Suicide and attempted suicide among people of Caribbean origin with psychosis living in the UK

K. MCKENZIE, J. VAN OS, C. SAMELE, E. VAN HORN, T. TATTAN and ROBIN MURRAY on behalf of the UK700 GROUP

Background A report from a 1980s cohort claimed that suicidal behaviour was four times less common in UK-resident people of Caribbean origin with psychosis than in British Whites. Since then, evidence has accumulated that the rate of suicide and suicidal ideation has been increasing.

Aims To compare rates of suicidal behaviour in people of Caribbean and British White origin in a large multi-centre sample of patients with psychosis.

Method A secondary analysis of 708 patients with psychosis followed up for 2 years. Outcome measures of reported suicide and attempted suicide were adjusted for socio-economic and clinical differences between groups at baseline.

Results People of Caribbean origin had a lower risk of suicidal behaviour than British Whites (odds ratio adjusted for age and gender 0.49, 95% CI 0.26–0.92). There was a strong negative interaction between ethnic group and age: suicidal acts were four times less likely in people of Caribbean origin aged over 35 years compared with British Whites, but there was no large or significant difference in those under 35.

Conclusions The previously reported lower relative risk of suicidal behaviour in people of Caribbean origin with psychosis is restricted to those over 35 years, suggesting that the protective effect of Caribbean origin is disappearing in younger generations.

Declaration of interest None.

African–Caribbeans with psychosis in the UK are reported to be at lower risk of suicide and attempted suicide than British Whites (McKenzie et al, 1993). Low rates are also reported for the general population, but rates in young African–Caribbeans may be rising (Soni-Raleigh, 1996; Bhugra et al, 1999). The National Confidential Inquiry (Department of Health, 2001) reported that African–Caribbean service users who committed suicide tended to be younger and suicides often were considered to be preventable. Although previous suicide attempts are the most important risk factor for suicide, such behaviour in African–Caribbean service users has rarely been investigated specifically. Contemporary data are required to inform evidence-based strategies for suicide reduction. We present a secondary data analysis from a large multi-centre case management trial. We investigated whether suicidal behaviour was still less likely in African–Caribbeans with psychosis compared with British Whites and whether any changes in relative rates were due to an effect across the population or just in the young.

METHOD

Subjects and setting
The data source was the UK700 Project, which is a randomised controlled trial of two types of intensive case management (Burns et al, 1999; Creed et al, 1999). The sample is considered to be representative of White British and African–Caribbean patients with chronic illness who would normally be seen by community mental health teams in inner-city areas (Burns et al, 1999; Creed et al, 1999; McKenzie et al, 2001; Walsh et al, 2001).

Data collection
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; Creed et al, 1999). In brief, patients with research diagnostic criteria (RDC)-defined psychosis (Spitzer et al, 1978) aged 18–65 years who had been admitted at least twice to a psychiatric hospital were enrolled in a randomised controlled trial of intensive case management between February 1994 and April 1996.

Demographic and socio-economic information was documented at baseline. Diagnoses were made using the Operational Criteria Checklist for Psychotic Illness assessment (McGuinness et al, 1991) from patient notes and from a semi-structured mental state examination performed for completion of the Comprehensive Psychopathological Rating Scale (Jacobson et al, 1978), which includes the Montgomery and Asberg Depression Rating Scale (MADRS; Montgomery & Asberg, 1979).

Clinical history was assessed using the World Health Organization (WHO) Life Chart (World Health Organization, 1992).

Ethnicity
Ethnicity was assigned by observers, according to Office of Population Censuses and Surveys (OPCS) ethnicity categories (OPCS & General Register Office for Scotland, 1992). This was supplemented by information on patient’s and patient’s parents’ place of birth. The aim was to produce a group of Caribbean origin and, for comparison, as homogeneous a British White group as possible.

The OPCS census ‘White’ category can include people from a variety of countries. The largest minority ethnic group, the Irish, are usually subsumed in this group but 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. These may produce similarities in their needs and experience of services. In this study, Caribbean origin=OPCS category 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 Caribbean origin 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 and all the instruments used at baseline were repeated. Here we present data for the 2-year follow-up.

