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## **HIV infection among ethnic minority and migrant MSM in Britain**

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## **Abstract**

### **Objectives**

To examine HIV infection among men who have sex with men (MSM) from different ethnic and migrant groups living in Britain.

### **Methods**

In 2007-2008 a diverse national sample of MSM living in Britain was surveyed online. Men were recruited through websites, in sexual health clinics, bars, clubs and other venues.

### **Results**

991 ethnic minority MSM, 207 men born in Central or Eastern Europe (CEE), 136 men born in South or Central America (SCA) and 11,944 white British men were included in the analysis. Compared with white British men (13.1%), self-reported HIV prevalence was low for men of South Asian, Chinese and “other Asian” ethnicity (range 0.0-5.8%) and for men born in CEE (4.5%) but elevated for men born in SCA (18.7%) ( $p < 0.001$ ). There were no significant differences between these groups in high risk sexual behaviour ( $p = 0.8$ ). After adjusting for confounding factors in a multivariable model, substantial

differences in the odds of HIV infection remained for South Asian and Chinese MSM as well as for migrants from CEE, but not for other groups (compared with white British men) ; e.g. South Asian men, adjusted odds ratio 0.43, 95% confidence interval 0.23, 0.79,  $p=0.007$ .

## **Conclusion**

Although there were marked differences in self-reported HIV prevalence between ethnic minority, key migrant and white British MSM in this study, we did not find corresponding differences in high risk sexual behaviour. This highlights the importance of health promotion targeting MSM from all ethnic and migrant groups in Britain regardless of HIV prevalence.

## **Key words**

Ethnic minority, migrants, men who have sex with men, sexual behaviour, HIV infection

## Introduction

Striking differences in HIV prevalence have been reported in the USA and in the UK between black, white and Asian men who have sex with men (MSM) [1-6]. HIV prevalence is generally higher among black MSM and lower among Asian MSM when compared with white MSM. The factors that underpin these differences, however, are not fully understood [1, 3, 4].

Previous studies among ethnic minority MSM in the UK have tended to focus on “black” and “Asian” MSM [6, 7]. These broad categories, however, are made up of a diverse range of ethnic groups [8]. “Black” MSM include men of black Caribbean as well as black African ethnicity while “Asian” MSM include men of Indian, Pakistani as well as Bangladeshi origin. Consequently, ethnic minority MSM in Britain merit further examination, to explore their diversity and to better understand differences in HIV prevalence and risk factors between ethnic groups.

Since 2004, ten Central and Eastern European countries have joined the European Union, leading to increased migration of people, including MSM, from these countries to the UK [9]. In addition, some community groups (this is a bit vague) have noted an increased visibility of MSM from South and Central America which may be a consequence of recent migration to the UK [10, 11]. MSM who have moved from these countries to Britain also merit consideration.

The aim of the MESH project (Men and Sexual Health) was to examine the sexual health of ethnic minority and migrant MSM living in Britain [12]. In this paper we explore differences in self-reported HIV prevalence between MSM from a number of ethnic and migrant groups in Britain and examine whether these differences can be explained by individual risk factors for HIV such as sexual behaviour or recreational drug use.

## **Methods**

### *Sample*

For the MESH project, we recruited a national sample of ethnic minority MSM both “online” (through the Internet) and “offline” (e.g. through sexual health clinics or gay venues). We also recruited “key migrant” MSM, i.e. MSM who had migrated to Britain from South and Central America or from Central and Eastern Europe (i.e. Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). In addition, we recruited a comparison group of white British MSM who were born in the UK. Key migrant and white British MSM were recruited primarily “online”, ie through the Internet. Ethnic minority MSM were recruited both “online” and “offline”. All men were asked to complete a questionnaire online which took 20-30 minutes to complete. The methods have been described in detail elsewhere [12].

### *Ethnicity*

Our question on ethnicity was based on the 2001 census for England and Wales in which each person in the household was asked: What is your ethnic group? [16]. In the census, respondents could tick one of the following: White (British, Irish, Other); black (Caribbean, African, Other); Asian (Indian, Pakistani, Bangladeshi, Other); Chinese or other ethnic group; Mixed (black Caribbean and white, black African and white, Asian and white; any other mixed background). We modified this classification slightly. Instead of “Asian and white”, we created a classification “Indian, Pakistani or Bangladeshi (IPB) and white” since we were particularly interested in this subgroup. We omitted “any other mixed background” (such respondents could tick “other ethnic group”). In accordance with the expansion of the ethnic group categories for the 2011 census we also included “Arab” [17].

