

Awareness among Black British adults in London of the importance of diet and physical activity on the occurrence of non-communicable diseases

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Abstract

Objectives: To investigate the level of awareness of non-communicable diseases (NCD) among first and second-generation migrant Black Africans and Caribbeans residing in London; their perceptions on the link between diet and NCDs; and the challenges they face regarding food choices, dietary change, and physical activity.

Design: A mixed methodology study. The quantitative data were collected using a survey questionnaire on socio-demographic factors and awareness of NCD (n= 42). The qualitative phase involved key informant interviews (n=10) and 2 focus group discussions (n=18) and data were thematically analysed.

Results: High level of awareness of NCD and factors that increase their risk, as well as how important healthy dietary choices are to reduce the risk of NCDs were observed. Most respondents reported changing their diet in the UK to one that is at times unhealthy. This was particularly due to acculturation and issues related to access and affordability of traditional foods. Some of the challenges expressed in making healthy food choices included the high cost of healthy food and hi of food from their home countries, the time to cook and shop for and eat healthy food, and lack of good quality food that is accessible and affordable.

Conclusions: While more needs to be done to identify challenges to healthy eating, physical activity and create enabling environments for ethnic minority families to improve their work-life balance and their ability to adopt a healthy lifestyle, there is a clear need for interventions culturally tailored to the needs of these populations in the UK.

Introduction

The UK is an ethnically and culturally diverse country. Seventy-three percent of UK population growth is from the minority ethnic population, with Black Africans being the fastest-growing ethnic group. West African and Black Caribbean ethnic groups make up approximately 3% of the UK population and 80% of this population live in London (Office for National Statistics, 2011). The largest West-African groups are Nigerians and Ghanaians, while Jamaicans are the largest Black-Caribbean group (Office for National Statistics, 2011).

In 2014, there were 41 million deaths due to NCDs globally; however by 2018 this had increased to 57 million (WHO, 2018). In the UK, NCDs are the leading contributor to mortality rates, accounting for 89% of total deaths. The probability of dying from the four main NCDs (cardiovascular disease, cancers, diabetes and chronic respiratory diseases) between the ages of 30 and 70 is 12% in the UK (WHO, 2018).

Compared to the general population, the burden of chronic diseases such as obesity, hypertension, type II diabetes, and stroke are higher in Black-African and Caribbean populations. These diseases have an earlier onset, higher prevalence, and poorer outcomes in this population compared to their Caucasian counterparts (Raleigh and Holmes, 2021). The risk of these diseases is strongly associated with diet and lifestyle practices (Mindell et al., 2014). In the UK, South Asians and Black-Africans and Caribbean are six and three times more likely to develop Diabetes, respectively, compared to those of White heritage. About 400,000 -- one-fifth of the UK Diabetes population -- are people of South Asian ethnicity (Raleigh and Holmes, 2021). They have a higher risk of developing secondary complications of cardiovascular and end-stage renal disease. People of Black ethnicity also have a higher risk of hypertension and stroke; however, unlike South Asians, they are less prone to heart disease (Raleigh and Holmes, 2021). In Black Africans, for example, for every 1% increase in energy intake from fat and saturated fat, diabetes risk may increase by as much as 5% and 16%, respectively (Anderson et al., 2011).

A healthy diet that contains the nutritional requirements is crucial to the promotion of good health and well-being. Public Health England recommends that a healthy balanced diet should include at least a variety of five fruit and vegetable portions, while basing meals on potatoes, bread, rice, pasta or other starchy carbohydrates, ideally wholegrain; having some dairy or dairy alternatives (such as soya drinks); and choosing lower fat and lower sugar foods. This is illustrated in more detail in the tool known as the Eatwell guide (Public Health England, 2016).

The food security level of a household, a community, or a nation plays an important role in ensuring balanced nutrition, which in turn affects a population's health status. According to the World Food Summit in 1996, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Clay, 2003). There are four pillars that are interrelated, whose presence or absence determines the level of food security; these are availability, access, utilisation and stability (FAO, 2008). Utilisation is significant to the health burdens in the UK, especially to NCDs. It refers to "the way the body makes the most of various nutrients in the food. This includes whether sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. This combined with good biological utilization of food consumed, determines the nutritional status of individuals" (FAO, 2008).

