

Cultural differences in assessing dietary intake and providing relevant dietary information to British African–Caribbean populations

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Abstract

Diet can play a key role in the management of disorders such as obesity, diabetes and hypertension, conditions highly prevalent in the British African Caribbean population.

In this paper, information not previously available is provided on the dietary habits and foods consumed by a British African–Caribbean population representative of the local community. Food frequency questionnaires were obtained from 255 randomly selected subjects in Manchester (78% of Jamaican origin), the nutrient intake results of which are available elsewhere. Here, suggestions are given to ensure that complete and valid dietary assessments (by diet history) are obtained, and the need for the approach to be somewhat different to that used in the White European population, highlighted with examples. Suggestions have also been listed for methods of dietary modification for obesity, diabetes and hypertension, taking into account differences in cultural understanding and food practices. People of Caribbean origin are not from just one territory: food habits and cultural context play an important role in every island, with clear differences between each which persist in first and later generations in Britain. In this paper, we attempt to integrate experience of learning from patients themselves during consultations and from participants in this study, with direct quantitative data on types of foods and their frequency in the local African–Caribbean diet.

Introduction

Diet can play a key role in the management of disorders such as obesity, diabetes and hypertension. These conditions are and have been highly prevalent in British African–Caribbean populations (Cruickshank *et al.*, 1980, 1991; Cappuccio *et al.*, 1997; Poulter *et al.*, 1997; Mbanya *et al.*, 1999), and now in the Caribbean nations them-

selves. In recent surveys in Manchester, age-standardized rates of diabetes and hypertension for the local African–Caribbean population (> 80% of Jamaican origin) were 18% and 28%, respectively (Mbanya *et al.*, 1999; Cruickshank *et al.*, 2001; Riste *et al.*, 2001), somewhat higher than in similar surveys in Jamaica (Wilks *et al.*, 1999). Mean body mass indices were 26.5 kg m⁻² in men and 28 kg m⁻² in women in Manchester, higher than in

Jamaican men but not women. In comparison, rates of diabetes and hypertension for Manchester White Europeans were 15% for each condition, with mean body mass indices of some 27 kg m⁻² in men and women (Cruickshank *et al.*, 2001). These Manchester rates are similar to those found in the Wandsworth survey in south-west London (Cappuccio *et al.*, 1997).

There is clearly a need for appropriate dietetic advice to be available for the British African-Caribbean community for these diet-related conditions, and an understanding of food habits and factors affecting these. People of Caribbean origin are also not from just one territory: food habits and their cultural context play an important role in every island, with clear differences between each. While Jamaica, the largest island, was the origin of most people who migrated in the 1950s and early 1960s, significant numbers of migrants moved from Barbados, other Eastern Caribbean islands such as St Kitts and St Lucia, Montserrat, and to a lesser extent Trinidad. There, the population is almost half of African and half of Indian descent, so dietary variations are major. Thus the dietary situation is complex and generalizations will be prone to serious error. Most dietitians practising in the UK are not of African-Caribbean background and lack of specific nutritional information has meant that knowledge of current dietary practices in representative community samples is limited, despite a Caribbean-origin population of well over 500 000 people (OPCS, 1993). Dietary intake studies that have been carried out among Caribbean-origin people in the UK have tended to focus on specific subgroups such as lone parents or infants (Kemmer *et al.*, 1986; Douglas, 1987; Dowler & Calvert, 1995; see also Cruickshank & Beevers, 1989).

In this paper, information is provided on the dietary habits and foods consumed by a representative sample of the Manchester British African-Caribbean population, again mainly of Jamaican origin, and the largest such study in Britain to date. Nutrient intake details were reported previously (Sharma *et al.*, 1999). Suggestions are listed that may be helpful in ensuring that a complete and valid dietary assessment (diet history) is obtained, with modifications to the approach used

in the White European population. The data formed part of a large international study, which developed dietary assessment methodology for African-origin populations in Cameroon, West Africa, Jamaica and Caribbean-origin people in England. The overall aim was to assess nutritional influences on the emergence of diabetes and hypertension (Sharma *et al.*, 1996, 1999; Mennen *et al.*, 2000a). The material presented here may be of particular value to dietitians with little knowledge of or familiarity with African-Caribbean cultures.

