

## Ethnic differences among patients in high-security psychiatric hospitals in England

MORVEN LEESE, GRAHAM THORNICROFT, JENNY SHAW, STUART THOMAS, RAJESH MOHAN, MARI ANNE HARTY and MAIREAD DOLAN

**Background** Black (Black Caribbean and Black African) patients are over-represented in admissions to general adult and medium-security psychiatric services in England.

**Aims** To describe the socio-demographic, clinical and offence characteristics of patients in high-security psychiatric hospitals (HSPHs) in England, and to compare admission rates and unmet needs by ethnic group.

**Method** A total of 1255 in-patients were interviewed, and their legal status, socio-demographic characteristics and individual treatment needs were assessed.

**Results** Black patients in HSPHs are over-represented by 8.2 times (range 3.2–24.4, 95% CI 7.1–9.3), are more often male ( $P=0.037$ ), and are more often diagnosed with a mental illness and less often diagnosed with a personality disorder or learning disability ( $P<0.001$ ) than White patients. Unmet needs were significantly less common among White than among Black patients (mean values of 2.22 v. 2.62, difference=0.40, 95% CI 0.06–0.73).

**Conclusions** Compared with the proportion of Black patients in the general population in their region of origin, a much higher proportion of Black patients were admitted to HSPHs, and fewer of their needs were met.

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Higher prevalence rates of mental illness, particularly schizophrenia, have been found among Black Caribbean people in the UK, and higher admission rates to intensive-care and medium-security psychiatric units have been found for Black Caribbean patients than for White patients, but such differences have not been found for rates of common mental disorders (Harrison *et al*, 1988; McGovern & Cope, 1991; Cole *et al*, 1995; Bebbington *et al*, 2000; Weich *et al*, 2004). The evidence on differential admission rates has been summarised elsewhere (Thornicroft *et al*, 1999; Coid *et al*, 2000, 2002a,b; Bhui, 2001; Lelliott *et al*, 2001). Higher rates of compulsory admission have also been reported for Black Caribbean patients (Harrison *et al*, 1984). In addition, Black Caribbean patients have higher rates of contact with the police and forensic services (McGovern & Cope, 1991), and with intensive-care facilities (Moodley & Thornicroft, 1988).

### METHOD

The aims of this paper are as follows: to describe the socio-demographic, clinical and offence characteristics of patients from different ethnic groups in high-security psychiatric hospitals (HSPHs) in England; to establish whether Black and White patients were admitted to the HSPHs in proportion to their percentage representation in their regions of origin before admission; and to examine the proportion of met needs across a range of social and clinical domains with regard to ethnic origin. The specific hypotheses tested were that Black patients would be relatively overrepresented in HSPHs compared with White patients, and that fewer of their needs would be met.

This investigation took place in the context of a study designed to assess the needs of all patients in the three HSPHs in England. These hospitals are the treatment

settings that are used for mentally disordered offenders who have committed the most serious crimes. Staggered census dates were used for each of the following groups of patients during the period 1999–2000: women detained under all legal classifications; men detained under the legal classification of mental impairment or severe mental impairment; men detained under the legal classification of mental illness or dual legal classification (excluding mental impairment or severe mental impairment); and men detained under the legal classification of psychopathic disorder. All in-patients at the three HSPHs in England were included on these census dates. The only exclusion criterion was being on trial leave. Ethical approval was granted by the local research ethics committees at the Institute of Psychiatry, Ashworth, Broadmoor and Rampton Hospitals. The study is described in more detail elsewhere (Harty *et al*, 2004; Thomas *et al*, 2004a,b).

### Measures

The following scales were used.

The Camberwell Assessment of Need Forensic – Short Version (CANFOR-S; Thomas *et al*, 2003) is a forensically orientated version of the CAN (Slade *et al*, 1999). It covers 25 domains of frequent or important problem areas for people with severe mental disorders in forensic settings. It rates met and unmet needs in each of these domains, and it can be completed by staff, by patients or by both. Here we report the results of the CANFOR-S completed by staff for all patients.

