

## No connection between alcohol use and unsafe sex among gay and bisexual men

Peter Weatherburn, Peter M. Davies\*, Ford C.I. Hickson, Andrew J. Hunt, Thomas J. McManus† and Anthony P.M. Coxon\*

**Objective:** To investigate the relationship between alcohol use and unsafe sexual behaviour.

**Methods:** The paper discusses data collected from 461 gay and bisexual men interviewed in England and Wales by Project SIGMA during 1991–1992. These data were collected during face-to-face interviews using retrospective weekly diary techniques and include details of all sexual sessions and alcohol use. The 819 reported sexual sessions with other men are divided into those that involved alcohol use (30.6%) and those that did not.

**Results:** Differences in the incidence of HIV risk behaviours between sexual sessions that involved alcohol use and those that did not are small, and none are statistically significant. Furthermore, for those men who engaged in sexual behaviour whilst under the influence of alcohol, the quantity of alcohol consumed had no effect on sexual behaviour.

**Conclusions:** Among gay and bisexual men, sex under the influence of alcohol is no more likely to be unsafe than sex among men who have not consumed alcohol.

AIDS 1993, 7:115–119

**Keywords:** Gay men, sexual behaviour, alcohol use, unsafe sex, anal intercourse, condom use.

### Introduction

Since 1986, a vast number of papers examining the relationship between alcohol use and 'unsafe' sexual behaviour have been published (see [1,2] for reviews). As a result, many health educators and researchers appear to assume that it has been proven that alcohol consumption leads to an increased probability of engagement in unsafe sexual behaviour.

However, this literature contains a number of major limitations. The first arises as a result of the widespread assumption that there is, or could be, only one straightforward relationship between alcohol use and sexual behaviour, irrespective of factors such as culture, gender or sexual orientation. Thus, despite evidence that the relationship varies accord-

ing to sex and sexual orientation [3,4], results from samples of gay and straight men and women are frequently considered together.

Second, the literature is littered with methodological limitations. The most important is the conflation of alcohol and other drugs (including such diverse substances as marijuana, cocaine, and 'poppers') in one global measure [3,5–8] assuming that all drugs are used in similar circumstances and to obtain similar effects. Another problem arises with the comparison of past sexual behaviour with gross measures of previous alcohol consumption (typically drinking sessions per time period) [5,8–22]. Since both variables represent gross measures of past behaviour any association tells us little about the actual relationship, since not only are there likely to be many intervening factors,

---

From Project SIGMA, the Department of Social Sciences, South Bank University, London, the \*Department of Sociology, University of Essex, Colchester and the †Department of Genito-Urinary Medicine, King's College Hospital, London, UK.

Note: While the work described in this paper was funded by the Medical Research Council and the Department of Health, neither body is responsible for the opinions expressed herein.

Requests for reprints to: Peter Weatherburn, Project SIGMA, Unit 64, Eurolink Centre, 49 Effra Road, London SW2 1BZ, UK

Date of receipt: 21 July 1992; revised: 6 October 1992; accepted: 12 October 1992.

but the alcohol use need never have coincided with the unsafe behaviour [23].

However, even if we choose to overlook these methodological shortcomings, examination of the literature pertaining to gay and bisexual men shows that evidence for any relationship is at best tentative. From our extensive review, only eight papers [3,5-7,9-11,24] document a significant relationship, 15 [1,8,12-19,25-29] fail to do so and a further four are equivocal [4,20-22]. Furthermore, all those that use critical incident [17,25-27] or diary techniques [29] to test the relationship between alcohol use and unsafe sex fail to find any association.

## Methods

Cross-sectional data presented refer to the 461 respondents interviewed by Project SIGMA (Socio-sexual Investigations of Gay Men and AIDS) in the fourth wave (1991-1992) of a 6-year, five-wave cohort study of homosexually active men. The original cohort was recruited in 1987/1988 by a variety of means, including a postal questionnaire in the gay press; recruitment in gay pubs, clubs and social and political organizations; and contacts of the above. No respondents were recruited from genito-urinary medicine clinics. Respondents live in and around 10 main sites across England and Wales. An extensive attrition analysis [30] reveals that the only factor that differentiates responders and non-responders is age: younger men are less likely to respond. However, wave 1 and wave 4 samples are almost identical demographically due to careful recruitment of new respondents in wave 4.

