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The incidence of mania: time trends in relation to gender and ethnicity

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Abstract In order to investigate conflicting reports about possible changes in the incidence of mania, we established first contact rates for mania in the defined area of Camberwell between 1965 and 1984. There was some evidence for an increase in the first contact rate of mania, especially in females. This rise may be associated with the influx into Camberwell of individuals of Afro-Caribbean origin who showed significantly higher rates than the white group [adjusted rate ratio 3.1; 95% confidence interval (CI) 1.4–6.9] and more often displayed mixed manic and schizophrenic symptomatology (risk ratio 2.2; 95% CI 1.1–4.3). We conclude that the incidence of mania has not decreased and may actually have increased. High rates of mental illness among members of ethnic minorities are not specific to schizophrenia, suggesting that a risk factor common to both manic and schizophrenic illness is more prevalent among these groups.

There have been conflicting reports about changes in the incidence of mania over the last few decades. A number of studies have suggested increased incidence rates for the illness. Parker and colleagues (1985), for instance, found a 35% increase in first admission rates for mania between 1967 and 1977 in New South Wales, which they suggested was due to clinicians using this label more after the introduction of lithium for bipolar disorder. Similarly, Kendell and co-workers (1993) noted an increase in first admission rates for mania in females between 1971 and 1989 in Edinburgh. However, in England and Wales, Der and colleagues (1990) reported a decline in first admission rates for manic depressive psychosis between 1952 and 1986 without a compensatory increase in any other diagnostic category. A similar decline in first admission rates has also been found for manic depressive psychosis in France, especially in females, in the absence of a concurrent increase in other psychiatric diagnoses (Van Os et al. 1993). The latter two studies, however, did not distinguish between depression and mania, and none of the above studies could exclude the possibility of bias due to changing diagnostic habits, fluctuating proportions of "false" first admissions (i.e. patients labelled "first admission" who in effect had had previous psychiatric treatment elsewhere) or alterations in admission policies over the years (Kendell et al. 1993).

In a previous study (Castle et al. 1991), we reported that the incidence of operationally defined schizophrenia in the area of Camberwell, South London, rose over the period 1965–1984. One reason for the disparity between this finding and a number of reports of a decline in first admission rates in the United Kingdom for schizophrenia over the same period (Der et al. 1990; Eagles and Whalley 1985; Kendel et al. 1993) lies in the changes in the ethnic composition of Camberwell over the 2 decades from the mid 1960s, specifically the increase in the proportion of Afro-Caribbeans. Evidence has accumulated that Afro-Caribbean individuals living in the United Kingdom have a higher risk of developing schizophrenia than do their white counterparts (Rwegellera 1977; Dean et al. 1981; McGovern and Cope 1987; Harrison et al. 1988; Castle et al. 1991; Wessely et al. 1991). Is this increased risk confined to

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schizophrenia? Leff and colleagues (1976), examining the annual incidence of mania in Camberwell, have found that first-generation Afro-Caribbeans (i.e. Caribbean-born) have higher rates than do the indigenous whites. Within the affective disorder spectrum, the increase in relative risk for Afro-Caribbeans in the United Kingdom may be confined to mania; thus, Bebbington and collaborators (1981) have noted that mean age corrected admission rates for mania are more than 3 times higher in first-generation Afro-Caribbeans than in United Kingdom born subjects, but if all affective disorders are combined no clear ethnic difference is discernible. Der and Bebbington (1987) have reported similar results. However, there are a number of difficulties with these studies. The study by Leff and colleagues (1976) was the only one to use operational criteria for mania, but the sample included only hospital admissions. All studies excluded manic cases with schizophrenic "first rank" symptoms and none included Afro-Caribbean individuals born in the United Kingdom (second generation), who instead were incorporated in the group of individuals "born in the United Kingdom" together with whites and other ethnic groups; in some of the studies, the number of Afro-Caribbean individuals identified was very small (e.g. only six in the study by Leff et al. 1976). Furthermore, an initial presentation bias may be operating. Previous studies did not include those individuals with a first presentation of depression who might subsequently have developed manic episodes, and there may exist ethnic differences in the proportion of manic patients who will present with previous depressive episodes (Makanjuola 1985).

