First-Contact Incidence Rates of Schizophrenia in Trinidad and One-Year Follow-up

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Background. Incidence rates of schizophrenia among UK African—Caribbeans have been reported as high. Various explanations including selective migration and genetic vulnerability have been proposed.

Method. In one calendar year, all new cases of psychosis presenting to various psychiatric services in two clearly defined geographical catchment areas in Trinidad — one in the rural south and the other an urban area — were studied. Standardised diagnostic instruments were applied and information collected using WHO screening and measurement instruments.

Results. A total of 56 cases were collected, giving an incidence rate of 2.2/1000 of broad schizophrenia with a rate of 1.6 for S+ schizophrenia.

Conclusion. These rates are similar to those from the WHO study in Honolulu and Aarhus, and much lower than the rates for African—Caribbeans in London. The cases were followed up for one year and the poor outcome rate for schizophrenia was 19%. The findings are discussed in a cross-cultural context and suggestions for future research made.

A number of studies in the UK have reported that the incidence rate of schizophrenia among African—Caribbeans is high when compared with that of native whites. This finding has led to the suggestion that the high rate can be explained either in terms of a genetic factor (e.g. Murray et al, 1992), in which case there should be high incidence rates in the sending countries, or by selective migration, which should lead to increased rates post-migration. Sashidharan (1993) has noted that both these hypotheses are based on the findings of Odegaard (1934), who studied white Norwegian migration to the US and then compared the rates between those who had migrated and those who had stayed behind, and may not be entirely applicable to Black migrants.

The International Pilot Study of Schizophrenia (World Health Organization, 1973) and subsequent Determinants of Outcome Study (Jablensky et al, 1992) indicated that the incidence of broad schizophrenia based on the Present State Examination (PSE—9) CATEGO system (Wing et al, 1974) varied significantly across centres, but the rates of narrowly defined schizophrenia (S+) were not significantly different (see Table 1). Any of Schneider's first-rank symptoms (Schneider, 1959) leads to a CATEGO class of S+. Broad schizophrenia includes paranoid psychoses, other psychoses or uncertain psychotic classes. However, the World Health Organization (WHO) publications did not report the rates of non-S schizophrenia, which we have calculated to vary dramatically and significantly across various cultures. Although some previous studies have reported rates of schizophrenia from the Caribbean (e.g. Neehall, 1991; Hilwig & Maharajh, 1993; Hickling & Rodgers-Johnson, 1995), only the latter study provided the incidence rates, which were lower than the rates reported among the African—Caribbeans in the UK. Our aim was to institute population-based studies in Trinidad and Barbados to collect data on first-onset psychoses. In this paper we present the data from Trinidad. Data from Barbados are still being collected and will be presented in a subsequent paper.

Aims

The aims of the study were: to determine the incidence of first-onset psychoses (especially schizophrenia) in Trinidad; to investigate the relationship between sociodemographic factors and the onset of illness; to conduct a follow-up study one year after initial contact.
Method

Sample

The data were collected over a period of one calendar year after a pilot phase. The intention was to collect all patients between the ages of 15 and 54 with a possible psychosis making contact with psychiatric services, as well as becoming known to the prison service, the private sector, and mental health officers (equivalent to community psychiatric nurses and working in specific catchment areas). The inclusion criteria were identical to those used in the Determinants of Outcome Study (Jablensky et al., 1992) to enable valid comparisons to be made with the WHO findings. These criteria included: at least six months residence; evidence of at least one of the overt psychotic symptoms or two of the abnormalities suggestive of psychotic disorder; and first life-time contact with any helping agency. The exclusion criteria included organic cerebral disorder (including drug/alcohol misuse) and previous contact with psychiatric services.

A pilot period of collection of cases throughout the island identified two sectors in which there was minimal leakage of cases. The definitive collection of cases was, therefore, conducted in these two sectors, one of which covered the capital, Port of Spain, while the other sector was rural. The total population of the relevant age-groups in the two catchment areas was 214,048 (Continuous Sample Survey of Population, 1991). An attempt was made to follow-up all patients at one year following initial contact to determine outcome.