During the interview retrospective weekly diary data were collected from all respondents. Data on the incidence of all sexual behaviour and alcohol use in the preceding week were collected in a diary format noting, for sexual sessions, the day, time, partner, place and exact sequence of sexual acts including use of condoms and lubricants, and, for all alcohol use, the day, time, units, and perceived effect of alcohol intake. Sexual diaries were encoded by the interviewers using shorthand codes designed and widely used by Project SIGMA for prospective monthly sexual diaries [31].

The main units of analysis were sessions (drinking and sexual) and not individuals, although we still rely upon the reporting of one individual in any sexual dyad. The main advantages of this method are that, although we can still count the incidence of activities, sexual behaviours are contextualized and patterns in the interaction of activities can be observed.

Sexual sessions were divided into those that involved alcohol before and/or during, and those that did not. To qualify as a alcohol and sex session, the hours elapsed from the end of alcohol intake until the beginning of the sexual contact had to be less than

the total number of units consumed. Based on the assumption that alcohol is 'cleared' from the body at an average rate of 1 unit per hour, this convention was designed to minimize subjective judgements. Surprisingly, there were very few instances where it was necessary to apply this convention. The vast majority of sessions included in the alcohol and sex category involved sexual activity initiated less than an hour after alcohol consumption had ceased.

Given that the sexual behaviour of gay and bisexual men is contingent upon the type of partner (casual or regular) involved [32], we also distinguish between sessions by partner type. We define 'regular partner' as 'a partner with whom you have had sex more than once, where the second and subsequent meetings were not accidental, and with who you intend(ed) to have sex in the near future'. The term 'casual partner' is used to describe partners who fall outside the definition of regular sexual partner.

## Results

In the week preceding interview the 461 respondents reported 1624 alcohol use sessions; 1208 instances of self-masturbation; and 841 dyadic sex sessions. Of these 841, 33.5% ( $n = 282$ ) were with casual male partners, 63.9% ( $n = 537$ ) with regular male partners, and 2.6% ( $n = 22$ ) with a regular female partner. In the following we refer only to sexual sessions with other men ( $n = 819$ ).

### Anal intercourse and condom use

Overall, 24.8% ( $n = 203$ ) of sexual sessions involved anal intercourse. That is, 10.7% ( $n = 88$ ) included only receptive, 12.6% ( $n = 103$ ) only insertive, and 1.7% ( $n = 14$ ) both receptive and insertive. Since engagement in both modalities of anal intercourse in the same sexual session is relatively rare, such incidents are included in the figures for both these activities.

**Table 1.** Percentage of sessions involving anal intercourse and percentage of those in which condoms were used.

Sexual activity (%)	Overall ( $n = 819$ )	Regular partners ( $n = 537$ )	Casual partners ( $n = 282$ )
Anal intercourse			
Receptive	12.5	15.3	7.1
Insertive	14.3	16.6	9.2
Condom use for anal intercourse			
Receptive	46.1	39.0	75.0
Insertive	51.3	41.6	84.6

As Table 1 shows, sex sessions with regular partners were more likely than those with casual partners to involve both receptive ( $\chi^2 = 11.34$ ; d.f. = 1;

$P < 0.001$ ) and insertive anal intercourse ( $\chi^2 = 8.28$ ; d.f. = 1;  $P < 0.01$ ).

Condom use also varied with partner type. For both receptive ( $\chi^2 = 8.38$ ; d.f. = 1;  $P < 0.01$ ) and insertive anal intercourse ( $\chi^2 = 14.92$ ; d.f. = 1;  $P < 0.001$ ) condom use was significantly more common with casual than with regular partners.

### Alcohol use and sexual behaviour

Alcohol was used directly before or during 30.6% ( $n = 251$ ) of dyadic sexual sessions.

**Table 2.** Engagement in anal intercourse in sessions involving alcohol compared with sessions involving no alcohol.

Sexual activity (%)	Alcohol		OR (CI)
	Yes	No	
Anal intercourse	24.3	25.0	1.04 (0.55–1.98)
Receptive	12.3	12.7	1.04 (0.45–2.40)
Insertive	13.9	14.3	1.03 (0.47–2.29)
With regular partners	28.2	31.1	1.15 (0.63–2.11)
With casual contacts	16.0	13.9	0.85 (0.39–1.85)

OR, odds ratio; CI, confidence interval.

