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A review of the epidemiological literature on the health of UK-born Black Caribbeans

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Title: A review of the epidemiological literature on the health of UK-born Black Caribbeans**Abstract:**

A review of the epidemiological literature on the health of UK-born Black Caribbeans was undertaken. Forty-three papers were found; around half of these were on the incidence of schizophrenia and psychotic conditions in this population. A small number were on autoimmune disorders, sexual health, diet and alcohol intake and children's health. Although there are many methodological limitations with the research on schizophrenia and psychotic conditions, the findings are consistent in that UK-born Black Caribbeans are more likely to be diagnosed with these conditions than Whites, and possibly more so than migrant Black Caribbeans. Poorer sexual health and the high prevalence of some specific autoimmune conditions, such as human T cell lymphoma/leukemia (HTLV-1), were also consistent features in the research evidence. The findings from these studies suggest a transmission of risk of these conditions across generations, and that environmental factors, rather than genetic susceptibility, play a major role in outcomes. There was a lack of research investigating generational shifts in risks for major conditions, such as coronary heart disease, lung or breast cancer.

Introduction

Black people have lived in the British Isles for centuries (Fraser, 1994). However, significant, large-scale migration of Black people from the West Indies occurred in the post-war period. Smaje (1995) has observed that: ‘These migrations were not numerically the largest in British history, but in important respects they were definitive of the ethnic composition of Britain today’ (p.27). The critical period of migration from the West Indies ended about 50 years ago, and there are now a large number of Black Caribbeans born in the UK. In the 1991 Census, about half of the 500,000 Black Caribbeans living in the UK were British born (OPCS, 1992). These individuals are referred to here as ‘second’ or subsequent generation, or ‘UK-born’ Black Caribbeans.

Black Caribbeans live in mainly urban conurbations—in Lambeth and Camberwell, as many as 1 in 7 children aged under 15 years are Black Caribbeans (National Institute for Ethnic Studies in Health and Social Studies, 1997)—and are among the most economically disadvantaged people in the UK (Modood et al, 1997; National Institute for Ethnic Studies in Health and Social Studies, 1997). At working ages, the proportion of economically active Black Caribbean men who are unemployed is twice that of White men and, among those under 25 years, more than a third are unemployed compared with about 17% for Whites. While the proportion of economically active Black Caribbean men is lower than for White men, the reverse is true for Black Caribbean women. Recent evidence suggests that Black Caribbean women may be on par with White women in terms of senior job positions and hourly pay, whereas Black Caribbean men are still lagging behind (Cabinet Office, 2002). Findings from a twenty-year follow-up of a cohort of people in the 1971 Census revealed a complicated picture of social mobility; upward mobility was more common among Caribbean migrants compared with the national population, but they experienced more persisting socio-economic disadvantage (Harding, 2003; Harding & Balarajan, 2001).

Black Caribbeans are more exogenous in their marital and sexual relationship behaviour than other minority groups; more than half of first generation Black Caribbean men have a partner from another ethnic group (Berrington, 1994). Lone parent households are common among Black Caribbeans, and these households are, on average, more deprived than two-parent households (Jenkins, Rigg & Devicienti, 2001). About half of the 12 year-old Black Caribbean children in the 1991 Census were in a lone parent household compared with about 15% for White Children of similar ages.

Overall mortality of Caribbean-born migrants is low primarily because of low coronary heart disease (CHD) mortality. However, mortality from diabetes, hypertension, strokes, nephrotic disorders and malignant neoplasms of lymphatic and haemotopoetic tissue is high relative to the national average (Marmot, Adelstein & Bulusu, 1984; Balarajan & Bulusu, 1990; Wild & Mckiegue, 1997; Harding & Maxwell, 1998). Morbidity data from national surveys and local studies reflect mortality differences, such as a higher prevalence of diabetes and of hypertension compared with Whites (Chaturvedi, McKeigue & Marmot, 1993; Nazroo, 1997a; Riste, Khan & Cruickshank 2001; Whitty et al., 1999) and lower prevalence of CHD (Chaturvedi et al., 1993). There is a growing body of research demonstrating that that socio-economic circumstances are an important predictor of these patterns (Harding & Maxwell 1998; Nazroo 1997; Davey Smith et al., 2000). In addition, an excess of schizophrenia and psychotic conditions in this population is well documented (Sharpley et al, 2001).

The aim of this paper is to summarise the epidemiological studies which have focused partly or wholly on UK-born Black Caribbeans. It draws on a larger review of research on various aspects of health and well-being, family life and socio-economic status and educational attainment in this population (Arai & Harding, 2002).

Method

Only English language items were considered, and the main search terms were 'Black Caribbean', 'UK-born' and 'generation'. The primary database used in the epidemiological literature search was MEDLINE. Details of research items were only included if the Black study population was largely or entirely UK-born (second or later generation Black Caribbean), or compared the health of UK-born Black Caribbeans and the Caribbean-born (first generation migrants), and this was explicitly stated in the study. In some studies, the data on Black Caribbeans and other Black groups (such as Black Africans) were pooled. These were excluded unless the majority was Black Caribbeans and the generational status was stated. Research papers were included if the focus was on Black Caribbean children aged under 15 years, as these children would either have migrated at a young age or have been born in the UK. Research items published before the mid-1980s were excluded. Full details of inclusion and exclusion criteria can be found in the larger review (Arai & Harding, 2002).

Results

Forty-three research papers were identified (review papers were excluded). These fall broadly into five categories: mental health (20 papers); sexual health (3 papers); autoimmune response and other conditions (13 papers); diet and substance use (2 papers) and children's health (5 papers).

Mental health

A consistent feature of the mental health studies is the excess of schizophrenia and psychotic conditions in UK-born Black Caribbeans compared with Whites (Table 1). The incidence also appears to be higher than that for the first generation migrant Caribbeans (Harrison et al, 1988), although a recent study reported that there were no generational differences in the experience of

hallucinations in this population (Johns et al., 2002). There is remarkable variation in the levels of schizophrenia and psychotic conditions reported in adult populations (Louden, 1995; Nazroo, 1997b) ranging from 18 times (Harrison et al., 1988) to twice the incidence in Whites (Bhugra et al, 1997). King et al (1994) reported the lowest levels of schizophrenia in Black Caribbeans and suggested that focusing on Black Caribbeans may be misleading as they found that the incidence of schizophrenia was higher in *all* minority ethnic groups compared with Whites. Schizophrenia and psychotic conditions in Black Caribbeans are characterised by early age of onset, a higher prevalence in males and high relapse rates and re-admissions (Thomas et al., 1993; Bhugra et al., 2000).

These studies have many (acknowledged) methodological limitations. These include: the underestimation of the size of the at-risk population in the studies conducted before the 1991 Census data on ethnic populations were made available; the cultural inappropriateness of diagnostic methods (including the misdiagnosis of behaviour that might be culturally unfamiliar to health practitioners); the use of different diagnostic methods and case-finding techniques (e.g. family history method as opposed to interviewing method); differential detection of Black Caribbean and White cases (Black Caribbeans are more likely to be compulsorily detained and referred or admitted to hospital) (Singh et al, 1998); and the small number of cases in locally defined samples. There is also the possibility of misdiagnosis of acute psychotic reactions and atypical psychoses as schizophrenia. Follow-up studies, however, have found broad diagnostic stability for Black Caribbeans in that just as many individuals were diagnosed with schizophrenia at follow-up years after initial diagnosis (Harrison et al., 1999).

