A comparison of high-risk sexual behaviour and HIV testing amongst a bar-going sample of homosexual men in London and Edinburgh

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Background: This study compared high-risk sexual and HIV testing behaviour amongst homosexual men recruited from gay bars in London and Edinburgh. Methods: A cross-sectional survey monitoring high-risk sexual and HIV testing behaviour using a self-completed questionnaire was conducted in November and December 1996. Results: Two thousand, three hundred and ninety-seven questionnaires were returned (1,366 recruited in London and 1,031 in Edinburgh), with a response rate of 77%. A larger proportion of men surveyed in London had had unprotected anal intercourse (UAI) with one or more male partners in the previous year (35%) than in Edinburgh (30%). Men recruited in Edinburgh were less likely to have had an HIV test (54%) than men in London (63%). In both surveys, 25% of men who reported UAI with partners of the same HIV status as themselves also reported never having had an HIV test. Conclusions: The observed dissimilarities in the HIV epidemic in the two cities may be accounted for by the differences in self-reported high-risk sexual and HIV testing behaviours between the two populations. A large proportion of men in both cities continue to engage in high-risk sexual behaviour suggesting continued transmission of HIV in these populations. Thus, there is a continued need for innovative and relevant health promotion amongst homosexual men in the UK.

Keywords: HIV testing, homosexual men, risk factors, sexual behaviour, surveillance

In the UK, as in other developed countries, the primary impact of the HIV epidemic has been upon homosexual and bisexual men. At the end of September 1998, the majority of AIDS (67%) and HIV (58%) cases reported by health services in the UK to the Communicable Disease Surveillance Centre (CDSC) were amongst homosexual men (Public Health Laboratory Service AIDS and Sexually Transmitted Diseases Centre-Communicable Disease Surveillance Centre and Scottish Centre for Infection and Environmental Health, unpublished quarterly surveillance tables, number 41, 98/3 table 1). London accounts for the largest proportion of UK AIDS cases (~47%) of cases were reported from services in inner London and 29% of these individuals lived in inner London (Public Health and Laboratory Services and Sexually Transmitted Diseases Centre-Communicable Disease Surveillance Centre and Scottish Centre for Infection and Environmental Health, unpublished quarterly surveillance tables, number 41, 98/3 table 4). Homosexual men also represent the largest group of reported AIDS cases in inner London and it is this population which remains as one of the main foci of the HIV epidemic in the UK. This is illustrated by the high prevalence and continuing transmission of HIV infection amongst homosexual men in London. For example, amongst homosexual men attending selected genitourinary medicine (GUM) clinics in London in 1995, an HIV prevalence of 9.9% was recorded by the unlinked anonymous HIV prevalence monitoring programme. No decline in the incidence of HIV infections was observed amongst homosexual men coming forward for a repeat HIV test in four selected GUM clinics in inner London between 1991 and 1994.

In contrast, the Edinburgh HIV/AIDS epidemic has been primarily associated with injecting drug users (IDUs). However, throughout the 1990s, sex between men has been the primary cause of incident HIV infection in Scotland, and since 1988 there has been a significant and continuing annual increase in the number of HIV cases in homosexual men. In Scotland, in 1986 IDUs accounted for 72% of HIV infections, but by 1994 homosexual men accounted for 55% of infections with IDUs representing only 18% of prevalent cases (Public Health and Laboratory Services and Sexually Transmitted Diseases Centre-Communicable Disease Surveillance Centre and Scottish Centre for Infection and Environmental Health, unpublished quarterly surveillance tables, number 42, 98/4 table 12). To date, the majority of HIV infections in Scotland have occurred in Lothian (45.3%)
with 35% of all new Scottish infections in 1997 occurring in the capital region; 35% of these occurred in homosexual men.9

During the period 1991–1995, an HIV prevalence of 4.8% was noted amongst blood specimens taken from homosexual/bisexual men who attended genitourinary clinics in Glasgow and Edinburgh, with no significant difference between the two cities.10 An analysis of newly diagnosed HIV infections in homosexual men in Edinburgh suggested that most cases of infection had occurred very recently, with only a minority representing long-standing disease.9 Thus, whilst Edinburgh has a low prevalence of HIV infection amongst homosexual men compared to London, as in London, there is no evidence that the numbers of new positive diagnoses are decreasing.