As Table 2 shows, rates of engagement in anal intercourse were not significantly different between sessions that involved alcohol use and sessions that did not. There was no difference when receptive or insertive intercourse or sessions with regular or casual partners were considered separately. In short, rates of engagement in anal intercourse were statistically indistinguishable between sessions under the influence of alcohol and sessions that were not.

**Table 3.** Use of condoms for anal intercourse in sessions involving alcohol compared with sessions not involving alcohol.

Condom use (%)	Alcohol		OR (CI)
	Yes	No	
For anal intercourse	52.5	47.2	1.24 (0.71–2.15)
Receptive	50.0	44.3	1.26 (0.72–2.19)
Insertive	52.8	50.6	1.09 (0.63–1.90)
With regular partners	45.8	37.7	1.40 (0.79–2.45)
With casual contacts	76.9	85.7	0.56 (0.27–1.15)

OR, odds ratio; CI, confidence interval.

As Table 3 shows, rates of condom use for engagement in anal intercourse were not significantly different between sessions that involved alcohol use and sessions that did not. This remains true for all incidents of anal intercourse, including those with casual and regular partners, and receptive and insertive anal intercourse separately. In fact, in all cases except one there were trends towards greater use of condoms for anal intercourse if alcohol was used directly preceding or during the sexual session.

In summary, the differences between those sex sessions that took place under the influence of alcohol and those that did not were small, and none were statistically significant.

### Quantity of alcohol consumed

Table 4 shows the average quantity of alcohol consumed, per drinking session, across the range of markers of unsafe sex we have used above.

**Table 4.** Comparison of the quantity (in units) of alcohol consumed.

Variable	Median (mean)	IQR	F ratio (d.f.)	P value
All drinking sessions	4 (5.2)	5		
Sex				
Yes	5.5 (6.3)	5	32.00 (1,1610)	< 0.0001
No	4 (4.8)	4		
Partner				
Casual	6 (7.3)	7	5.15 (1,1264)	< 0.03
Regular	4 (5.9)	5		
Anal intercourse				
Yes	6 (6.8)	5	0.96 (1,244)	0.34
No	5 (6.2)	5		
Condom use for anal intercourse				
Yes	6 (6.8)	6	0.005 (1,56)	0.95
No	6 (6.9)	6		

IQR, interquartile range.

Having removed far outliers (data that lie three interquartile ranges above the upper quartile) [33], we found that men who drank and had sex consumed significantly more units of alcohol than men who just drank, and men who had sex with casual partners consumed significantly more than men who had sex with regular partners. However, men who engaged in anal intercourse consumed no more alcohol than those who did not, and those who used condoms for anal intercourse consumed no less than men who did not.

## Discussion

The data we have described show no statistically distinguishable differences in HIV risk behaviour between sexual sessions that take place under the influence of alcohol and those that do not. Gay and bisexual men in this study were no more likely to engage in any of a range of risk behaviours after consuming alcohol than otherwise, and for those who did have sex whilst under the influence of alcohol the quantity of alcohol consumed had no effect on risk behaviour. These results add to the body of evidence that fails to confirm the widespread belief that there is a direct relationship between alcohol use and engagement in unsafe sex.

In the first and, in retrospect, the most influential contribution to this debate, Stall *et al.* [24] found a relationship between drug and alcohol use and unsafe

sex. Whilst alcohol had the weakest effect on sexual behaviour of all the drugs reported, their discussion suggested it might be of central importance in understanding risk behaviours. Hence, they postulated a number of hypotheses that might account for this relationship, including 'aphrodisiac'; 'personality'; 'social context'; 'multifactorial'; and 'disinhibition'.

For any of these substantive hypotheses to be true, it must logically be the case that a relationship should pertain at the level of the individual session. An association at the gross level without an association at the basic level is strong presumptive evidence for a spurious effect in the former case. Our data add to a growing list of reports that have failed to find any relationship at this primary level. While, technically, our findings do not disprove the contention that alcohol consumption leads to unsafe sex, they provide strong evidence that the relationship found in early papers might be spurious. As we have argued elsewhere [23], this is most probably due to methodological inadequacies, specifically the use of gross measures of alcohol consumption and sexual behaviour.

Whilst earlier contributors to these debates should not be held responsible for the ways in which educators and policy makers have interpreted their works, early papers certainly contributed towards alcohol being seen as of central importance to HIV prevention campaigns.

