

Schizophrenia in Surinamese and Dutch Antillean immigrants to The Netherlands: evidence of an increased incidence

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ABSTRACT

Background. Reports of an increased incidence of schizophrenia in Afro-Caribbean immigrants to the UK are a matter of much debate. It is of interest, therefore, that in the 1970s and 1980s many immigrants from Surinam and The Netherlands Antilles have settled in The Netherlands. The purpose of our study was to compare the risk of a first admission for schizophrenia for Surinamese- and Antillean-born persons aged 15–39 years to that for their Dutch-born peers in the period 1983–1992.

Methods. We used data from the Dutch psychiatric registry. Age-adjusted relative risks were calculated using Poisson regression analysis.

Results. The risk for the immigrants was found to be three to four times higher than that for the Dutch-born. Age-adjusted relative risks were significantly higher for male than for female immigrants.

Conclusions. The results provide evidence of an increased incidence in these immigrant groups and support similar findings on Afro-Caribbeans in the UK. Migration from Surinam was on such a large scale that selective migration of persons at risk for the disorder is unlikely to account entirely for these findings.

INTRODUCTION

There are reports of an increased incidence of schizophrenia and schizophrenia-related disorders in first- and second-generation Afro-Caribbeans in the UK (e.g. Harrison *et al.* 1988; 1996; King *et al.* 1994; van Os *et al.* 1996a). The validity of this finding has been questioned, however, due to the small numbers of patients in each study, the uncertainty about the size and age-distribution of the Afro-Caribbean population in the UK, and the possibility that the findings could be attributed to selective migration of persons at risk for the disorder. In his review of these studies Jablensky (1995) wrote: 'If substantiated, such data would provide the first evidence for a population group defined by

ethnic origin which differs sharply from all other studied populations with regard to risk for schizophrenia'.

Many immigrants from Surinam and The Netherlands Antilles have settled in The Netherlands and, interestingly, certain circumstances make it possible to eliminate the problems encountered by researchers in the UK. First, the Dutch psychiatric registry can provide data on large numbers of patients. Secondly, there are reliable demographic figures on Antillean immigrants. They have Dutch nationality and their residence in The Netherlands is never illegal (in contrast to an unknown number of Surinamese whose residence is illegal). Thirdly, migration from Surinam was on such a large scale that the role of selective forces must be limited. Surinam gained its independence in 1975 and doubts about the future of the country caused mass emigration to The Netherlands.

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The Surinamese community in Holland increased from 45 000 in 1973 to 142 000 in 1981 and more than one-third of the Surinamese-born population now lives in The Netherlands. Laws made immigration more difficult in the 1980s (Harmsen *et al.* 1991).

There are some differences between Afro-Caribbeans in the UK and Surinamese and Antillean immigrants in The Netherlands. Whereas most Dutch Antilleans are blacks, the population in Surinam and the Surinamese community in The Netherlands are ethnically diverse. Percentages of Hindustanis (whose ancestors migrated from British India to Surinam) and Afro-Surinamese in The Netherlands have been estimated at 43% and 37% respectively (Roelandt *et al.* 1992). Secondly, migration from the Caribbean to the UK occurred mainly in the 1950s and 1960s; that from Surinam and the Netherlands Antilles to The Netherlands, in the 1970s and 1980s. Most children born to immigrants to The Netherlands are therefore young and not yet at risk of schizophrenia.

In a preliminary study admission rates for schizophrenia and other forms of non-affective psychoses were found to be increased for Surinamese, Dutch Antillean and Moroccan immigrants, but not for Turkish immigrants (Selten & Sijben, 1994). In this study more sophisticated analyses are applied to larger data sets. The purpose here is to compare the risk of a first admission for schizophrenia for immigrants from Surinam and the Netherlands Antilles with that for natives.