In food-rich countries like the UK, food insecurity may still be prevalent in urbanised socio-economically disadvantaged areas (Ramsey et al., 2011). High food prices, low income, underemployment, and changing social welfare policy have resulted in many families struggling to feed themselves adequately.

Often poor households consume cheaper foods, usually high in fat and sugar content such as fast food 'take-away' dishes available on most high streets (traditional sites for most stores and other businesses) in deprived areas in London (Castillo et al., 2012). Overconsumption of high calorie and energy-dense foods can promote obesity and cardiometabolic disease, especially in food-insecure households (Castillo et al., 2012). Many families are turning to food banks to make up for their food store shortfalls (O'Dowd, 2013). In 2010, the largest food bank operator in the UK, the Trussell Trust, fed only about 61,000 households in London while in 2012 this number rose to 346,992 (Trussell Trust, 2014). In 2019/20, before the Covid-19 pandemic hit, Trussell Trust gave out 1.9 million emergency food parcels to struggling families all around their centres in the UK (Trussell Trust, 2020).

There is limited data regarding nutrition and NCD in adults from minority ethnic groups in the UK at a national level. To date, research on NCDs among ethnic minorities has been largely quantitative, leaving a gap in the qualitative and mixed-methods research. Few studies have focused on perceptions and awareness of NCD, healthy eating and a healthy lifestyle among ethnic minority communities (Gilbert and Khokhar, 2008). There is an urgent need for a deeper understanding concerning cultural influences and valuations driving standards of ideal and current diet, physical activity and health status. One specific area of relevance is the impact of food choices and changing diets when populations move to the UK (Leung and Stanner, 2011; Gilbert and Khokhar, 2008). Information about why ethnic minority populations make the choices they do and their knowledge on the importance of diet in relation to health can potentially feed into Public Health England's policy and planning cycles, to create the enabling environment for these minority groups to make good use of available services and resources.

The present study aims to (i) determine the extent of awareness of the factors that influence NCD among Black-African and Caribbean adults, (ii) explore their perceptions of the link between food choices and NCD and (iii) identify the barriers to their choosing healthier foods and increasing physical activity.

Methods

Study Design and Participants

The study was conducted between June and August 2014 using a sequential exploratory mixed method for data collection (Creswell, 2003).. Purposive recruitment was done based on enquiries at community centres, ‘snowballing,’ and word of mouth, attempting to locate both Black-African and Caribbean participants. The study recruited only first-generation Black-African and Caribbean adults residing in selected boroughs in London that have high levels of social deprivation and high population density of the target ethnicities.

In total, 60 individuals were invited to take part in the quantitative survey, 50 consented but only 42 completed the questionnaire. Ten of these participants also agreed to be interviewed for a more in-depth analysis. Given the low number of interviews, the authors decided to arrange for two focus group discussions (FGDs) to provide complementary qualitative data. This strategy worked well, providing the flexibility during the interviews that allowed for questions to be expanded on and helping build and strengthen relationships with respondents as well as raising enthusiasm around the topic (Taylor and Blake, 2021; Brown, 2013).

The participants for the two FGDs were conveniently sampled from diverse socio-economic backgrounds. However, they were ethnically from similar Black-African and Caribbean origins. According to Greenwood et al. (2014), there are differences in discussions around ethnicity between the more or less ethnically homogenous groups. For example, participants in more ethnically homogenous focus groups are more likely to say ethnicity might influence perceptions of social care services. On the other hand, more heterogeneous groups emphasise similarity in carers’ experiences, irrespective of ethnicity. Participants in the more homogenous groups are also more likely to make potentially controversial comments relating to ethnic differences. Additionally they appeared to be more at ease with each other discussing the topic. For example, they spontaneously mentioned ethnic differences earlier in these groups.

Some were recruited based on recommendations from some community and location managers, while others volunteered to join the discussion on hearing about the topic. Participants were also approached in the town centres, high streets and community libraries. These locations were selected due to the high volumes of people attending these places. Out of about 120 people invited, 18 accepted the invitation and 18 took part in the FGD Two areas in South London (Norwood and Woolwich) had the greatest response.