If indeed there is an increased risk for both mania and schizophrenia in Afro-Caribbean individuals in the United Kingdom, this would have important implications both for psychiatric service provision and for theories of aetiology. For example, a variety of social and biological factors have been suggested as explanations for the increased risk of schizophrenia in Afro-Caribbeans (Harrison 1990; Wessely et al. 1991). If the increased risk were not confined to schizophrenia, but were also evident in mania, this could suggest that the excess in incidence is determined by a risk factor common to both mania and schizophrenia, rather than by a specific biological risk factor for schizophrenia.

The aim of this study, then, was to explore time trends in the incidence rate for operationally defined mania in a delimited area in relation to ethnic group. In view of the evidence indicating gender differences in time trends in the incidence of mania, rates for males and females were also compared.

Method

Sample

The Camberwell Cumulative Psychiatric Case Register (Wing and Hailey 1972) provides a comprehensive list of all persons from the area of Camberwell in South London who had their first contact with the psychiatric services between 1964 and 1984. A printout was generated from the register of all first-contact patients between 1965 and 1984 who received a register diagnosis of "mania" or "hypomania" (equivalent ICD codes 296.0, 296.2, 296.4), "schizophrenic psychosis" (ICD codes 295.0–295.9) including schizoaffective type (ICD 295.7), "paraphrenia" (ICD 297.2) or "other non-organic psychosis" (ICD 298.1–298.9). This broad sample was chosen to avoid the possibility of missing any patients who had been inappropriately labelled and to allow for variation in diagnostic habits.

Diagnosis

In a previous study, case notes of patients with an ICD diagnosis of schizophrenia and related conditions (including "schizo-affective disorder", "paraphrenia" and "atypical psychoses") had been collected by D.C. and S.W. (Castle et al. 1991) and rated using the Operational Criteria Checklist for Psychotic illness (OCCPI) and the OPCRIT computer program, which generate a range of operational definitions for psychotic illnesses [research diagnostic criteria (RDC), DSM-III, DSM-III-R, etc.; McGuffin et al. 1991]. For the purpose of the current study, schizophrenia was defined according to the RDC criteria of Spitzer and colleagues (1978). Inter-rater reliability, based on 50 cases rated by both D.C. and S.W., was good (kappa = 0.82 for RDC diagnoses). For the present study, cases from this sample with an RDC diagnosis of mania or schizomania were identified.

Patients with a register diagnosis of mania or hypomania were not rated using the OCCPI checklist, but were given a single RDC diagnosis (Spitzer et al. 1978) by two raters (N.J. and J.vO.). Two categories of RDC manic disorder were distinguished: (1) mania, (2) mania with schizomania. Inter-rater reliability for cases with a register diagnosis of mania was assessed on a random subset of 15 case records, which were rated by N.T. and J.vO.; kappa for RDC diagnoses was 0.78.

The two authors who rated the manic cases (N.T. and J.vO.) and one of the authors who rated cases of schizophrenia and related disorders (D.C.) took part in a reliability study of OPCRIT. The mean kappa for the three pairs of raters for RDC diagnoses of schizophrenia and affective psychosis was 0.74 (range: 0.70–0.76).

Demographic data

Other information systematically obtained for all individuals included: sex, age at first contact, date of birth, and ethnicity and country of birth of both patient and parents. Ethnicity ratings were based on appearance, country of birth of subject and country of birth of the parents. "Ethnicity" categories were white, Afro-Caribbean, African, Asian and "other", while "country of birth" categories were United Kingdom and Republic of Ireland, West Indies (Caribbean), Asia, Africa and "other". These data were directly rated from the case records; checks on date of contact, date of birth and country of origin were made from the front sheets of the case-notes and the Camberwell Register itself. Checks on ethnicity ratings were made on a subset of 34 patients using data from previous direct-interview studies involving these patients; no erroneous ratings were found. Patients who were living outside the catchment area at the time of first contact but had erroneously been included in the register were excluded. Similarly, checks were made on first contact status to preclude bias due to inclusion of "false" first contact cases (see above).

