Comparison of the outcome and treatment of psychosis in people of Caribbean origin living in the UK and British Whites

Report from the UK700 trial

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Background The comparative outcome of psychosis in British Whites and UK African–Caribbeans is unclear. Some report that African–Caribbeans have worse outcome, whereas others claim better symptomatic outcome and a more benign course.

Aims To compare the course, outcome and treatment of psychosis in African–Caribbeans and British Whites in a large multi-centre sample.

Method A secondary analysis of 708 patients with research diagnostic criteria-defined psychosis from a 2-year, randomised controlled trial of case management. Outcome measures (hospitalisation, illness course, self-harm, social disability and treatment received) were adjusted for socio-economic and clinical differences between groups at baseline using regression analysis.

Results African–Caribbeans were less likely to have a continuous illness and to receive treatment with antidepressants or psychotherapy.

Conclusions The outcome of psychosis is complex but differs between UK African–Caribbeans and British Whites. This may reflect risk factors that increase the rate of psychosis in UK African–Caribbeans. Treatment differences require further investigation.

Declaration of interest None.

There are conflicting reports of the outcome of psychosis in UK African–Caribbeans. Some claim that they fare worse than British Whites for outcomes such as readmission, use of the Mental Health Act and police and forensic services involvement (Birchwood *et al*, 1992; Sugarman, 1992; McGovern *et al*, 1994; McKenzie *et al*, 1995; Callan, 1996; Bhugra *et al*, 1997; Goater *et al*, 1999), whereas others report shorter admissions and better symptomatic outcomes and illness courses (McKenzie *et al*, 1995; Callan, 1996; Takei *et al*, 1998; Harrison *et al*, 1999). However, studies have been small, all but one has been single-site (Bhugra *et al*, 1997) and methodological differences make them difficult to compare. To overcome these problems, we performed a secondary analysis of data from a large, multi-centre trial of case management. We hypothesised that there would be no differences in the course, outcome or treatment of psychosis in UK African–Caribbeans and British Whites.

METHOD

The sample was taken from the UK700 Project: a randomised controlled trial of two types of case management (Burns *et al*, 1999; UK700 Group, 1999). This study took place in four inner-city areas, three in London and one in Manchester. All four served highly deprived areas. The total population was nearly half a million.

The rationale for the study, the baseline characteristics of the study group and the outcome of the case management trial have been reported elsewhere (Burns *et al*, 1999; UK700 Group, 1999). In brief, patients with research diagnostic criteria (RDC)-defined psychosis (Spizer *et al*, 1978) aged 18–65 years who had had at least two admissions to a psychiatric hospital (one in the past 2 years) were admitted to a randomised controlled trial of intensive case management. Patients with organic brain damage or a primary diagnosis of substance misuse were excluded. Patients were identified by systematic review of in-patient and out-patient registers. Patients were entered into the study between February 1994 and April 1996.

Demographic and socio-economic information were documented at baseline. The Operational Criteria Checklist for Psychotic Illness (McGuffin *et al*, 1991) was completed on all patients for the time up to the baseline assessment, in order to produce diagnoses using computerised algorithms. This was completed using information from the whole of the patient records and a semi-structured mental state examination performed for completion of the Comprehensive Psychopathological Rating Scale (Jacobson *et al*, 1978). The World Health Organization (WHO) Life Chart (World Health Organization, 1992) was used to assess clinical history over the 2 years before study entry. Other baseline measures included the Camberwell Assessment of Need (Phelan *et al*, 1995), the Lancashire Quality of Life Profile (Oliver, 1991) and the WHO Disability Assessment Schedule (DAS; World Health Organization, 1988).

Ethnicity

Ethnicity was assigned by observers according to the Office of Population Censuses and Surveys (OPCS) ethnicity categories (OPCS, 1992). This was supplemented by information on patients' and patients' parents' place of birth. The aim was to produce a group of Caribbean origin and as homogeneous a British White group as possible for comparisons.

The OPCS 'White' category can include people from a variety of countries. The largest minority ethnic group, the Irish, are usually subsumed in this group although they may have different mental health needs to those born in the UK of British parents (Littlewood & Lipsedge, 1997). This can make explanations of any differences between groups difficult. In this study, White British=OPCS category White with mother and father born in the UK.