Methods and subjects

Subjects aged 25–79 years were randomly selected from population registers (which do not include details of ethnicity) held at four general practices in central Manchester and invited to attend for a health screening. This achieved a response rate of 67%. All those within this sample who were of African-Caribbean origin (defined as 3 out of 4 grandparents from the Caribbean and of African descent), but excluding those of direct African descent, were invited to complete an interviewer-administered food frequency questionnaire (FFQ). This had been developed within the community from 2-day food diaries and included those foods that contributed to 90% of the intake of energy, carbohydrate, protein and fat. More detailed methods have been described previously (Sharma *et al.*, 1996, 1999). Briefly, the FFQ contained both West Indian and European foods, totalling 108 food and drink items and assessed portion size of all food and drink items consumed, using food models or standard household measures familiar to this community.

Frequency of consumption of all listed foods was assessed by one of the following consumption categories based on the previous 12 months: ≥ 2 times per day, almost every day, 3–5 times per week, 1–2 times per week, 1–3 times per month, $<$ once per month, or never consumed. The FFQ was administered mainly within the respondent's home by one of three trained interviewers (two of Caribbean origin), although a few interviews were conducted in the participant's general practice, when more convenient to the respondent. Anthropometric

measurements were also assessed using carefully standardized procedures on a stadiometer and balance or calibrated electronic scales. Ethical permission was granted by the Central Manchester Health District Ethical Committee.

The nutritional data were analysed for mean daily macro-nutrient intake using a specially constructed analysis program in SPSS for Windows (SPSS Inc., 1996). This contained the nutrient values for foods, calculated from weighed recipes collected in this community in Manchester as previously described (Sharma *et al.*, 1996), or where appropriate from the British food tables (Tan *et al.*, 1985; Holland *et al.*, 1991).

Results

The overall response rate to the dietary survey was 83% ($n = 255$). The majority of people sampled had migrated from Jamaica (60%) with others migrating from Barbados (6%) or other Caribbean Islands (14%) (Table 1). The mean duration of time in the UK for all subjects was 30 years. More men than women were married (52% vs. 39%). Eighteen per cent of the sample was born in England, again mostly of Jamaican-origin parents. Demographically the community in Manchester is not very different from other African-Caribbean communities living elsewhere in Britain.

Table 2 shows the percentage of the sample that was following a specific diet. Sixteen per cent of the men and 12% of the women were following a diet to reduce weight. The mean BMI of the men was 26.9 kg m^{-2} and 28.8 kg m^{-2} for the women, indicative of overweight. Similar percentages of

Table 2 Percentage of the African-Caribbean population sample reportedly following a particular dietary regime

	Men ($n = 84$)	Women ($n = 126$)
% weight reducing diet	16	12
% low fat diet	16	18
% diabetic diet	14	16
% vegetarian diet	2	3

men and women were following diets for diabetes management or low-fat regimes.

Over 60% of the subjects' total household income was reported as below £10 000, as found among the majority of West Indians in Britain, who reported in the 1991 census (OPCS, 1993). Further details of the sample have been presented elsewhere (Sharma *et al.*, 1999).

The typical West Indian diet is high in starchy carbohydrate foods with items such as rice, potatoes, yams and green bananas being included as part of a meal usually accompanied by a meat, chicken or fish dish (Douglas, 1987; Sharma *et al.*, 1996). A description of these West Indian foods is presented in Table 3. A variety of pulses are eaten particularly with rice to form what Jamaicans would term rice and peas (usually with kidney beans or gunga peas) and Barbadians would call peas and rice (usually with black eyed beans or pigeon peas). There are many such examples of similar dishes having different names depending on their island of origin. Consumption of vegetables is high, of both West Indian and European varieties. Such a diet provides the nutrient profile presented in Table 4. Briefly, the diet is higher in carbohydrate (51% in men and 52% in women), lower in fat (32% in men and women) and alcohol (2.2% men and 1.0% women) compared with the White European population (Gregory *et al.*, 1990). The carbohydrate, fat and alcohol intake for men and women were, respectively, 41.4% in men, 42.3% in women; 37.6% men, 39.5% women; 6.4% men, 2.2% women.

The remaining results presented in this paper are divided into: (1) considerations for dietary assessment, and (2) dietary modification in the British African Caribbean population. These are summarized findings based on the Manchester population and experiences within the community during field work.

