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Social environment, ethnicity and schizophrenia

A case-control study

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Abstract *Background* There is accumulating evidence that genetic and neurodevelopmental factors cannot solely account for the pathogenesis of schizophrenia. In view of the reportedly increased incidence of schizophrenia among the African-Caribbean population in Britain, we sought to establish the socio-environmental influences which distinguished African-Caribbean patients from white British and Asian patients with schizophrenia, as well as from normal population controls of the same community. *Method* A matched case-control study was conducted in London between 1991 and 1993. Inclusion criteria for patients was a first onset psychosis between the ages of 18 and 64. Symptoms were recorded using the Present State Examination (PSE), and a research diagnosis of schizophrenia was made using the CATEGO program. Comparisons were made on a range of demographic and socio-environmental measures between patients ($n=100$: 38 African-Caribbean, 38 white and 24 Asian) and the same number of normal controls. *Results* Three socio-environmental variables differentiated the African-Caribbean cases from their peers and their normal controls: unemployment, living alone and a long period of separation from either or both parents as a minor. Though all patients were much more likely than controls to be unemployed at first contact with the services (odds ratio 5.5, 95% CI 2.59, 11.68), the odds ratio was highest among African-Caribbeans, and further conditional logistic regression analysis demonstrated that unemployment was significantly associated with the high rate of caseness among African-Caribbeans. However, the direction of cause and effect cannot be determined from this type of study. Despite the fact that African-Caribbean cases were more likely than their peers and same group controls to live alone ($p < 0.05$), this did not

achieve significance using Fisher's Exact Test. Separation from both parents in childhood distinguished African-Caribbean cases from their controls and from cases and controls of the other ethnic groups (odds ratio 5.0, 95% CI 1.09, 22.82). This event cannot be attributed to the premorbid manifestations of schizophrenia, nor to psychoses in the parents, and hence is a possible explanatory factor for the high incidence of schizophrenia among African-Caribbeans in Britain. *Conclusions* These findings indicate that unemployment and early separation from both parents distinguish African-Caribbeans diagnosed with schizophrenia from their counterparts of other ethnic groups as well as their normal peers, and imply that more attention needs to be focussed on socio-environmental variables in schizophrenia research.

Key words ethnicity – schizophrenia – social isolation – unemployment – separation from parents

Introduction

The causes of schizophrenia are still widely debated, though genetic and neuro-developmental factors are generally considered to account for 30–50% of the risk of exposure to schizophrenia. Social psychiatrists and social scientists are sceptical about purely biological explanations for the pathogenesis of the illness and espouse a biopsychosocial approach. The debate is, however, rather anisometric since current mainstream psychiatric research into the aetiology of schizophrenia focuses mainly upon biological factors, giving scant recognition to the role of the socio-cultural environment. If social factors are given consideration, then depending upon disciplinary interest and theoretical bias, opinion shifts between the “social drift” and the “social breeder” hypotheses. The first hypothesis asserts biological causation as paramount, arguing that those predisposed to schizophrenia drift into a poorer social environment due to the prodromal effects of the illness.

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The second hypothesis emphasizes the importance of social factors, advancing the case that an impoverished social environment increases the risk for mental illness, including schizophrenia.

Prior to 1970, work on social factors and schizophrenia was dominated by American research on the effects of class and the process of urbanization and socio-environmental factors such as social isolation (Faris and Dunham 1939; Hollingshead and Redlich 1958). Early work in the United Kingdom (UK) often replicated the findings of American studies, and researchers such as Goldberg and Morrison (1963) and Hare (1956) investigated the influence of the urban environment upon rates of schizophrenia and addressed the "social drift" and the "social breeder" hypotheses. However, since the late 1960s, when studies in the UK started to report an increased incidence of schizophrenia in the African-Caribbean population as compared with the white British population, the major social construct to be investigated as a potential aetiological determinant is ethnicity, in particular African-Caribbean ethnic status.