Informed verbal and written consent was obtained from all participants and the project received ethical approval from the University of Westminster Research Ethics Committee (VRE number: 09/55/99).

Data collection

The quantitative part of this study involved a short paper-based questionnaire consisting of 16 close-ended questions. This was used to capture basic demographic data and also sought to cover all three objectives of the research. The quantitative survey was conducted at purposefully selected locations, such as libraries, local shops and a church auditorium. Participants were asked to self-complete a paper-based questionnaire on site. Apart from two participants who were offered help with completing the questionnaire, all the others completed it without assistance.

The initial questionnaire was piloted using five ethnic minority respondents similar to those to be recruited for the main study. The pilot tested the appropriateness of the questions about the study group and their ability to capture the objectives of the study. The feedback obtained led to some amendments to the manner in which the questions were framed. There was the need to

re-arrange the questions in a sequential manner that created a build-up as one progressed through the questionnaire and provide more examples of NCD to prompt respondents who might be unsure about what NCDs meant. These minor amendments helped respondents to answer questions about their level of awareness of NCDs.

The questionnaire captured socio-demographic and health status information including age, gender, marital status, place of birth, employment status, education, presence of NCD and family history of NCD. Ethnicity was self-defined. Education was coded as having no formal education, completed primary education, secondary/high school or further education. Participants were asked to estimate how frequently they exercise in a week, how many portions of fruits and vegetables they eat on a typical day. Participants also answered questions that tried to capture their knowledge and perceptions about balanced meals and foods with high sugar and fat content. Participants were asked to identify foods from a pre-selected list with a high content of sugar (baked beans; soft drinks); flavoured water; fruit juices; tinned sweet corn; ketchup and fat (korma sauce; chocolate bar; sausages; kebabs; pizza; fast food; packaged chicken mayo sandwich; stuffing; crispy cr me doughnuts; and carrot cake). See Figure 1.

The qualitative data were collected using: key informant interviews (KII) and FGD. Both the KIIs and FGDs were pilot-tested. The KIIs were conducted using a semi-structured questionnaire made up of 22 questions. Interviews were conducted preferably face-to-face (n=10), but due to time constraint of some participants (4 out of 10) interviews were done via the telephone. On average, interviews lasted 30 minutes.

The aim of the FGD and interviews was to elicit awareness, perceptions, intentions, and beliefs relating to diet and NCD. Two FGD were organised with 11 and 7 people, respectively, in two different locations. The 11 member group took place in a salon/barbershop and the second group with 7 members took place in a church auditorium, both in South London. These locations were readily available and suited the participants, as they were in close proximity. The KII participants were conveniently sampled from diverse socio-economic backgrounds and ethnically from African (mainly West African) and Caribbean origins.

Each FGD session lasted approximately 1h and 30 min. Rules were set regarding contributions to be taken from one person at a time and generally for members to accord each other respect, regardless of their expressed views. Discussion topics included the role of fruit and vegetable consumption as a part of a healthy diet and nutrition; factors influencing fruit and vegetable consumption; direct and indirect dietary sources of salt and sugar and knowledge on the health impacts of their consumption; understanding of what physical activity is. Probing questions were utilised where necessary on what helped and hindered participants' in making healthy choices in each area, such as affordability and cost, access, likes and dislikes, competing priorities and others. Sessions were tape-recorded with consent from the members and later transcribed. During the discussions, the main themes and idea points raised were written down. Care was taken in transcribing the recordings accurately in order to reduce bias and also to enhance reflexivity. The groups included 9 women and 2 men for the salon/barber discussion and 4 men and 3 women in the church auditorium discussion. Due to respondents' limited availabilities and time constraints, the groups were mixed (not divided into gender, ethnicity or age groups). Single sex group discussions could reveal different findings on sensitive topics and could be followed up in future to ascertain if single gender groups led to any difference in the discussions.

All interviews and FGD were conducted in English, and were facilitated by the first author who is female and of West-African ethnicity.

Data analysis

An integrative method of analysis was used to explore the quantitative numeric data and qualitative textual evidence obtained (Schwandt, 2016). This provides richness in the diversity of descriptive narratives on various respondent perspectives in the qualitative part (Kettles et al., 2011).