There is a continuing debate about the causes of excess schizophrenia in Black Caribbeans (Sproston & Nazroo, 2002; Sharpley et al, 2001; Bhugra & Bhui, 1998). Family studies of mental

illness have demonstrated that the siblings of second generation Black Caribbean patients are more likely to be diagnosed with schizophrenia than the siblings of White, UK-born patients or the siblings of first generation migrant Black Caribbeans (Sugarman & Crauford, 1994; Hutchinson et al, 1996). These findings have led researchers to suggest a complex interaction between genetic/biological susceptibility and adverse environmental factors, such as intra-familial socio-cultural factors (Hutchinson et al, 1996). The findings from international comparative studies support a role for environmental factors; the risk of schizophrenia is greater for Black Caribbeans living in Holland (Selten et al., 2001) and in the UK, than for those living in the Caribbean (Bhugra et al, 2000; Hickling & Rodgers-Johnson, 1995). Greater socio-economic deprivation (especially higher unemployment) among London-based, Black Caribbeans compared with their counterparts in the Caribbean is thought to be an important factor that could explain the excess of illness (Bhugra et al, 2000). The impact of racism on mental health is alluded to in some of these studies (O'Connor & Nazroo, 2002), but there has been no systematic study of how this may trigger schizophrenia and psychotic conditions.

Other environmental risk factors explored in the literature include the effects of obstetric complications (Eagles, 1991; Hutchinson et al., 1997), intra-uterine viral infections and cannabis use (McGovern & Cope, 1987; Sharpley et al., 2001), but none of these appear to explain the increased risk of illness.

The inadequacy of psychiatric services has been the focus of many reports. Seven papers specifically explored different aspects of mental health service admission (McGovern & Cope, 1991; 1987) or service use (McGovern & Hemmings, 1994; Parkman et al., 1997). The results suggest a pattern of excess hospital admissions, increasing dissatisfaction with each hospital admission (regardless of whether or not it was a compulsory admission), less voluntary contact with

services, poor compliance with medication and relapses and re-admissions. UK-born Black Caribbeans also appear to be more dissatisfied with services than first generation Black Caribbeans (Parkman et al., 1997).

As noted above, Black Caribbeans are more likely than Whites to be admitted to services via a police station with little involvement from general practitioners, and more frequently under a section of the Mental Health Act (McGovern & Cope 1991; Singh et al., 1998; Thomas et al., 1993; Davies et al., 1996). The reason for higher compulsory admission rates in this group is not clear. Prejudicial stereotyping by the police and mental health practitioners (Lewis, Croft-Jeffreys & David, 1990), an increase in severity of illness because of delay in seeking treatment, poor compliance with medication and social isolation have all been considered as likely factors (Davies et al., 1996). Stereotyping by psychiatrists has been challenged as an explanation in a recent study where British psychiatrists were *not* found to rate a hypothetical Black psychiatric patient as more violent than a White patient (Minnis et al, 2001). Identifying the source of referral bias is clearly important. Davies and colleagues (1996) point out that: ‘Whatever the reasons for these higher compulsory admission rates among Black patients, this differential experience of contact with services may well establish a vicious circle in which Black patients may see services as untherapeutic, may delay seeking help, and will have an increased likelihood of compulsory admission.’ (p. 537).

Sexual health

Table 2 summarises the results of three studies on the sexual health of largely UK-born Black Caribbeans. Rates of sexually transmitted infection (STI), such as gonorrhoeal, chlamydial and herpes simplex virus (HSV-2) infections (particularly among 15-19 year olds) are considerably

higher in Black Caribbeans than Whites. Low, Sterne & Barlow (2001) found that the rates for those who were classified as 'Black other' group (largely born in the UK of Caribbean parentage) were more than 10 times higher than that for the Whites. Differences in deprivation status did not explain this excess. Rates of gonorrhoeal infection appear to be higher among Black Caribbean men than Black African men (Low et al 2001; Evans, Bond & MacRae, 1999). Age of coitarche, a factor strongly associated with infection in Black Caribbean men, is lower; Evans et al (1999) found that 70% of Black Caribbeans had initiated sexual intercourse before the age of 17, compared with 48% of Black Africans. There were no significant differences between these two groups of men for other important factors, such as median number of sexual partners in the past year, median number of lifetime partners or use of condoms. In contrast to the differences in gonorrhoeal infection rates between Black Caribbean and Black African men, HSV-2 infection rates were high in UK-born Black Caribbean, Caribbean-born and African-born women compared with UK-born White women (Ades et al, 1989).

Autoimmune response and other conditions

Four studies investigated the prevalence and nature of multiple sclerosis (MS) (Dean & Elian, 1997; Elian & Dean, 1987; Elian, Nightingale & Dean, 1990; Rudge et al., 1991). Two focused on systemic lupus erythematosus (SLE) (Johnson et al, 1995; Molokhia et al, 2001), and 3 investigated human T cell lymphoma/leukemia (HTLV-1) in UK-born Black Caribbeans (Cruickshank et al., 1990; Hale et al., 1997; Nightingale et al., 1993) (Table 3).

The prevalence of MS, an autoimmune response against the myelin sheath of nerve cells, is high in the UK (Williams & McKeran, 1986) but low in the Caribbean (Cruickshank & Montgomery, 1961). Age at onset is commonly in the late 20s or early 30s and symptoms include motor

weakness, impaired vision, lack of coordination and spasticity. Work by Dean and colleagues (Elian et al., 1990; Elian & Dean 1987; Dean & Elian, 1997) suggest that UK-born Black Caribbeans have a similar prevalence of MS to that of Whites in the UK. In contrast, first generation Black Caribbeans have a relatively low prevalence, and those who migrated as children do not seem to have a higher risk than those who migrated as adults (Dean & Elian, 1997). Another study (Rudge et al., 1991), however, found that length of residence in the UK of about 20 years might be an important factor. The small number of cases in these studies made it difficult to investigate effects from both age at migration and length of residence with sufficient confidence. The findings are, however, broadly consistent with the concept that the environment in the UK is a major factor in determining the risk of MS among Black Caribbeans.

Johnson et al., (1995), the first authors to report ethnic specific incidence rates in the UK, found that SLE incidence rates were 6 times higher among the (largely female) Black Caribbean study population compared with Whites, regardless of birthplace. Most of those who had migrated to the UK developed the disease before they arrived in the UK, consistent with the high prevalence of SLE in the Caribbean (Nossent, 1992). Black Caribbean women also tended to be younger than White women at disease onset and in contact with the medical services, suggesting that they may have more severe disease earlier in the course of the disease. SLE, an autoimmune disease, can lead to the failure of vital organs, including kidneys and brain, and death. The course of the disease is highly variable, both in its severity and in the organs and tissues involved. A recent study (Molokhia et al, 2001) found that the prevalence of SLE among (mainly UK-born) Black Caribbeans was about 5 times higher than that of Whites. Black Africans (from West Africa) who had recently migrated also had a higher SLE rate than Whites, although the rate was lower than that for Black Caribbeans. Molokhia et al. (2001) suggested that a genetic basis for the aetiology of the

disease should be considered, given that Black Caribbeans have West African origins but have not shared the same environment with West Africans for more than 200 years.