Follow-up interviews were undertaken by independent researchers not involved in patient care. Patients and, when available, relatives and carers were interviewed. Each patient’s case manager was interviewed. 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 suicide and suicide attempts
The main outcome variable was suicidal behaviour (attempted or completed suicide) between the baseline and 2-year follow-up interviews (Walsh et al, 2001). In the WHO Life Chart interview (World Health Organization, 1992), individuals were asked whether they had attempted suicide during this time and, if so, how often. A suicide attempt was defined as a self-destructive act carried out with the intention of ending one’s life. Ratings were based not only on patient report but also on all available sources of information, including case notes and interviews with relatives and case managers. Where a 2-year outcome interview with a subject was not possible, an attempt was made to complete the WHO Life Chart using all other sources of information. Completed suicides were also recorded at each centre.

Statistical analysis
Demographic and clinical differences between African–Caribbean and White British patients were investigated in univariate analyses. Differences between the two groups were considered significant at a level of \( P < 0.05 \). Possible explanatory variables for any difference were decided \textit{a priori} and included gender, age, education, diagnosis, MADRS score and length of illness.

The 2-year relative risk of suicidal behaviour (suicide and suicide attempts) was calculated in the total sample and comparisons were made between the two ethnic groups using the chi-squared test initially for binary variables. Logistic regression analysis yielding odds ratios (ORs) was subsequently used to assess the effects on suicidal behaviour or demographic and clinical differences between the groups.

Patients who dropped out of the study
A total of 43 patients dropped out of the study (20 of Caribbean origin, 25 White British). There was no difference between those of Caribbean origin and the White British in the rate of drop-out from the study. For those who dropped out there were no group differences in gender, mean age, educational level, diagnosis, depression score or duration of illness as measured by months between first onset of psychosis and study entry. Among those who dropped out, more White British were recorded as having attempted suicide in the 2 years before entry to the study (7 White British, 1 of Caribbean origin; \( P = 0.05 \)).

Length of follow-up
Patients were followed up, on average, for 24 months and over 50% of patients were interviewed within 1 month of their 2-year interview date. There was no difference

<table>
<thead>
<tr>
<th>Table 1 Significant differences between the group of Caribbean origin and the White British group at baseline</th>
<th>Caribbean origin (n=203)</th>
<th>White British (n=234)</th>
<th>( P )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years, mean (s.d.)</td>
<td>37.3 (11.9)</td>
<td>40.1 (11.4)</td>
<td>0.02</td>
</tr>
<tr>
<td>Months from onset to study entry, mean (s.d.)</td>
<td>145.8 (104)</td>
<td>168.5 (131)</td>
<td>0.045</td>
</tr>
<tr>
<td>Attained A-level or degree, ( n ) (%)</td>
<td>17 (8)</td>
<td>58 (24)</td>
<td>0.001</td>
</tr>
<tr>
<td>MADRS score, mean (s.d.)</td>
<td>8.7 (7.9)</td>
<td>10.7 (8.5)</td>
<td>0.01</td>
</tr>
<tr>
<td>Diagnosis of schizophrenia, ( n ) (%)</td>
<td>102 (50.2)</td>
<td>73 (31.2)</td>
<td>0.001</td>
</tr>
<tr>
<td>Diagnosis of affective illness, ( n ) (%)</td>
<td>3 (1.5)</td>
<td>25 (10.7)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

MADRS, Montgomery and Åsberg Depression Rating Scale.
between the groups in the proportions of patients interviewed early, late or on time.

**Effect of ethnic group**

There was no significant difference in the number of completed suicides between the groups (31.5% of Caribbean origin and 41.7% White British).