From the first study which noted the excess in diagnosed rates of schizophrenia in African-Caribbeans (Hemsi 1967) to the work of Harrison et al. in 1988, there was an alarming increase in the reported excess risk rates for African-Caribbeans (from 4.9 to 14.6, respectively) when compared to the indigenous population. These results were generally reported with little aetiological explanation, but those researchers who did speculate tended to propose biological explanations such as selective migration, ethnic susceptibility or the misuse of illicit drugs. Selective migration (Carpenter and Brockington 1980) has become a less likely explanation as subsequent studies have found that the excess rates among African-Caribbeans in the UK continue to be high for the generation born there (McGovern and Cope 1987; Harrison et al. 1988; Bhugra et al. 1997). Theories that espoused ethnic susceptibility (Cochrane and Bal 1987) have also gone into abeyance as more recent epidemiological studies have demonstrated that the incidence rates in the Caribbean are the same as or lower than the white British rates (Hickling and Rodgers-Johnson 1995; Bhugra et al. 1996; Mahy et al. 1999). While a number of studies have examined the role of cannabis in precipitating psychotic episodes (Ghodse 1986; Andreasson et al. 1987; Thornicroft 1990; McGuire et al. 1995), none has been able to prove that cannabis misuse is aetiological in the development of psychosis among African-Caribbeans.

Apart from the unsupported hypotheses mentioned above, there have been few biological explanations (family history, obstetric complications and neuro-developmental anomalies) (Eagles 1991; Fahy et al. 1993 a, b; Wright et al. 1995) which have included ethnicity as a variable (Hutchinson et al. 1997), and none has shown a difference across ethnic groups. The few authors who addressed the combination of ethnicity and social factors in the aetiology of schizophrenia (Bagley 1971; McGovern and Cope 1987) proposed hypotheses that the

stress of migration and living in an alien society were responsible for the high rates. However, they presented no evidence for these. More recently the work of Sugarman and Crawford (1994) and its replication by Hutchinson et al. (1996) have pointed to an environmental rather than a genetic effect. Recent research has established a significant link between urbanicity (including urban birth and upbringing) and schizophrenia (Marcelis et al. 1998; Lewis et al. 1992), but in the main the studies have focussed upon biological factors such as season of birth (Machon et al. 1983; Lewis et al. 1992; Takei et al. 1992) and none has included ethnicity as a variable.

In view of the evidence linking ethnicity and schizophrenia, we initiated a study in the UK of first contact cases belonging to three ethnic groups: whites, African-Caribbeans and Asians, matched on age, sex and ethnicity with normal controls from the same communities. We sought to revisit the earlier social hypotheses concerning aetiology in the light of current research on ethnicity. The majority of African-Caribbeans and Asians live in conurbations throughout the UK, with the largest concentration in Greater London (Peach 1996). Given the accumulating evidence that urbanicity is associated with an increased risk for schizophrenia, we also wished to investigate the link between increased ethnic rates and relevant aspects of urbanicity.

Subjects and methods

A matched case-control study was carried out in two Health Districts in London, between 1991 and 1993 (Bhugra et al. 1997). The Health Districts were Camberwell in South London and Ealing in West London. These areas were chosen because of the high density of African-Caribbeans in the former, and Asians in the latter. The criteria for inclusion for patients were all cases aged between 18 and 64, resident in the catchment areas for at least 6 months, and making contact with the hospital (in-patients, out-patients, emergency clinics) or community services (general practitioners, community psychiatric nurses, prison services, private hospitals, domiciliary consultations) for the first time and subsequently diagnosed with psychosis. While it is conceivable that some people suffering from schizophrenia are able to survive in the community without making any contact with medical services, population surveys indicate that the number is very small (Bebbington et al. 1982; Foster et al. 1996).