Like SLE, HTLV-1 is also common in the West Indies (Cruickshank & Montgomery, 1961). It is associated with adult T-cell leukaemia and tropical spastic paraparesis, a chronic neurological disease (Sarin, 1988). HTLV-1 is thought to be transmitted through sexual activity (most efficiently from men to women), transfusion with infected blood products, sharing intravenous needles, from mother to baby (via breast milk or in-utero) and by cohabitation in poor housing with an index patient (Cruickshank et al., 1990). In a study of first degree relatives, Cruickshank et al. (1990) reported that seroprevalence was 33% for those born in Jamaica and living in the UK and zero for those born in the UK with Jamaican-born parents. Place of birth and place of early residence were thought to be important factors in HTLV-1 infection. Hale et al. (1997) found that seroprevalence was 6 times greater in first generation Black Caribbeans than in UK-born Black Caribbeans. Generational differences in sexual contacts and, to a lesser extent, in breastfeeding practices were thought to be important factors for the reduced prevalence in UK-born Black Caribbeans. Seropositivity appears to be lower in UK-born Black Caribbean mothers than in Caribbean-born mothers living in the UK (Hale et al., 1997; Nightingale et al., 1993). The rate of transmission from mother to baby in the UK is thought to be under 10% (Ades et al., 2000) and life-time risks of HTLV related disease, such as leukaemia or lymphoma, under 5% (International Agency for Research on Cancer, 1996). Ades and colleagues (2000) reported that the prevalence in infants of Caribbean-born Black mothers was 2-3 times higher than that for infants of Black Caribbean mothers born in non-endemic regions (including the UK); among this latter group, however, the prevalence was considerably higher than that for infants of other mothers from the non-endemic regions. It remains controversial whether there should be antenatal HTLV testing and if so whether it should be

universal (so that all women screened antenatally) or confined to high-risk women (Hale et al., 1997).

The other studies we identified covered disparate topics: one on tuberculosis (Rose et al., 2001), one on ethnic variation in small intestinal permeability to mannitol and lactulose (Iqbal et al, 1996) and one on limiting long-term illness (Harding & Balarajan, 2000). Nazroo's analysis of Fourth National Survey data (1997a) contained some examination of generational differences in self-reported general health and specific conditions. UK-born Black Caribbeans were significantly more likely to report fair or poor health and long-standing illness than their Caribbean-born counterparts. Harding and Balarajan (2000) also reported this pattern, and that socio-economic circumstances were a key predictor. Nazroo (1997a) did not find significant generational differences in reported hypertension or respiratory symptoms.

Diet and alcohol use

Two studies examined diet and alcohol use in the UK-born Black Caribbean population (Table 4). Sharma and colleagues (1999) examined the diet of Black Caribbeans in Manchester by migrant status and found that the diet of the UK-born had moved away from the traditional Caribbean diet. Energy intake was higher among the UK-born generation than the first generation, and 13% of their nutrient intake came from saturated fat compared with 11% for the Caribbean-born. They also ate less fruit and green vegetables than the first generation.

In contrast to this shift of dietary habits toward that of the White population, relatively low alcohol consumption remains a constant feature for both UK and foreign-born Black Caribbeans. Cochrane and Howell (1995) examined alcohol consumption in the first and UK-born generation Caribbeans in the Midlands. Moderate or heavy drinking was found to be lower among the Black Caribbean

men compared with White men, and they were about 4 times more likely to abstain than Whites. There were no significant differences between Black Caribbeans born in the UK and those born in the Caribbean. Religious belief might explain the lower alcohol consumption among Black Caribbean men—over 50% of Black Caribbean males belonged to the Evangelical/Pentecostal Christian tradition, which has a stronger anti-alcohol teaching than that of Church of England or Catholic traditions.

The lack of significant differences in alcohol consumption by generational status in Cochrane and Howell's study contrasts with the results of an analysis of Fourth National Survey data referred to above (Nazroo, 1997a). Over 80% of the UK-born had consumed alcohol, compared with about 65% of the Caribbean-born. Nazroo (1997a) found non-significant differences between the UK-born and Caribbean-born in reported smoking behaviour; about 43% of the former had ever smoked compared with 33% of the latter. (See Table 3 for inclusion of this item).

Infant mortality and morbidity in children

There are very limited data on morbidity or mortality in childhood for Black Caribbeans born in the UK. Table 5 summarises some of the studies on the health of UK-born Black Caribbean children. Analysis of data from a Birmingham antenatal hypertension clinic showed poorer neonatal outcomes for Black Caribbean women compared with Whites (though Asian women had the poorest outcomes) (Lydakakis et al, 1998). The overall perinatal mortality rate for Whites was 1.6% and for Black Caribbeans it was 3.8% (for Asians it was 10%). Nationally, perinatal, neonatal and post neo-natal mortality is higher among infants born to migrant Caribbean mothers than babies born to UK-born mothers (Balarajan, Raleigh & Botting, 1989; Davey Smith et al., 2000; National Institute for Ethnic Studies in Health and Social Policy, 2000a). Low birthweights are also more common

among infants born to migrant Caribbean mothers than to infants born to UK-born women (ONS, 2000). Collins et al. (1997) found a higher prevalence of very low birthweight (less than 1500g) among babies born to mothers born in the Caribbean and living in east London (3% for babies) than among White babies (1%).

Other health concerns for Black Caribbean children in the UK include respiratory illness (Melia, Chinn & Rona, 1988; Duran-Tauleria, Rona & Chinn, 1996; Nazroo et al, 1999), skin conditions (Child et al., 1999; Williams et al., 1995), sickle cell anaemia and autism-like conditions and school-based conduct disorders (Goodman & Richards, 1995).

Access to health care was a concern in many studies. Duran-Tauleria and colleagues (1996) found that Black Caribbean children (as well as Asian children) were less likely to be prescribed effective drugs to control asthma and to use the correct method of administration. Quality of health care was also a feature in a study of sickle cell and thalassaemia sufferers by Atkin and Ahmad (2001). Young Black Caribbean respondents with sickle cell considered health professionals to be patronising and unsympathetic to their pain. Sickle cell trait is found in 1:10 Black Caribbean babies and if sickle cell disease occurs (dependent on both parents carrying these traits), it can be debilitating. Other work has shown that Black Caribbean children are less likely to use some health services than other minority ethnic groups (Cooper, Smaje & Arber, 1999; Cooper, Smaje & Arber, 1998). Issues such as distrust of doctors, the use of alternative remedies (Scott, 1998), and fewer referrals to specialists by general practitioners are implicated in the lower use of services.