Instruments

All psychiatrists working in the two sectors were trained in the use of the ninth edition of the Present State Examination (PSE; Wing et al., 1974) by an experienced trainer (DB). The convention of PSE training does not include formal assessments of trainees’ reliability by independently rating and calculating kappa. The process of training is one in which trainees’ ratings are continually assessed and discussed during the course to check on reliability. Repeat visits were made by DB to maintain calibration over the course of the study, and regular meetings between the research coordinator and researchers continued this process. The PSEs for the study were carried out by the authors (all experienced clinicians) including the psychiatric registrar (MH) responsible for the coordination of the study. Senior psychiatrists were responsible for the initial screening of patients who were then referred on to the research coordinator. The Syndrome Check List (SCL) was completed by the research coordinator. In some cases both the SCL and the PSE were collected, but the data analysed from the PSE. Two research nurses were seconded by the Ministry of Health, were trained, and were responsible for conducting interviews with the relatives of the patients to complete the Psychiatric and Personal History Schedule (PPHS; World Health Organization, 1973), the Obstetric History (Lewis & Murray, 1987) and the Mental Disorder Beliefs Schedule based on Wig et al. (1980). The results from the obstetric history and beliefs schedule are currently being analysed.

There were no refusals among the cases for inclusion in the study, but some had lost contact with the services before they could be reassessed at the end of the period of study. A minimum set of sociodemographic data, psychiatric diagnoses and PSE examination (or Syndrome Check List from the case notes where the patient refused participation or was not able to respond) were obtained for all cases. Follow-up was carried out by the same two research nurses in the patients’ homes and was considered negative after three follow-up visits at different times of the day on different days failed to contact the patient and where no relatives were available to help complete follow-up schedules. These follow-up schedules were the same as those used in the WHO studies. Since Jablensky et al. (1992) had developed several categories to define relapse, we used the same definitions of relapse as those authors. Unlike the WHO studies we were unable to do monthly follow-ups but only the one-year follow-up. Relapse was defined if the patient was still in the episode of inclusion, had committed suicide or had an incomplete remission or had more than one psychotic episode during the year with clear periods of remission. The research nurses were supervised very closely by the research coordinator to determine the relapse rates.

Results

A majority of the interviews with the relatives (62%) were conducted at home. In the year of the study a total of 56 cases were identified as meeting the inclusion criteria and were included. Of these, 34 cases received a CATEGO diagnosis of S+ and 12 of broad S (S?, P?, O+ or P+). Of these, 26 were male, giving a male to female ratio of 1.2:1. More than half (58.3%) were below the age of 30. The mean age of presentation for the males was 29 years and for females 32 years.
The incidence rates are presented in Table 1 which, for the purpose of comparison, also includes data from the Determinants of Outcome Study (Jablensky et al, 1992) and a recent epidemiological study in London using the same method (details from the first author on request). The Trinidad rates of broad schizophrenia and for S+ are within the ranges reported by the WHO studies and markedly lower than the high rates for London African-Caribbeans. The Trinidad rate for non-S+ cases is also the lowest compared with other groups.

**Sociodemographic factors**

Sixteen patients (35%) were unemployed at the time of the interview and 11 (24%) were employed, with information not known for the rest. Nine cases had had no education at all, whereas 11 (24%) were educated to primary school and 14 (30%) to secondary school level. Thirty-nine cases (85%) described themselves as religious and seven (15%) had changed their religion in the year prior to this contact. Thirty-one (67%) had shown no change in their religious beliefs, whereas 10 (22%) had shown either an increase or a decrease in their beliefs.

**Presenting symptoms**

The most common presenting symptom was odd behaviour (39 cases). Danger to self (12), threat or annoyance to others (10, including assault in five cases) and crisis (nine) were also reported (these numbers allow for more than one response). Interestingly, six cases presented with physical illness.

The duration of onset was less than three months in 72% of the cases, and varied from one week to more than one year. The first point of contact was a non-psychiatric facility in 40% of cases, although 55.3% came to the psychiatrists directly.