The study included a population survey of the three ethnic groups in each research area. The unit of analysis for the survey was individual respondents rather than households, as we were interested in exploring the possible relationships between ethnicity and mental illness. As there is no extant list of individuals stratified by the key characteristic of ethnicity, it was not possible to conduct a simple random sample or a sample based on proportionate stratification. Instead, controls were selected using a multi-stage quasi-random sample design with clustering and stratification. This included the non-probability modified random walk method (focussed enumeration) developed by Brown and Ritchie (1982), with electoral wards being used as the primary sampling units. Focussed enumeration involves mapping specified geographical areas for ethnicity using systematic sampling of every five to seven households to check for all people from particular ethnic groups. Residents are asked to identify both the members of their own and neighbouring households by ethnic status. All identified households are then listed, and this list constitutes the sampling frame from which the survey population is chosen. Four wards in each health authority were chosen using purposive sampling to maximize the opportunity of finding minority ethnic re-

spondents. Systematic random sampling was then used to select street addresses in each ward. Every fifth house in each street was called upon a minimum of three times, and a letter left inviting residents to take part in the survey. From those households where a resident responded positively, the Kish grid was used to determine which occupant of each household to interview. Controls were matched to cases based on age, ethnicity and age within a 5-year age-band range.

Information from all case and control subjects was elicited by direct interview, and the assessments used combined both closed and open-ended questionnaires. A significant relative of the case (often the mother) was also interviewed to confirm and supplement information obtained from the patient. The ethnic status of both cases and controls was ascertained as a result of self-ascription. Patients and controls were asked to assign themselves to an ethnic grouping using the categories devised for the 1991 Census. All respondents self-ascribed, and indicated both their own and their parents' place of birth. One patient whose parents were from two different ethnic groups (and who identified himself as belonging to the Other – Mixed group in the census) was excluded because of the difficulty of obtaining an accurate denominator from the census data. In two other cases of mixed parentage, patients assigned themselves to the Black Other group. These were left in the final calculations, since the denominator figures which were used comprised the Black Caribbean and Black Other categories from the census (the Black Other group mainly comprising people who self-ascribed as Black British, and primarily including those of African-Caribbean heritage). This was for two reasons, first to capture those people of Caribbean heritage born in the UK and not recording themselves as Black Caribbean, and second to compensate for the under-enumeration of young Black Caribbeans in the census (OPCS 1993). However, no controls were recruited from mixed ethnic populations as there would be no guarantee as to how they would self-ascribe.

A diagnostic interview was held with each patient, and symptoms were recorded using the Present State Examination. The diagnosis of schizophrenia was based on the Catego program (Wing et al. 1974). Data were collected on a range of socio-cultural, demographic and environmental variables including unemployment, longevity of residence, living arrangements, family relationship, housing and separation from parents during childhood. Separation from parents was defined as being continuously separated from either or both parents for 4 or more years before the age of 17. Using these data, comparisons were made between patients assigned a diagnosis of schizophrenia and their community controls matched for ethnic status, age and sex.

■ Data analysis

For simple demographic factors, *t* tests were used for continuous data and χ^2 and Fisher's exact tests for discrete data. Comparisons were made within each ethnic group between cases and their matched controls, and across ethnic groups between cases and separately between controls. Analysis of variance was used to explore relationships between socio-demographic factors. Odds ratios were calculated for case and control data relating to unemployment, separation from parents and living alone, and were obtained by conditional logistic regression using STATA (2001). First, these factors were analysed simultaneously. Then, with whites separated from both parents as the reference group, odds ratios of psychosis associated with African-Caribbeans and Asians separated from both parents were estimated respectively using unconditional logistic regression. The purpose of the regression analyses was to identify the main effect of each social factor and its interaction with ethnicity.