Black Caribbean children are relatively socio-economically deprived compared with White children, but they do not appear to be disadvantaged in terms of growth (Chinn, Hughes & Rona, 1998). A national study of trends in growth and obesity in primary school children showed that

young Black Caribbeans remained tall and slim, with Black Caribbean boys being taller than boys from other ethnic groups (including White boys). They had also not followed the general trend towards increasing levels of obesity seen in other ethnic groups (Chinn et al, 1998) though, in a recent study, Taylor and colleagues (2002)¹ reported that obesity was greater in Black Caribbean than in White females in an East London school study.

Discussion

This review of the epidemiological literature on the health status of UK-born Black Caribbeans revealed a research emphasis in one area—that of schizophrenia and psychotic illness. Although many of these studies of mental health were methodologically limited, there seems little doubt that Black Caribbeans are more likely to experience these conditions than Whites. There was also some literature on sexual health and autoimmune diseases among second generation Black Caribbeans. In contrast to the other studies, the studies of autoimmune conditions focused on generational differences and attempted to investigate the relative importance of environmental and biological susceptibility. We consider some salient points from these studies and implications for future research.

Black Caribbeans are at high risk of developing schizophrenia and psychotic conditions, regardless of generational status; a feature noted since the 1960s in both adult and juvenile populations (Nichol, 1971; Rutter et al., 1974)—although a recent study reported lower levels of unhappiness in this population (Shields & Wailoo, 2002). Biological, psychological and socio-cultural reasons for the excess of these conditions have been suggested (Sharpley et al., 2001; Loudon, 1995), but these explanations have not been adequately conceptualised or tested in terms of the likely pathways that

¹ In conference and abstract format to date.

link them to outcomes. A detailed discussion of the relative merits of explanations for excess psychosis can be found in Sharpley et al. (2001). In their evaluation of explanatory factors, these authors suggested that excess psychosis in this population should link: ‘...cultural variation in symptom reporting, the use of phenomenological constructs by psychiatrists and social disadvantage’ (p.68). Most researchers agree that there are factors in the British environment that might trigger psychotic disorders. The strongest support for this comes from international studies; high incidence rates for Black Caribbeans in the UK and in Holland (Selten et al., 2001) are at odds with the (lower) incidence rates reported for Caribbean countries (Hickling & Rodgers-Johnson, 1995; Bhugra et al., 1997). Poor educational attainment of Black Caribbean children (Gilborn & Mirza, 2000), family disruption, persisting disadvantage and downward social mobility over the lifecourse (Harding, 2003), residence in deprived neighbourhoods, and racism are some of the underlying factors that could affect an individual’s ability to withstand stress related morbidity and mental illness.

There is concern about the high rates of gonorrhoeal, chlamydial and HSV-2 infections among Black Caribbeans, since this has implications for the risk of acquisition of HIV/Acquired Immune Deficiency Syndrome (HIV/AIDS) and cervical cancer. It has been suggested that assortative sexual mixing (i.e. confining sexual partner choice to individuals with similar sexual behaviour characteristics) may account for the low rates of HIV infection but high rates of gonorrhoeal and chlamydial infections among Black Caribbeans, and high rates of HIV infection rates but low rates of gonorrhoeal and chlamydial infections in Black Africans (Low et al., 2001). It is important not to be complacent about the currently low HIV infection risk in Black Caribbeans; the Caribbean region has the second highest HIV infection rates in the world (sub-Saharan Africa has the highest), and is now the leading cause of death among 15-45 year olds in the Caribbean (Hospedales, 2000).

A growing number of young Black Caribbeans spend time in the West Indies—maintaining transatlantic ties with family and friends who have returned, migrated or remained there (Goulbourne, 1999). Low rates of marriage and high rates of partnership dissolution among young Black Caribbeans (Berrington, 1994) could also potentially expose individuals to a greater number of sexual partners. Given this social and demographic context, and the research evidence, facilitating better sexual health in this population would appear to be a public health priority.

The findings from the studies on MS (Dean & Elian, 1997; Elian et al., 1990; Elian & Dean, 1987) and HTLV-1 suggest convergence towards the rates of the White population in the UK. The rates for SLE, however, appear not to have shifted and remain high in both the first generation and UK-born Black Caribbeans. The reason for high rates of HTLV-1 and SLE among Black Caribbeans remains unclear, however, there was strong support for the role in environmental factors in the development of the former.

The changes in dietary intake among second generation Black Caribbeans reported by Sharma and colleagues (1999) has implications for diseases such as diabetes and hypertensive-related disorders (National Institute for Ethnic Studies in Health and Social Policy, 2000b). Differences in the prevalence of diabetes in African origin populations in Africa, the Caribbean, the US and the UK have been found to be partly attributable to energy intake and expenditure (Cooper et al., 1997; Mbanya et al., 1999). Diet has also been suggested as the cause of lower CHD rates in migrant Caribbeans compared with US-born African Americans in the States (Fang, Madhavan & Alderman, 1996; Greenberg et al., 1998). Studies of diabetes, hypertensive related diseases and CHD were not reported here, mainly because these studies related to either first generation migrants or the data on migrants and UK-born Black Caribbeans were pooled and a distinction by generational status was not made (Poulter, 1997; Cruickshank, 2000).

A significant finding of this review has been the relative lack of systematic research on generational shifts in risks of major diseases such as CHD, lung or breast cancer, despite the public health importance of these conditions. UK-born Black Caribbeans are still fairly young, which could explain the lack of such research. The conventional wisdom from epidemiological studies (Syme et al, 1975; Haenszel & Kurihara, 1968) is that, as migrants become exposed to novel lifestyles and other elements in their new environments, a shift in disease patterns among migrants towards that of the host population is expected. The findings from international studies point to environmental factors triggering a shift in cardiovascular risk, with the lowest risk in rural Cameroon and the highest in Black Caribbeans in the Caribbean and in the UK. The paradoxical feature of relatively low CHD mortality, but high hypertensive and diabetic mortality and morbidity in Caribbean-born populations in the UK, is also seen in Black populations in West Africa and in the West Indies (Cooper et al., 1997; Cruickshank et al., 2001), but is not seen among Black Americans. Among the latter, very high rates of CHD and other cardiovascular-related disorders have been observed (Fang et al., 1996). In the US, the lowest CHD mortality rates are found in migrant Black populations and the highest among US-born Blacks, with intermediate rates among US-born Whites. Much of the excess among US-born Blacks is attributed to socio-economic deprivation but also to lifestyle factors. These findings suggest a need for research on transmission of risk across generations of Black Caribbeans.

Other (non-health related) research on UK-born Black Caribbeans (Arai & Harding 2002) contains valuable insights with which we might better understand the impact of acculturation on the health status of Black Caribbeans. The fragmentation of kinship networks caused by migration (Chamberlain, 1997), socio-economic deprivation, the economic marginalisation of men (Berthoud, 1999), the greater propensity for lone parenthood (Berrington, 1994) and racial discrimination are

some of issues explored in depth in this research. Studies on the impact of migration on identity, a sense of belonging, family life and the disparity between expectations and achievements reveal an intriguing web of connections and discontinuities between UK-born Black Caribbeans and their migrant mothers and fathers (Chamberlain, 1997; Byron, 1999). It is likely that these factors play a role in shaping the processes that could influence generational shifts in health behaviours and health status among Black Caribbeans.