The Camberwell Assessment of Need: Developmental and Intellectual Disabilities – Short Version (CANDID-S; Xenitidis *et al*, 2000) is an adaptation of the CAN that is designed to assess the needs of individuals with learning disabilities and mental illness. In order to avoid overlap with the CANFOR-S, only six items in the CANDID-S were included, namely eyesight and hearing, mobility, seizures, exploitation risk, inappropriate behaviour and problems with communication. These areas are not specifically covered in the CANFOR-S, and were considered to be important aspects of need that were potentially relevant to all patients irrespective of legal classification. This abridged version of the CANDID-S was applied to all patients.

An adapted version of the Nottingham Acute Bed Utilisation Study (NABUS)

questionnaire was also used. This scale is a forensic adaptation of the Nottingham Acute Bed Study: Alternatives to Acute Psychiatric Care questionnaire. Respondents rated patients' current placement needs. Placement options ranged from secure hospital placements to supported and independent accommodation in the community. The reasons for previous placement failure were also recorded (Beck *et al*, 1997).

The Security Dependency Treatment Political Secure Care Scale (SDTP; Shaw *et al*, 2001) was used to assess service-oriented need according to a visual-analogue scale. This scale measures need for security, dependency needs, treatment needs, and so-called 'political needs'. The latter include consideration of media profile of particular patients, and factors such as Home Office status, which may affect placement need.

The following sources were used to gather information. The High-Security Hospital Case Register was used to obtain socio-demographic information and also a psychiatric and forensic history. A case-note review was conducted for all patients to obtain information on current legal classification and clinical diagnosis, which was confirmed by the high-secure responsible medical officer (RMO). ICD-10 criteria (World Health Organization, 1992) were used to categorise the clinical diagnoses recorded by hospital staff under the supervision of the RMO. IQ data were obtained from HSPH psychology files. The primary nurse was interviewed to obtain information for completion of the CANFOR-S and CANDID-S, and the high-security hospital RMO was interviewed to obtain information for completion of the adapted version of the NABUS.

The RMO and primary nurse were not blind to the aims of the study in general, but were unaware of our intention to investigate ethnicity in particular. Information on ethnicity was derived from the High-Security Hospital Case Register at Broadmoor Hospital, which records patients' ethnic group according to self-report during a face-to-face interview shortly after admission to the HSPH, using standard Office for National Statistics (ONS) categories. For the purposes of data analysis the categories that were included as 'Black' in this study were 'Black Caribbean', 'Black African' and 'Black Other' (as self-descriptions by patients). There were 143 Black Caribbean, 25 Black

African and 35 Black Other patients. Because of the small numbers of patients in the latter two groups, all three groups were combined (as in a previous study by Maden *et al*, 1999b) to give a sample consisting of 878 White and 203 Black people.

### Region of origin

Each patient's region of origin was determined from their last known address (or the place of the index offence if the patient was of no fixed abode). Because of boundary changes, the regions were recoded into regional health authorities as defined in 2001.

Census population figures for administrative regions that approximately corresponded to these authorities were obtained to enable the proportion of Black people relative to the total population to be estimated (Office for National Statistics, 2001). For the North Region the average population figures for the North East, Yorkshire and the Humber were used, and for the Trent Authority the East Midlands figure was used.

### Data acquisition, validation and statistical analysis

Regular training meetings were held for research workers from the three hospitals to enhance the reliable collection of data between sites. Data were entered into a Microsoft Access database and were analysed using the Statistical Package for the Social Sciences for Windows, version 11 software. A sample of case-register data was cross-validated with case notes. Data were securely transported and entered at the lead site (Institute of Psychiatry/Broadmoor Hospital). A random sample of 20% of the entered data was rechecked for errors.

The two groups were compared using chi-squared tests (for categorical variables) and *t*-tests (for continuous variables), assuming unequal variances where appropriate. Unmet needs that differed between groups at  $P < 0.05$  were modelled using logistic regression, to adjust for the confounding effect of background variables. The proportion of Black patients for whom each regional health authority was responsible was compared with the proportion in the population of the nearest equivalent administrative region (as defined in the 2001 Census).

## RESULTS

### Ethnicity and region of origin

Compared with the proportion of Black patients in the general population in their region of origin, the Black patients in HSPHs are over-represented by 8.2 times (95% CI 7.1–9.3), with a range of 3.2–24.4 across regions, as shown in Table 1. Although over 50% of the Black patients originated from the London region, the degree of overrepresentation here was less than for any other part of England or Wales. However, the small sample sizes from some regions and the approximate nature of the data mean that the findings must be interpreted with caution.