In the census people who tick white British, Irish or other are classified as “white” while the other ethnic groups (13 in our study) are classified as “ethnic minority” (see tables 1-5). The category “ethnic minority” includes people born in, as well as outside the UK..

### *Key migrants*

A question on country of birth allowed us to identify men who were born in in Central and Eastern Europe (CEE) or in South or Central America (SCA) *regardless of ethnicity* (“key migrants”). The majority of men born in Central and Eastern Europe described their ethnicity as “White other”. Most of the

men born in South or Central America described themselves as “White other” or had ticked “Other ethnic group” on the questionnaire (see Results section).

#### *Online recruitment*

Between August 2007 and April 2008, we promoted the MESH project using banner advertisements on community, health promotion and social networking websites used by ethnic minority MSM. We also promoted the project on Gaydar, the most popular gay dating site in the UK. In February 2008 we sent an email describing the MESH project to people who managed the email lists of different community groups and asked them to forward the email to their list members. The banner advertisements and emails contained a direct link to the online questionnaire.

#### *Offline recruitment*

To recruit ethnic minority MSM “offline” we advertised the project in sexual health clinics, bars and clubs in 15 British towns and cities with a significant ethnic minority population. The cities and towns were (in alphabetical order): Birmingham, Bradford, Brighton, Bristol, Cardiff, Glasgow, Leeds, Leicester, Liverpool, London, Luton, Manchester, Newcastle, Nottingham and Sheffield [13]. Between October 2007 and February 2008, sexual health clinics in these towns and cities promoted the MESH project among ethnic minority MSM by displaying posters and postcards in their waiting areas and providing information verbally if the opportunity arose during a clinic consultation. HIV



prevention and health promotion organisations distributed posters and postcards as part of their outreach work in bars, clubs, drop in centres and other gay venues. In London, we distributed postcards at black gay pride events as well as in clubs and venues known to attract a large number of ethnic minority or South American MSM. We also placed advertisements in the London, Manchester and Newcastle gay press and postcards were included in the Freshers' pack sent to all university LGBT societies in the UK by Gaydar. Men recruited "offline" were asked to complete the questionnaire online.

### *Questionnaire*

Men were asked to provide information on their socio-demographic characteristics (age, ethnicity, country of birth, place of residence, employment, education), sexual identity and behaviour, HIV test history, HIV status, recreational drug use, HIV treatment optimism and use of the Internet for seeking sex. All information was self-reported including HIV status.

If men reported unprotected anal intercourse (UAI) in the previous three months, we asked about the HIV status and ethnicity of their partner(s). UAI was classified as either concordant (only with a partner of the same HIV status) or non-concordant (with a partner of unknown or different HIV status). Men reporting both concordant and nonconcordant UAI were assigned to the group of greatest risk for HIV transmission, i.e. nonconcordant UAI. UAI reported by men who had never been tested for HIV was classified as non-

concordant. Being unaware of their own HIV status, they were not able to establish concordance with a sexual partner [14, 15].

For financial reasons the questionnaire was only in English. All questionnaires were anonymous and confidential. Need to mention ethics approval?

### *Statistical analysis*

Data were analysed using STATA software (version STATA/SE8.2 for Windows). The sample comprised 13 ethnic minority groups, 2 key migrant groups and a comparison group of white British men. Only white British men born in the UK were included in the comparison group. Men who were over the age of 18 years, lived in the UK and reported ever having had sex with a man were eligible for inclusion. Because of small numbers, for some of the analyses ethnic groups were combined as follows: black MSM (comprising black Caribbean, black African, black other, black Caribbean-and-white, black African-and-white men); South Asian MSM (comprising Indian, Pakistani, Bangladeshi, IPB-and-white men).

In descriptive analyses chi-square tests were used to compare different groups. We used univariable logistic regression models to examine the crude associations between ethnic or key migrant group and (i) sexual behaviour and (ii) HIV prevalence (based on self-reported diagnosed infection). These associations were further examined in multivariable logistic regression

models, controlling for individual risk factors, specifically age, place of residence, education, employment, HIV treatment optimism [14], recreational drug use [18] as well as HIV status (sexual behaviour model only) and sexual behaviour (HIV prevalence model only). In our study, the uptake of HIV testing varied between ethnic minority, key migrant and white British men (table 5). Since we did not know the prevalence of HIV among men who had **never** had an HIV test, only men who had **ever** had an HIV test were included in the HIV prevalence analysis.

In the text ??? and tables, data are presented: (i) for all ethnic minority MSM combined (except in table 5), (ii) for black and South Asian MSM and (iii) for the 13 separate ethnic groups. Data are also presented for men born in Central or Eastern Europe, men born in South or Central America and the comparison group of white British men born in the UK.