The qualitative data recorded were transcribed verbatim and analysed using a thematic approach (Kitzinger, 1995). Data were categorised into main themes and subthemes. Two trained authors independently coded the transcripts and met regularly to discuss and refine the themes concerning theoretically driven concepts. There were no major disagreements between the coders and minor discrepancies were resolved by discussion. The qualitative data were also examined within and between ethnic groups by gender to identify both general and ethnic-specific influences. This was done through the inductive coding which emerged from both the FGDs and KIIs.

Quantitative data were summarised as frequencies and percentages. Cross tabulation and Chi-square tests were performed to test for association between categorical variables and gender (males versus females). Continuous variables were summarised as means and with accompanying standard deviations. All reported p-values were two-sided and considered statistically significant at a level of $p < 0.05$. Quantitative analysis was performed in SPSS (version 21; IBM).

Results

Quantitative data

Out of the 50 individuals who took part in the quantitative phase of the study, 42 completed at least 80% of the questionnaire and their data are included. Participants aged on average 38.9 ± 6.7 years (range: 20 – 52 years) and 50% were female ($n = 21$). Only 29 participants provided information about their country of origin. The majority were from Nigeria ($n=6$) and Ghana ($n =21$).

Table 1 shows the socio-demographic characteristics of the study population by gender. Women were older and more likely to be married ($p < 0.05$). There were no significant differences regarding education, ethnicity or employment status .

Table 2 shows data by gender on awareness of NCD, health status and lifestyle factors. No significant differences were observed. Many of the participants had heard about NCD (92.6%) and knew someone (family, friends or others) suffering from NCD (97.6%). 54% reported that they first heard about NCD through the media (data not shown). 73.2% reported a family history of NCD, 95.2% believed that food choices can affect the risk of developing the disease, and 88.1% reported that they have changed their food choices and eating habits since they moved to the UK.

Figures 1 and 2 display the data on participants' knowledge about foods with high sugar and fat content according to gender. Overall, it was observed that men were slightly less aware of foods with high sugar and fat content. Sweet corn and korma sauce were the foods less frequently identified as having high sugar and fat content, respectively, in both genders.

Qualitative data

Participants who took part in the KII and FGD included nurses, teachers, social workers, secretaries, housewives, pastors and beauticians. Table 3 presents the themes emerging from

Table 1. Socio-demographic characteristics according to gender

Characteristics ^a	Total % (n=42)	Women % (n = 21)	Men %(n = 21)	P ^c
Age (years) ^b	39 (6.7)	42 (6.0)	36 (6.6)	0.015
Ethnicity				0.498
West-African	93 (27)	88 (15)	100 (12)	
Others (South African, Caribbean)	7 (2)	12 (2)	0	
Marital Status				0.009
Single, divorced or widowed	24 (10)	43 (9)	5 (1)	
Married or living together	76 (32)	57 (12)	95 (20)	
Education				0.343
Further education	88 (37)	81 (17)	95 (20)	
Secondary education or below	12 (5)	19 (4)	5 (1)	
Employment status				0.663
Employed or self-employed	86 (36)	81 (17)	90 (19)	
Unemployed, retired, or student	14 (6)	19 (4)	10% (2)	

^aPresented as % (n) unless otherwise stated.

^bData presented as mean (SD).

^cFisher Exact test and independent t-tests were used to detect differences in percentages and means between genders, respectively.

the analysis of the FGD and KII and potential challenges and barriers to a healthy lifestyle and awareness and perceptions of diet and NCD. Results are categorised under four main themes: the link between diet and NCDs, challenges around making healthy food choices, food utilisation, and food access. Each main theme is subdivided into sub-themes. Both common and gender-specific themes are presented. A narrative presentation of the data supported by quotes is given below under each main theme.