### Socio-demographic, clinical and offence characteristics

There were several important distinctions between White and Black patients in terms of their socio-demographic, clinical and offence characteristics (Table 2). Black patients were more often male, and on average were slightly younger. They more frequently had an index offence of a violent or sexual nature, and were more often diagnosed as having a mental illness and less often diagnosed as having a personality disorder or learning disability. Black patients had a history of more previous psychiatric admissions to hospital than White patients, although the difference was not significant.

### Security and treatment needs

There were no significant differences between ethnic groups with regard to current security level, treatment, dependency on care provided or risk of current violence, according to the SDTP. Interestingly, the assessments of the HSPH consultant/RMO were similar to those of the patients themselves with regard to the need for ongoing high security, which applied to between two-thirds and three-quarters of all patients respectively (Table 3). Black patients were on average assessed as having significantly more unmet needs on the CANFOR-S than White patients (mean values of 2.22 *v.* 2.62, difference=0.40, 95% CI 0.06–0.73), and slightly fewer met needs than White patients (mean values of 1.11 *v.* 0.94, difference=0.16, 95% CI 0.005–0.32).

Table 4 compares the unmet needs and odds ratios for Black and White patients. Seven unmet needs differed between Black and White patients at a significance level of  $P < 0.05$ , namely psychotic symptoms,

**Table 1** Ethnic group of high-security psychiatric hospital (HSPH) patients by region of origin and comparison with the general population

Regional health authority of origin	White patients <sup>1</sup>		Black patients <sup>1</sup>		Black people in general population <sup>2,3</sup> (%)	Ratio of Black patients in HSPH to Black people in population <sup>2,4</sup> (%)	95% CI for ratio
	<i>n</i>	%	<i>n</i>	%			
North West	106	84	21	17	0.65	25	16–39
Trent	89	86	14	14	1.00	14	7–23
West Midlands	58	80	15	21	2.2	9	5–16
South West	90	94	6	6	0.44	14	5–31
South East	163	94	10	6	0.74	8	4–14
London	165	57	123	43	13.3	3	3–4
Eastern	55	93	4	7	0.94	7	2–19
Northern & Yorkshire	94	91	9	9	0.40	21	9–37
Wales	47	98	1	2	0.26	8	0–46
Total	875	81	203	19	2.3	8.2	7.1–9.4

1. Percentages are in relation to total number of White and Black patients, excluding other ethnic groups.

2. 'Black' includes Black Caribbean, Black African and Black Other groups in both HSPH and general population figures.

3. Population figures from 2001 Census.

4. Ratios rounded to nearest integer, except for total.

**Table 2** Socio-demographic, clinical and offence characteristics of White and Black high-security psychiatric hospital (HSPH) patients

	White patients	Black patients	<i>P</i>
Male	731 (83)	181 (89)	0.037
Index offence: <i>n</i> (%)			
Homicide	226 (29)	53 (28)	0.001
Violence	292 (37)	86 (46)	
Sex-related	99 (13)	30 (16)	
Arson	98 (12)	5 (3)	
Other (including property acquisition)	74 (12)	14 (7)	
Legal category: <i>n</i> (%)			
Mental illness	437 (50)	173 (85)	<0.001
Personality disorder	265 (30)	7 (3)	
Mental impairment	81 (9)	5 (2.5)	
Mental illness and personality disorder	95 (11)	18 (9)	
History of violence, homicide or sexual offending: <i>n</i> (%)	400 (45.6)	107 (52.7)	0.073
Total number of offences: mean (s.d.)	1.83 (1.70)	2.01 (1.92)	0.164
Current age (years)	40.03 (10.66)	38.35 (8.89)	0.020
Age when admitted to HSPH (years): mean (s.d.)	30.59 (9.08)	29.84 (7.62)	0.221
Length of stay in HSPH (years): mean (s.d.)	9.44 (6.45)	8.51 (6.39)	0.065
Total number of psychiatric admissions: mean (s.d.)	4.28 (3.48)	4.86 (3.69)	0.061

safety with regard to self, use of alcohol, use of drugs, child care, money, and eyesight and hearing. Safety with regard to self and use of alcohol were needs associated with the White group, whereas all the other needs were associated with the Black group.