In conclusion, this review identified three main research strands—on mental health, sexual health and auto-immune conditions—in the epidemiological literature on UK-born Black Caribbeans. Studies on the incidence, cause and management of poor mental health in this population were a major focus of this body of research.

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Table 1. Summary of studies of schizophrenia and psychotic disorders in UK-born Black Caribbeans

Focus (author, year)	Location of study	Age group (years)	Source for cases	Sample size	Method of case identification	Main findings
Level and presentation of illness						
Incidence and outcome of schizophrenia (Bhugra et al, 1997).	Ealing, South Southwark and East Lambeth, London.	18-64	Community and hospital settings.	Black Caribbeans=38 (71% UK-born), Asians=24, Whites=38.	PSE, SCL, PPHS.	SIR schizophrenia/10 000: Black Caribbeans=5, Asians=4, Whites=3. Proportion of individuals having poor outcome after one year: Black Caribbeans=60%, Asians=17%, Whites=24%.
Outcome of psychosis (Harrison et al, 1999).	Nottingham.	16-64	Community and hospital settings.	Black Caribbeans=33 (81% UK-born), others=133 (see Harrison et al, 1997 for description of this sample).	SCAN, SANS, DAS, GAF, OPCRIT, ICD-10, DSM-III-R, Bleuler rating of symptom severity, WHO Life Chart.	No evidence of greater diagnostic instability in Black Caribbeans.
Incidence of psychotic disorders (Harrison et al, 1997).	Nottingham.	16-64	Community and hospital settings.	Black Caribbeans=32 (81% UK-born), Europeans=124, Africans=3, South Asians=9 (data on Europeans, Africans and south Asians pooled).	SCAN, PPHS, SANS, DCR.	SIR schizophrenia/100 000: Black Caribbeans=47 (95% CI 18-75), rest of sample=6 (CI 4-7).
Incidence of schizophrenia (Harrison et al, 1988).	Nottingham.	16-54	Hospital.	Black Caribbeans=42 (at least 18 UK-born), general population=99.	ICD-9, PPHS, DAS, RDC, DSM-111, PSE.	SIR schizophrenia/10 000: UK-born Black Caribbeans=36, Caribbean-born Blacks=14, Whites=2.

Hallucinatory experiences (Johns et al, 2002).	England and Wales.	16+	Fourth National Survey.	UK-born Black Caribbeans includes individuals who migrated before age 11 or who were born in the UK. Caribbean-born Blacks. Sample size not stated.	PSQ, CIS-R, PSE.	No difference between UK-born and Caribbean-born Blacks (9% in both groups).
Incidence of psychotic illness (King et al, 1994).	North London.	16-54	Community and hospital settings.	Black Caribbeans (all UK-born)=19, Whites=39, Black Africans=14, small sample size in other groups.	ICD-9, DSM-111-R.	SIR schizophrenia/10 000: Black Caribbeans=5 (95% CI, 2.00-9.00), Black Africans=4(0-8.00), Whites=1(0.60-2.00).
First admission diagnosis of schizophrenia (McGovern & Cope, 1991).	Birmingham.	Mean age: Black Caribbeans=22, Whites=23.	Hospital admissions.	Black Caribbeans=33 (mostly UK-born or migrated, on average, at 10 years age), Whites=29.	DSM-111.	Length of admission, greater than three months: Black Caribbeans=24%, Whites=7%. Pre-admission contact with GP: Black Caribbeans=48%, Whites=76%. Two year follow-up, readmission to psychiatric hospital: Black Caribbeans=48%, Whites=28%.
The experience of psychiatric illness (O'Connor & Nazroo, 2002)	UK	25-50	Sub-sample from nationwide survey	Black Caribbeans=20 (mostly UK-born or migrated before age 11) , Whites=19, Bangladeshis=18, Indians=19, Irish=21, Pakistanis=19	CIS-R	Religious ways of coping with mental ill health play important role in the lives of Black Caribbeans compared with other groups. Problems with divorce and separation concentrated among Black Caribbeans and Whites.

Psychiatric illness rates (Sproston & Nazroo, 2002).	UK	16-74	Nationwide survey	Black Caribbeans=694 (85% UK-born or migrated under age 11), Whites=837, Irish=733, Bangladeshis=650, Indians=643, Pakistanis=724.	PSQ, CIS-R, Social Functioning Questionnaire, Close Persons Questionnaire, Short Explanatory Model Interview.	Prevalence of common mental disorders: UK-born Black Caribbeans=17%, Caribbean-born Blacks=23%.
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Causes of illness

Factors associated with schizophrenia (Bhugra et al, 2000).	Trinidad and London.	58% of Trinidad sample under age 30, 68% of London sample under age 26.	Community, psychiatric and prison services.	Trinidad sample=46, Black Caribbeans (London)=38 (71% UK-born).	DOSMD, PSE, PPHS.	Trinidad sample more likely to have seen psychiatrist or general practitioner as first contact than London Black Caribbeans.
Pregnancy and birth complications as cause of psychiatric illness (Hutchinson et al, 1997).	South London.	Mean age: UK-born Black Caribbeans=23, Caribbean-born Blacks=34, Whites=30	Hospital admissions.	UK-born Black Caribbeans=31, Caribbean-born Blacks=30, Whites=103.	DSM III, PSE, FHR-DC.	Rate of pregnancy and birth complications similar for UK-born and Caribbean-born Blacks. White patients with psychosis were more likely than Black Caribbeans to have history of pregnancy and birth complications. Similar results for White patients with schizophrenia.
Risk of schizophrenia in first-degree relatives (Hutchinson et al, 1996).	South London.	16-50	Psychiatric in-patient admissions.	UK-born Black Caribbeans=38, Caribbean-born Blacks=35, Whites=111.	PSE, DSM III, FH-RDC.	Relative risk for schizophrenia for relatives of patients with psychosis (Whites=1): siblings of UK-born Black Caribbeans=7.00 (95% CI, 1.70-33.60), siblings of Caribbean-born Blacks=1.50 (0.30-8.00).

Risk of schizophrenia in first-degree relatives (Sugarman & Crauford, 1994).	Manchester.	Mean age of patients with psychosis: UK-born Black Caribbeans=20, Caribbean-born Blacks=41, Whites=33. No details of age of relatives presented.	Psychiatric in-patient admissions.	Patients with psychosis: UK-born Black Caribbeans=20, Caribbean-born Blacks=16, Whites=39. Relatives of patients: UK-born Black Caribbeans=108, Caribbean-born Blacks=113, Whites=177.	RDC, FH-RDC.	Morbidity risk (prevalence) for siblings of patients with schizophrenia: UK-born Black Caribbeans=27% (95% CI, 12-48), Caribbean-born Blacks=9% (3-22), Whites=2% (0-10).
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Service admission and use