METHOD

The registry receives data from the administrative departments of almost all institutions for in-patient psychiatric care in The Netherlands. It collects data on a standardized form. If the entries for 'sex', 'date of birth', 'place of birth' and 'ICD-diagnosis' have not been made, the registry returns the form to the institute. This information is consequently always complete (details in Selten & Sijben, 1994). In addition, the registry records 'country of birth', not 'race' or 'ethnicity'. In the 1980s the use of the 3rd edition (DSM-III; American Psychiatric Association, 1980) and the revised 3rd edition of the Diagnostic and Statistic Manual

(DSM-III-R; APA, 1987) became widespread in The Netherlands. The advantage of DSM-III and DSM-III-R diagnoses over ICD diagnoses lies in the use of operationalized criteria. In many hospitals physicians provided DSM-III or DSM-III-R diagnoses and the administrative departments converted these diagnoses into ICD-9 diagnoses, using conversion tables. It is likely that this procedure enhanced the reliability of diagnoses.

The registry selected data on all Dutch-, Surinamese- and Dutch Antillean-born patients who had been discharged at least once with an ICD-8 or, after 1978, ICD-9 diagnosis of schizophrenia in the period 1970–1992 (data-set 1). ICD-9 criteria are broad and include subtypes with a relatively good prognosis. Hence we designated schizophrenia according to ICD-9 criteria as 'broad schizophrenia'. We also examined the risk of a first admission for what we defined as 'restricted schizophrenia'. 'Restricted schizophrenia' includes the ICD-9 subtypes of 'catatonic', 'paranoid' and 'hebephenic' schizophrenia and excludes, for instance, 'acute schizophrenic episode'. Next, in order to increase the likelihood of including 'genuine' cases of schizophrenia, often a chronic disorder, we asked the registry to select cases with at least two discharges for ICD-9 schizophrenia (data-set 2; we used data recorded at the first hospitalization). First admissions were distinguished from readmissions by means of computerized record linkage. Dutch-born patients could be recognized by their date and place of birth and sex; immigrants by date and country of birth and sex.

The Central Bureau for Statistics (CBS) provided yearly figures for: (i) Surinamese- and Antillean-born populations in The Netherlands, broken down by sex- and 5-year age-categories; and (ii) the total Dutch population (same sex- and age-categories). These figures are derived from municipal registries, not from voluntary door-to-door surveys. For all individuals residing legally in The Netherlands registration with municipal authorities is compulsory and a prerequisite for essential documents (e.g. residence permit, work permit) and possible aid (e.g. income support). The figures for Antillean immigrants are, therefore, regarded as highly reliable (Harmsen *et al.* 1991). Given the concern about under-enumeration of young males of

Table 1. Age-adjusted relative risks of first hospitalization for schizophrenia for young Surinamese and Antillean immigrants to The Netherlands, 1983–1992

Data-set and type of schizophrenia	Country of birth	Sex	Person-years at risk	Cases of schizophrenia	Age-adjusted relative risk (95% CI)
Data-set 1 Broad schizophrenia (ICD-9 criteria)	Netherlands	M	30069076	6687	1.0
		F	28868365	4039	1.0
	Surinam	M	485128	494	4.5 (4.1 to 4.9)
		F	502667	203	2.8 (2.4 to 3.2)
		Neth.Antilles	M	155922	168
F	153943	68	3.0 (2.3 to 3.8)		
Data-set 1 Restricted schizophrenia*	Netherlands	M		3366	1.0
		F		1567	1.0
	Surinam	M		290	5.2 (4.6 to 5.8)
		F		100	3.6 (2.9 to 4.4)
		Neth.Antilles	M		96
F		29	3.3 (2.3 to 4.7)		
Data-set 2†	Netherlands	M		2800	1.0
		F		1459	1.0
	Surinam	M		249	5.3 (4.7 to 6.1)
		F		87	3.3 (2.7 to 4.1)
		Neth.Antilles	M		72
F		17	2.0 (1.3 to 3.3)		

* Includes the ICD-9 categories of 'catatonic', 'paranoid' and 'hebephrenic schizophrenia'.

† Includes cases with at least two discharges for ICD-9 schizophrenia.