Demographic data concerning the general population of Camberwell were supplied by the Office of Population Censuses and Surveys (OPCS). Data from the 1961, 1971 and 1981 censuses (100% samples) were used, and population estimates for the intermediate years

Table 1 Numbers of individuals fulfilling RDC criteria for mania with schizomania, by cohort, and annual incidence rates for mania and mania with schizomania, standardized to the 1964 age and sex structure

Cohort	Number of psychotic individuals examined	Number[a] with RDC mania with schizomania	Rate per 100,000 person-years	
			Mania with schizomania[b]	Mania[b]
1965–1969	156	23 (15%)	2.8	1.7
1970–1974	152	25 (16%)	3.4	2.0
1975–1979	163	30 (18%)	4.3	3.8
1980–1984	154	28 (18%)	4.1	3.4
Test for trend			$p = 0.09$	$p = 0.1$

[a] Numbers are adjusted for missing notes, according to the percentage of individuals (in parenthesis) with a register diagnosis of 'schizophrenia', 'paraphrenia', 'mania' or 'other non-organic psychosis', who fulfilled RDC criteria for mania or schizomania

[b] For definitions of mania and mania with schizomania, see text

were interpolated. The censuses did not record ethnicity as such, but "country of origin" was recorded, and the 1981 census also included "country of origin of head of household".

Analyses

An adjustment was made for the missing notes by ascertaining the percentage of rated patients (by sex and/or ethnicity where necessary) in each cohort with a register diagnosis of (hypo)mania or schizophrenia and related conditions who fulfilled RDC criteria for mania or mania with schizomania. This proportion was then added to the total in each category (these corrections resulted in only minor changes).

Incidence rates for RDC mania and mania with schizomania were calculated based on the census figures for the population of Camberwell and directly standardized to the 1964 age and sex structure. Changes in rates over time were analysed using a test for trend. A simple linear regression model was used, with the log rates as the dependent, and the four time periods (see below) as the independent variable. A P value was obtained from the slope of the regression line, assuming an additive model. The magnitude of the association between incidence rate and an exposure variable was expressed as the rate ratio. Confidence intervals (CIs) for rate ratios were calculated according to Rothman (1986). Associations between binary variables were expressed as the risk ratio (Rothman 1986).

Results

Sample characteristics

There were 701 patients on the register in the appropriate categories. Case records were available on 625 (89%), of whom 80 were excluded because of psychiatric contact before 1965, the patient not being a resident of the psychiatric catchment area or because there was an obvious organic basis to the illness. The notes were of insufficient quality to rate in eight patients, and these were counted as missing in further calculations.

Patients were allocated to four time cohorts according to their date of first contact, namely 1965–1969 (first cohort), 1970–1974 (second cohort), 1975–1979 (third cohort) and 1980–1984 (fourth cohort). The number of patients in each cohort for whom notes were missing was 31 (20%), 28 (18%), 11 (7%) and 6 (4%), respectively. The greater proportion of missing notes in the first and second cohorts was due to a number of these notes having been destroyed because of lack of storage space at one of the local hospitals. There is no reason to suspect that this introduced any systematic bias; specifically, there were no significant differences in the proportion of males or those born outside the United Kingdom between subjects with missing and available notes.

Table 1 shows the number of individuals who fulfilled RDC criteria for mania with schizomania across the four cohorts ($n = 106$), the great majority of whom (89.4%) had been inpatients at first contact. Incidence rates were calculated for mania and mania with schizomania. There was a trend for an increase in the rates of both over the period under study.

Incidence of mania by gender

Analyses of age-adjusted rates for RDC mania with schizomania by gender (Table 2) revealed that the overall incidence rates were similar in both sexes across the four cohorts. The rate for mania with schizomania was between 2.5 and 4.9 per 100,000 person-years. Rates for mania with schizomania tended to increase in both sexes, but this increase only reached statistical significance for females; the findings for mania were similar.