People of Caribbean origin had a lower (albeit statistically imprecise) risk of performing, on at least one occasion, a suicidal act over the follow-up period: 17 (8.4%) of the Caribbean origin group and 33 (14.7%) of the White British group (OR=0.56, 95% CI 0.30–1.03; P=0.063). After adjustment for age and gender, this difference was increased rather than decreased (OR=0.49, 95% CI 0.26–0.92; P=0.025). Additional adjustment for RDC diagnosis (four categories: schizophrenia; schizoaffective psychosis; affective psychosis; other psychosis), chronicity (defined as months from onset of psychotic symptoms to study entry), level of education (in three levels: no qualifications; CSE/GCSE/GCE O-levels; A-levels/degree) and MADRS depression score increased the odds ratio by only a slight amount compared with the unadjusted odds ratio (OR=0.59, 95% CI 0.30–1.14; P=0.12). An analysis performed by excluding those who had died by suicide produced similar results (see Table 2).

**Age by ethnic group interaction**

There was a strong negative interaction between age and ethnic group (unadjusted model: likelihood ratio statistic (LRS)=6.8, 6.8, d.f.=1, P=0.0093; model adjusted for gender, diagnosis, educational level and chronicity: LRS=6.7, d.f.=0.0097). Stratified analyses revealed that there was no significant difference between the groups in the number of people who performed at least one suicidal act in those aged under 35 years (14/89 Caribbean origin patients (15.7%) and 14/67 White British patients (20.8%); P=0.54) but there was a significant difference in those aged over 35 years (3/94 Caribbean origin patients (3.2%) and 19/142 White British patients (13.4%); P=0.01). Thus, in the group aged 35 years and older, Caribbean ethnic group was associated with a significantly lower risk (OR adjusted for all confounders, including age in years=0.26, 95% CI 0.07–0.93), whereas there was no large or significant protective effect in the group aged under 35 years (adjusted OR=0.92, 95% CI 0.38–2.20).

Analysis by excluding completed suicides produced similar results (see Table 2): LRS=6.52, d.f. 1, P=0.012.

**Sensitivity analyses**

Previous suicide attempts are a predictor of future suicide attempts. Given the positive association between ethnic minority group and previous suicide in those who dropped out of the study, an attempt was made to assess the possible impact on the results of those who dropped out. It was assumed that all of those who dropped out of the study who had a past history of suicide attempts would have attempted suicide in the follow-up period even if they had been unable to find data to support this. The data-set was modified to reflect this assumption and the regression analyses were re-run. For the whole group there was a significant difference between those of Caribbean origin and White British (OR=0.52, 95% CI 0.27–0.99). There was no significant difference between those of Caribbean origin and White British in those under 35 years of age (OR=0.72, 95% CI 0.32–1.64) but significant differences were found between patients of Caribbean origin and White British patients in the rates of suicidal behaviour in those over 35 years of age (OR=0.24, 95% CI 0.07–0.85).

**DISCUSSION**

This is the largest comparative study of suicidal behaviour in UK-resident people of Caribbean and White British origin.

However, the study is a secondary analysis of UK700 data and so was limited in its ability to test hypotheses. The UK700 study was powered to investigate the impact of case management on the outcome of illness but suicide was not one of the primary outcome variables. Subsequent work demonstrated that the predictors of suicide and attempted suicide in the study were similar and this led to the use of the term ‘suicidal behaviour’ and analyses in which suicide and attempted suicide have been treated as a continuum. Here, analysis of those who attempt but do not complete suicide, either alone or in conjunction with those who complete suicide, does not significantly affect the result. Although there are differences in the risk factors for attempted suicide and completed suicide in the general population, these differences in risk factor profiles are not always found in patients with severe mental health problems (Walsh et al, 2001).