Patients of Caribbean origin are also a heterogeneous group. However, this group has shared histories, reasons for migration, concentrations in certain geographical areas of the UK and shared experiences of discrimination that may produce similarities in their needs and experience of services. We did not include those of

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African origin. Those of mixed parentage were included in the group of Caribbean origin if they had been assigned to the Black–Caribbean or Black Other OPCS group. This may reflect the experience that patients have had with the mental health system and society in general. Patients of mixed Caribbean and African parentage were excluded, as were patients with one parent from an unspecified country.

In this study Caribbean origin=OPCS Black–Caribbean or Black Other with mother or father born in the Caribbean or UK.

Follow-up

Stratified randomisation ensured that equal proportions of White British and African–Caribbean patients were allocated to each treatment arm. Patients were followed up for an average of 2 years from the time they were randomised. They were re-interviewed at 1 and 2 years. At 1 year all the instruments except the WHO Life Chart (WHO, 1992) were repeated. At 2 years all the instruments used at baseline were repeated. We present data for the 2-year follow-up.

Follow-up interviews were undertaken by independent researchers who were not involved in patient care. Patients and, when available, relatives and carers were interviewed. Each patient's case manager was interviewed. Case managers had a detailed knowledge of their patients. Throughout the study they carefully documented every visit to their patients for an assessment of care received and case management model fidelity. Other mental health professionals involved in the case were interviewed. Patients' case notes were also reviewed. The aim was to construct as accurate a picture as possible of the course of the illness, admissions and treatment.

Measurement of outcome

Outcome in psychosis is complex and variables that measure outcome are often interrelated. Van Os *et al* (1996) identified six dimensions of course and outcome in psychosis:

(a) negative symptoms/disability;

(b) illness severity/course;

(c) time living independently;

(d) unemployment;

(e) prison/vagrancy;

(f) depression/self-harm.

We have represented these six dimensions of outcome with 11 measures used in the UK700 project (Table 1).

Over the follow-up period, course type was rated using the WHO Life Chart (WHO, 1992) as episodic (no episode longer than 6 months), continuous (no remission longer than 6 months), neither episodic nor continuous, and not psychotic in this period. The 'usual severity of symptoms' rating indicated the symptomatic level of the patient during the most of the follow-up period. Ratings were severe, moderate, mild or recovered. Self-harm included all attempts at self-harm, regardless of the outcome (i.e. both parasuicide and completed suicide were included).

Treatment variables

In addition to information on course and outcome, data on five areas of treatment over the follow-up were also collected:

(a) whether prescribed antidepressants over the follow-up period;

(b) whether prescribed lithium over the follow-up period;

(c) time spent on antipsychotics over the follow-up period;

(d) whether the patient has had rehabilitation over the follow-up period;

(e) whether the patient has had psychotherapy over the follow-up period.

The measures used and methodology replicate those of McKenzie *et al* (1995). However, in addition to the measures used above, McKenzie *et al* (1995) reported involuntary admissions over the follow-up period, results from the Iager scale (Iager *et al*, 1985) to measure negative symptoms and results from the Hamilton Rating Scales for Depression (Hamilton, 1960). This information was not collected by the UK700 trial.

It should be noted that the measures of outcome in this study are not the same as the main outcome measures for the UK700 study. We decided before the analysis to use the same outcome variables as we had used previously so that we could compare the results of the present study with our previous study (McKenzie *et al*, 1995). We also decided, *a priori*, to use the same plan for statistical analysis.

Analysis

The means of continuous variables and the proportions for binary variables were compared between the two ethnic groups. Means and proportions were adjusted using regression analysis to yield odds ratios. Models included age, diagnosis, educational level and time from onset of the illness to study entry as possible explanatory variables.

Variables measuring time (e.g. time spent in hospital, time unemployed, etc.) were expressed as the proportion of the length of the follow-up period. Some outcome variables were transformed into dichotomous variables if they inclined towards two categories. For example, course of illness was transformed into 'continuous' and 'non-continuous' and usual symptom severity was transformed into 'recovered' and 'non-recovered'. Similarly, for continuous variables such as time in psychotherapy and time on antidepressants, which were severely skewed, tending towards a half-normal distribution

Table 1 Dimensions of outcome and the variables used to represent them

Dimension of course	Variable used
Negative symptoms/disability	Mean DAS score
	Negative symptoms usually present (WHO Life Chart)
Illness severity	Illness course (WHO Life Chart)
	Usual symptom severity (WHO Life Chart)
	Mean time in hospital
Time living independently	Mean time living independently
Unemployment	Mean time unemployed
	Mean time employed
Imprisonment/vagrancy	Imprisonment over follow-up period
	Vagrancy over follow-up period
Depression/self-harm	Self-harm or completed suicide over follow-up period

DAS, Disability Assessment Schedule.