Incidence of mania by ethnicity

In order to investigate any effect of ethnicity on our results, we established, among the total number of individuals fulfilling RDC criteria for mania with schizomania, the proportion of both Caribbean-born ($n = 22$) and United Kingdom born Afro-Caribbeans ($n = 28$; Table 3). Census data for Camberwell show that the proportion of the population born in the West Indies increased from 2.5% in 1961 to 4.9% in 1971 and 6.6% in 1981. The 1981 census also classifies residents

Table 2 Annual age-adjusted rates (rate ratios) of RDC mania with schizomania per 100,000 person-years, by sex

Cohort	Annual rates (rate ratios) of RDC mania with schizomania per 100,000 person-years, by sex		
	Mania with schizomania		
	Females	Males	Rate ratio (95% CI)
1965–1969	3.0	2.5	1.2 (0.4–3.7)
1970–1974	3.6	3.2	1.1 (0.4–2.7)
1975–1979	3.8	4.9	0.8 (0.4–1.8)
1980–1984	4.4	3.8	1.2 (0.5–2.7)
Test for trend	$P = 0.02$	$P = 0.3$	

Table 3 Proportion of all individuals fulfilling RDC criteria for mania with schizomania, by country of birth and ethnicity

Cohort	Individuals born in the West Indies ($n = 22$)	First-and second-generation Afro-Caribbeans ($n = 28$)
1965–1969	20%	21%
1970–1974	23%	24%
1975–1979	14%	21%
1980–1984	25%	37%

by the birthplace of the head of the household. This can be used as a rough estimate of the proportion of the total population who were ethnic Afro-Caribbeans (i.e. those born in the West Indies, and those born in the United Kingdom combined); the figure for 1981 was 11.5% Afro-Caribbean. To avoid error through possible underestimation of the size of the Afro-Caribbean population, all denominator data for the group born in the West Indies and the Afro-Caribbean group were corrected for a 10% underenumeration in all the analyses comparing ethnic groups (Tables 4 and 5).

It is clear (Table 3) that the proportion of Caribbean-born individuals among manic subjects was 8 times higher in the first cohort and 3–5 times higher in the subsequent cohorts than the proportion in the general population of Camberwell. In the later years of the study, a similar excess was seen for the Afro-Caribbean group as a whole (i.e. both Caribbean-born and United Kingdom born).

Using the census data, corrected as described above, we calculated rates for RDC mania with schizomania by country of birth (Table 4). The rate of mania for "all individuals born in the West Indies" was significantly greater than that for "all individuals born in the United Kingdom" across all four time bands. Of course, in the later years of the study an increasing proportion of the general population in Camberwell were ethnic Afro-Caribbeans born in the United Kingdom; this probably accounts for the decline in the rate ratio for "country of birth" from the second to the fourth cohort. The limitations of the census data allow us to estimate rates by ethnicity as such only for the final 5 years of the study (again, "country of birth of head of household" data were used). Table 4 shows that for 1980–1984, the rate of mania for all ethnic Afro-Caribbeans was 4 times that for all other ethnic groups combined (the great majority of whom would be white).

Among all patients with mania, individuals in the Afro-Caribbean group were significantly more likely to fulfill criteria for "schizomania" than those in the white group (risk ratio 2.2; 95% CI 1.1–4.3). Comparison of rates for mania (i.e. with exclusion of schizomanic disorder) in the 1980–1984 cohort, by ethnicity, revealed a decrease in the rate ratio from 4.1 for mania with schizomania to 3.0 (95% CI 1.3–7.4).

As the exact age structure of the Afro-Caribbean population in Camberwell over the period under investigation was not known but was likely to have contained relatively few individuals in the older age groups compared to the white population, we attempted to correct for this effect. In our sample, age of onset distribution curves for Afro-Caribbeans and "all other ethnicities" were similar in form, but the range in Afro-Caribbeans was 16–64 years, and 16–88 years in the "all other ethnicities" sample. We therefore calculated, for the 1980–1984 cohort, rates for "all other ethnicities" with onset before 65 years, assuming that all individuals in the general population in Camberwell aged 65 years and over were white, to obtain a more conservative estimate of rate ratios between Afro-Caribbeans and "all other ethnicities" in the under 65s. With this correction, individuals of Afro-Caribbean origin showed rates of mania between 3.1 (mania with schizomania: 95% CI 1.4–6.9) and 2.2 (mania: 95% CI 0.9–5.6) times that of their white counterparts.

Initial presentation bias?