The observed differences in the epidemiology of HIV in London and Edinburgh may be attributed to a variety of factors, including the impact of HIV prevention policies, different communities being affected by the epidemic and differing dates of introduction of the virus. However, to date, there has been no discussion regarding the possible impact on the HIV epidemic of differing levels of high-risk sexual behaviour amongst homosexual men in the two cities. Data collected from GUM clinics suggest that there is continuing transmission of HIV amongst homosexual men,69 yet there has been no comparison of HIV testing behaviour between these populations. In this paper we compare homosexual men's sexual and HIV testing behaviour in London and Edinburgh in order to understand better the social epidemiology of HIV in the UK and determine ways in which HIV transmission may be prevented in the future.

METHODS

Cross-sectional surveys for assessing the extent of self-reported, high-risk sexual behaviour were conducted in November and December 1996 amongst homosexual men in bars in Edinburgh and London. The similarities between the methods employed in each city (detailed below) allow valid comparisons to be made of the two data sets.

London survey

Homosexual men who socialised in gay bars in the defined geographical area of the seven inner London health authorities were eligible for inclusion in the survey. A sampling frame was constructed by compiling a register of all bars known to be used primarily by homosexual men in London. The venues in which the questionnaires were distributed were selected to be representative by geography and type (covering all areas in London and all types of venues, including public sex venues). The survey was piloted in Central London in 199511 and has been repeated annually on a wider scale across London.

A total of 42 bars were surveyed in the evenings (5.00–12.00 p.m.) (table 1) during November and December 1996 by health promotion workers as part of their routine work. Each venue was visited for approximately 1 hour during which time all men present in the bar were offered a brief, self-completed and anonymous questionnaire. The questionnaire was designed so that it could be completed quickly. It took less than 5 minutes to answer and consisted of 15 questions asking about demographic details, use of sexual health services and recent (in the previous year) sexual behaviour. Questionnaires were returned to the health worker on completion.

Edinburgh survey

In November 1996 men in all of Edinburgh's five gay bars were approached by paid volunteers and asked to self-complete a short questionnaire which included questions about demographic data, sexual health service use and recent (previous year and previous month) sexual behaviour. The questionnaire had been piloted in Glasgow and then used in a study of 1,200 gay men in Glasgow's gay bars.12

Bars were surveyed at one of two 'census points' – either in the early evening (7.00–9.30 p.m.) or late evening (9.30–12.00 p.m.), and no bar was surveyed twice in an evening. The study was completed over 4 weeks, with each bar visited 14 times during this period. With five bars, two 'census' points and 7 nights, a total of 70 visits were made to the bars. No new bars opened and no bar closed during the period of data collection.

In London any questionnaires completed either by heterosexual men or individuals already approached were excluded from further analysis. In Edinburgh, heterosexual men or those who had already filled in the form verbally declined to complete a (subsequent) form and so were not included in the analysis.

Combining data from both surveys

Variables collected in both surveys were extracted from the individual data sets and combined in a single SPSS database which was used for all analyses. All variables in the combined database were directly comparable except for the HIV status of unprotected anal intercourse (UAI) partners. In Edinburgh, respondents were asked if their last UAI partner was of the same HIV status as themselves. In the London survey, respondents were asked how many of the men with whom they had had UAI in the previous year were of the same HIV status as themselves. Single variable analysis was performed using $\chi^2$-tests for categorical variables and either Student's t-tests or Mann-Whitney U-tests for continuous variables. The multivariate analysis employed was an unconditional logistic regression.

<table>
<thead>
<tr>
<th>City</th>
<th>Number of venues sampled</th>
<th>Number of valid questionnaires returned</th>
<th>Response rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>42</td>
<td>1,366</td>
<td>75</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>5</td>
<td>1,031</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>2,397</td>
<td>77</td>
</tr>
</tbody>
</table>
RESULTS
Table 2 describes the number of bars surveyed, questionnaires returned and analysed and overall response rate in the two cities. A total of 2,397 valid questionnaires were returned from both Edinburgh and London with an overall response rate of 77%. The response rates noted in the surveys were similar (Edinburgh 80% and London 75%). Table 2 compares responses to the main variables collected in both Edinburgh and London. Men recruited in Edinburgh were slightly younger than those in London (median age 30 versus 31 years, Mann-Whitney U-test Z = -2.34 and p = 0.02) and were less likely to be employed (χ² = 13.03 and p < 0.001).