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(presence–absence), dichotomisation was also considered more appropriate. Analyses were carried out using SPSS for Windows 8.0.

RESULTS

Baseline characteristics

At baseline, 203 African–Caribbeans and 234 White British were identified. African–Caribbeans (AC) were younger than British White (BW) patients (AC, mean 37.3 years; BW, 40.1 years; $P=0.02$), they were less likely to have A-levels or a degree (AC, 8%; BW, 24%; $P=0.001$) and were more likely to be diagnosed as suffering from schizophrenia (AC, 50%; BW, 31%; $P=0.001$). On univariate analysis, African–Caribbeans had a shorter time from onset of illness to study entry than whites (AC, mean=145.8 months, s.d.=104 months; BW, mean=168.5 months, s.d.=131 months; $P=0.045$), but this association disappeared when baseline differences in diagnosis were taken into account. There were no significant differences in illness length, number of days in hospital, illness course or number of hospital admissions at baseline.

Follow-up

Sources of information

Usable information was available for 199 African–Caribbeans and 231 British Whites. One patient had been discharged, two had moved, one had refused contact and three could not be contacted.

There was no difference between the groups in the mean number of sources of information (patient, carers, relatives, mental health professionals, case notes, others) used to complete the interview schedule at baseline (AC, 2.6; BW, 2.6) or follow-up (AC, 2.6; BW, 2.7).

At follow-up, 26 African–Caribbean patients (13%) and 35 British Whites (15%) were not interviewed. There were no differences between the groups in the proportions of patients who refused interview or the reasons for non-interview. The most common reason for non-interview was refusal; 25 patients refused to be interviewed (6.5% African–Caribbeans and 5.5% British Whites). There was no difference between the groups in the mean number of sources of information that were used for those patients who were not interviewed at follow-up (AC, 2.0; BW, 1.8).

Length of follow-up

Patients were followed up on average for 24 months. Some patients were followed up for less than 24 months because they were recruited later than others and the study had to be completed. Some patients were followed up for more than 24 months because of a delay in arranging the second interview. Over 50% of patients were interviewed within 1 month of their 2-year interview date. There was no difference between the groups in the proportions of patients interviewed early, late or on time.

Univariate analysis

There were no significant differences in symptomatic outcome or illness course on univariate analysis but significant differences were found in the treatment received over the follow-up period (see Table 2).

Multivariate analysis

Significant differences between the groups for the prescription of antidepressants and psychotherapy but not day treatment/rehabilitation or lithium therapy remained after we controlled for diagnosis, age, length of illness before study entry and education. In addition, after controlling for confounders, African–Caribbeans were nearly 40% less likely to have a continuous illness course than British Whites (Table 3).

DISCUSSION

Methodology

Sample

This is the largest comparative study of the outcome of psychosis in people of Caribbean origin in the UK and British Whites to date. The multi-centre design increases our ability to generalise from the results. The sample size allowed us to define smaller differences in course and outcome that may have eluded other studies (see Harrison *et al*, 1999). It also allowed us to control for confounders and accurately to define our African–Caribbean and British White groups without fear of losing power. Previous studies have compared the outcome of psychosis in African–Caribbeans (or in some cases African and African–Caribbeans) with poorly defined control groups, which include refugee and/or other minority ethnic groups that have been shown to have specific mental health needs and high levels of social stress similar to those experienced by African–Caribbeans (Goater *et al*, 1999; Harrison *et al*, 1999). This may have obscured differences in outcome. Moreover, a lack of detail concerning control groups means that such studies are difficult to replicate.

In this sample, recruitment of patients was not time-limited (as occurs when consent needs to be obtained at the point of hospital admission). We were able to enlist the help of people already involved in the clinical care of each patient to facilitate study entry and were able to include potentially uncooperative patients who would normally not take part in such studies.

