Serosorting and sexual risk behaviour according to different casual partnership types among MSM: The study of one-night stands and sex buddies

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HAL Id: hal-00724884

https://hal.science/hal-00724884

Submitted on 23 Aug 2012

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Word count: 2857 (excl abstract and references)

Abstract

Among HIV-negative men who have sex with men (MSM), any incident of unprotected anal intercourse (UAI) between casual partners is usually regarded as risky for HIV transmission. However, men are increasingly using knowledge of their casual partner's HIV-status to reduce HIV risk during UAI (i.e., serosorting). Since familiarity between casual partners may lead to higher levels of UAI and serosorting, we examined how often men have UAI and practice serosorting with three types of casual partnerships that differ in their degree of familiarity.

We included 240 HIV-negative men of the Amsterdam Cohort Study among MSM. We distinguished three types of casual partnerships: one-night stand ('met by chance and had sex only once'); multiple-time casual partner ('met and had sex with several times'); and the 'regular' casual partner ('sex buddy'). Serosorting was defined as UAI with an HIV-concordant partner. GEE analyses were used to examine the association between type of casual partnership and sexual risk behaviour.

Analyses revealed that men with a sex buddy were more likely to have UAI than men with a one-night stand (OR[95%CI] 2.39 [1.39–4.09]). However, men with a sex buddy were also more likely to practice serosorting than men with a one-night stand (OR[95%CI] 5.20 [1.20–22.52]).

Men with a sex buddy had more UAI but also reported more serosorting than men with a one-night stand. As a result, the proportion of UAI without serosorting is lower for men with a sex buddy, and therefore men might have less UAI at risk for HIV with this partner type. However, the protective value of serosorting with a sex buddy against HIV transmission needs to be further established. At this time, we suggest that a distinction between the one-night stand and the sex buddy should be incorporated in future studies as men behave significantly different with the two partner types.

Keywords: men who have sex with men; serosorting; sexual behaviour; risk reduction behaviour; types of casual partnerships; unprotected anal intercourse

Introduction

In the study of sexual risk behaviour among HIV-negative men who have sex with men (MSM), any incident of unprotected anal intercourse (UAI) with a casual partner is usually regarded as risky for HIV transmission. This is based on the assumption that men could have little to no valid knowledge of that partner's HIV status.

However, within steady partner relationships not every incident of UAI is considered to be risky since men can practice negotiated safety (NS). NS refers to the situation in which both partners have been tested HIV-negative, make agreements about being monogamous or having only protected anal intercourse outside their relationship, and agree to warn the partner if such agreements were violated (Davidovich, de Wit, & Stroebe, 2000; Kippax et al., 1997; Kippax, Crawford, Davis, Rodden, & Dowsett, 1993). UAI that is practiced in full compliance with the conditions of NS can be considered as low-risk behaviour for HIV transmission (Davidovich et al., 2001; Davidovich et al., 2000; Xiridou, Geskus, de Wit, Coutinho, & Kretzschmar, 2003).

With a casual partner, NS is more difficult to practice. Some studies suggest, however, that men are increasingly using knowledge of a casual partner's HIV status to reduce risk of HIV transmission during UAI, a strategy commonly referred to as serosorting (Mao et al., 2006; Rietmeijer, Lloyd, & McLean, 2007). In order to successfully practice serosorting, casual partners need to disclose their true HIV status to each other and have trust in that disclosure, which may come about as the result of some level of acquaintance or familiarity (Prestage et al., 2001). At the same time, familiarity between casual partners can also lead to the decision to engage in UAI, independent of HIV-concordance (Zablotska, Grulich, De, & Prestage, 2011). Following these rationales, it is very likely that the more familiar a casual partner is, the more likely men will engage in UAI as well as in some level of serosorting.

Therefore, it is meaningful to explore whether distinguishing types of casual partnerships, based on a familiarity gradation, results in different risk behaviour. We distinguished three types of casual partnerships: (1) the one-night stand ('met by chance and had sex with only once'); (2) the multiple-time casual partner ('met and had sex with on several occassions'), and (3) the 'regular' casual partner ('sex buddy').

We examined the hypothesis that the more familiar a casual partner is, the more likely anal sex will be unprotected, and the more likely men will tend to practice serosorting with that partner. Unlike previous studies that established serosorting practices through post hoc HIV concordance measurements, we established serosorting through measuring HIV disclosure that took place prior to, and was the reason for, engagement in UAI.