Thus, health education campaigns have emphasized the disinhibitive effect of alcohol by stressing that 'when we get high, we are likely to be tempted into sexual activities which are riskier for AIDS' [34]. These campaigns not only make unjustifiable assumptions about the effects of alcohol on self-control, but also include comments on other drugs, invariably confusing their effects.

While our qualitative work [23] suggests that alcohol is an important factor in the sexual lifestyle of more than a fifth of gay and bisexual men, it is usually used to facilitate the social and sexual lifestyles these men have chosen to pursue. Most germanely, alcohol is often used in a premeditated way, to enhance sexual desire or performance and/or overcome sexual and social inhibitions. Finally, some gay men stress that they use it to enable them to engage in sexual negotiations that they might otherwise be too shy to attempt. Crucially, these include the negotiation of safer sex. For these men, admittedly a minority, the information that alcohol use may impede their ability to have safer sex is clearly untenable.

We suggest that forceful messages suggesting that alcohol inhibits the ability to have safer sex may have little relevance to the majority of gay men, and that campaigns that posit a straightforward association between alcohol use and unsafe sex may be providing individuals with an easy self-justification for engaging in such activities. At worst, such campaigns may facili-

tate engagement in unsafe sex by allowing individuals to abrogate responsibility for behaviours that they or their peers find regrettable. Furthermore, by providing a ready-made agenda for intervention they absolve health educators from addressing the complex and intractable problems of negotiation and interaction that are central to any understanding of unsafe sex.

Clearly, we feel it is necessary to re-open debate on the topic of alcohol use and unsafe sexual behaviour. Future research could do much to clarify whether any relationship exists and to explain its implications if it does. However, further research should concentrate on methodologies that can examine the effects of alcohol (and other individual drugs) within the specific context of sexual encounters. In order to do so, methods must not assume that any psychoactive drugs have identical effects, or that any population group uses them for the same reasons, or in the same circumstances.

## References

- BOLTON R, VINCKE J, MAK R, DENNYH E: Alcohol and risky sex: in search of an elusive connection. *Med Anthropol Q* 1993 (in press).
- LEIGH BC, STALL R: Substance use and risky sexual behaviour for exposure to HIV: issues in methodology, interpretation, and prevention. *Am Psychol* 1993 (in press).
- STALL R, HEURTIN-ROBERTS S, MCKUSICK L, ET AL: Sexual risk for HIV transmission among singles-bar patrons in San Francisco. *Med Anthropol Q* 1990, 4:115-128.
- TROCKI KF, LEIGH BC: Alcohol consumption and unsafe sex: a comparison of heterosexuals and homosexual men. *J Acquir Immune Defic Syndr* 1991, 4:981-986.
- MCKIRNAN DJ, PETERSON PL: AIDS-risk behaviour among homosexual males: the roles of attitudes and substance abuse. *Psychol Health* 1989, 3:161-171.
- KELLY JA, ST LAWRENCE JS, BRASFIELD TL: Predictors of vulnerability to AIDS risk behavior relapse. *J Consul Clin Psychol* 1991, 59:163-166.
- VALDISSERRI RO, LYTER D, LEVITON LC, ET AL: Variables influencing condom use in a cohort of gay and bisexual men. *Am J Pub Health* 1988, 78:801-805.
- CONNELL RW, CRAWFORD J, DOWSETT GW, ET AL: Danger and context: unsafe anal sexual practice among homosexual and bisexual men in the AIDS crises. *Aust NZ J Sociol* 1990, 26:187-208.
- MCKIRNAN DJ, PETERSON PL: Tension reduction expectancies underlie the effect of alcohol use on AIDS-risk behaviour among homosexual males. *V International Conference on AIDS*. Montreal, June 1989 [abstract TDO10].
- ILARIA G, WEISS CJ, KLOTZ D, ET AL: Association of drug taking and high risk sexual behaviour in 774 gay men in New York City: implications for prevention. *VII International Conference on AIDS*. Florence, June 1991 [abstract WC3009].
- CAZAVARA L, COATES R, RABOUD J, ET AL: Recreational drug use and high-risk sexual behaviour in a Toronto sexual contact study cohort. *VII International Conference on AIDS*. Florence, June 1991 [abstract MD4071].
- WILLOUGHBY B, SCHECHTER MT, CRAIB KJP, ET AL: Characteristics of risk takers among seronegative men in a gay cohort. *VII International Conference on AIDS*. Florence, June 1991 [abstract WC3003].
- SIEGEL K, MESAGNO FP, CHEN J-Y, CHRIST G: Factors distinguishing homosexual males practising risky and safe sex. *Soc Sci Med* 1989, 28:561-569.

