexual agreement was inversely associated with having ever broken the agreement and having UAI with a man other than their main partner; both of which might lead to opportunities to contract or transmit HIV. Based on this and other studies, holding an agreement and investment in that agreement may be important mediators of reducing behavioral risks within male couples. The finding that relationship happiness and safer sex practices tend to increase along with investment in the sexual agreement merit further investigation; to the extent that these relationships are causal, they may hold promise as targets of future behavioral interventions directed to male couples.

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Appendix A: Sexual agreement investment scale (SAIS)

We are interested in attitudes about your current agreement about sex outside the relationship. By “current agreement” we mean the agreement you typed in earlier when we asked: “what is the current agreement you and your main partner have about sexual encounters outside your relationship?” When answering the following questions we want you to think of your agreement in general even though there may be several specific aspects

to your agreement. Please choose the response that best describes your attitudes about your current agreement.

0 = Not at all

1 = A little

2 = Moderately

3 = Very Much

4 = Extremely

Value

1 How much do you appreciate having your current agreement?

2 How much do you value your current agreement?

3 How much do you respect your current agreement?

4 How important is your current agreement to you?

5 How much does your current agreement matter to you?

6 How much do you benefit from having your current agreement?

Commitment

7 How important is it for you to be committed to your current agreement?

8 How important is it to you that your primary partner is committed to your current agreement?

9 How important is it to you that both you and your primary partner are equally committed to your current agreement?

10 How committed are you to having your current agreement?

Satisfaction

11 How satisfied are you with your current agreement?

12 How much does satisfaction with your current agreement influence satisfaction with your relationship?

13 How important is it that you feel satisfied with your current agreement?

Table 1

Individual demographic characteristics ($N = 732$).

Age (years)	***N***	**%**
Mean	32	
Median	29	
Range	18–75	
Race		
White/Caucasian	586	80
Black/African-American	12	2
Hispanic	88	12
Other	46	6
Education		
College or higher	302	41
Some college/associates degree	302	41
High School or less	127	17
Sexual orientation of respondent		
Homosexual/Gay	722	99
Bisexual	4	1
Heterosexual/straight	0	0
Other	3	0
HIV status of respondent		
Positive	67	10
Negative	573	86
Do not know	26	4

Table 2

Demographic characteristics of the couple.

Length of relationship (years)[a]	***N***	**%**
Mean	5	
Median	2.3	
Range	0–30	
Age difference with main partner		
Within 1 year apart	193	26
2–10 years apart	416	57
Greater than 10 years apart	122	17
Race		
Same as partner	524	72
Different than partner	208	28
Unprotected anal sex with main partner in past year		
No	88	13
Yes	579	87
Frequency of anal/oral sex with main partner in past year		
About once a month	37	6
2 or 3 times a month	90	15
About once a week	124	20
2 or 3 times a week	189	31
More than 3 times a week	178	29
Unprotected anal sex with man outside of relationship in past year		
No	626	86
Yes	106	14
Current sexual agreement with main partner		
We do not have an agreement.	64	9
Both cannot have any sex with an outside partner.	464	64
Can have sex with outside partners, but with some conditions	180	24
Can have sex with outside partners, without any conditions	21	3
Agreement permits unprotected anal sex outside of relationship		
No	157	82
Yes	34	18
Length of time in relationship before forming current sexual agreement		
0–5 months	470	70
6–11 months	60	9
1–2 years	67	10
3–4 years	32	5

Length of relationship (years)[a]	***N***	**%**
4+ years	42	6
Respondent ever broken their sexual agreement		
No	560	84
Yes	106	16
Last time respondent broke his agreement he told his partner right away		
No	81	76
Yes	25	24

[a]Length measured as time since first anal/oral intercourse.

Table 3

Characteristics of sexual agreements.

Sexual agreement characteristics (*N* = 546)	***N***	**%*a***
No outside partners/Be faithful/Monogamy	306	56
Safe sex/use condoms	183	34
Threesomes only	91	17
Discuss first/both must agree	76	14
Be honest	73	13
No friends/Ex's/co-workers	28	5
No anal sex/no receptive anal sex	24	4
No kissing	21	4
Other	251	46

[a]Represents the percentage of participants who listed the given agreement characteristic among one of the five most important aspects of their sexual agreement; each row is out of 100%.

Table 4

Sexual agreements and individual characteristics ($N = 732$).