**Sources of bias**

The fact that subjects were asked to recall events over a 2-year period may have introduced recall bias. If this recall bias was

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**Table 2** Unadjusted and adjusted odds ratios for suicidal behaviour over the follow-up period for White British compared with people of Caribbean origin

<table>
<thead>
<tr>
<th></th>
<th>Caribbean origin</th>
<th>White British</th>
<th>Odds ratio (95% CI)</th>
<th>Odds ratio adjusted for age, gender, MADRS score, education, diagnosis, time since onset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed suicide</td>
<td>3</td>
<td>4</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Attempted suicide</td>
<td>14</td>
<td>29</td>
<td>0.52 (0.26–1.02)</td>
<td>0.54 (0.26–1.13)</td>
</tr>
<tr>
<td>Attempted suicide in those under 35 years of age</td>
<td>12 (13%)</td>
<td>13 (18%)</td>
<td>0.7 (0.36–1.51)</td>
<td>0.93 (0.37–2.32)</td>
</tr>
<tr>
<td>Attempted suicide in those over 35 years of age</td>
<td>2 (2.1%)</td>
<td>16 (11.4%)</td>
<td>0.17 (0.04–0.71)</td>
<td>0.19 (0.04–0.89)</td>
</tr>
<tr>
<td>Total attempted or completed suicide</td>
<td>17</td>
<td>33</td>
<td>0.56 (0.30–1.03)</td>
<td>0.59 (0.30–1.14)</td>
</tr>
<tr>
<td>Total attempted or completed suicides in those under 35 years of age</td>
<td>14 (15.7%)</td>
<td>14 (20.7%)</td>
<td>–</td>
<td>0.92 (0.38–2.2)</td>
</tr>
<tr>
<td>Total attempted or completed suicides in those over 35 years of age</td>
<td>3 (3.2%)</td>
<td>19 (13.4%)</td>
<td>–</td>
<td>0.26 (0.07–0.93)</td>
</tr>
</tbody>
</table>

MADRS, Montgomery and Åsberg Depression Rating Scale.
different for our ethnic groups, the results could be an artefact of this process. However, recall bias was minimised by the use of multiple data sources and the fact that clients were seen regularly because they were taking part in a case management study.

It could be argued that, despite this, there could still be bias. For instance, the fact that people of Caribbean origin are known to be harder to engage could have led to biased assessments of suicide attempts. Clinical teams may have been more likely to miss suicide attempts in this group. However, this would not explain our findings, because younger people of Caribbean origin are considered more difficult to engage than older patients but there was no difference between their rates of suicidal behaviour and those of the White British group.

Bias in reporting could have been due to differences within the Caribbean origin group. Older people of Caribbean origin may have had as many suicidal acts but may have been less likely to admit to it. We could not exclude this possibility but we would have expected it to be minimised by close follow-up during the study.

**Generalisability of results**

This study could be criticised and its results said not to be generalisable as patients may have received better care than usual because they were taking part in a case management trial. Although this could have decreased differences between ethnic groups it is not clear how it would have led to the age differential in relative risk of suicidal behaviour reported here. Generalisability could be questioned 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) and the majority of those with psychosis are likely to live in such areas.

Data collection could be criticised because observers (caseworkers, carers and relatives) were not blind to the ethnicity of patients. We cannot exclude this source of bias but none of the assessors was part of the team that envisioned this analysis and none was aware that data from the study were to be pooled to investigate rates of suicidal behaviour in ethnic groups.

**CLINICAL IMPLICATIONS**

- Rising rates of suicidal behaviour in young people of Caribbean origin in the UK are reflected in mental health service users with psychosis.
- Young people of Caribbean origin with psychosis are as likely as their White British peers to attempt suicide and should be monitored.
- People of Caribbean origin with psychosis who are over 35 years of age are at lower risk of suicidal behaviour than a comparison group of White British service users.

**LIMITATIONS**

- All four sites were in the inner city. This limits our ability to generalise results to the whole population or to discuss absolute rates.
- It has not been possible to analyse differential rates of reporting bias by patients.
- Assessors were not blind to the ethnicity of patients, which could have introduced reporting bias.

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social housing in poorer inner-city wards. Because of this residential concentration, simple ethnic density effects are unlikely to explain our findings.

There is some evidence from the USA that patterns of suicide in minority groups change between the first and second generations. The second and subsequent generations seem to approximate better to the rates of the host population (US Department of Health and Human Services, 2001). It may well be that our findings reflect a cultural shift within those of Caribbean origin in the UK, with White British norms being taken up by younger members and solutions to difficulties in life, such as suicide, being seen as more acceptable to them.

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