The link between food choices and NCD

All the interviewees and most of the focus group participants made emphatic statements about the fact that food and nutrition have a crucial role in the diseases and conditions people end up with and ultimately their general health status. They alluded that certain foods and nutrients were closely linked to certain diseases especially NCD. Some participants gave examples of unhealthy food such as fatty meat, salt, alcohol, pastries, carbonated drinks and fruit juices being linked with hypertension and diabetes. All participants exhibited a high level of knowledge and awareness around the relationship between diet and health as illustrated by the following statements by two participants which received positive affirmation from the rest of the participants in the focus group discussion:

“*You are what you eat*” [Woman, 40 years]

“*The food we eat affects our health no matter your background*” [Woman, 39 years]

Challenges around making healthy food choices and being active

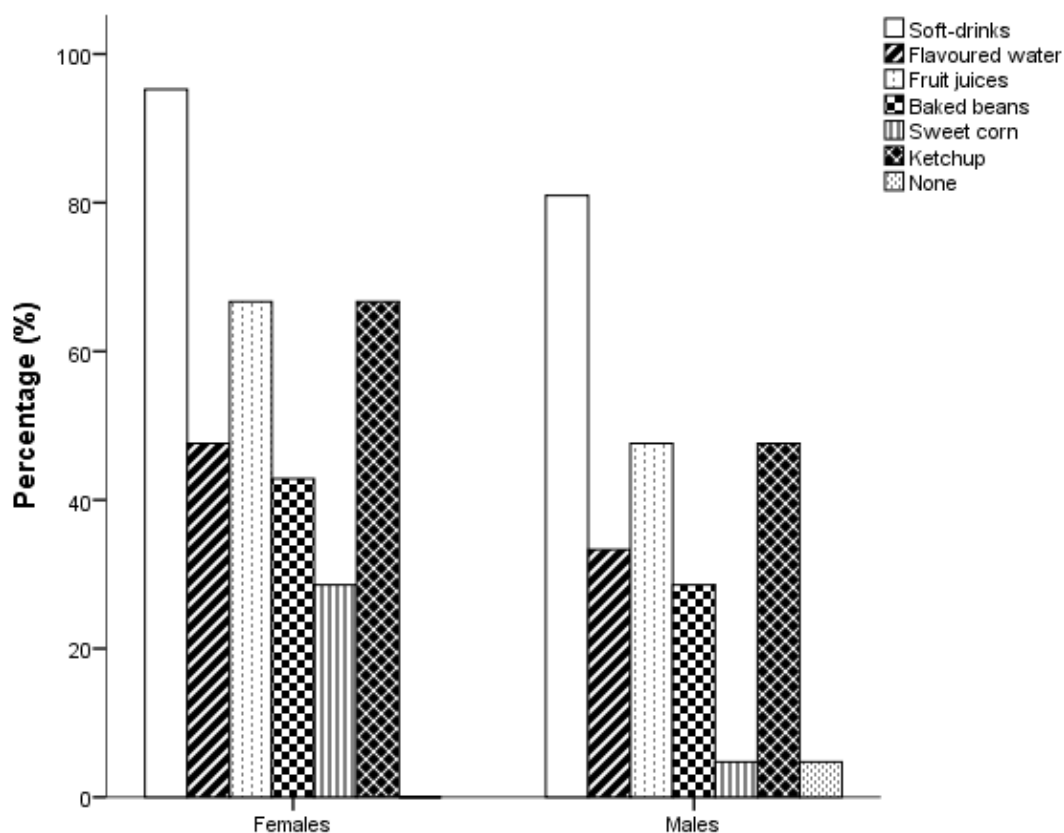
KII and FGD participants unanimously agreed that life in the UK was extremely hectic and stressful compared to that in their countries of origin where things were more relaxed, with a ‘laissez-faire attitude to life’s daily routines. This view is seen in the following statement by

Table 2. Awareness of NCD, current health status and lifestyle factors according to gender