## **Results**

### *Sample*

Over 19,000 people clicked through to the homepage of the MESH online questionnaire and gave their consent to take part in the survey. Of these 17,425 matched the inclusion criteria. Of the men who matched the inclusion criteria, 1241 described themselves as ethnic minority. A further 416 men were “key migrants” from South or Central America (SCA) (n=173) and Central or Eastern Europe (CEE) (n=243). In addition, 13,717 men said they

were white British. The remaining 2051 men described themselves as white Irish or white Other and were excluded from the analysis except for men identifying as white Other who were born in CEE or SCA.

Of the 15,374 eligible men (1241 + 416 + 13717), 13,649 (88.8%) completed the whole questionnaire (ethnic minority MSM 83.2%, key migrant MSM 86.5%, white British MSM 89.3%,  $p < 0.001$ ). This analysis is based on 13,278 men completed the whole questionnaire and who provided information on their age, ethnicity, HIV status, and UAI in the previous 3 months (991 ethnic minority MSM, 136 men born in SCA, 207 men born in CEE, 11,944 white British MSM) (table 1, column 1).

Of the 136 men born in SCA, 85 described themselves as “white Other” while 37 had ticked “other ethnic group”. In addition, fourteen men described themselves as belonging to a specific ethnic minority. These were black Caribbean (n=2), black other (2), black African and white (6), black Caribbean and white (3) and Chinese (1). These 14 men together with the 37 men who had ticked “other ethnic group” were classified as “key migrants” from SCA for the purpose of this analysis. Of the 207 men born in CEE, two described themselves as black Caribbean, two men were of unknown ethnicity while the remaining 203 CEE men described themselves as white Other. The two CEE-born black Caribbean men were also classified as “key migrants” for the purpose of this analysis.

### *Background characteristics*

Ethnic minority and key migrant men were younger than white British men ( $p < 0.001$ ) and more likely to live in London ( $p < 0.001$ ) (table 1). However, there was considerable heterogeneity between groups (table 1). For example, half the ethnic minority MSM were born in the UK, but this ranged from 13.0% for Chinese men to 88.7% for black Caribbean-and-white men ( $p < 0.001$ ). Ethnic minority and key migrant MSM were more likely to say they were students than white British men ( $p < 0.001$ ) and more likely to have some form of higher education ( $p < 0.001$ ).

Approximately half of all men in the sample said they had used recreational drugs in the last 12 months although this varied between groups ( $p < 0.01$ ) (table 2). In general ethnic minority and key migrant men were more likely than white British men to believe that new HIV treatments made people with HIV less infectious ( $p < 0.001$ ) (table 2). The vast majority of respondents in all groups had used the Internet to look for sexual partners in the previous 12 months.

### *Sexual identity and behaviour*

In all groups the majority of men described themselves as gay or homosexual ranging from 58.8% for Bangladeshi men to 93.6% for Central/Eastern European men ( $p < 0.001$ ) (table 3). Overall, ethnic minority men were more likely to describe themselves as bisexual than white British men (18.3% v 13.5%,  $p < 0.001$ ). However, there was substantial variation between ethnic

groups ( $p < 0.01$ ). While the percentage of black African, Indian, Pakistani, Bangladeshi and Arab men who identified as bisexual was elevated (range 20.0%-41.0%), the percentage for black Caribbean, black other, black Caribbean-and-white and Chinese men was little different from that for white British men (range 7.0%-16.0%) (table 3). Very few respondents described themselves as heterosexual (range 0.0%-0.9%). Because of small numbers in many cells, these data are not included in table 3 but are available from the authors on request.

Most respondents said they had only had sex with a man (or men) in the previous 12 months but this varied between ethnic and migrant groups (range 76.3%-96.1%,  $p = 0.05$ ) (table 3). In general ethnic differences in sexual behaviour reflected corresponding differences in sexual identity.

#### *Unprotected anal intercourse*

Over a quarter of respondents (27.4%) reported UAI with a partner of unknown or discordant HIV status in the previous 3 months (ie non-concordant UAI). Overall, there was no significant difference between ethnic minority, key migrant and white British MSM in the percentage reporting non-concordant UAI ( $p = 0.8$ ) (table 4). In multivariable analysis there was no significant difference between any of the individual groups in the percentage reporting non-concordant UAI nor between “black men” and “South Asian men” (table 4).

Stratifying by place of birth (born in the UK v outside UK) did not alter these findings (data available from the authors on request).