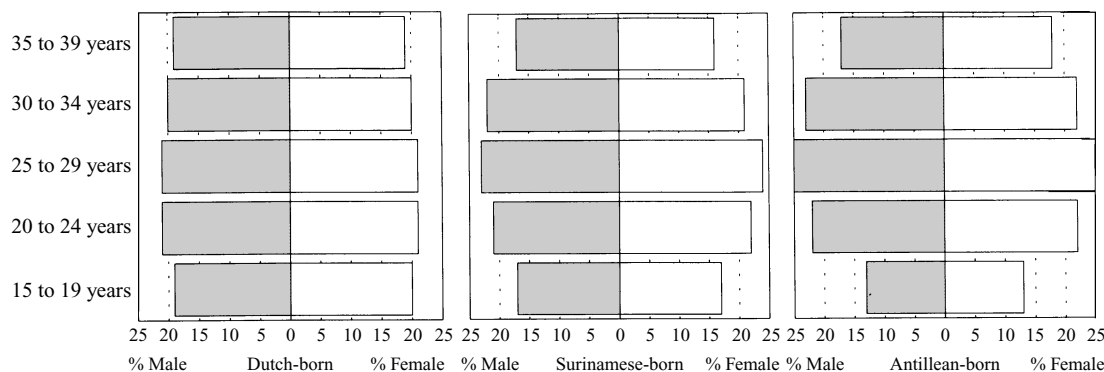


FIG. 1. Age distributions for the study populations (proportions of person-years, 1983–1992).

Caribbean origin in the 1991 census in the UK (Glover, 1993), it is noteworthy that young Antillean males outnumber females (see Table 1). The CBS figures do not cover an unknown proportion of the Surinamese community, whose residence is illegal. As the Dutch police arrest relatively few Surinamese illegal immigrants, this proportion might be smaller than that reported for the Turkish or Moroccan community (about 10–15%) (Engbersen *et al.* 1995). Yearly estimates of the size of the Dutch-born population were derived from the CBS country of birth censuses in 1970 and 1990 (interpolations for other years). The age-distributions of the

populations of young immigrants and Dutch-born peers are given in Fig. 1.

Analysis

We calculated the risk of a first admission for schizophrenia over a 10-year period (1983–1992) by dividing the number of cases by the number of person-years. We divided patients into 5-year age-groups according to age on relevant admission, not at discharge, and confined our analyses to persons aged 15–39. We derived person-years at risk for the 10-year period by adding the yearly population figures. We compared the risk for each sex- and 5-year age-

category in the immigrant groups to that for the corresponding category in the native-born group. Next, age-adjusted relative risks were calculated by Poisson regression analysis using the EGRET program, version 0.26.6 (Statistics and Epidemiological Research Corporation, 1990). For this purpose the independent variable 'age-group' was entered into the Poisson regression model.

RESULTS

The sex- and age-adjusted relative risk of a first admission for 'broad schizophrenia' (ICD-9 criteria; data-set 1) was 3.8 (95% Confidence Interval: 3.5 to 4.1) for Surinamese-born immigrants and 3.9 (3.5 to 4.5) for the Antillean-born immigrants. Since adjustment for year of admission had no significant effect on the estimates of these relative risks, there was no evidence of a time trend.

The other results are given in Table 1. The age-adjusted relative risks were as much increased in Surinamese immigrants as in Dutch Antilleans. These results remained essentially unchanged when we varied the type of schizophrenia ('broad' or 'restricted') and the required number of hospitalizations (at least one or two, in data-sets 1 and 2 respectively). Interestingly, the age-adjusted relative risks were significantly higher for male than for female immigrants.