Our sample could be criticised because it was not a first-onset study. Patients with established illness were recruited. However, even when patients are identified at first onset, there are differences between African–Caribbeans and British Whites in the length of illness before they have been seen, which have to be taken into account using multivariate analyses like those undertaken here (Harrison *et al*, 1999). There are also well-documented differences in the likelihood of general practitioners identifying mental illness in African–Caribbeans and Whites (Lloyd *et al*, 1998) and in the subsequent treatment or referral to secondary services (Sashidharan & Commander, 1998).

Our sample also could be criticised because it is not comprehensive. Patients would have been identified only if they were on in-patient or out-patient registers. If those identified as suffering from psychosis in either group were more likely to be lost to follow-up, this would lead to selection bias. However, longer-term studies have not shown a significant difference between groups in the likelihood of being lost to follow-up (Goater *et al*, 1999; Harrison *et al*, 1999).

Patients could be included in the sample only if they agreed to take part in a case management study. African–Caribbeans could have been more likely to refuse study entry and this could have led to selection bias. However, no difference in refusal rates between groups was found in an analysis of those who were eligible but did not take part (details available from the author upon request).

The criteria for study entry could have introduced bias. For instance, patients had to have had two admissions to be eligible. Bias may have been introduced if the course of illness was different between the two groups. If African–Caribbeans were more likely to have only a single episode of illness

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Table 2 Scores for dimensions of course, treatment and outcome

Dimension of course/outcome/ treatment	Variable	African–Caribbean group (s.d. or %)	British White Group (s.d. or %)
Negative symptoms/disability	Mean DAS score	1.1 (0.83)	1.1 (0.76)
	Negative symptoms usually present	55 (28)	62 (27.5)
Illness severity	Continuous illness course	61 (31)	84 (37.5)
	Usual symptom severity 'recovered'	47 (23)	50 (22)
Time living independently	Mean time in hospital (days)	84.7 (127.7)	78.8 (123.7)
	Mean time living independently (months)	15.8 (9.7)	15.1 (9.9)
Unemployment	Mean time unemployed (months)	17.1 (8.6)	17.3 (8.5)
Imprisonment/vagrancy	Whether imprisoned over follow-up period	13 (7)	8 (3.5)
	Whether a vagrant at any time over follow-up period	3 (1.5)	8 (3.5)
Depression/self-harm	Self-harm or suicide over follow-up period	17 (8.4)	33 (14.1)
Treatment variables	Prescribed antidepressants over follow-up period	25 (13)	85 (38)**
	Prescribed lithium over follow-up period	30 (15)	62 (28)***
	Months on antipsychotics	20.2 (7.3)	19.1 (8.2)
	Rehabilitation/day treatment over follow-up period	34 (17)	57 (25)*
	Psychotherapy over follow-up period	12 (6)	38 (17)**

DAS, Disability Assessment Schedule.
*$P < 0.04$; **$P \leqslant 0.001$; ***$P = 0.002$.

(brief reactive psychosis; Littlewood & Lipsedge, 1981), they may not have entered the study. A recent study has not shown differences in the proportions of patients who have only a single episode when African–Caribbeans are compared with a number of other groups (Goater *et al*, 1999). Moreover, any bias because of an exclusion of African–Caribbeans with brief reactive psychosis would have made it less likely that we would show a better outcome with regard to course of illness.

The criteria for entry could have introduced bias in a different way. Some studies have shown that people of Caribbean origin are more likely to be readmitted in the year after their first episode (Birchwood *et al*, 1992; McGovern *et al*, 1994; Bhugra *et al*, 1997). If this were so, they would have fulfilled the study entry criteria for admission earlier in their illness. This could be an explanation for their shorter time between onset and study entry. However, this association disappears when diagnosis is taken into account, so it could reflect actual differences between the groups. Furthermore, Recent studies have not shown differences in numbers of admissions or course of illness when longer time frames for follow-up have been used.

Our study could also be criticised because all the centres were in the inner city. However, the vast majority of patients of Caribbean origin live in inner-city areas (Nazroo, 1997).

Data collection: blinding

Our data collection could be criticised because assessors were not blind to the ethnicity of patients. None of the assessors was part of the team who envisioned this analysis and none was aware that data from two arms of the study were to be pooled to investigate globally the outcome of psychosis in African–Caribbeans and Whites. The primary hypothesis of the UK700 study was that intensive case management would produce a better outcome than standard case management (UK700 Group, 1999). The trial did not show any difference in outcome (Burns *et al*, 1999) and we believe that this underlines the accuracy of assessments made by researchers. Of course, a criticism of all the studies that look at the course of illness in these two groups is that they rely on case note documentation and information from a number of people (case workers, carers and relatives) who are not blind to the ethnicity of the patients.