**Outcome**

Of the total sample of 56 cases of psychoses, seven patients (12%) could not be traced at one-year follow-up. Of the 46 cases of schizophrenia, 3 (6.5%) could not be traced. Of the 34 cases of narrow definition S+ schizophrenia, eight (six males and two females) had relapsed within the first year of contact. Of the total 46 cases of schizophrenia, nine (19%) patients had a poor outcome, which is defined (in the WHO convention) as continuation of the initial psychotic episode, suicide, or a recurrence of psychotic symptoms after a period of at least three months symptom-free. Another two cases were noted to be withdrawn and less active than before, but did not qualify to be included in the poor prognosis group. The sociodemographic variables of cases who were not traceable were similar to those traced in the follow-up. There were no suicides in the group.

**Discussion**

This is the first study to determine the incidence rate of schizophrenia in Trinidad in a prospective manner. Previous studies have determined rates of admissions to psychiatric hospitals and have estimated the prevalence of various illnesses

<table>
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<th>Sample area</th>
<th>Population size</th>
<th>Broad S</th>
<th>95% CI</th>
<th>S+</th>
<th>95% CI</th>
<th>Non-S</th>
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<tr>
<td></td>
<td>Rate n</td>
<td>Rate n</td>
<td></td>
<td></td>
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<td></td>
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<td>0.80</td>
<td>25.12</td>
<td>0.49-1.11</td>
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<td>0.27-1.93</td>
<td>3.10</td>
<td>19.11</td>
<td>1.71-4.49</td>
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<td>0.56</td>
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</table>
Incidence rates

The incidence rate of broadly defined schizophrenia according to our findings is low. When compared with the data from the Determinants of Outcome Study, the rate of Schneiderian schizophrenia in Trinidad is well within the narrow range of the WHO centres of 0.70 to 1.40. However, the rate for non-Schneiderian schizophrenia is lower than that from any of the WHO centres. Thus our findings add to the evidence that non-Schneiderian schizophrenia is more likely to be influenced by environmental factors than Schneiderian schizophrenia. This conclusion is also supported by data from the London study (details from the first author on request), which found a greater ethnic variation in incidence rates for non-Schneiderian than for Schneiderian schizophrenia.

Although a majority of interviews were with the PSE (70%), the unreliability of the SCL remains an issue. However, as there are no similar figures from the Determinants study, a 70% take-up rate of face-to-face interviews is acceptable.

Sociodemographic variables

Unlike some previously reported studies (e.g. Neehall, 1991) we found that the age and sex distribution of our cases was broadly similar to that reported from our London sample. Our finding that men had an earlier onset and a poorer outcome than women has been reported from numerous studies (e.g. Jablensky et al., 1992). The unemployment figures are not unsurprising by themselves, as the overall reported unemployment rate in Trinidad is 20% of the eligible adult population (CSO, 1991).

Recent religious conversion of seven of our sample (15%) is an interesting observation. Hilwig & Maharajh (1993), in a study from a different part of Trinidad, also observed that 15.6% of their sample of first attenders at a psychiatric out-patient facility, irrespective of their diagnoses, had changed their religion. This change of religion may represent an attempt by the individual to try to gain some stability and social support. There has been anecdotal evidence thus far that a change in religion can be seen as a predictor of future relapse, although in the absence of data from other African–Caribbean groups it is difficult to ascertain its significance. We would suggest further prospective data collection to determine religious interest and religiosity.