Risk of compulsory admission (Davies et al, 1996).	South London.	Mean age: Black Caribbeans=35, Whites=47.	Community and hospital settings.	UK-born Black Caribbeans=58, foreign-born Black Caribbeans=54, UK-born Black Africans=29, Whites=254. Data on history of treatment available for: 58 UK-born Black Caribbeans, 54 foreign-born Blacks, 6 UK-born Black Africans, 21 foreign-born Africans, 207 UK-born Whites, 36 foreign-born Whites.	OPCRIT, ICD-10.	Ever detained under Mental Health Act: UK-born Black Caribbeans=74%, foreign-born Blacks=67%, UK-born Black Africans=83%, foreign-born Africans=67%, UK-born Whites=41%, foreign-born Whites=50%. Differences persist after adjustment for age, living alone and number of admissions.
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Attitudes to service use (McGovern & Hemmings, 1994).	Birmingham.	16-29 (on first admission)	Hospital admissions.	Patients: Black Caribbeans=40 (all UK-born), Whites=28. Relatives: Black Caribbeans=32, Whites=27.	CSQ8, PPHS.	No significant differences between Black Caribbeans and Whites in satisfaction, conceptualisation of illness or attitudes to treatment. Relatives of Black Caribbean patients more likely than relatives of White patients to attribute illness to substance use (24% compared with 11%, $p<0.01$). Relatives of Black Caribbean patients also more likely to think that Black people are treated worse than Whites.
First admission diagnosis of schizophrenia (McGovern & Cope, 1991).	Birmingham.	Mean age: Black Caribbeans=22, Whites=23.	Hospital admissions.	Black Caribbeans=33 (mostly UK-born or migrated, on average, at 10 years age), Whites=29.	DSM-111.	Length of admission, greater than three months: Black Caribbeans=24%, Whites=7%. Pre-admission contact with GP: Black Caribbeans=48%, Whites=76%. Two year follow-up, readmission to psychiatric hospital: Black Caribbeans=48%, Whites=28%.

First admission rates (McGovern & Cope, 1987).	Birmingham.	Males=16-64, females=16-59. Data on admissions by diagnostic category on UK-born Black Caribbeans (which includes migrants under age 30) only available for age group 16-29.	Hospital admissions.	UK-born Black Caribbeans= 41, Caribbean-born Blacks=72, Whites=611	Case notes.	Annual admission rates for schizophrenia/paranoid psychosis/100 000 at ages 16-29: Black Caribbean males=138, Black Caribbean females=98, White males=21, White females=7.
Satisfaction with services (Parkman et al, 1997).	South London.	Mean age: UK-born Black Caribbeans=27, Caribbean-born Blacks=46, UK-born Whites=46, foreign-born Whites=48.	Community and hospital settings.	UK-born Black Caribbeans=27, Caribbean-born Blacks=23, UK-born Whites=114, Irish Republic-born Whites=8, foreign-born Whites=12.	OPCRIT, Verona Service Satisfaction Schedule.	Mean Global satisfaction with care received score: UK-born Black Caribbeans=3.39 (95% CI, 2.97-3.82), Caribbean-born Blacks=3.99 (3.97-4.28), UK-born Whites=3.85 (3.71-3.99), foreign-born Whites=3.62 (3.06-4.18).
Risk of compulsory admission (Singh et al, 1998).	Nottingham.	16-29 (on first admission)	Hospital admissions.	Black Caribbeans=44 (80% UK-born), Whites=352.	Nottingham Acute Bed Use Schedule, ICD-10.	Compulsory admissions: Black Caribbeans=43%, Whites=19%.

Compulsory admission (Thomas et al, 1993).	Manchester.	Age range of entire study=16- 65, but data on UK-born Black Caribbeans only available for age group 16- 29	Hospital admissions.	UK-born Black Caribbeans=67, Caribbean-born Blacks=126, UK-born Asians=14, foreign- born Asians=62, Whites=1265.	MHA, ICD-9.	Rates of first admission for schizophrenia/100 000, age group 16-29:UK-born Black Caribbeans=320 (95% CI, 152-589), UK- born Asians=35 (0.9-195), Whites=35 (23-51). Rates of readmission for schizophrenia/100 000, age group 16-29: UK-born Black Caribbeans=1088 (754-1521), UK-born Asians=70 (8-253), Whites=135 (114-167).
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SIR=standardised incidence rate, CI=95% confidence intervals, OR=odds ratio, PSE=Present State Examination, SCL=Syndrome Check List,

SANS=Scale for the Assessment of Negative Symptoms, DCR=Diagnostic Criteria for Research, PPHS=Psychiatric and Personal History Schedule,

ICD-9=International Classification of diseases 9 (World Health Organisation), ICD-10=International Classification of diseases 10 (World Health Organisation),

DSM III-(R)=Diagnostic and Statistical Manual of Mental Disorders, SCAN=Schedules for Clinical Assessment in Neuropsychiatry, PPHS=Personal and Psychiatric History Schedule, PSQ=Psychosis Screening Questionnaire, CIS-R=Clinical Interview Schedule, MHA=Mental Health Act 1983 Status, OPCRIT=Operational Criteria List version 3.2,

CSQ8=Client Satisfaction Questionnaire, DOSMD=Determinants of Outcome of Severe Mental Disorders, FH-RDC=Family History Research Diagnostic Criteria,

RDC=Research Diagnostic Criteria, DAS=Disability Assessment Schedule, DAS=Psychiatric Disability Schedule, GAF=Global Assessment of Function scale.

Setting.	Sample size.	Method of investigation.	Main findings.	Adjusted for SES.
Antenatal clinic, west London hospital.	UK-born Black Caribbeans=215, Caribbean-born Blacks=220, Black Africans=106, south Asians=717, African Asians=460, Others=301, Whites=1138.	Questionnaire, sera collection.	Prevalence of HSV-2 (all ages):UK-Born Black Caribbeans=15%, Caribbean-born Blacks=33%, Black Africans=37%, south Asians=4%, African Asians=4%, Others= 10%, Whites=7%.	Yes. Social class not significant for HSV-2 prevalence after controlling for marital status and age (using data on all ethnic groups).
Genitourinary clinic.	All Black sample. Caribbeans=133 (73% UK-born), Africans=47(27% UK-born).	Questionnaire, sexually transmitted infection screening.	Prevalence of gonorrhoea: Caribbeans=18%, Africans=2%.	Yes. No association of gonorrhoea and chlamydial infection with socio-economic class in Black Caribbeans.
Genitourinary clinics.	Full information on sample size not given. Black Others (largely UK-born)= at least 244, Black Caribbeans (no precise information given on location of birth, but ethnicity defined by West Indian nationality and country of birth)= at least 1215, Black Africans= at least 278, Asian/others=at least 150, Whites=at least 803.	Sexually transmitted infection screening.	Episode-based rates/100 000: Gonorrhoea (males): Black Others=1688 (95% CI 1379-2090), Black Caribbeans=1382(1262-1516), Black Africans=527(448-625), Asian/others=113 (80-165), Whites=111(100-124). Gonorrhoea (females): Black Others=886(712-1117), Black Caribbeans=641(571-722), Black Africans=148 (109-207), Asians/others=118(84-172), Whites=45 (38-54). Chlamydia (all females): Black Others=1039 (95% CI 839-1302), Black Caribbeans=1085(996-1185), Black Africans=422(352-511), Asian/others=352 (292-429), Whites=126 (114-140).	Yes (SES measured by ward-level indicator of deprivation). Gonorrhoea rate ratio (Whites=reference). Males: Black Others=12 (95% CI 10-16), Black Caribbeans=12(10-13), Black Africans=4 (3-5), Asian/others=1(1-1). Females: Black Others=12 (95% CI 9-16), Black Caribbeans=13 (11-16), Black Africans=3 (2-4), Asian/others=2(2-3).