As pointed out above, one reason for the high rates of mania in Afro-Caribbeans may lie in differences in illness presentation, Afro-Caribbean bipolars possibly presenting more often with initial manic episodes and bipolar whites with initial depressive episodes. To examine the possibility of a differential change in diagnosis, we conducted a search for all Maudsley patients on the Camberwell Case Register who had an initial first contact diagnosis of depression during the period 1965–1984 and whose country of birth was either the United Kingdom ($n = 2454$; 91%) or the Caribbean ($n = 239$; 9%). This group of initial depressive contacts (IDC) was subsequently matched with computerized records of all discharges (including data on ICD discharge diagnosis and country of birth) from the Maudsley hospital between 1970 and 1993, yielding a follow-up range for IDC cases from 5 to 28 years. This yielded matches with 2441 inpatient episodes (subjects could be matched more than once if they had

Table 4 Five-year rates (rate ratios) of RDC mania with schizomania per 100,000 person-years, by country of birth

Cohort		Individuals born in the West Indies	All individuals born in the UK	All Afro-Caribbeans	All other ethnic groups
1965–1969	Number of cases[c]	4.5	14.1	–	–
	Denominator[b]	22961.0	776987.0	–	–
	Five-year rates	19.6	1.8	–	–
	Rate ratio (95% CI)		10.8 (3.7, 31.2)	–	–
1970–1974	Number of cases[c]	5.8	11.5	–	–
	Denominator[b]	40284.0	642025.0	–	–
	Five-year rates	14.4	1.8	–	–
	Rate ratio (95% CI)		8.0 (3.0, 21.8)	–	–
1975–1979	Number of cases[c]	4.3	23.3	–	–
	Denominator[b]	36307.0	578639.0	–	–
	Five-year rates	11.8	4.0	–	–
	Rate ratio (95% CI)		2.9 (1.1, 8.2)	–	–
1980–1984	Number of cases[c]	7.0	19.1	10.4	17.7
	Denominator[b]	45144.0	491251.0	78660.0	544809.0
	Five-year rates	15.5	3.9	13.2	3.3
	Rate ratio (95% CI)		4.0 (1.7, 9.5)		4.1 (1.9, 8.8)

[a]Excludes all those born in neither the UK nor in the West Indies
[b]The denominator for the population born in the West Indies and the Afro-Caribbean population was corrected for an estimated 10% underenumeration
[c]Decimal points resulting from minor corrections for missing case notes

Table 5 Five-year rates (rate ratios) of first contact RDC mania with schizomania, and first admission mania after initial depressive episodes per 100,000 person-years, by country of birth[a]

Cohort		Individuals born in the West Indies	All individuals born in the UK
1965–1969	Number of cases[c]	10.5	35.1
	Denominator[b]	22961.0	776987.0
	Five-year rates	45.7	4.5
	Rate ratio (95% CI)		10.1 (5.1, 20.2)
1970–1974	Number of cases[c]	10.8	72.5
	Denominator[b]	40284.0	642025.0
	Five-year rates	26.8	11.3
	Rate ratio (95% CI)		2.4 (1.3, 4.5)
1975–1979	Number of cases[c]	9.3	60.3
	Denominator[b]	36307.0	578639.0
	Five-year rates	25.6	10.4
	Rate ratio (95% CI)		2.5 (1.2, 4.9)
1980–1984	Number of cases[c]	11.0	38.1
	Denominator[b]	45144.0	491251.0
	Five-year rates	24.4	7.8
	Rate ratio (95% CI)		3.1 (1.6, 6.1)

[a]Excludes all those born in neither the UK nor in the West Indies
[b]The denominator for population born in the West Indies was corrected for an estimated 10% underenumeration
[c]Decimal points resulting from minor corrections for missing case notes

multiple admissions), corresponding to 1481 subjects. This group of 1481 had the same distribution of Caribbean-born and United Kingdom born subjects (Caribbean-born: $n = 143$; 10%; United Kingdom born: $n = 1338$; 90%) as the whole IDC group, indicating an equal probability for both groups of being matched. Of the 1481 cases, a total of 335 patients (23%) had diagnoses in a non-depressive category, 158 of whom had a manic diagnosis, which was 11% of the 1481 matched subjects and 6% of the whole IDC group. Contrary to the expectation, Caribbean-born individuals were *more* likely to receive a follow-up diagnosis of mania (United Kingdom born: $n = 138/1338$; Caribbean-born: $n = 20/143$; risk ratio 1.4; 95% CI 0.9–2.1). Caribbean-born subjects were also more likely to receive a diagnosis of schizophrenia,