Methods

Sample

We used cross-sectional data from one wave (2007) of the Amsterdam Cohort Study (ACS) among MSM (de Wit, van den Hoek, Sandfort, & van Griensven, 1993; van Griensven et al., 1987). During their bi-annual visits, men fill out psychosocial and behavioural questionnaires and are tested for HIV-1. The data wave included a total of 461 HIV-negative men. The median age was 35 (IQR=31–39); 90% were native Dutch; 75% had high educational levels (completed higher vocational education or university), 20% had middle educational levels (completed secondary vocational education or high school), and 5% had low educational levels (completed basic vocational education or primary school). On a 7-point Kinsey scale ranging from exclusively heterosexual (1) to exclusively homosexual (7), the median sexual preference score was 7 (IQR=7–7). For the present study, only those men who had anal intercourse and provided full data on condom use during anal intercourse with one or more of the three casual partner types in the preceding 6 months were included (N=240). No significant differences regarding any of the demographics described above were found between the participants who qualified for inclusion and those who were excluded due to missing data on condom use (N=14).

Measures

Type of casual partnership

In the assessment of sexual behaviour, participants were provided with descriptions of three types of casual partnerships: (1) one-night stand ("someone you have met by chance and had sex with only once"), (2) multiple-time casual partner ("someone you have met by chance on several occasions and had sex with on these occasions"), and (3) sex buddy ("someone you intentionally contact on a regular basis to have sex with").

Unprotected Anal Intercourse (UAI)

Participants were asked whether they had had sex with one or more types of casual partners in the preceding 6 months (yes/no), and if so, whether they had had insertive and/or receptive anal intercourse with these partners (yes/no). If the men reported any anal intercourse with a casual partner, they were asked how often they had used condoms with that partner (ranging on a 5-point scale from "never" to "always"). We defined UAI as no or inconsistent condom use during insertive and/or receptive anal intercourse.

Serosorting

Participants who reported to have had UAI with a casual partner were subsequently asked whether they had had UAI with a casual partner because they knew that his HIV status was negative before they had anal intercourse (yes/no). If participants responded "yes", this was considered as a case of "UAI with serosorting" (taking into account that all our participants themselves were reported HIV-negative at the time of measurement). In addition, participants were subsequently asked whether they had had UAI with a casual partner because they knew that his HIV status was positive before they had anal intercourse (yes/no), and whether they had had UAI with a casual partner because they did not know his HIV status before they had anal intercourse (yes/no). If participants responded "yes" to either one or both questions, this was considered as a case of "UAI without serosorting", indicating "at risk for HIV". If they responded "no" to both latter questions, but responded "yes" to the very first one regarding UAI with an HIV-negative partner, this was considered as a case of "UAI with serosorting".

Number of casual partners

If participants reported that they had had anal intercourse with one or several different types of casual partners, they were asked about the number of men they had anal intercourse with

for each casual partner type. We summed the number of men reported for each casual partner type to get overall numbers of casual partners for each participant.

HIV status

Participant's actual HIV-1 status was obtained by testing for HIV-1 antibodies, using two commercially available enzyme-linked immunosorbent assays (AxSYM; Abbot Laboratories, North Chicago, IL, USA; Vironostika, Organon Teknika, Boxtel, the Netherlands). Seroconversion was confirmed by Western blot analysis. In addition, participants were asked to report whether they knew their own HIV status. For all participants, self-reported HIV status was fully corroborated by the results of the actual HIV tests typically obtained 2 weeks after data collection.

Educational level

Participants were asked about their highest level of completed education. Educational level was categorized into two categories; "High" (completed higher vocational education or university) and "Middle & Low" (completed secondary vocational education, high school, basic vocational education, or primary school).

Statistical analyses

We used descriptive statistics for the proportions of UAI and the proportions of serosorting with the three different types of casual partnerships. Univariate and multivariate logistic regression analyses were conducted to investigate the association between type of casual partnership and sexual risk behaviour. Two separate models were constructed, one investigating the association between type of casual partnership and UAI, and one investigating the association between type of casual partnership and UAI with serosorting. We

considered type of casual partnership, age, education, and number of casual partners as potential determinants. Only those variables with a univariate *p* value of less than 0.10 were included in the multivariate model. Model building was done using a stepwise backward procedure. Variables with a *p* value of less than 0.05 in the multivariate model were considered statistically significant and included in the final model. Our participants could report anal intercourse with up to a maximum of three different types of casual partners. To account for the fact that these reports might be dependent, we used generalized estimating equations (GEE), assuming an exchangeable covariance matrix to adjust for intra-individual correlations.