Results

One hundred and twenty-three patients passed the initial screen for psychosis. One hundred were assigned a diagnosis of schizophrenia, using the Present State Examination interview or Syndrome Check List to deter-

mine the presence of psychiatric symptoms and signs. Of these, 38 were white, 38 African-Caribbean and 24 Asian. All but 4 of the patients who self-ascribed as white were born in the UK, while 9 patients listed their parents' ethnicity as white, but born outside the UK. Nine white controls were born outside the UK, and 13 listed their parents as white, born outside the UK. However, as we did not ask subjects to indicate their parents' place of birth by specific country, we cannot make any comment on potential place of birth of parents of white respondents. The African-Caribbean cases were either born in the Caribbean [11], or were born in the UK [27] of African-Caribbean parents who were themselves all born in the Caribbean. Only 4 African-Caribbean controls were born in the Caribbean, and again all their parents were themselves born in the Caribbean. We did not ask respondents to specify territories, as there is sufficient homogeneity among the English-speaking Caribbean countries from which our sample hailed. Almost all [20] the Asian cases were born in the Indian sub-continent (of Indian heritage or descent), only 4 were born in the UK. Parentage was overwhelmingly Indian, with only one parent being born elsewhere in the subcontinent, and two parents being born in East Africa of Indian parentage. Similarly, only 2 Asian controls were born in the UK, and only two control parents born outside of India.

As reported in our earlier paper (Bhugra et al. 1997) the incidence rate was higher in the African-Caribbean group than in the other two groups, particularly for young men and women in the age range 18–29. For these groups the rate was twice that for whites. The Asian group had a slightly higher incidence rate than the white group, but not significantly so (Bhugra et al. 1997). Table 1 illustrates the social environmental factors which differentiated the three groups.

African-Caribbean cases in this study had a mean age of 26.3, making them slightly younger than the white group, and significantly younger than the Asian group ($p < 0.05$). The Asian respondents, both cases and controls, were more likely than the African-Caribbeans to be born overseas ($p < 0.001$). Table 1 indicates that African-Caribbean cases were more likely than those of the other two groups to live alone ($p < 0.05$) and to have been separated from either or both parents for more than 4 years consecutively before the age of 17. However, while separation from mother (Fisher's exact $p = 0.124$) or from father (Fisher's exact $p = 1.000$) was not significant for African-Caribbean cases, separation from both parents (Fisher's exact $p = 0.04$) was significant. African-Caribbeans were more likely than their peers and their own matched controls to be unemployed ($p < 0.05$). When calculating unemployment rates, we looked only at cases and controls who were economically active or available for work. Thus, students, retired people and housewives were not included in the analysis. Due to the high proportion of married housewives among the Asian cases, the small sample size was reduced even further for these calculations.

Table 1 Socio-environmental characteristics of cases and controls

	Whites	Afr-Caribbeans	Asians
N	38	38	24
Mean age			
Cases	30.7	26.3	38.1 ^a
Controls	30.2	26.6	38.7
UK born			
Cases	34/38	27/38	4/24 ^{***a}
Controls	28/38	34/38	2/24 ^{**b}
Unemployment			
Cases	22/34	31/36	10/14
Controls	7/30	13/30	7/21
Living alone			
Cases	7/38	13/38	2/24
Controls	7/38	4/38	2/24
Separation from parent			
Mother			
Cases	6/35	12/36	3/21
Controls	8/38	4/37	4/23
Father			
Cases	12/35	19/36	3/21
Controls	18/38	17/37	4/17
Both parents			
Cases	5/38	12/38	1/24
Controls	7/38	4/38	3/24

^a significant difference from cases of other ethnic groups

^b significant difference from controls of other ethnic groups

* $p < 0.05$; ** $p < 0.001$

In order to assess any independent effects of each of the three social factors in relation to the excess of African-Caribbean cases, logistic regression analyses were conducted. These showed that unemployment significantly contributed to the excess of African-Caribbean cases (OR = 15.03; $p < 0.009$, 95% CI 1.95, 114.80).