### *Self-reported HIV prevalence*

Key migrant MSM and some of the ethnic minority MSM were more likely to have ever had an HIV test than white British MSM ( $p < 0.001$ ) (table 5). Part of the differential was explained by the fact that ethnic minority and key migrant MSM were more likely to live in London where overall levels of HIV testing are higher than elsewhere in the UK (reference). After stratifying for place of residence (London, outside London), levels of HIV testing remained elevated for key migrant MSM compared with white British MSM both in London and outside London ( $p = 0.01$ ). On the other hand, the differentials in HIV testing between ethnic minority and white British men only remained significant for men living outside London ( $p < 0.001$ ) but not for men living in London ( $p = 0.9$ ). (full data available for authors on request).

Among men who had ever had an HIV test, self-reported HIV prevalence was 13.1% for white British men. For ethnic minority and key migrant MSM, HIV prevalence ranged from 3.8% for Chinese men to 18.7% for SCA men ( $p < 0.001$ ) (table 5).

In univariable analysis, with white British MSM as the reference group, the odds of HIV infection were elevated for SCA men ( $p = 0.07$ ) and reduced for Indian ( $p = 0.02$ ), Chinese ( $p = 0.01$ ), Other Asian ( $p = 0.03$ ) and CEE men

( $p=0.003$ ) (table 5). After adjusting for confounding factors the lower odds for Chinese and CEE men remained significant in multivariable analysis ( $p\leq 0.05$ ) while they were of borderline significance for Indian and Other Asian men ( $p=0.07$ ). The elevated odds for SCA men were no longer significant ( $p=0.25$ ).

Because of the small number of men who were HIV positive in some ethnic groups, ethnic minority men were reclassified into two larger groups as described in the Methods (black men, South Asian men). HIV prevalence was 14.2% for black men and 5.8% for South Asian men (compared with 13.1% for white British men) (table 5). In univariable analysis the odds ratio for South Asian men was reduced ( $p=0.003$ ) while for black men it was not significantly different from that for white British men ( $p=0.59$ ) (table 5). After controlling for confounding factors, the odds ratio for South Asian men remained significantly reduced ( $p=0.007$ ).

Of the 205 South Asian men who had ever had an HIV test, 133 were born in the UK while 72 were born outside the UK. There was no significant difference in the prevalence of HIV among South Asian men born in the UK (6.0%, 8/133) and South Asian men born abroad (5.6%, 4/72,  $p=0.9$ ). Within the South Asian group, the point estimates for HIV prevalence for the individual ethnic groups (ie Indian, Pakistani, Bangladeshi) ranged from 0.0% to 4.9% with the exception of IPB-and-white men whose point estimate was 10.9% (table 5). It should probably be this paragraph and the following one or neither of them.



Of the 246 black men who had ever had an HIV test, 167 were born in the UK while 79 were born outside the UK. HIV prevalence was higher for black men born abroad (17.7%, 14/79) than for UK-born black men (12.6%, 21/167) although the difference was not statistically significant ( $p=0.3$ ). On closer inspection it appeared that the elevated prevalence was seen only among black men from a mixed background. For black-and-white men born abroad HIV prevalence was 25.9% (7/27) compared with 8.3% (6/72) for UK-born black-and-white men ( $p=0.02$ ). For all other black men (i.e. black Caribbean, black African or black other combined), HIV prevalence for those born abroad was 13.5% (7/52), little different from the figure for men in that group born in the UK (15.8%, 15/95,  $p=0.7$ )

## **Discussion**

In this study we found striking differences in HIV prevalence between white, ethnic minority and key migrant MSM living in Britain. Compared with white British men, HIV prevalence was lower for South Asian and Chinese MSM and for men who were born in Central or Eastern Europe.

A fundamental question is whether the differences in HIV prevalence between ethnic minority, key migrant and white British MSM seen here can be explained by individual risk factors for HIV. Compared with white British men in our study, ethnic minority and key migrant MSM were, in general, younger, more likely to believe that new treatments for HIV made people with HIV less

infectious and more likely to live in London. These factors are all associated with HIV infection. On the other hand, there were no significant differences between ethnic minority, key migrant and white British men in the percentage who reported non-concordant unprotected anal intercourse (UAI) in the last three months.

After adjusting for confounding risk factors in a multivariable model, substantial differences in the odds of HIV infection remained between white British men and South Asian or Chinese MSM as well as migrants from Central or Eastern Europe. It appears that the low prevalence of HIV seen in South Asian, Chinese and Central or Eastern European men in this study could not be explained by individual risk factors for HIV.