All analyses were performed with the SPSS 17 statistical package (SPSS Inc., Chicago, IL, USA).

Results

Among the 240 MSM who reported anal intercourse with casual partners and were qualified for inclusion, 142 men (59%) reported anal intercourse with only one type of casual partner, 74 men (31%) reported anal intercourse with two types of casual partners, and 24 men (10%) reported anal intercourse with three types of casual partners (see Figure 1). Among those who reported anal intercourse with one type of casual partner (n=142), the majority (78%) reported anal intercourse with a one-night stand, 21 (15%) reported anal intercourse with a multiple-time casual partner, and 10 (7%) reported anal intercourse with a sex buddy. Among those who reported anal intercourse with two types of casual partners (n=74), 47 (64%) reported anal intercourse with both one-night stands and multiple-time casual partners, 24 (32%) reported anal intercourse with both one-night stands and sex buddies, and 3 (4%) reported anal intercourse with both multiple-time casual partners and sex buddies. In total, this resulted in 362 reports of anal intercourse, of which 206 (57%) with one-night stands, 95 (26%) with multiple-time casual partners, and 61 (17%) with sex buddies.

[Insert Figure 1 about here]

The proportion of UAI was 19% (39/206) with a one-night stand, 20% (19/95) with a multiple-time casual partner, and 34% (21/61) with a sex buddy. In reports of UAI, the proportion of serosorting was 21% (8/39) with a one-night stand, 42% (8/19) with a multiple-time casual partner, and 52% (11/21) with a sex buddy.

Association between type of casual partnership and sexual risk behaviour

Univariate analyses indicated that, with the exception of the type of casual partnership, none of the other variables examined, including age, educational level, and number of casual partners were significantly associated (p<.10) with either UAI or serosorting. Therefore, our final model included only the association between type of casual partnership and sexual risk behaviour (Table 1). We found that men with a sex buddy were more likely to have had UAI than men with a one-night stand (OR[95%CI] 2.39 [1.39–4.09]). Men with a sex buddy were also more likely to have practiced serosorting than men with a one-night stand (OR[95%CI] 5.20 [1.20–22.52]). There was no difference in UAI or serosorting levels with a multiple-time casual partner as compared with the one-night stand and the sex buddy.

[Insert Table 1 about here]

We did two additional analyses. First, we examined whether the type of casual partner or rather a participant's personal preference not to use condoms determined sexual risk behaviour with a casual partner. In order to examine this, we selected those participants who had reported anal intercourse with all three types of casual partners in the preceding 6 months (n=24), and investigated differences in UAI between the three types of casual partners. If risk behaviour is determined by a man's personal preference and not the casual partner type, one would expect that men behave consistently over the three types of partners, and therefore show no difference in sexual risk behaviour between the partner types. On the other hand, if risk behaviour is determined by the type of casual partner and not by a man's personal preference, one would expect that men behave differently with the three types of partners, resulting in differences in sexual risk behaviour. We found that the same men were more likely to have had UAI with a sex buddy than with a one-night stand (OR[95%CI] 3.50 [1.23–

9.92]). No serosorting was reported with a one-night stand (0%; 0/3), nor with a multiple-time casual partner (0%; 0/3); with a sex buddy, this proportion was 38% (3/8). Because the numbers were low, we did not test for associations.

Second, since there is a possible resemblance in the sexual circumstances (e.g., familiarity or trust) between a steady partner and a sex buddy, one might wonder whether these two types of partners actually yield different sexual risk patterns. The additional analysis indicated that men with a steady partner were more likely to have had UAI (OR[95%CI] 4.47 [2.56–7.81]) and were also more likely to have practiced serosorting (OR[95%CI] 6.68 [2.47–18.08]) than men with a sex buddy, indicating that men indeed behave differently with these two types of partners.