There was a significant difference in the proportion of men who had had UAI with no, one or two or more partners in the last year (χ² = 11.62 and p < 0.01), with a greater proportion of London men reporting two or more partners and a smaller proportion reporting no UAI partners compared to Edinburgh men. Of the men who had engaged in UAI in the previous year, those who were surveyed in London had done so with more men (a mean of 3.6 versus 1.58, Mann-Whitney U-test Z = -3.12 and p < 0.001). As demonstrated in table 2, a greater proportion of men surveyed in London reported having had UAI with one or more partners in the previous year than those in Edinburgh (34 versus 30%).

Age, city of survey and employment status were included in a stepwise multiple logistic regression model in which age group and recruitment from London were independently associated with having had UAI with a partner of the same HIV status as themselves, whereas in Edinburgh this information was collected only for the last UAI partner. In Edinburgh, of the eligible men who responded to this question (52%), a minority (16%) reported that their last UAI partner was of a discordant HIV status to themselves, but not necessarily of an unknown HIV status. In London, of the 81% eligible men who responded to this question, the majority (63%) who had had UAI in the previous year had done so with one or more partners who were of a different or unknown HIV status to themselves. Furthermore, one-quarter (25%) of all men surveyed in both cities who reported that they had had UAI with a partner of the same HIV status as themselves had never had a named HIV test.

As shown in table 2, men recruited in Edinburgh were less likely to have ever had an HIV test (χ² = 19.48 and p < 0.001) and were less likely than men in London to have done so in the previous year (22 versus 28%). In a stepwise multiple logistic regression model, age group (26–30 years) and recruitment from London were independently associated with ever having had an HIV test (table 4).

DISCUSSION
This paper compares high-risk sexual and HIV testing behaviours in two populations of bar-going homosexual men from London and Edinburgh. In each city, surveys were initiated independently in order to monitor high-risk sexual behaviour amongst homosexual men, though they were conducted at the same time (November and December 1996). Similar methods of data collection and questionnaires were employed in both surveys allowing comparisons of the situation in each city to be made.

Table 3 Predictors of having had UAI in the previous year using a stepwise multiple logistic regression model in which age (per year) and city of survey were included

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Edinburgh</th>
<th>London</th>
<th>Unadjusted odds ratio (95% CI)</th>
<th>Adjusted odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;26</td>
<td>283</td>
<td>262</td>
<td>0.98 (0.79–1.20)</td>
<td>0.98 (0.79–1.20)</td>
</tr>
<tr>
<td>26–30</td>
<td>248</td>
<td>379</td>
<td>0.87 (0.65–1.16)</td>
<td>0.87 (0.65–1.16)</td>
</tr>
<tr>
<td>31–35</td>
<td>329</td>
<td>372</td>
<td>0.98 (0.80–1.20)</td>
<td>0.98 (0.80–1.20)</td>
</tr>
<tr>
<td>&gt;35</td>
<td>372</td>
<td>372</td>
<td>0.98 (0.80–1.20)</td>
<td>0.98 (0.80–1.20)</td>
</tr>
</tbody>
</table>

Table 4 Predictors for ever having had a named HIV test using a stepwise multiple logistic regression model in which age group and city of survey were included

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Edinburgh</th>
<th>London</th>
<th>Unadjusted odds ratio (95% CI)</th>
<th>Adjusted odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;25</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26–30</td>
<td>1.23 (1.06–1.42)</td>
<td>1.19 (1.03–1.36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31–35</td>
<td>0.87 (0.76–1.01)</td>
<td>0.88 (0.76–1.02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;36</td>
<td>0.76 (0.65–0.89)</td>
<td>0.79 (0.67–0.92)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

City of survey

<table>
<thead>
<tr>
<th>City of survey</th>
<th>Edinburgh</th>
<th>London</th>
<th>Unadjusted odds ratio (95% CI)</th>
<th>Adjusted odds ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>London</td>
<td>1.45 (1.22–1.72)</td>
<td>1.19 (1.09–1.30)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A number of procedures were performed in both surveys in order to minimise possible selection bias; these included choosing either all or a representative sample of venues, ensuring that all individuals present in the bars were offered a questionnaire and counting refusals to calculate a response rate. Respondents were required to self-complete questionnaires in public settings, which may have led to a possible reporting bias, particularly of behaviours which may be regarded as censored. However, we are confident that the self-complete questionnaires used generated reliable data as the level of reported UAI was comparable to that reported in Glasgow, the West Midlands and from respondents throughout the UK who attended six Gay Pride events in 1997.