Table 3 Summary of studies of autoimmune response and other conditions in UK-born Black Caribbeans

Focus (author, year)	Location of study	Age group (years)	Source of data	Sample size	Method of investigation	Main findings
Multiple sclerosis						
Multiple sclerosis (MS)(Dean & Elian, 1997).	Greater London, West Midlands, Leicester, Bradford, Halifax, Huddersfield.	For sample, all ages. No data on age of Black Caribbeans.	Hospital setting.	Black Caribbeans=60 (17 migrated before age 15), south Asians=76.	Case notes, Poser classification of MS.	In contrast to south Asians, age at immigration was not related to MS in Black Caribbeans.
Multiple sclerosis (MS) (Elian et al, 1990).	Greater London, West Midlands.	15-44.	Hospital setting.	All groups are UK-born. Black Caribbeans=28, south Asians=13, Africans=4. Africans may include Asians and Whites.	Consultants' diagnosis of MS.	Standard prevalence ratio: UK-born B Caribbeans= 0.75 (95% CI 0.5-1.1), s Asians=1.10 (0.6-1.9), Africans=1.52 (0.42-3.91). Course of MS rapid in UK born Black Caribbeans.
Multiple sclerosis (MS) (Elian & Dean, 1987).	Greater London.	15-29	Hospital setting.	UK-born Black Caribbeans=16.	Case notes.	Average annual incidence rates of MS/100 000 by age: Black Caribbean: 15-19=2, 20-24=7, 25-29=8, 20-29=7.
Multiple sclerosis (MS), tropical spastic paraparesis (TSP) and human T-cell lymphona-1 virus (HTLV-1) infection (Rudge et al., 1991).	London.	Mean age of patients: TSP=54, Progressive paraparesis=30,MS=38.	Referrals.	UK-born Black Caribbeans=5, Caribbean-born Blacks=39.	Poser classification of MS, HTLV-1 tests.	Age at onset of MS: UK-born Black Caribbean=20, Caribbean-born Black: (p<0.001). None of the MS sufferers w HTLV-1+
Systemic lupus erythematosus						

Systemic lupus erythematosus (SLE) (Johnson et al, 1995).	Birmingham and Solihull, England.	18+	Community and hospital settings.	Females: UK-born Black Caribbeans=30, foreign-born Blacks=18, UK-born Asians=9, foreign-born Whites=26, UK-born Whites=130, foreign-born Whites=13. Black Caribbeans includes some Black Africans.	American College of Rheumatology classification of SLE, British Isles Lupus Assessment Group instrument.	SLE prevalence rates/100 000: UK-born Black Caribbeans=261 (95% CI 168-316), foreign-born Blacks =170(101-268), UK-born Asians=117(54-222), foreign-born Asians=91(59-132), UK-born Whites=35(29-41), foreign-born Whites=58 (31-99).
Systemic lupus erythematosus (SLE) (Molokhia et al, 2001).	Lambeth, Lewisham and Southwark, London	15-64 (mostly females)	Hospital setting.	Females: UK-born Black Caribbeans/Black Others=72 (mostly UK-born), Black Africans=20, Whites=66.	American Rheumatism Association definition of SLE.	SLE prevalence rates/100 000: Black Caribbean/Black Others=177(95% CI 220), Black Africans=110 (58-163), Whites=35 (26-43).
Human T cell leukemia/lymphoma virus						
Human T cell leukemia/lymphoma virus (HTLV-1) infection (Cruickshank et al, 1990).	Britain and Jamaica. Study location=Britain.	Mean age: patients=54, relatives: UK-born (living in UK)=20, Caribbean-born (living in UK)=46, Caribbean-born (living in Caribbean)=51.	Family-based study. Hospital data.	UK-born Black Caribbeans=14, Caribbean-born Blacks (living in UK)=21, Caribbean-born Blacks (living in Caribbean)=25.	Serum and DNA analysed.	HTLV-1 prevalence rates: UK-born Black Caribbeans (living in UK)=0%, Caribbean-born Blacks (living in UK)=33% (95% CI 12-54), Caribbean-born Blacks (living in Caribbean)=12% (0-25).
Human T cell leukemia/lymphoma virus (HTLV-1) infection (Hale et al., 1997).	South east London.	Not given.	Ante-natal attenders (all female).	UK-born Black Caribbeans=596, foreign-born Blacks=225, UK-born Africans=170, foreign-born Africans=966, UK-born others=244, foreign-born others=406, UK-born Whites=2845, foreign-born Whites= 204.	Sera referred for rubella testing tested for HTLV, demographic data.	HTLV prevalence rates/10 000 sera: Black Caribbeans (UK and foreign-born)=97 (42-190), Black Africans (UK and foreign-born)=26 (5.5-78), Whites (0.6-18). Sera from Caribbean-born Blacks nearly 8 times more likely to be HTLV+ than sera for UK-born Black Caribbeans.

Human T cell Leukemia/lymphoma virus (HTLV-1) infection (Nightingale et al, 1993).	Birmingham, England.	18-48	Ante-natal attenders.	Black Caribbeans=423, foreign-born Blacks=81, UK-born Africans=3, African-born Africans=12, UK-born south Asians=328, foreign-born Asians=946, UK-born Whites=1548, foreign-born Whites=56.	Passive particle agglutination test. ELISA.	HTLV-1 annual prevalence: UK-born Black Caribbeans=0, foreign-born Blacks=2.6% (95% CI 0.8-0.1), UK-born Africans=0, African-born Africans=8 (2-38), UK-born south Asians=0, foreign-born Asians=0, UK-born Whites=0.2% (0.1-0.4), foreign-born Whites=0.
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Other conditions

Limiting long-term illness (Harding & Balarajan, 2000).	England and Wales.	Under 16-64.	1991 census data. 1% England and Wales*	UK-born Black Caribbeans=2728, Caribbean-born Black Caribbeans=2396, UK-born Black Africans=794, African-born Black Africans=1562, UK-born Indians=3801, Indian-born Indians=6968, UK-born Pakistanis=2487, Pakistan-born Pakistanis=3557, UK-born Bangladeshis=613, Bangladesh-born Bangladeshis=1866, UK-born Chinese=438, Chinese-born Chinese=1213.	Self-reported limiting long-term illness.	Age and sex-adjusted relative risk of limiting long-term illness (Whites=1): UK-born Black Caribbeans=1.5, Caribbean-born Blacks=1.4, UK-born Black Africans=3.1, African-born Black Africans=0.8, UK-born Indians=1.4, Indian-born Indians=1.2, UK-born Pakistanis=2.2 (2-3), Pakistani-born Pakistanis=1.8, UK-born Bangladeshis=1.8, Bangladeshi-born Bangladeshis=2, UK-born Chinese=1, Chinese-born Chinese=0.7.
Intestinal permeability to manitol and lactulose (Iqbal et al, 1996).	West Midlands, UK.	15-77	Hospital setting.	UK-born Black Caribbeans=11, Caribbean-born Blacks=38, Whites=48, Indians=101.	Endoscopic duodenal biopsy, hyperosmolar lactulose/mannitol permeability test.	Lactulose:mannitol excretion ratios: UK-born Black Caribbeans=0.05, Caribbean-born Blacks=0.17 (p<0.05). No difference between UK-born Black Caribbeans and Whites.