Table 1 Characteristics of the African-Caribbean population sample (mean and confidence interval (CI))

Characteristics	Men $n = 102$	Women $n = 153$
Mean age (year) (CI)	54 (51-57)	49 (47-51)
Mean duration in UK (year) (CI)	31 (29-32)	29 (28-30)
% Married	52	39
% Single	21	31
% Born in Jamaica	68	55
% Born in UK	16	20
% Household income < £10 000	62	65

Table 3 Description of traditional foods eaten by African-Caribbean people

Food	Description
Hard dough	Dense white bread, usually unsliced loaf
Bun	Sweet flavoured bread, usually eaten with sliced hard cheese, e.g. cheddar
Jamaican crackers	Similar to cream crackers but round and smaller, made with white flour
Cornmeal porridge	Made with hot milk and cornmeal flour (condensed milk may be added) flavoured with fresh nutmeg, salt, sugar and vanilla.
Callaloo	Green leaves like spinach, available tinned (usually in brine) or fresh, often cooked with salt fish, onions and oil usually boiled or steamed
Plantain	Usually sliced and fried (often eaten for Sunday breakfast). May be boiled and eaten as potatoes or put into soup
Green banana	Usually boiled
Yam	Available as white and yellow. May be boiled and eaten like potatoes or put into soup
Cassava	Has to be boiled, can be put into soup (eaten less often than yam)
Breadfruit	A characteristic Caribbean tree and food, from its fruit. Can be roasted, fried or boiled
Pumpkin	Boiled and eaten with meal or put into soup
Cho Cho or	Looks similar to hard green pear, with a slightly hairy, light green skin.
Christophene	Usually boiled, often put into soup
Sweet potato	Usually boiled or put into soup
Salt fish/salted cod	Bought dried, usually soaked overnight to remove salt or boiled to re-hydrate before cooking
Salt fish fritters/fish cake	Salt fish pieces added into a batter and deep fried, may be homemade or bought from take away

Table 3 (Continued)

Food	Description
Ackee and salt fish	National dish of Jamaica. Ackee when cooked is an oily, yellow fruit. Salt fish is fried and ackee added
White fish	Usually cooked with oil, onions and highly seasoned
Homemade West Indian soup	Made with meat, dumplings and large pieces of vegetables such as yam, sweet potato, pumpkin, carrots and cho cho in a thin stock. Usually eaten from a deep soup bowl
Curry lamb, beef, chicken, mutton and goat	Meat is usually seasoned overnight and then fried in oil. Water is added and the dish left to cook until tender. Creamed coconut may be added.
Roast chicken, Oven do chicken	Meat is seasoned overnight, may be tossed in flour, then fried and cooked in oven.
Pattie	Semi-circular or oval pastry, flavoured and filled with seasoned mince beef or vegetables. Eaten as snack usually from take-aways.
Rice and peas	Peas may be black-eyed peas, pigeon peas, kidney beans or split peas. Onions, vegetable oil and creamed coconut may be added.
Fried dumplings or Johnny cake	Dough is made with white flour and deep-fried or boiled. Home-made or take-away.
Punch	Many different combinations, main ingredients listed below but subject to variation, e.g. 'Nutriment' may be used to replace some of the condensed milk; spices used could include nutmeg, cinnamon, vanilla; fruit juice depends on personal preference. Carrot juice punch; carrot juice, condensed milk, sugar & spices. Fruit punch; fruit juice, fizzy pop. Rum punch; rum & fruit juice. 'Guinness punch'; 'Guinness', condensed milk, egg, sugar & spices.

Table 4 Mean energy profile of the African-Caribbean population sample (confidence interval)

	Men (<i>n</i> = 101)	Women (<i>n</i> = 153)
% Energy provided by carbohydrate	50.7 (49.4–52.1)	51.9 (51.0–52.8)
% Energy provided by fat	31.7 (30.7–32.8)	32.3 (31.5–33.1)
% Energy provided by saturated fat	11.1 (10.6–11.6)	11.4 (11.0–11.8)
% Energy provided by alcohol	2.2 (1.6–2.8)	1.0 (0.8–1.3)

Considerations for dietary assessment

Some foods, although having the same name as typical European foods, may be quite different in terms of composition and nutrient content. For example, home-made West Indian soup is very different from the European description of home-made soup, being made of large pieces of vegetables such as yam, sweet potatoes and containing boiled dumplings as well as meat. It is really a 'one-pot' meal (sometimes referred to as 'food'). Per 100 g, a typical home-made West Indian soup here contained 102 kcal, 4.2 g fat, 13.4 g carbohydrate and 4.5 g protein (S. Sharma 1996, unpublished PhD thesis) compared with standard vegetable soup in Britain containing 37 kcal, 0.7 g fat, 6.7 g carbohydrate and 1.5 g protein (Holland *et al.*, 1991).

Types of foods and drinks

When assessing an African-Caribbean diet, the importance of using the correct terminology cannot be over-emphasized. For example, when someone is asked about rice consumption and asked 'how often do you eat rice?', the answer would be perhaps '2 times a week'. However, a more appropriate question would be to include the names of the other rice forms such as 'How often do you eat rice as plain rice or rice and peas?'; a usual answer would be '3–4 times per week'. Thus asking about specific foods eaten will help to prevent an under-estimation of food and nutrient intake and provide a more complete assessment on which appropriate dietetic advice can be based.