As shown in Table 2, the odds ratio between cases and controls for unemployment varied from 6.39 for Asians (non-significant) to 20.92 for African-Caribbeans ($p < 0.010$). The odds ratio for whites was slightly higher than for Asians, but highly significant. Comparing all cases with all controls, the odds ratio for unemployment was 5.5 ($p < 0.001$). Living alone was not associated with caseness for any ethnic group. Separation was not associated with schizophrenia when all cases and controls were compared, but the association was significant for the African-Caribbean patients compared to both their own controls and to the patients from the other ethnic groups (OR = 5.0, $p < 0.04$, CI 1.09, 22.82).

In view of this significant finding, two possible explanations were explored. Separation from either parent might have been a consequence of a psychosis in the parent, suggesting that the association with schizophrenia in the offspring was mediated genetically. We checked this by examining the family history data collected. These data showed that in no instance of separation from parents did either parent suffer from a psychosis. Another possibility is that either or both parents migrated to the UK leaving the patient behind. In this

Table 2 Odds ratios of risk factors and 95% confidence intervals

Ethnicity	Odds ratio	p value	95% CI
Unemployment			
White	7.50	0.008	1.69, 33.47
Asian	6.39	0.142	0.54, 76.14
African-Caribbean	20.92	0.010	2.04, 214.29
All cases:controls	5.5	0.000	2.59, 11.68
Living alone			
White	0.59	0.515	0.12, 2.84
Asian	3.35	0.466	0.13, 86.72
African-Caribbean	2.16	0.443	0.30, 15.58
All cases:controls	1.75	0.122	0.86, 3.56
Separation from both parents			
White (reference group)	1.00		
Asian	0.33	0.34	0.35, 3.20
African-Caribbean	5.00	0.038	1.09, 22.82
Ethnic minority cases: controls	1.4	0.42	0.62, 3.15

case, those born in the Caribbean should be over-represented among the patients who had experienced separation. Of the 11 African-Caribbean cases who migrated to the UK, 9 came as minors (between the ages 1 and 15) and 6 had been separated from both parents for over 4 years continuously. This proportion (6/11) does not differ significantly from the 6 of 27 cases born in the UK and separated from both parents before the age of 17 for 4 years or more.

Discussion

Before addressing our results, we consider it essential to present the political context of research on ethnicity and psychosis. In past discussions on socio-economic variables and schizophrenia, class and social drift have been the main hypotheses proposed, and ethnicity has not been introduced into the arguments. There are no a priori reasons why ethnicity should be considered as a candidate variable for understanding schizophrenia, any more than other social stratifiers such as class, age or gender, and why the rate should not vary across groups. However, investigating increased risk in one group may augment our understanding of incidence and cause, pathways to care and course, duration and outcome and response to treatment. Studies that investigate ethnicity and mental illness often run into contentious territory because of the way ethnic/cultural group status is assigned to groups of people on the basis of skin colour and geographical origins, and is then used to define biological differences on the basis of supposed racial typologies (McKenzie and Crowcroft 1996). While ethnicity is influenced by biological, social and cultural forces, in itself it is not a marker for genetic differences. Ethnicity, like culture, is perceived differently by those who ascribe themselves to the group culture, and those who perceive the group from the outside.

There a number of other caveats we need to emphasize before going on to discuss the results. The numbers

in the study are relatively small and, therefore, place a limitation on the generalizability of our results. The comparison across ethnic groups may have been affected by the fact that the samples came from different areas of London. In terms of social deprivation, the Jarman UPA score for Outer London Ealing is 12.68 and for Inner London Camberwell is 40.62 (LRC 1995). While this difference appears large, the Asian population of Ealing is concentrated in Southall, one of the more deprived districts in Ealing. The age structures of the Asian and African-Caribbean populations in the two areas differ from that of the whites as expected in a minority ethnic group, but are similar to each other with about 30% under the age of 16 (Coleman and Salt 1996). Thus, socio-demographic differences found between the samples are unlikely to be due to the different geographical origins of the samples. Furthermore, the case-control comparisons will not be influenced by any area effect. The community sampling method was utilized specifically to capture hard-to-reach populations and entailed a multi-stage sampling method. We recognize that this method is complex, and lays itself open to the objection of over-matching on geographical area. However, without some geographic matching, hundreds of unmatched controls would have to be recruited in order to get enough African-Caribbean and Asian controls to achieve worthwhile statistical power. When asking questions on the ethnicity of the white respondents, we did not ask for specific place of birth of white parents, which may have helped differentiate any respondents who were not of British heritage though their parents' ancestry. Finally, the interpretation of the separation data is limited by our omission to ask about the care provisions that were made when children were separated from parents, which may have helped to tease out the issue of the effect of the alternative arrangements. These points are clearly very important and all these factors have been looked into and modified in a new study.