schizo-affective psychosis, paranoid psychosis or other psychosis (risk ratio 3.9; 95% CI 2.4–6.3), especially schizophrenia (risk ratio 4.7; 95% CI 2.7–8.2). However, Caribbean-born subjects were less likely to receive a follow-up diagnosis of neurosis or personality disorder (risk ratio 0.6; 95% CI 0.4–0.9). If anything, these figures were an underestimation of the true association between ethnic group and diagnostic change, as in the later years of the study an increasing proportion of the United Kingdom born subjects were ethnic Afro-Caribbeans born in the United Kingdom.

Adding the new figures for bipolars initially presenting as depressives to the cases of first-contact mania with schizomania, we recalculated the rates in both ethnic groups. In general, the rate ratio was only affected by a small amount, with the exception of the second cohort. In all four cohorts, however, rates remained significantly higher for the Caribbean-born group (Table 5).

Discussion

Over the 20-year period from 1965 we found that there was some evidence for a rise in the incidence of mania in Camberwell. The Afro-Caribbean group was at greater risk of developing mania (rate ratio = 3.1; 95% CI 1.4–6.9), after adjustment for age and a 10% underestimate of the size of the Afro-Caribbean population in Camberwell. Initial presentation bias is unlikely to have affected our results. Before considering these findings further, we need to discuss possible methodological flaws in our study, some of which have already been addressed.

Methodological issues

The use of first-contact rather than first-admission patients avoids the possibility of bias due to changes in admission policies over the years. Although it is theoretically possible that general practitioners in Camberwell have changed their pattern of referral of manic patients to psychiatric services, the available evidence in the United Kingdom suggests that almost all patients with severe mental illness are referred to psychiatric services (Cooper et al. 1987). Furthermore, even if such a change was operating, it would probably result, if anything, in a lower proportion of such patients being referred to hospital in more recent years (see Prince and Phelan 1990). We assessed the widest feasible range of diagnoses on the register, and it is unlikely that we omitted any significant number of manic patients.

We showed that exclusion of bipolar patients with first episodes of depression is unlikely to have led to spurious results. Although diagnostic change from depression to mania was only evaluated for cases on the register who had subsequent admissions to hospital, 90% of our *first contact* sample with manic disorder were inpatients, so that few manic patients with initial depressive episodes would have been missed. Our follow-up period to assess diagnostic change was long enough, as most of the conversion from depression to bipolar disorder takes place in the first 5 years (Akiskal et al. 1995). The overall rate of change from depression to bipolar disorder in our study must be somewhere between 6% (of initial first-contact depressives, a substantial portion of which would have moved out of the area before suffering an affective relapse) and 11% (of those initial depressives who remained in the area and had further contact with services). This estimate is similar to figures in the recent NIMH 11-year follow-up study of major depressive disorder, which found that 3.9% of subjects developed (manic) bipolar I disorder and 8.6% (hypomanic), bipolar II disorder over the ensuing years (Akiskal et al. 1995). Given that many hypomanic episodes occurring in bipolar II disorder are unlikely to be diagnosed as such (e.g. mild hypomania of a few days' duration) and the predominant clinical picture in bipolar II disorder is of protracted depressive episodes (Akiskal et al. 1995), the overall conversion rate in the NIMH study (3.9% + 8.6% = 12.5%) would be much lower if the method of case detection in the NIMH study had been similar to the one used in this investigation, as many bipolar II cases would have been missed.

Interpretation of findings

Overall, the rate for mania over the period under study tended to increase, although this may have arisen by chance. Our results did not indicate that the rate for mania has decreased, and our finding of a significant increase in females is consistent with the result of another recent study (Kendell et al. 1993). The authors of this study, however, ascribed their result to changing diagnostic habits, while the authors of another study reporting an increase in the incidence of mania (Parker et al. 1985) suggested that changes in diagnostic habits and changing proportions of "false" first admissions had contributed significantly to their results. The design of our present study, however, precluded bias due to changes in diagnostic habits at first contact by using standardized operational criteria based on comprehensive case records, and systematic bias in the missing notes is unlikely. It is possible however, that changes in the composition of the population of Camberwell over the period of the study contributed to the results. Three major factors could have a bearing on these findings.