14. MCCUSKER J, STODDARD AM, ZAPKA JG, ZORN M, MAYER KH: Predictors of AIDS-preventative behavior among homosexually active men: a longitudinal study. *AIDS* 1989, 3:443-448.
15. OSTROW DG, VANRADEN MJ, FOX R, ET AL: Recreational drug use and sexual behavior change in a cohort of homosexual men. *AIDS* 1990, 4:759-765.
16. MARTIN JL, HASIN DS: Drinking, alcoholism, and sexual behaviour in a cohort of gay men. *Drugs Soc* 1990, 5:47-67.
17. DOLL L: Alcohol use as a cofactor for disease and high-risk behaviour. Presented at the *NIAA Alcohol and AIDS Network Conference*. Tucson, April 1989.
18. STALL R, BARRETT D, BYE L, ET AL: *A Comparison of Younger and Older Gay Men's HIV Risk-Taking Behaviors: The Communication Technologies 1989 Cross-Sectional Survey*. San Francisco: Center for AIDS Prevention Studies; 1991.
19. ZIELINSKI MA, BECKER C: Drugs, alcohol and risky sex among gay and bisexual men in a low-incidence area for AIDS. Presented at the *Annual Meeting of The American Public Health Association*. Boston, November 1988.
20. PRIEUR A: Gay men: reasons for continued practice of unsafe sex. *AIDS Educ Prev* 1990, 2:110-117.
21. MCCUSKER J, WESTENHOUSE J, STODDARD AM, ET AL: Use of drugs and alcohol by homosexually active men in relation to sexual practices. *J Acquir Immune Defic Syndr* 1990, 3:729-736.
22. EKSTRAND ML, COATES TJ: Maintenance of safer sexual behaviour and predictors of risky sex: The San Francisco Men's Health Study. *Am J Public Health* 1990, 80:973-977.
23. WEATHERBURN P AND PROJECT SIGMA: Alcohol use and unsafe sexual behaviour: any connection? In *AIDS: Rights, Risk and Reason*. Edited by Aggleton P, Davies PM, Hart G. London: Falmer Press; 1992:119-132.
24. STALL R, MCKUSICK L, WILEY J, COATES T, OSTROW D: Alcohol and drug use during sexual activity and compliance with safe sex guidelines for AIDS: 'The AIDS Behavioral Research Project'. *Health Educ Q* 1986, 13:359-371.
25. GOLD RS, SKINNER MJ, GRANTS PJ, PLUMMER DC: Situational factors and thought processes associated with unprotected intercourse in gay men. *Psychol Health* 1991, 5:259-278.
26. GOLD RS, SKINNER MJ: Situational factors and thought processes associated with unprotected intercourse in young gay men. *AIDS* 1992, 6:1021-1030.
27. HARRISON JS, DOLL LS, WELLER P, ET AL: Condom use can occur despite use of alcohol and drugs. *V International Conference on AIDS*. Montreal, June 1989 [abstract MDP24].
28. LEIGH BC: The relationships of substance use during sex to high-risk sexual behaviour. *J Sex Res* 1990, 27:199-213.
29. LEIGH BC: Alcohol consumption and sexual activity as reported with a prospective diary technique. *J Abnorm Psychol* (in press).
30. HUNT AJ AND PROJECT SIGMA: *Attrition in a Cohort Study of Gay and Bisexual Men*. Project SIGMA Working Paper 38. London: Project SIGMA; 1992.
31. COXON APM, DAVIES PM, HUNT AJ, WEATHERBURN P, MCMANUS TJ, REES CM: The structure of sexual behaviour. *J Sex Res* 1992, 29:61-83.
32. WEATHERBURN P, HUNT AJ, DAVIES PM, COXON APM, MCMANUS TJ: Condom use in a large cohort of homosexually active males. *AIDS Care* 1991, 3:31-41.
33. ERIKSON BH, NOSANCHUCK TA: *Understanding data*. London: McGraw-Hill Ryerson Ltd; 1977.
34. HARVEY MILK AIDS EDUCATION FUND: *Can We Talk?* San Francisco: Harvey Milk AIDS Education Fund; 1987 (leaflet).