	No agreement		Both cannot have sex with outside partner (closed agreement)		Both can have sex with outside partners with/without conditions (open agreement)			
	N	%	*N*	%	*N*	%	χ^2	*p*-Value
Age								
18–24	15	6	189	81	30	13	75	<0.0001 *
25–29	13	8	103	67	38	25		
30–39	17	12	80	56	46	32		
40–49	15	12	67	52	47	36		
50+	4	6	25	36	40	58		
Education								
College or higher	27	9	177	59	96	32	11	0.0252 *
Some college/associates degree	28	9	191	63	82	27		
High school or less	8	6	96	76	23	18		
HIV status								
Positive	14	21	26	39	27	40	23	0.0001 *
Negative	46	8	373	65	151	26		
Do not know	1	4	15	58	10	38		

* Significant at $\alpha = 0.05$.

Table 5

Sexual agreement and couple characteristics ($N = 732$).

	No agreement		Both cannot have sex with outside partner (closed agreement)		Both can have sex with outside partners with/without conditions (open agreement)			
	N	%	*N*	%	*N*	%	χ^2	*p*-Value
Age difference with main partner								
Within 1 year of main partner	13	7	135	70	44	23	7	0.1620
Within 2–10 years of main partner	38	10	260	63	116	28		
> 10 years of main partner	13	11	69	57	40	33		
Race								
Different than main partner	20	10	140	68	46	22	4	0.1365
Same as main partner	44	9	324	62	155	30		
Length of time with main partner (time since first ana/oral sex)								
<1 year	19	10	160	80	21	11	80	<0.0001*
1–2 years	7	5	94	76	23	19		
2–5 years	10	7	90	63	44	31		
5+ years	25	12	94	43	99	45		
Happiness in relationship								
Unhappy	17	30	24	40	19	32	35	<0.0001*
Happy	47	7	440	66	182	27		
Frequency of anal/oral sex with main partner in last year								
About once a month	3	6	20	54	14	38	19	0.0149*
2–3 times a month	6	6	62	70	21	24		
About once a week	4	3	73	59	47	38		
2–3 times a week	17	9	118	63	53	28		
> 3 times a week	13	7	131	74	34	19		
Unprotected anal intercourse with main partner in past year								
No	10	11	54	61	24	27	2	0.4
Yes	42	8	377	65	157	27		

	No agreement		Both cannot have sex with outside partner (closed agreement)		Both can have sex with outside partners with/ without conditions (open agreement)			
	N	%	*N*	%	*N*	%	χ^2	*p*-Value
Unprotected anal intercourse with man other than main partner in past year								
No	46	8	434	70	143	23	67	<0.0001 *
Yes	18	18	30	28	58	55		

* Significant at $\alpha = 0.05$.

Table 6

Associations of respondent and partnership characteristics with Sexual Agreement Investment Scale (SAIS).

Respondent/couple characteristic	SAIS median (IQR)	Odds ratio[a]	95% CI
Ever broken your sexual agreement (n = 630)			
No	52.0 (48.0, 52.0)	–	–
Yes	45.5 (38.0, 51.0)	0.907 *	(0.882, 0.933)
HIV status of respondent (n = 552)			
Negative	51.0 (46.0, 52.0)	–	–
Positive	51.0 (44.5, 52.0)	0.983	(0.950, 1.019)
Length of time with main partner (n = 592)			
< 1 year	52.0 (49.0, 52.0)	–	–
≥1 year	51.0 (45.0, 52.0)	0.939 *	(0.907, 0.974)
UAI with main partner in past year (n = 582)			
No	51.0 (43.0, 52.0)	–	–
Yes	51.0 (46.0, 52.0)	1.015	(0.984, 1.048)
UAI with man other than main partner in past year (n = 630)			
No	52.0 (47.0, 52.0)	–	–
Yes	48.0 (39.0, 52.0)	0.939 *	(0.915, 0.963)
Happiness in relationship (n = 630)			
Unhappy	40.0 (34.0, 48.0)	–	–
Happy	52.0 (47.0, 52.0)	1.11 *	(1.075, 1.146)
Type of agreement (n = 627)			
Open	48.0 (42.0, 52.0)	–	–
Closed	52.0 (49.0, 52.0)	1.061 *	(1.035, 1.087)

[a]The odds ratios were obtained using the following logistic regression model: $respondent/couple\ characteristic = \alpha + \beta * SAIS$, where the independent variable is SAIS score (continuous) and the independent variable is respondent/couple characteristics (dichotomized).

*Significant at $\alpha = 0.05$.