The excess incidence of schizophrenia in inner city areas has been explained by a higher rate of drift of vulnerable individuals from rural areas (Dunham 1965). However, since most of the African-Caribbean cases and controls in this study were born and raised in cities, this explanation is not plausible (Hutchinson et al. 1999). A more cogent thesis comes from the early work on the ecology of schizophrenia which has shown that there is an association between inner city zones in transition and admission rates for schizophrenia (Faris and Dunham 1939). Lewis et al. (1992) concluded that undetermined environmental factors associated with cities increase the risk for schizophrenia. Harrison et al. (1995) reported upon the strong correlations between schizophrenia and a number of predictor variables including unemployment and lone parent families. The majority of African-Caribbeans in the United Kingdom live within a toxic urban environment characterized not only by noise, pollutants, viral infections, etc., but by unemployment, low socio-economic status and high levels of social deprivation, lone-parent families, poor housing

conditions and exposure to an institutionally racist society (Peach 1996; Modood et al. 1997; MacPherson 1999). These factors were all examined in our research. Studies of mental illness and social factors so far have not been able to differentiate between selective and causal processes. Our case-control study has replicated previous findings on the links between some socio-demographic variables and psychosis, but has also brought to light significant differences both between cases from different ethnic groups and their own matched controls which may have aetiological implications.

One of the areas of significant difference between cases and controls in our study is that of unemployment. The relationship between unemployment and ill health is complex, but that does not prevent enquiry. Many studies have demonstrated a link between unemployment and mental health problems (Brenner 1973; Warr 1987). Our research has shown that unemployment is associated with schizophrenia at first contact with the services regardless of ethnicity. However, the odds ratio was highest among African-Caribbeans and a conditional regression analysis indicated that of the three social factors investigated, only unemployment was significantly associated with the high rate of caseness among African-Caribbeans. Doubtless, the increased risk of unemployment among patients compared to the general population could be a consequence of altered behaviour prior to the development of frank psychosis (Goldberg and Morrison 1963). Alternatively, it could indicate that unemployment increases the risk of developing some types of schizophrenia (Faris and Dunham 1939). Certainly, unemployment increases the risk of depressive symptoms (Banks and Jackson 1982; Brenner and Levi 1987). None of the above hypotheses explains why African-Caribbean patients are particularly likely to be unemployed, which may stem from social adversity and disadvantage. However, to establish unemployment as a causal variable is difficult as the direction of causality is impossible to ascertain in a cross-sectional study of this kind. Methodologically strong studies indicate that unemployment may impair rather than lead to poor mental health, but more work needs to be carried out (Poikolainen 1995). We do know, however, that unemployment is a marker for financial deprivation, lack of self-esteem, stigma and powerlessness, and also reduces the social networks available to individuals.

