Social environment, ethnicity and schizophrenia
A case-control study

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.
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 (Carper 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; Andrewason 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, primary care 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 (focused 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-