Important differences were observed in the reported levels of high-risk sexual behaviour in each city. Men who were surveyed in London were more likely to have had UAI with one or more partners in the previous year (although this association was of borderline significance) and to report two or more UAI partners in the previous year. Furthermore, the mean number of UAI partners in the previous year was also significantly higher for men recruited in London (mean = 3.6) than those in Edinburgh (mean = 1.6). It is possible that the larger proportion of London men who have recently had UAI and the greater numbers of UAI partners that these men report may account for the dissimilarities in the HIV epidemics in London and Edinburgh. In a situation in which HIV prevalence is higher in London than in Edinburgh, this may place these men at particular risk and could in part explain the continuing high incidence of infection in London.

In both cities, younger gay men were more likely to have engaged in UAI in the previous year. A similar observation has been reported in other countries and consistently so in the USA. However, this has not been a feature of homosexual men's sexual behaviour in some European countries or, until now, the UK. An earlier study combining data collected from Edinburgh and Glasgow demonstrated that younger men (16-25 years) were significantly more likely to report more UAI sexual partners in the previous year and to have ever had an HIV test. A survey of men recruited from a wide variety of venues in London demonstrated that there was a relationship between age, high-risk sexual behaviour and HIV testing. This association between younger age and increased high-risk sexual behaviour clearly warrants further investigation.

The HIV prevention strategy of 'negotiated safety' (which has been promoted in London but not Edinburgh) encourages men to reduce their risk of HIV infection by ensuring that regular UAI partners are of the same HIV status as themselves and that an explicit agreement concerning sex outside the relationship is negotiated. It is a pragmatic strategy which recognises that some men will continue to engage in UAI, often within regular relationships, but is still controversial and has also been called 'negotiated danger'. As an indicator of negotiated safety, both surveys asked men to record whether they knew whether their UAI partners were of the same HIV status as themselves. Men in London appeared to be less able to negotiate safety, but as the time frames were not the same (i.e. last partner in Edinburgh compared to all partners in the previous year in London) these data do not exclude the possibility that men in both cities in fact exhibit the same behaviour.

However, of major concern is the observation that over one-quarter of men surveyed who claimed that they had had UAI with a partner of the same HIV status had never had an HIV test. HIV testing is an essential requirement for the strategy of negotiated safety being successful. This observation supports previous work which reports that the decision to dispense with condoms made by men in regular relationships is often not based on knowledge of their own or partner's HIV status as determined from a recent test. Thus, men in regular relationship who have discontinued using condoms for reasons of love, trust and intimacy with their regular partner may still be at risk of HIV infection from within their relationship.

Men recruited in London were much more likely to have had an HIV test in the past and to have done so in the previous year than the population surveyed in Edinburgh. There are three major implications of this observation. The first is that, since surveillance of the HIV epidemic in the UK is partly dependent on individuals at risk coming forward for an HIV test and partly on anonymous HIV testing of GUM clinic attenders, differences in the observed epidemic between Edinburgh and London may be due in part to different health-seeking behaviours and, in particular, the use of sexual health services. Secondly, it is increasingly important that individuals know their HIV antibody status in order to obtain access to highly active, antiretroviral therapies for HIV disease. The implications of this are not only at the individual level (in improved length and quality of life) but there are also public health implications (in terms of control of infection, hospital admissions and drug costs). Finally, health promotion campaigns which encourage negotiated safety as a credible HIV prevention strategy will need to emphasise the importance of increased levels of HIV testing and accurate self-assessment of HIV status.

We have described levels of high-risk sexual and HIV testing behaviour amongst two major gay communities in the UK. There are important differences in self-reported high-risk sexual behaviour between homosexual men recruited from either city which may account for the dissimilarities in the HIV epidemics. However, a larger proportion of homosexual men in London have ever and recently (in the previous year) had an HIV test and this aspect of behaviour may account for some of the observed differences in the HIV epidemic in the two cities.

Data from both cities indicate that a large proportion of men continue to report recent, high-risk sexual behaviour which suggests that the transmission of HIV infection will persist at current levels. The incidence of HIV infection may even be worsened as HIV-positive individuals live longer and healthier lives due to improved HIV therapies, though the associated reduction in viral load...
might itself decrease the likelihood of transmission. Thus, there is an urgent need for sustained and innovative HIV prevention campaigns amongst homosexual men. However, in contrast to many previous campaigns, these must be evaluated rigorously for their effectiveness. The knowledge that sexual behaviour is comparable in two major homosexual communities in the UK provides a good basis for complementary HIV prevention programmes in both England and Scotland.

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