There is a difference in the terminology used to describe foods between the African-Caribbean and the mainly White European population. For example, sterilized milk is usually referred to as 'steri', and whole pasteurized milk as plain milk. Green bananas are referred to as unripe bananas and yellow bananas as ripe bananas. Boiled rice is referred to as plain rice to distinguish from rice and peas, potatoes can mean sweet potatoes or 'Irish' type potatoes and further clarification may be necessary. White bread can refer to hard dough West Indian bread which is sweeter and firmer than sliced white European-type bread. Specific words may refer to the portion size of certain foods such as a piece of avocado being referred to as a peg (usually 1/10th of whole fruit).

Drinks may also have subtle shades of meaning. Cordial to which water is normally added is called syrup. Bought packet teas are called tea-bag tea and other varieties, usually brought from the West Indies, are called bush teas or herbal teas, although these can be divided further depending on the taste (bitter) or leaf name, e.g. cerasee. Thirteen per cent of men and 15% of women reported consuming herbal teas and 9% of men and 10% of women reportedly consumed bush teas. These results are based on a subsample (*n* = 51) of the Manchester population sample.

Specific foods may be eaten on certain days, such as West Indian soup usually being consumed on a Saturday. Canned fruit salad in syrup and home-made punch (which may include carrot juice, condensed milk, 'Guinness' or 'Dragon' stout, 'Nourishment', 'Nutriment', fizzy pop or orange juice and spices such as nutmeg) are usually consumed on Sunday. Fried plantain may be eaten for Sunday breakfast and cornmeal porridge will be eaten at times other than breakfast. Sweet bun tends to be eaten mostly at Easter time and is typically accompanied by cheese; ackee and salt fish, being expensive, are generally eaten only for special occasions; sterilized milk is frequently consumed on a daily basis rather than pasteurized which is consumed less frequently. Mangoes, breadfruit, fresh callaloo and avocado pear tend to be eaten in large amounts in season but otherwise very rarely. Dietary restrictions for religious reasons must also be considered. For example, 7th Day

Adventists may not eat most meats and some Christians may not take alcohol.

Snack foods such as beef patties, salt fish fritters and fried dumplings are consumed frequently by the African-Caribbean community and these need to be prompted for to prevent under-reporting, particularly because of their high energy content (per 100 g 332 kcal, 265 kcal and 269 kcal, respectively). There may also be a need to know whether foods are home-made and therefore whether the recipe can be modified easily. For example, all respondents in our study bought patties from a local take-away (no one prepared their own); however, curried mutton, goat, beef and chicken were eaten from take-aways and were home-made.

Foods eaten and meal patterns vary between populations and therefore not surprisingly so does the amount of foods consumed, e.g. portion size. In Manchester, the portion size of many of the high-carbohydrate foods was much greater than typical portion sizes for the mostly White European population. For example, an average serving of boiled potatoes was 300 g for the African-Caribbean population and 180 g for the White European population (Crawley, 1988). A typical serving of West Indian soup, usually eaten from a deep wide dish rather than a soup bowl, was 542 g compared with 220 g for the White European population. Portion size is also much greater for vegetables. The mainly White European population will usually eat half to one mango at once, whereas African-Caribbean people may enjoy several on one occasion when they are in season.

Units of food measurement

The household units usually used by African-Caribbean people are very different from those usually used by the White population. For example, most homes use a large stainless steel cooking spoon and it may therefore be more appropriate to ask how many of these spoonfuls of food were eaten rather than asking in table or desert spoons.

Methods of preparation for West Indian foods may also be different from methods used by the White European population and this may lead to a different nutrient content. For example, meat and poultry tends to be browned (cooked in oil to seal

in juices) before being roasted. For most meat and chicken dishes, the meat is also fried before stewing. It may be important to check the recipe and method of cooking because changing methods of preparation may be part of the dietetic advice. For example, subjects on weight-reducing diets can be recommended to reduce the amount of oil used by omitting the browning stage before roasting.

Even with personal experience or learnt knowledge of food and nutrient intake of a population and thus some knowledge of where nutrition education should be targeted, the importance of understanding health beliefs and their effects should not be underestimated. In Manchester, participants reported drinking 'Sanatogen' (an alcoholic wine) as a 'pick-me-up' tonic, and bush teas and honey to overcome colds and flu. (Note that these data were not quantitatively assessed but were a frequent observation by the research nutritionist (S.S.) during field work). Forty-five per cent of men and women reported taking some form of multivitamin, despite a reportedly high consumption of fruit and vegetables. 'Nutriment' and 'Nourishment', containing 345 kcal/12 fl.oz (mean portion size 255 mL for both men and women) were taken at least twice per month by 23% of the sample who believed it to be a health-giving drink, even though mean body mass indices were indicative of overweight.