Discussion

In our study we found, in line with our hypothesis, that men who had sex with a sex buddy were more likely to engage in UAI as well as in self-reported serosorting than men with a one-night stand. As a result, the proportion of UAI without self-reported serosorting (indicating at risk for HIV) is lower for men with a sexy buddy. Therefore, one could argue that men with a sex buddy might have less UAI at risk for HIV than men with a one-night stand. This assumption, however, is reliant on the validity of the knowledge of the partner's HIV status. While men might know their sex buddy very well and might have various ways of validating what their partner has disclosed about his HIV status, it remains unclear whether that knowledge is accurate. Therefore, HIV disclosure between sex buddies and to what extent it is a valid strategy in the protection against HIV transmission should be investigated. We need to know whether men directly discuss their sex buddy's HIV status, instead of relying on assumptions (Parsons et al., 2006), a practice that has been coined as "seroguessing" (Zablotska et al., 2009). Furthermore, it is interesting to know whether an objective basis exists for the knowledge of the HIV status (e.g., a regular HIV test result or an on-the-spot home self-test result). If sex buddies disclose their HIV status to each other, it should be examined whether they directly disclose during their very first sexual contact or later on after several encounters. In addition, it is necessary to know with what frequency men revisit the validation of their sex buddy's HIV status as the sexual relationship progresses. Finally, it is important to establish whether men make agreements with a sex buddy concerning (unprotected) sex with other sexual partners as some men do with a steady partner. Making these agreements and complying with them is essential to guarantee the effectiveness of serosorting as an HIV risk reduction strategy (Davidovich et al., 2000; Kippax et al., 1997).

MSM seem to increasingly practice serosorting as a viable alternative for condoms as it offers many advantages over the latter, starting with increasing pleasure and achieving

greater intimacy to avoiding criminal persecution and stigma (Siconolfi & Moeller, 2007). These realities make it even more crucial to conduct a thorough investigation of serosorting practices to help us determine whether the high HIV transmission rates found between casual partners, for example in Amsterdam (Jansen et al., 2011), are the result of serosorting or are simply the consequence of engaging in unbridled UAI.

As for the differences between the types of casual partnerships, the sex buddy type emerged in our data as a specific type of partner with its own sexual behaviour patterns. First, we showed that the differences in sexual risk behaviour between the different types of casual partnerships are indeed directly related to the type of casual partner men have sex with, rather than to what men's personal preferences are regarding condom use. In addition, we found that men also reported different sexual risk behaviour with a steady partner than with a sex buddy. Men with a steady partner had more UAI but also had practiced more serosorting than men with a sex buddy.

In our study, the multiple-time casual partner did not yield different sexual risk patterns than the other two casual partnership types. Further research is needed to examine whether the multiple-time casual partner should still be treated as a separate type of casual partnership or rather should be merged with either the one-night stand or the sex buddy type.

Generalization of our results must be made cautiously. The men in our sample were highly educated, resided in the Amsterdam metropolitan area, and were strongly gay-identified (Davidovich et al., 2000). However, behavioural outcomes from our cohort were found to be similar to those from other monitoring studies among MSM in the Netherlands (Van Empelen, Van Berkel, Roos, & Zuilhof, 2010).

In conclusion, we found that men with a sex buddy had higher levels of UAI but also higher levels of self-reported serosorting than men with a one-night stand. As a consequence, the proportion of UAI without serosorting is lower for men with a sex buddy than for men

with a one-night stand. Therefore, men with a sex buddy might have less UAI at risk for HIV than men with a one-night stand. However, whether serosorting with a sex buddy has a protective value against HIV transmission needs further research. At this point though, based on our results, we do suggest that a distinction between the two types of casual partnerships, the one-night stand and the sex buddy, should be incorporated in future assessments of sexual risk for HIV among men with casual partners.