Changes in the age and sex structure of the general population

The rates for mania shown in Tables 1 and 2 are standardized to the age and sex structure of Camber-

well in 1964, thus obviating any effect of the changing age and sex structure of the population. We also "corrected" conservatively for the relative youth of the Afro-Caribbean population in Camberwell, and this did not alter our results significantly.

Changes in the socioeconomic structure of the population

It has been reported that mania is evenly distributed between the social classes in Camberwell (Leff et al. 1976; Der and Bebbington 1987). Furthermore, as Castle et al. (1991) have noted, the minor changes in the socioeconomic structure in Camberwell over the period under study could not account for the magnitude of the changes in the incidence of major psychiatric disorders in Camberwell. Thus, this was unlikely to be a major factor in our study.

Changes in the ethnic composition

Our finding of an increased risk for mania in Afro-Caribbean individuals is in agreement with earlier reports (Leff et al. 1976; Bebbington et al. 1981; Der and Bebbington 1987) of a relative risk of 4–6 times in Caribbean-born individuals compared to United Kingdom born individuals.

It is not possible to determine exactly, however, whether high rates in the Afro-Caribbean group were the main determinant of the apparent increase in the incidence of mania over the study period. Because of the inadequacies of the census data, it is difficult to give precise rates of mania by ethnic grouping and by both ethnic grouping and gender. On the basis of our earlier estimate that Afro-Caribbeans comprised 11.5% of the population in 1981, we calculated a rate for mania with schizomania of 3.3 per 100,000 person-years for all non-Afro-Caribbeans between 1980 and 1984. Table 4 shows that the rate of mania with schizomania was 1.8 per 100,000 person-years for the general population for 1965–1969. At this time there would have been very few United Kingdom born Afro-Caribbeans in the population entering the age at risk for mania, as the major influx from the West Indies was in the 1950s and 1960s. The rate of 1.8 for "all individuals born in the United Kingdom" in the 1965–1969 cohort was lower than the rate of 3.3 for "all non-Afro-Caribbeans" in the 1980–1984 cohort (rate ratio 1.8; 95% CI 0.9–3.7; $p = 0.09$). Thus, this difference suggests that, independent of the growth of the Afro-Caribbean population in Camberwell, the rate of mania with schizomania was rising. It should be noted, however, that the 1965–1969 rate for "all individuals born in the United Kingdom" is not strictly comparable to the 1980–1984 rate for "all non-Afro-Caribbeans', as the latter includes a small number of immigrants from Africa who might also have a particular susceptibility to mania (Rwegellera 1977).

In the entire sample, Afro-Caribbean individuals, and especially females, were more likely than their white counterparts to fulfil criteria for schizomania and, correspondingly, there was a decline in the rate ratio for "all Afro-Caribbeans" versus "all other ethnicities" if schizomania was excluded. Thus, Afro-Caribbeans with mania more frequently displayed "schizophrenic" symptomatology, and an excess of mixed affective and schizophrenic states, particularly in women, contributed to the increased risk of mania in Afro-Caribbeans.

Conclusions

Most previous work has focussed on schizophrenia in the Afro-Caribbean population. However, high rates are not specific to schizophrenia, and the previous focus on Afro-Caribbean patients is also likely to have been too selective, as several studies have reported high rates of mental illness in a variety of ethnic minority groups (Rwegellera 1977; Selten and Sijben 1994; King et al. 1994; Van Os et al. in press). This has important implications for some of the more specific explanations that have been put forward, such as the use of cannabis and certain biological theories (McGovern and Cope 1987; Harrison 1990; Wessely et al. 1991). Whilst these factors may play a role, a non-specific increase in psychosis among various groups of ethnic minorities may indicate that common sources of stress on members of ethnic minorities, associated with sociocultural adjustment and the impact of migration, are also important determinants.

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