Characteristics	Total % (n=42)	Women % (n = 21)	Men % (n = 21)	P^a
Have you heard about NCD?				1.0
Yes	93 (39)	90 (19)	95 (20)	
No	7 (3)	10 (2)	5 (1)	
Do you have a family history of NCD?				0.734
Yes	73 (30)	70 (14)	76 (16)	
No	27 (11)	30 (6)	24 (5)	
Have you been diagnosed with any NCD?				0.606
Yes	7 (3)	10 (2)	3 (1)	
No	93 (38)	90 (18)	97 (38)	
Do you think food choices affect diseases one ends up with?				0.488
Yes	95 (40)	100 (21)	90 (19)	
No	5 (2)	0	10 (2)	
Do you think your meals are balanced and healthy?				0.484
Yes	74 (31)	81 (17)	67 (14)	
No	26 (11)	19 (4)	33 (7)	
Have your food choices and eating habits changed since you moved to the UK?				1.0
Yes	88 (37)	90 (19)	86 (18)	
No	12 (5)	10 (2)	14 (3)	
Do you think fruits and vegetables are important for good health?				1.0
Yes	98 (41)	100 (21)	95 (20)	
No	2 (1)	0	5 (1)	
How many portions of fruit and vegetable do you eat in a day?				0.786
None	12 (5)	14 (3)	10 (2)	
1-2 portions	19 (8)	19 (4)	19 (4)	
3-4 portions	41 (17)	33 (7)	48 (10)	
≥ 5 portions	29 (12)	33 (7)	24 (5)	
Do you think regular physical activity is important for good health?				1.0
Yes	98 (41)	100 (21)	95 (20)	
No	2 (1)	0	5 (1)	
Are you physically active?				0.343
Yes	88 (37)	81 (17)	95 (20)	
No	12 (5)	19 (4)	5 (1)	

^a Chi-square tests were used to detect differences in percentages between genders.

Figure 1. Participants’ list of foods with high sugar content



one of the participants:

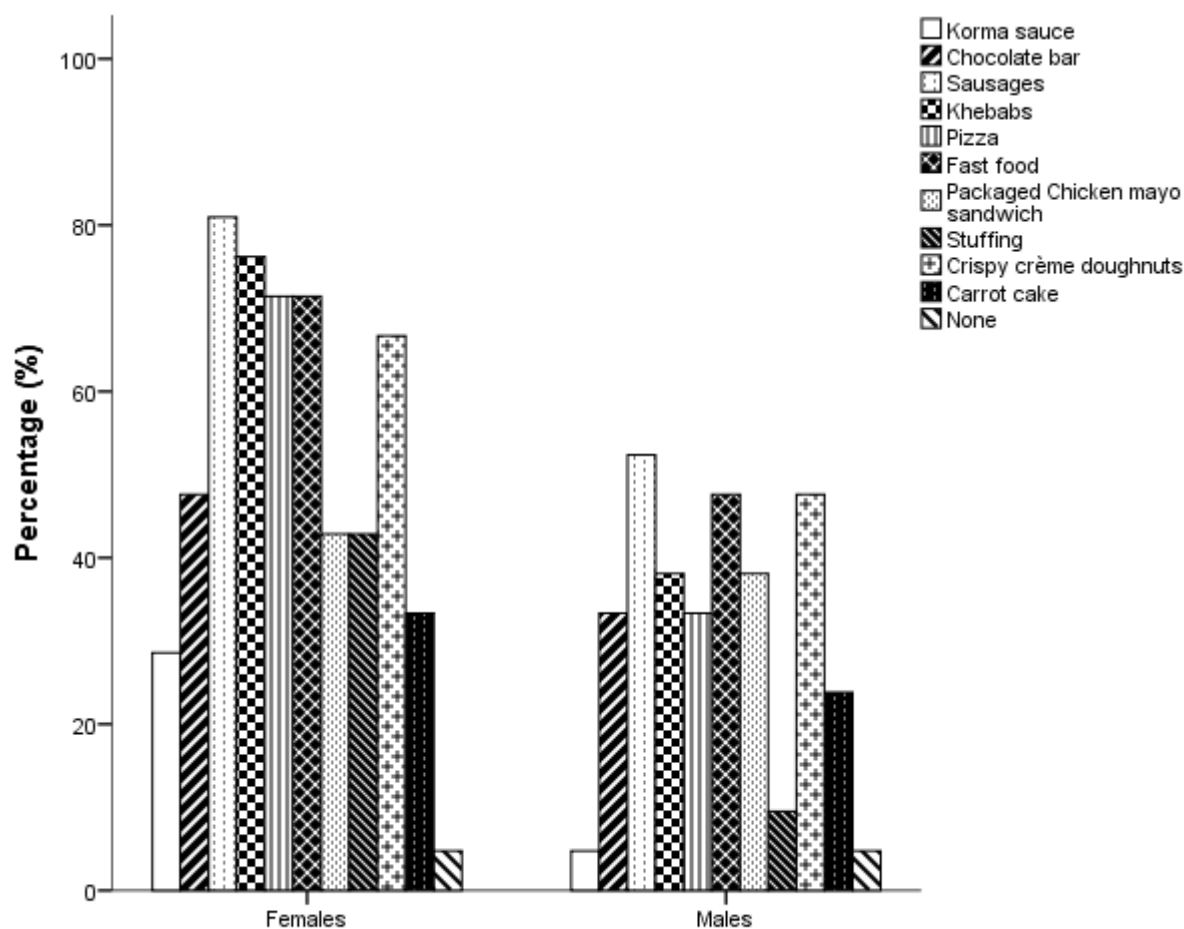
“Lifestyle in the UK is hectic and not family-friendly. I don’t even get enough time to spend with my family sometimes. No time to go to the gym to exercise. The facilities are there but no time” [Man, 41years]