Each of these needs was entered into a logistic regression analysis as a dependent variable, with ethnic group as the

independent variable entered first, and age, gender and legal category subsequently entered in turn. This analysis was performed to assess whether these variables had confounded the apparent differences in unmet need between ethnic groups. It showed that the differences in unmet need in the domains of psychotic symptoms and 'safety with regard to self' were to

some extent, although not entirely, confounded by legal category. Unmet need in the domain of psychotic symptoms was higher for patients in the 'mental illness' legal category, among whom Black people were overrepresented. After adjusting for legal category, the odds ratio for Black compared with White patients decreased from 1.856 to 1.458 (95% CI 0.937–2.270). Unmet need in the domain of 'safety with regard to self' was higher among individuals with personality disorder, among whom White patients were overrepresented. The adjusted odds ratio for White compared with Black patients was 0.202 (95% CI 0.048–0.855), whereas it was 0.165 before adjustment.

## DISCUSSION

### Context of the study findings

The context for this study was evidence that among general adult in-patients, Black Caribbean patients are admitted up to four times more often than White patients (Harrison *et al*, 1984; Bebbington *et al*, 1994; Davies *et al*, 1996). Furthermore, Black Caribbean patients in medium-security forensic in-patient units are up to 15 times more likely to be detained (Maden *et al*, 1999a). It therefore appears that the degree of overrepresentation of these patients increases in more secure settings, but few reports have so far addressed ethnicity in relation to HSPH settings (Guite & Field, 1997; Coid *et al*, 2000; Bhui, 2001; Bhui *et al*, 2003).

**Table 3** Patients' needs (according to SDTP and CAN) and RMO/patient assessment of overall need for high security

	White patients	Black patients	P
Overall security needs: <i>n</i> (%)			
Low	252 (29)	57 (28)	0.539
Medium	319 (37)	68 (34)	
High	301 (34)	76 (38)	
Overall treatment needs: <i>n</i> (%)			
Low	116 (14)	26 (13)	0.307
Medium	264 (31)	53 (27)	
High	463 (55)	119 (60)	
Overall dependency needs: <i>n</i> (%)			
Low	287 (33)	72 (35)	0.203
Medium	295 (34)	73 (36)	
High	288 (33)	56 (28)	
Risk of current violence: <i>n</i> (%)			
Low	433 (50)	87 (43)	0.140
Medium	206 (24)	40 (20)	
High	233 (27)	74 (37)	
Needs high security (RMO's view): <i>n</i> (%)	524 (73)	121 (75)	0.692
Needs high security (patient's view) <i>n</i> (%)	136 (64)	31 (71)	0.424
Forensic version of CAN (total out of 25) <sup>1</sup>			
Met need: mean (s.d.)	6.84 (2.46)	6.52 (2.48)	0.105
Unmet need: mean (s.d.)	2.22 (2.08)	2.62 (2.58)	0.044
CANDID-S (total out of 6) <sup>2</sup>			
Met need: mean (s.d.)	1.11 (1.06)	0.94 (0.95)	0.031
Unmet need: mean (s.d.)	0.25 (0.55)	0.27 (0.61)	0.768

SDTP, Security Dependency Treatment Political Secure Care Scale; CAN, Camberwell Assessment of Need; RMO, responsible medical officer; CANDID-S, Camberwell Assessment of Need: Developmental and Intellectual Disabilities – Short Version.

1. Data available for 876 White and 201 Black patients.

2. Data available for 870 White and 203 Black patients.

### Study limitations

This study has a number of important limitations. First, the aggregation of three different Black groups, which was undertaken to counter problems of small sample sizes, does not take into account the different cultural backgrounds of Black Caribbean and Black African patients. Second, the comparison with the general population is approximate because the regional health authority data for the general population referred to the year 2001, and as this is now an outdated administrative unit, more recent data were not available. In addition, general population data were not available. These data would have allowed calculations for each patient based on the exact year of admission, where the duration of stay for the current admissions for all the patients

in the study ranged from less than 1 year to more than 29 years. For this reason, age standardisation was not attempted. These population comparisons should therefore be treated with caution. Third, the significance levels were not adjusted for multiple testing. However, this was an exploratory study designed to identify areas of difference between the groups. Fourth, we used the clinical diagnoses made by the RMOs, stated in terms of ICD-10, although the reliability of their diagnoses in routine clinical practice is not known. Finally, it would have been preferable if the collection of sexual and violent offences had been disaggregated into separate categories.