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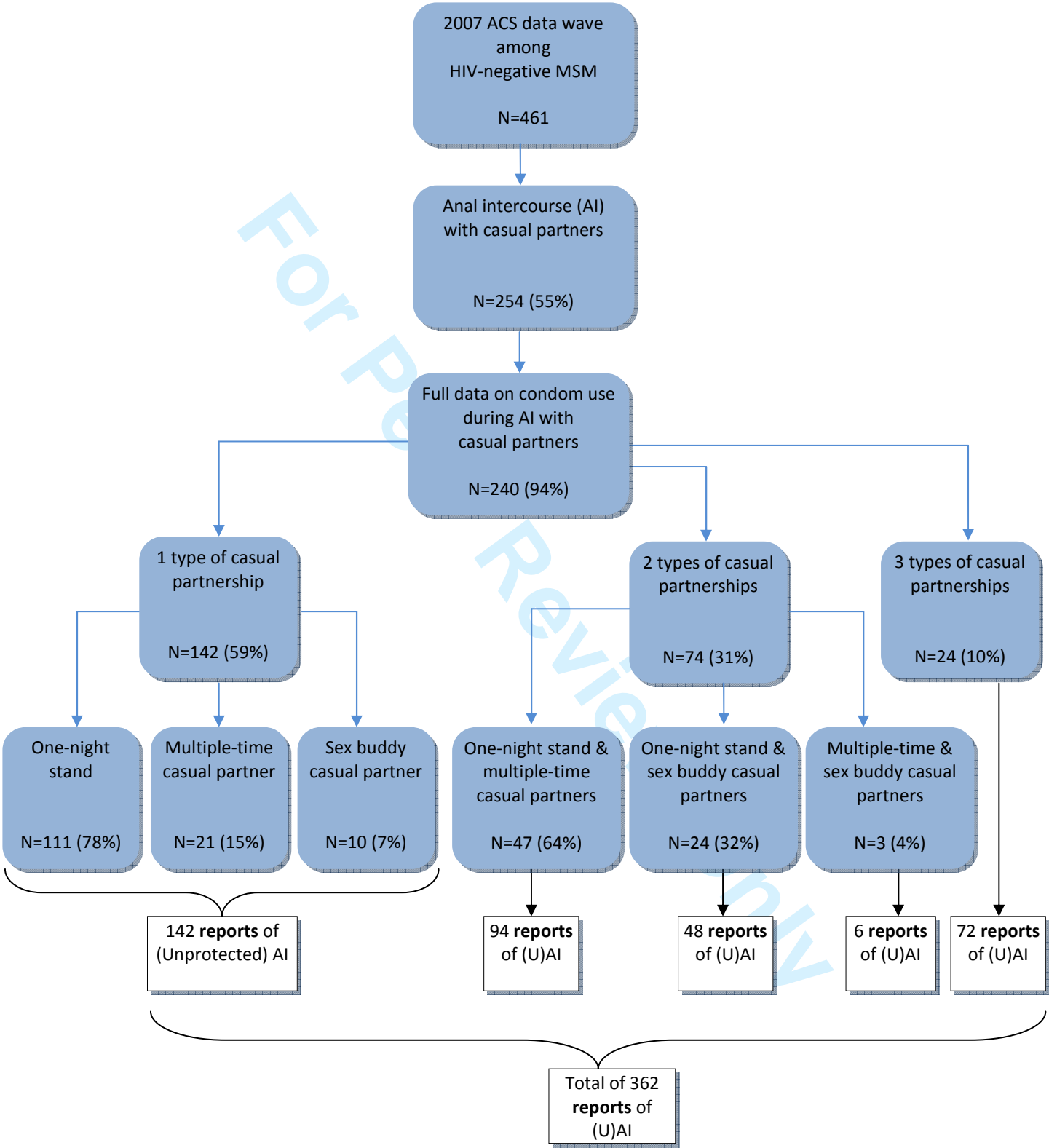
Figure 1. Working sample.

Table 1. Univariate associations between types of casual partnerships and sexual risk behaviour among 240 MSM with 362 reports of anal intercourse, participating in the Amsterdam Cohort Study between July and December 2007.

	UAI				Serosorting			
	N of UAI reports/total N of reports	%	OR (95% CI)	p value	N of serosorting reports/total N of reports	%	OR (95% CI)	p value
Total	79/362	21.8			52/79	65.8		
Type of casual partnership								
One-night stand	39/206	18.9	1	p<.001	8/39	20.5	1	p<.05
Multiple-time	19/95	20.0	1.10 (.69–1.75)		8/19	42.1	1.11 (.53–2.33)	
Sex buddy	21/61	34.4	2.39 (1.39–4.09)		11/21	52.4	5.20 (1.20–22.52)	
Age (years)								
Less than 31	19/83	22.9	1	p=.98	8/19	42.1	1	p=.25
31-40	42/195	21.5	.93 (.48–1.79)		15/42	35.7	.82 (.25–2.65)	
>41	18/84	21.4	1.01 (.44–2.33)		4/18	22.2	.39 (.08–1.92)	
Educational level[a]								
High	51/256	19.9	1	p=.29	15/51	29.4	1	p=.45
Middle & Low	27/101	30.5	1.40 (.75–2.63)		11/27	40.7	1.52 (.51–4.48)	
Number of casual partners			.94 (.54–1.65)	p=.84			.98 (.95–1.01)	p=.98

MSM=men who have sex with men; UAI=unprotected anal intercourse; OR=odds ratio; CI=confidence interval
[a]Educational level: for UAI as outcome, five reports were missing; for serosorting as outcome, one report was missing.