One of the possible explanations for the consistent finding of a high incidence rate of schizophrenia in UK-resident African–Caribbeans is a high rate in the sending population. The absence of epidemiological studies in the Caribbean needs to be remedied in order to investigate this possibility, which would have important implications for the genetics of schizophrenia. Our study in Trinidad and a recent similar study in Jamaica (Hickling & Rodgers-Johnson, 1995) concur in finding no excess incidence of schizophrenia in the sending populations. These results make a genetic explanation for the high rate in UK-resident African–Caribbeans very unlikely. Although it is possible to postulate selective migration of schizophrenia-prone individuals as an explanation (Ödegård, 1934), the fact that the high incidence of schizophrenia persists in second-generation UK African–Caribbeans (Harrison et al., 1988) weighs against this. Furthermore, in our London study, Asians who migrated at the same time as African–Caribbeans, and for the same reason of promised economic betterment, did not have an excess incidence of schizophrenia (Bhugra et al., 1996). If schizophrenia-prone individuals were overrepresented among the migrants from the Caribbean, it is difficult to understand why this should not have been true for the migrants from north India, who formed the bulk of the Asian population surveyed in our London study. Furthermore, as Sashidharan (1993) cautions, Ödegård's (1934) model of migration in White Norwegian communities may not be applicable to African–Caribbean communities.

The low probability of a genetic explanation focuses attention on environmental factors in the causation of psychotic illness. An obvious next step would be to compare the social environment of African–Caribbeans in the Caribbean with that of the same ethnic group in London, including housing, employment and social support.

Outcome

We could not trace 12% of all cases of psychosis in our sample. This rate is lower than that in the WHO
Determinants of Outcome Study (Jablensky et al., 1992), which reported a drop-out rate of 21.8% (in individual centres, drop-out rates were 19.2% in Aarhus, 6.4% in Agra, 9.7% in Cali, 5.6% in rural Chandigarh, 30.9% in urban Chandigarh, 14.9% in Dublin, 57.4% in Honolulu, 31.0% in Ibadan, 16.8% in Moscow, 35.2% in Nagasaki, 18.7% in Prague and 43.6% in Rochester). Our drop-out rate of 6.5% in the schizophrenia group is comparable with the Indian sample. However, a note of caution is essential in view of the small numbers. Although there were no age and sex differences among the drop-outs, some patients may have sought help from outside the island. The patients in Trinidad had a pattern of outcome which was similar to that of the Whites and Asians in London, but markedly different from the London African-Caribbeans. Once again, a comparison of the environment for African-Caribbeans in the two locations could identify factors influencing outcome.

The overall low rates here suggest that genetic factors are less likely to explain high rates of schizophrenia among the African-Caribbean population in the UK (see Harrison et al., 1988). Social factors such as life events and racial discrimination may go some way towards explaining the high rates in the UK. The impact of migration as a causative factor is bound to be rather weak, since most of the migration to the UK occurred 20–30 years ago. In the present study the relapse rate is 19%, which is similar to that reported among the white patients but well below the 60% relapse rate among the African-Caribbeans in our London sample. Intimate interpersonal relationships contributing to the breakdown of the patient, along with perceptions of odd behaviour in the patient, lead to help-seeking. The frequency of odd behaviour is not dissimilar to our London findings in the African-Caribbean patient sample. This also resembles the WHO findings from India and other centres. Odd behaviour remains the most important clinical feature that draws the attention of relatives and the community towards something being unusual in the patient’s functioning. This may suggest that social networks or social expectations play a very important role in protecting against future relapse. Unfortunately, we do not have sufficient details of the patients’ functioning during the period between the two interviews to determine exactly which specific factors need to be studied further. It is conceivable that the longer period of stability after first contact, the greater the likelihood of managing in a socially appropriate situation increases.

Future research

Multi-centre trials need to be carried out in several Caribbean islands to determine the true rates of schizophrenia. The understanding of the prognosis as well as response to treatment has to be studied in the cultural context with clear views on social and cultural expectations of the individuals and their roles. Furthermore, detailed analysis of social and organic factors such as drug misuse will allow clinicians to develop preventive and educational programmes.

Clinical implications

- This is the first study of the incidence of schizophrenia in Trinidad, suggesting lower incidence rates compared with a similar ethnic population in the UK.
- Outcomes show no difference in Trinidad compared with UK African-Caribbeans.
- Genetic causes of schizophrenia appear less likely.

Limitations

- It was a small sample with follow-up only once, a year later.
- Based in only two sectors of the island.
- There was a 6.2% drop-out rate at the end of the year.

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References


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