Discussion

Following these observations and experiences of dietary assessment and modification in this sample of a British African-Caribbean population, we outline below some suggestions for their practical application. Table 5 outlines core considerations for dietary assessments.

Dietary modification

An important facilitating factor to dietary modification within this community is the interest in reducing the incidence of diabetes and high blood pressure. Although this was not assessed quantitatively, the majority of participants expressed their concern at reducing their risk of these conditions to the authors during fieldwork and do so

Table 5 Core considerations for dietary assessments

- Which typically West-Indian foods are being eaten in addition to European foods?
- What are the meal patterns and frequency of consumption of foods?
- Is there a seasonal consumption of fruit and vegetables?
- Are there religious dietary restrictions?
- Is the food discussed by the dietitian the same as that understood by the person?
- Is the terminology used familiar to the person?
- Is the terminology culture/island-of-origin specific, e.g. for Jamaicans 'rice and peas' but for Barbadians 'peas and rice'?
- Are the portion sizes described suitable for African-Caribbean people?
- Could food models or familiar African Caribbean household units be used to describe portion sizes e.g. serving spoon size rather than tablespoon or other spoon size?
- Which snack foods are being eaten, as these could greatly affect nutrient intake?
- How are the foods prepared?
- Frequency of consumption of certain foods – daily or just on special occasions?
- Are the foods home-made or shop-bought?
- When are these foods being consumed?
- Are the data available in the food tables appropriate to the food consumed by the person?
- What are the ingredients in recipes?
- What is the method of food preparation, e.g. was meat fried before stewing?
- Are nutrients being consumed in large amounts from tonics, 'pick-me-ups' or supplements?

in medical clinics, particularly as many of the respondents had family histories of at least one of these conditions. Utilizing these concerns may be beneficial in encouraging dietary modification to reduce known risk factors within this community, e.g. obesity. Because of the high prevalence of obesity, diabetes and high blood pressure, suggestions for energy reduction to facilitate weight loss (Table 6), lowering sugar (Table 7) and salt consumption (Table 8) are provided here, focusing specifically on the typical African Caribbean diet and food habits.

Conclusion

To give meaningful dietary advice to any community, a thorough understanding of current eating patterns and cultural influences on food consumption is necessary. Because of the high prevalence of diet-related conditions within the British

Table 6 Practical suggestions to reduce energy intake

- Roast meat and chicken without browning first and use very little oil for roasting (or no oil at all)
- Fry fish/meat in a very little oil, tip off any excess fat rather than using it as the base for the next stage of cooking
- Drink fruit juice or low-calorie squash rather than Nutriment/Nourishment or punch
- Try to eat less takeaway snack foods such as fried dumplings and patties, eat more fruits and vegetables instead
- Reduce serving size of starchy foods such as yam, sweet potato, plantain and rice
- Boil plantains rather than frying
- Use low-fat spreads
- Use semi-skimmed milk rather than full-fat sterilized milk

Table 7 Practical suggestions to reduce sugar

- Reduce the amount of condensed milk, use sterilized or plain milk
- Cut down on Nourishment/Nutriment
- Reduce sugar added to tea/coffee and on cereal
- Use an unsweetened fruit juice and low-sugar squash/syrup
- Choose tinned fruit in fruit juice rather than syrup

Table 8 Practical tips to reduce sodium (salt) intake

- Try to use fresh fish more often than salt fish, after soaking the salt fish overnight, soak again and rinse in large volumes of water and boil in fresh water
- Cut down on snack foods particularly nuts and crisps
- When marinating and seasoning meat, fish or chicken use more lemon juice or fresh herbs to flavour so the amount of salt added can be reduced or cut out all together
- Try to use less salt/sodium based seasonings such as mono-sodium glutamate (MSG) and all-purpose seasoning or cut out all together
- Use takeaway foods such as fried dumplings, salt fish fritters and beef patties as occasional foods
- Reduce the amount of salt added to cooked dishes including rice and curries

African-Caribbean community, such an understanding becomes more important to those providing diet-related advice. This paper has provided details of the food habits of this community, which may be helpful in assessing and providing appropriate dietary advice to this population.

The food frequency questionnaire with which these data were obtained is available on request to the authors for further research or dietary assessment purposes and may be used to provide further evidence on the diversity of eating habits and nutrient intake of the African-Caribbean population living elsewhere in the UK.

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