A number of studies conducted in the USA have also found that in multivariable analysis, individual risk factors can not explain differentials in HIV prevalence between ethnic groups [1, 3, 4, 20]. In the USA, however, it is the elevated prevalence of HIV among black MSM that can not be explained by individual risk factors [3, 4]. In our study, on the other hand, it is the lower prevalence of HIV among men of South Asian or Chinese ethnicity or among migrants from Central or Eastern Europe that cannot be explained in this way. HIV prevalence among black MSM in our study was not significantly different from that for white British MSM in univariable or multivariable analysis.

In this respect, our findings are at variance with other studies conducted in the USA and Britain which have found that black MSM have higher HIV

prevalence than white men although, like our study, they also report that Asian men have relatively low prevalence [1-6]. For example, the UK Gay Men's Sex Survey (UKGMSS) found a significant two-fold difference in HIV prevalence between white British and black MSM surveyed in 2002 [6] and in subsequent years. How might we explain this striking difference between our findings and those of other studies?

In 2007, the UKGMSS found that while HIV prevalence continued to vary by ethnicity (higher among black men, lower among Asian men) these differences were not statistically significant [21]. In particular the differential between black and white British men was attenuated compared with earlier surveys. This suggests that the ethnic patterning of HIV infection among gay men in Britain may be fluid and could be changing over time. The 2007 UKGMSS was conducted just a few months before our own study and the HIV prevalence estimates for black and Asian men in the two studies are comparable (reference). Another explanation may be that the MESH project and the UKGMSS used different sampling and recruitment strategies which affected ethnic group differences in self-reported HIV prevalence.

Our study throws into sharp focus the diversity of ethnic minority MSM in Britain. For many variables (eg sexual identity) there were differences between black Caribbean and black African men or between Indian and Pakistani men. These differences are concealed when men from these ethnic groups are classified as "black" or "Asian". For some of our analyses we had to use these broad groupings because of small numbers.

Nonetheless, we have been able to highlight important differences between individual ethnic groups as well. Furthermore, our study has alerted us to some important differences between men of mixed ethnicity (eg black Caribbean and white) and men of “single ethnicity” (eg black Caribbean).

One of the limitations of the study is that it relied on convenience samples as is often the case for research among MSM [22-26]. Consequently, we can not claim to have recruited a representative sample of ethnic minority, key migrant or white British MSM. The questionnaire was only in English which would have prevented men with limited knowledge of the language from participating. Furthermore, recruiting men through the Internet does not allow us to calculate a response rate [27]. The number of men in some of the ethnic groups was small, highlighting the challenges of recruiting men who are a minority within a minority.

On the other hand, ours is the largest sample of ethnic minority MSM surveyed in Britain to date and the first study to examine this population in depth in this country. The broad characteristics of the ethnic minority MSM here reflect those of the ethnic minority population recorded in the census. For example, in the census the ethnic minority population was younger than the white British population and more likely to live in London [28, 29]. In our sample, black Caribbean respondents were more likely to be born in the UK than black African respondents, reflecting different patterns of migration from the Caribbean and Africa to Britain in the second half of the 20<sup>th</sup> century [28]. The low prevalence of HIV among men from Central or Eastern Europe in our

survey reflects patterns of infection among MSM in their region of origin (19). Another study conducted among MSM from CEE living in the UK in 2010 also reported relatively low prevalence of HIV (4.8%) in this group (Evans et al).

In conclusion, HIV prevalence was lower among men of South Asian and Chinese ethnicity living in Britain compared with white British men.

Prevalence was also lower for migrants from Central or Eastern Europe.

These differences could not be explained by corresponding differences in sexual behaviour or other individual risk factors for HIV. How then can these differences be explained? One possibility is that there may be sexual networks of MSM based on ethnicity which could place men in some ethnic groups at greater or lower risk of HIV infection than men in other groups [3, 4]. This has been examined in the USA [2, 30] but to date has not been explored in Britain. We will consider this possibility in a future paper.

Although there were marked differences in HIV prevalence between ethnic minority, key migrant and white British MSM in this study, we did not find corresponding differences in high risk sexual behaviour. This highlights the importance of health promotion targeting MSM from all ethnic and migrant groups in Britain, regardless of HIV prevalence, since their prevailing patterns of high risk sexual behaviour do not appear to differ.

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### **Authors' contributions**

JE, SN, NL and JA conceived the study; JE, EM, SN, NL and JA participated in its design; JE was responsible for overall project management; EM was responsible for both the quantitative and qualitative arms of the study; RD was responsible for quantitative data analysis; JE drafted the manuscript with input from EM and RD. All authors read, revised and approved the final manuscript.

### **Competing interests**

The authors declare that they have no competing interests.

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