DISCUSSION

Results from this study suggest that the incidence of schizophrenia in Surinamese and Dutch Antillean immigrants to The Netherlands is increased and support similar findings on Afro-Caribbeans in the UK. A lower threshold for admission was excluded as an explanation for the findings in the UK (e.g. Castle *et al.* 1994) and is unlikely to account for the findings in The Netherlands: a survey at out-patient facilities in Rotterdam showed that proportions of DSM-III-R schizophrenic patients ($N = 713$) with a prior hospital admission were similar in Surinamese-, Antillean- and native-born groups (82–93%) (Schrier *et al.* 1996). Studies using diagnostic interviews have ruled out diagnostic bias and misclassification as explanations for the findings on Afro-Caribbeans in the UK (Harrison *et al.* 1988, 1996; King *et al.* 1994), but similar studies have not yet been undertaken

in The Netherlands. For this reason the evidence of an increased incidence of schizophrenia in both immigrant groups to The Netherlands is not conclusive. In order to rule out misdiagnosis and admission bias as explanations for the above findings, we have started a prospective first-contact study in the city of The Hague, where many immigrants have settled. All potential cases will be examined using a semi-structured diagnostic interview.

It is unlikely that the suspected increase is specific for schizophrenia or for black Caribbeans and black Surinamese. Caribbeans in the UK have also been found to be at an increased risk of developing mania (van Os *et al.* 1996*b*) and a high incidence of schizophrenia has also been reported, albeit less consistently, for some other ethnic minority groups in Western Europe, for instance West Africans in the UK and Moroccans in The Netherlands (e.g. King *et al.* 1994; Selten & Sijben, 1994; van Os *et al.* 1996*a*). As the relative risks for Surinamese and Antillean migrants are remarkably similar, the incidence may also be increased in Hindustanis. Interestingly, the ratio of Hindustanis to Afro-Surinamese diagnosed with schizophrenia at the Rosenberg Hospital of The Hague (about 3 to 1) is similar to the ratio of these populations in town (Selten, 1995). There are no reports on the incidence of schizophrenia in Surinam or the Netherlands Antilles. In Jamaica it has been found to be within the 'normal' range (Hickling *et al.* 1995).

Two British studies are of particular relevance to help interpret these findings. Both studies found that the morbid risk for schizophrenia was similar in parents and siblings of white and first-generation Caribbean probands and parents of second-generation Caribbean probands (Sugarman & Craufurd, 1994; Hutchinson *et al.* 1996). The risk for siblings of second-generation Caribbean probands, however, was found to be much higher than that for siblings of white probands. This suggests that the genetic risk for schizophrenia is similar for Caribbeans and for whites and that the increased frequency of the disorder among second-generation Caribbeans is due to environmental factors that can precipitate the disorder in those who are genetically predisposed. Whether social pressures constitute these environmental factors is uncertain. Turks in The Netherlands and

Germany are subject to the same kinds of social adversity that have been postulated to increase rates of schizophrenia in Caribbeans and Surinamese immigrants (e.g. racial discrimination, unemployment), but rates for schizophrenia in Turks are not increased (Weyerer & Häfner, 1992; Selten & Sijben, 1994; Schrier *et al.* 1996). The low rates for Turks have been attributed to a protective effect of strong family ties, but these ties are also very strong in Hindustanis (Mungra, 1990). The use of cannabis and other illicit drugs has been suggested as an explanation for the high incidence of schizophrenia in Caribbeans, but the British literature reports that a history of drug abuse is present in only a minority of Afro-Caribbeans diagnosed with schizophrenia (e.g. Harrison *et al.* 1988; King *et al.* 1994). Furthermore, there is little evidence to support the claim that cannabis use is more prevalent in Caribbeans than in other ethnic groups in the UK (ISDD, 1990). The same applies to both immigrant groups to The Netherlands. According to a field study in Amsterdam, the 'lifetime', 'last-year' and 'last-month' prevalences of the use of cannabis and other illicit drugs are actually lower in Surinamese and Antilleans than in the general population (Sandwijk *et al.* 1995).

In summary, the results of our study suggest that migration from the Caribbean and from Surinam is a risk factor for schizophrenia, especially in males. The puzzle persists as to which aetiological factors might explain this increased incidence.

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