Poor social networks are part of the profile of social isolates, and social isolation was one of the key associations with schizophrenia identified by the work of Hare in Bristol (1956). The tendency towards social isolation begins in childhood and may be influenced by impoverished relationships with parents or principal caregivers during that time, leading to poor attachment and a preference for seclusion or reclusiveness (Bowlby 1977). While we failed to find an association between living alone and the development of schizophrenia, separation from both parents for 4 years or more before the age of 17 was associated with caseness status in African-Caribbeans. Nearly one-third of the African-Caribbean

patients had experienced a separation of this nature, compared with 13% of white patients and only a single Asian patient. The reasons for separation in the majority of cases were migration or the break-up of relationships. Regrettably, we did not ascertain the nature of substitute care during the period of separation. All 12 African-Caribbeans who were separated from mother were also separated from father. To a certain extent, it would have been expected that there would be a significant difference in early separation from parents between those African-Caribbean born in the Caribbean and those born in the UK, as the search for job opportunities led parents to migrate and leave young children behind. This was not the case, however, there being no significant difference in the proportion of cases separated from parents born in the UK and in the Caribbean. Separation was at least as much a consequence of family break-up in the UK as the temporary migration of parents without their children. As the data were collected from patients in every instance and backed up by interviews with relatives, there is little likelihood of recall bias, particularly considering the duration of the separation.

Unlike unemployment, the unusual feature of separation from parents in childhood is that for this factor there is no ambiguity about the direction of cause and effect. The sample size for this study is small, however, and we must be cautious in reporting these findings. These data are currently being collected in a larger epidemiological study (the MRC Multi-Centre Study of Aetiology and Ethnicity in Schizophrenia and other Psychoses). However, it is worth speculating how these associations may contribute to the high incidence of schizophrenia in UK African-Caribbeans. The broader significance of a relatively recent migration process from one society to another needs to be borne in mind. The effects of migration in material, environmental and cultural terms do not necessarily disappear immediately, even in subsequent British-born generations. Migration to the UK and urban residence appears to have brought changes to family structures and the familial environment among African-Caribbeans. In the Caribbean region, most people continue living with family members until they start families themselves (Barrow 1996). Most people who migrated would have left behind multi-generational extended familial networks and tight-knit communities. In the UK, however, African-Caribbean migrants mainly established family units of two parents plus children, and extended families are rare (Murphy 1996). The migration process may have weakened the family structure and the consequent smaller family units, cultural changes, social mobility and class fragmentation have fed into a process of outward diffusion. Coupled with the underlying socio-environmental adversity which assails the lives of so many African-Caribbeans in the UK, changes in familial structure may loosen affective ties and family networks. There are disproportionately high numbers of children and adolescents from African-Caribbean backgrounds

in child care homes in the UK (Barn et al. 1997) and a high number of people of African-Caribbean origin/heritage living in single person households. At the 1991 Census, this figure stood at over 27% (Murphy 1996).

While social isolation may not be independent of the patient's symptomatology, early separation from parent is not under the control of the patient-to-be, but how it may lead to schizophrenia requires consideration. Early separation may affect sociability and impair development of social relationships by affecting social functioning and the ability of some people to form attachments, leading to social isolation in later life (Bowlby 1977; Murray Parkes, Stevenson-Hinde 1982). While African-Caribbean patients were more likely to be living alone than their matched controls or the white and Asian patients, this feature was not identified by the multiple regression analyses as accounting for the presence of schizophrenia. It is likely that the quality of relationships is of more importance in this process than the fact of living alone, and we did not attempt to measure the former. The lack of mutually trusting relationships may render an individual more liable to develop paranoid attitudes (Chadwick 1995), which, when combined with socio-economic disadvantage and the effects of institutional racism, may intensify into a frank schizophrenic illness. This speculative pathway needs exploration with appropriate measuring techniques in a larger scale study.

Conclusion

Two very important findings in the realm of family structure and family support networks have emerged from this research. The sample size is small, but these findings suggest that there are socio-environmental factors which distinguish African-Caribbeans diagnosed with schizophrenia from their counterparts of other ethnic groups as well as their mentally healthy peers. For African-Caribbeans, the impact of migration and urban life may act to fragment social networks and family life. There appears to be a link between early separation from one or both parents and schizophrenia. There is also an association between unemployment and schizophrenia for this ethnic group in particular. While discussions should continue to focus on risk, they should be amplified by more research on social cohesion, social networks and social disadvantage as significant factors in the aetiology of severe mental illness.

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