### Results in relation to the study aims

The first aim of this study was to describe the patients in HSPHs in England in

terms of ethnicity in relation to socio-demographic, clinical and offence characteristics. It was found that among a hospital patient population that was overwhelmingly male, the proportion of men was even higher among Black patients. For the index offence, although homicide was equally common in both ethnic groups, White patients were more often detained following incidents of arson, and were less often detained for extremely violent offences. Important differences emerged in terms of legal diagnostic category, with White patients more frequently being diagnosed with a personality disorder or mental impairment, and far less often being diagnosed with a functional mental illness (Ndegwa, 2003). Paradoxically, although the Black patients were on average younger, they had accumulated more previous hospital admissions. This suggests a pattern of 'revolving-door' contact with services which was more common among Black than White patients. Interestingly, the risk of current violence did not appear to differ between the two ethnic groups.

The second aim of the study was to establish whether the proportion of Black and White patients who were admitted to the HSPHs was the same as the proportion of these ethnic groups in the general population in their regions of origin before admission. Despite the limitations with regard to establishing the population denominator data, the results are unequivocal. For all of England and Wales, Black patients are highly significantly overrepresented (by 8.2 times) in these hospitals compared with the rate that would be expected if they were admitted no more often than White people. This overrepresentation was also found for every regional health authority studied, with very considerable variation (from 3- to 24-fold), although the relatively small numbers of patients in some regions means that there are wide 95% CIs at the regional level. These findings are consistent with previous reports of ethnic differences in high- and medium-security hospitals (Leese *et al*, 1998; Maden *et al*, 1999b; Coid *et al*, 2000, 2001a,b; Puri *et al*, 2000; Bhui, 2001; Hodelet, 2001). However, this may reflect overrepresentation of Black patients in psychiatric services in general, rather than being a particular feature of high-security hospitals. The results of the UK70 Study (Walsh *et al*, 2002) suggested that, compared with a general psychiatric population matched by postcode, Black people were at most only moderately overrepresented



**Table 4** Unmet needs of Black and White patients in high-security hospitals

Unmet need	White patients n (%)	Black patients n (%)	Odds ratio (Black v. White)	95% CI
Daytime activities	202 (23)	57 (28)	1.303	0.923–1.838
Drugs	176 (21)	55 (28)	1.483*	1.042–2.111
Alcohol	205 (24)	29 (5)	0.545*	0.356–0.833
Sexual offending	135 (16.5)	40 (21)	1.327	0.895–1.969
Sexual expression	173 (20)	52 (26)	1.411	0.987–2.017
Safety with regard to others	112 (13)	31 (15)	1.237	0.804–1.903
Company	122 (14)	31 (15)	1.111	0.724–1.704
Psychotic symptoms	88 (10)	35 (17)	1.856*	1.213–2.841
Intimate relationships	107 (12)	32 (16)	1.370	0.891–2.104
Treatment	85 (10)	25 (12)	1.311	0.816–2.108
Psychological distress	73 (8)	22 (11)	1.347	0.814–2.228
Education	72 (8)	19 (9)	1.147	0.675–1.950
Accommodation	74 (8)	9 (4)	0.508	0.250–1.033
Arson	62 (7)	14 (7)	0.976	0.535–1.781
Physical health	47 (5)	13 (6)	1.204	0.639–2.270
Safety with regard to self	50 (6)	2 (1)	0.165*	0.040–0.685
Child care	35 (4)	17 (9)	2.271*	1.244–4.146
Money	28 (3)	15 (7)	2.426*	1.271–4.633
Information about treatment	25 (3)	11 (5)	1.948	0.942–4.027
Self-care	12 (1)	4 (2)	1.447	0.462–4.534
Living	10 (1)	4 (2)	1.739	0.540–5.601
Transport	12 (1)	2 (1)	0.720	0.160–3.244
Telephone	10 (1)	0 (0)	–	–
Food	9 (1)	0 (0)	–	–
Benefits	4 (<1)	3 (2)	3.263	0.724–14.692
Eyesight or hearing	23 (3)	11 (5)	2.116*	1.014–4.415
Mobility	9 (1)	1 (<1)	0.474	0.060–3.764
Seizures	3 (<1)	2 (1)	2.872	0.477–17.303
Exploitation risk	65 (7)	12 (6)	0.778	0.412–1.469
Inappropriate behaviour	98 (11)	24 (12)	1.058	0.658–1.701
Communication	22 (2)	4 (2)	0.775	0.264–2.273