Table 3 Unadjusted and adjusted odds ratios (ORs) for significant associations in the univariate analysis

	African–Caribbean *v.* British White (unadjusted OR)	African–Caribbean *v.* British White (OR adjusted for education, age, length of illness, diagnosis)
Continuous illness course	0.76 (0.5–1.10)	0.61 (0.39–0.96)
Prescribed antidepressants over follow-up period	0.24 (0.14–0.38)	0.28 (0.16–0.48)
Prescribed lithium	0.47 (0.29–0.77)	0.68 (0.39–1.19)
Day treatment	0.63 (0.4–1.0)	0.64 (0.37–1.09)
Psychotherapy over follow-up period	0.31 (0.16–0.63)	0.33 (0.16–0.71)

Comparison with other studies

The outcome of psychosis in people of Caribbean origin in the UK is complex. Administrative outcomes, such as readmission rates and compulsory admissions, are reported as poor but there are mixed reports of rates of recovery and the course of illness.

A recent population-based first-onset study concluded that findings of its own and other studies are consistent with a marginal effect (if any) for better outcome in African–Caribbeans (Harrison *et al*, 1999). The authors hypothesised that inconsistent findings could be expected because of the small sample sizes of studies.

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We would add that inconsistent findings may be due partly to differences in definitions of the 'African–Caribbean' and comparison groups and differences in study design. There are problems with directly comparing this study with first-onset studies even though we have tried to minimise these.

We set out here to try to replicate the findings of our previous study in which people of Caribbean origin in the UK were found to be less likely to suffer from a continuous illness and were more likely to be recovered and also imprisoned over a follow-up period. They were less likely to be treated with antidepressants, lithium and rehabilitation and were less likely to self-harm (McKenzie *et al*, 1995). We have been able to define African–Caribbean and British White groups similarly in this and the previous study. We have partly replicated the findings.

Illness course and recovery

We have found that people of Caribbean origin are less likely to suffer from a continuous illness. We have found this despite the fact that our sample was more homogeneous than others and may have been expected to show less variation between African–Caribbean and British White groups. The outcome of psychotic illness is more severe in those with neurodevelopmental or neurological abnormalities. In a separate cohort we have shown that people of Caribbean origin with psychosis are less likely to have a premorbid neurological illness than British Whites (details available from the author upon request). People of Caribbean origin in the UK may be less likely to have continuous illness because, as a group, the risk factors for their psychoses are quantitatively different from those for British Whites.

People of Caribbean origin were not more likely to be recovered over the follow-up period in this study. This could be because there were no differences in the symptomatic course, as has been found by other recent studies (Goater *et al*, 1999; Harrison *et al*, 1999), but it could be because our sample of patients with established illness was too homogeneous for a difference to be shown. Another possible reason for an inability to show differences in outcome could be that they were masked by treatment differences.

Treatment differences

People of Caribbean origin in this study were less likely to receive psychotherapy and were less likely to be treated with antidepressants, regardless of diagnosis. We found these findings hard to account for, given that patients were being closely followed up and were enrolled in a case management study. We did not find differences in imprisonment, hospital use or the use of other treatments. Lack of treatment of depression could reflect real differences in psychopathology but previous studies have shown that depression is often missed in people of Caribbean origin (Lloyd *et al*, 1998; Sashidharan & Commander, 1998) and we did not find differences in suicide or self-harm between groups in this study.

CLINICAL IMPLICATIONS

Compared with British Whites:

- People of Caribbean origin with psychosis are less likely to be treated for depression.
- People of Caribbean origin with psychosis are less likely to be treated with psychotherapy regardless of the diagnosis.
- People of Caribbean origin with psychosis are less likely to have a continuous illness course.

LIMITATIONS

- All four sites were in the inner city. This limits our ability to generalise results to the whole population or discuss rates or aetiology.
- As with most studies in this field, standard tools were used, not all of which have had thorough cross-cultural validation.
- Assessors were not blind to the ethnicity of patients, which could have introduced bias.

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