Various (Nazroo, 1997a).	England and Wales.	16+	Fourth National Survey.	Not given.	Self-report measures.	UK-born Black Caribbeans significantl more likely to report fair or poor health and limited long-standing illness than Caribbean-born Blacks. UK-born Black Caribbeans more likely to report respiratory symptoms than Caribbean-born Blacks (not significant). UK-born Black Caribbeans also more likely to report smoking (approximately 42%) tl Caribbean-born Blacks (approximately 34%)(not significant) and alcohol consumption (approximately 82% compared with approximately 64%) (significant).
Tuberculosis(Rose et al, 2001).	England and Wales.	All ages.	Tuberculosis notifications.	1998 sample: UK-born Black Caribbeans=56, Caribbean-born Blacks=59, UK-born Africans=40, foreign-born Black Africans=657, UK-born south Indians=373, foreign-born south Asians=1656, UK-born Whites=1784, foreign-born Whites=219.	Clinicians' information, clinical samples.	Incidence rates for tuberculosis/ 100 C UK-born Black Caribbeans=20(95% C 19-22), Caribbean-born Blacks=21(95 CI 19-22), Uk-born Black Africans=29 (95% CI 26-32), foreign-born Black Africans=308 (285-335), UK-born south Asians=45 (95% CI 43-47), foreign-bo south Asians=177 (170-184), UK-born Whites=3.9 (95% CI 3.8-3.9), foreign-l Whites=10 (9.6-10).

*ONS Longitudinal Study.

Table 4 Summary of studies of drug and nutrient intake in UK-born Black Caribbeans

Focus (author, year)	Location of study	Age group (years)	Source for cases	Sample size	Method of investigation	Main findings.	Adjusted for SES.
Alcohol consumption (Cochrane and Howell, 1995).	Birmingham.	Range not stated.	General practices.	UK-born Black Caribbeans=85, Caribbean-born Blacks=115. Whites=170 (all UK-born). All male sample.	Alcohol consumption questionnaire and mental health questionnaire.*	Regular drinkers: Black Caribbean males=17%, Whites=35%. Heavy drinkers (more than 40 units per week): Black Caribbeans=3%, Whites=7%. No generational differences.	No. Black Caribbeans more likely to be unemployed than Whites.
Nutrient intake in second generation (Sharma et al. 1999).	Manchester.	25-79 years.	Health centres.	UK-born Black Caribbeans=46, Caribbean-born Blacks=205.	Food Frequency Questionnaire.	Total energy from saturated fat: Caribbean-born Black males=11%, UK-born Black Caribbean males=13% (p<0.05), Caribbean-born Black females=11%, UK-born Black Caribbean females=13% (p<0.05).	No. Smaller proportion of UK-born Blacks than Caribbean-born have household income below £10 000.

* WHO Three Centre Survey of drinking patterns, Langner 22-item Mental Health Questionnaire.

Table 5: Summary of studies of UK-born Black Caribbean children's health

Focus (author, year).	Location of study.	Age group (years).	Source for data	Sample size	Method of investigation	Main findings.	Adjusted for SES.
Growth and obesity (Chinn et al., 1998)	Specific locations not stated. Inner city, Scottish and English samples.	5-11	Survey of primary schools (data collected alternate years, 1983-1993).	1993-1994 figures: inner city Black Caribbeans=1184, inner city Urdu/Punjabis=1425, inner city Gujaratis=313, inner city Other Indians=367, English Whites=5609, Scottish Whites=4052, inner city Whites=2055. Black Caribbeans may include Black Africans.	Height measurement and triceps skinfold measurement.	Height increased significantly between two points in time. Black Caribbean boys were the tallest in 1993/4. Percentage change in geometric triceps skinfold thickness 1983/4-1993/4: (boys) Black Caribbeans=0.5% (95% CI-4-5), Gujaratis=5% (-2-12), Urdu/Punjabis=0.7% (-3-5), Other Indians=-0.1% (-8-8), inner city Whites=-5%(-7-2), English Whites=5% (3-6), Scottish Whites=0% (-2-2), (girls) Black Caribbeans=2%(-3-7), Gujaratis=11% (5-19), Urdu/Punjabis=4% (0-8), Other Indians=9% (1-18), inner city Whites=-4%(-7-2), English Whites=3% (1-5), Scottish Whites=-1 (-3-3).	No.
Health service use (Cooper et al., 1999).	UK	0-19	General Household Survey.	Total sample=approximately 10,000 households. No data presented on distribution of sample by ethnicity.	Frequency of GP consultations, and use of inpatient and outpatient services.	OR FOR GP use by migrant status of parents of the children (adjusted for age, sex, socio-economic status and health status): for children with UK-born Black Caribbean parents=0.79, for children with a Caribbean-born Black mother=0.63 compared with Whites. Similar results for outpatient service use. No comparable results given for inpatient service use.	Yes.

Child and adolescent psychiatric presentation (Goodman & Richards, 1995).	South London.	Under 18.	Clinic.	Black Caribbeans (all UK-born)=292, Whites=1311.	ICD-9, examination.	Conduct disorder: Black Caribbeans=35%, White children=25%. Emotional disorder: Black Caribbeans=18%, Whites=27%.	No. Significant differences in socio-economic distributions between two groups. 9% of Black Caribbeans from non-manual background compared with 18% of Whites (p<0.001).
General health (Nazroo et al, 1999).	England	2_15	Nationwide survey.	Black Caribbeans=612, Indians=471, Pakistanis=790, Bangladeshis=742, Chinese=264, Irish=535.	ICD-9, General Health Questionnaire, SDQ, examination, anthropometric measures.	Prevalence of longstanding illness: Black Caribbeans=27%, Indians=21%, Pakistanis=21%, Bangladeshis=17%, Chinese=21%, Irish=25%, general population=29%. Black Caribbean males taller than males in general population and males from other ethnic groups.	No
Atopic dermatitis (Williams et al., 1995).	West Lambeth, London	3-11	Primary schools.	Black Caribbeans=141, Black Others=41, Black Africans=43, Mixed=101, Indians=27, Bangladeshis=11, Pakistanis=14, Chinese and others=15, Whites=300.	Survey, examination.	Prevalence of atopic dermatitis: Black Caribbeans=16% (95% CI 11-24), Black Others=22% (11-38), Black Africans=5% (1-16), Mixed=15% (9-23), Indians=7% (1-24), Bangladeshis=9% (0-34), Pakistanis=7% (0-34), Chinese and others=13% (2-41), Whites=9% (6-12).	Higher proportion of Black Caribbean children received free school meals than Whites. After adjustment for age, sex, type of school and family size, OR (Whites=1) atopic dermatitis: Black Caribbeans=2.2 (95% CI 1-5). Adjusted results not given for other groups.

OR=odds ratio, ICD-9=International Classification of Diseases-9, SDQ= Strengths and Difficulties Questionnaire.