\* $P < 0.05$ .

compared with White people in high-security hospitals. In terms of our first specific hypothesis, we did find significant overrepresentation of Black patients within the three HSPHs.

The third aim of this study was to compare the extent to which the needs of these patients are met in relation to ethnic group. Overall, the total number of needs from the CANFOR-S for Black and White patients was similar (9.14 and 9.06 respectively), but the average number of unmet needs was significantly lower for White compared with Black patients (2.22 *v.* 2.62, difference=0.40, 95% CI 0.06–0.77). This suggests that there are some variations in treatment and care with regard to ethnic group which have not been reported previously and which warrant more

detailed investigation in future (McKenzie, 1995; McKenzie & Crowcroft, 1996; Bhugra & Bhui, 1999; Bhui *et al.*, 2003). Such aspects of care have been relatively little studied, although it has been reported that among general adult patients in South London, Black patients with psychotic disorders were significantly less satisfied with the treatment they received than were White patients (Parkman *et al.*, 1997). Furthermore, details of the patients' needs profiles suggest that carefully differentiated assessment of *individual* needs should form the basis of care planning, rather than assessment of the needs of the hospital patient population as a whole. With regard to our second specific hypothesis, we did find that Black patients had fewer met needs than White patients.

## Ethnicity and different patterns of unmet needs

Our findings demonstrate the existence of differential patterns between Black and White patients in terms of access to high-security psychiatric care in England, as well as differences in unmet needs after admission. The results of this cross-sectional study do not directly address why these differences exist. The reasons for such large and persistent differentials, which in general work to the disadvantage of Black patients, warrant detailed further study to inform the actions necessary to redress such clear inequalities.

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## CLINICAL IMPLICATIONS

- As Black patients in high-security psychiatric hospitals (HSPHs) are overrepresented by 8 times, there is a clear requirement for further research to investigate why this is so.
- The greater degree of overrepresentation of Black patients in higher levels of secure psychiatric provision indicates a need to identify effective methods for reducing such inequalities in service utilisation.
- Unmet needs are more common among Black than White patients in HSPHs, and clinical and managerial reappraisals of the way in which needs are addressed for patients in these settings may be required.

## LIMITATIONS

- The comparison with the general population is approximate, because the most recent available data refer to the year 2001, and boundaries have changed since then.
- General population data were not available to allow calculations for each patient based on the exact year of admission.
- Culturally different Black groups were combined to counter problems with small sample size.

MORVEN LEESE, PhD, GRAHAM THORNICROFT, FRCPsych, PhD, FMedSci, Health Service Research Department, Institute of Psychiatry, King's College London, London; JENNY SHAW, MRCPsych, PhD, Department of Psychiatry, University of Manchester, Manchester; STUART THOMAS, BA, LL.M., RAJESH MOHAN, MRCPsych, MARI ANNE HARTY, MSc, MRCPsych, Health Service Research Department, Institute of Psychiatry, King's College London, London; MAIREAD DOLAN, MRCPsych, PhD, Edenfield Centre, Mental Health Services for Salford, Manchester, UK

Correspondence: Professor Graham Thornicroft, Section of Community Psychiatry (PRISM), Institute of Psychiatry, King's College London, De Crespigny Park, London SE5 8AF, UK. Tel: +44 (0)20 7848 0735; fax: +44 (0) 20 7277 1462; e-mail: g.thornicroft@iop.kcl.ac.uk

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