The key challenges in making healthy choices identified were lack of time and stress. Some also mentioned that the variety of foods available in the UK compared to their indigenous foods leaves them with no choice but to eat unhealthy food. To think that globalisation has solved the challenge of food availability due to improvements in the food supply chain, some still said they did not always get fresh indigenous food items from their countries of origin to buy. They are left with British dishes which they considered not as good. One female West-African alluded to this when she said:

“Back home we had more variety and the food was tastier than what the British people eat. They only eat potatoes” [Woman, 47 years]

These responses support the information gained from the survey which confirms that most respondents’ diets had changed since migrating to the UK (Table 2). There was the perception that migration to a different environment puts people at risk of certain diseases. Three interviewees expressed the view that immigrating to Europe alone made them, as black

Figure 2. Participants’ knowledge about foods with high-fat content^a



^aMultiple answers were allowed for each category

Africans and the Caribbean, predisposed to certain conditions, particularly cancer. They believed that it was common in the west and that the environment, the climate and the food caused cancer. This perception is captured in the following comment:

“There is too much cancer in the UK and Europe. I think there is something here that makes it so compared to Africa” [Man, 36 years].

Food utilisation

Another important challenge with dietary habits and food choice was the fact that household food security was affected. Under this theme, there were points made by all participants that a lot of the foods in the UK were over-processed, leaving them nutritionally poor. This raises the point of the effect of improvements made in food preservation and processing methods affecting the quality of nutrients eventually obtained from them.

“The tinned foods in this country are too processed. Too much fat and sugar in our foods give heart problems” [Woman, 27 years].

Two women in the focus group conceded that some of their traditional cooking techniques usually led to overcooking certain foods, especially vegetables, thereby losing some nutrients.

Another three participants expressed the view that in some cultures certain foods were a symbol of affluence even though they had serious health implications. This is how a

Table 3. Summary of the themes and sub-themes emerging from the analysis of FGD and KII and potential challenges for healthy lifestyles and awareness and perceptions of diet and NCD

Main Themes	Sub-themes
The link between diet and NCD	<ul style="list-style-type: none"> • Awareness of NCD in general and within ethnic minority communities • Perception of the link between food choice and NCD
Challenges around making healthy food choices and being active	<ul style="list-style-type: none"> • Hectic and stressful lifestyle in the UK prevent healthy eating. • Change in food variety compared to the country of origin. • Lack of time for exercise and leisure • Effect of migration on predisposition to NCDs
Food utilisation	<ul style="list-style-type: none"> • Cultural perceptions on the choice of food • Food preparation techniques • Over-processing of foods
Food access	<ul style="list-style-type: none"> • Financial challenges affect the quality of food purchased. • Low income and socio-economic status • Expensive indigenous foods • Role of convenience food and easy access to cheap fast-food outlet

West-African woman illustrated it in her statement:

“Ghanaians like a lot of oil in their food. It gives the perception of how wealthy you are” [Womam, 42 years].

Certain cultural perceptions and beliefs influenced food choice and habit which had implications on health directly.

Food access

Access to food was a common challenge. The views expressed related mainly to the ability to purchase healthy foods which are usually considered more expensive. Some participants were of the view that being in London, their purchasing power was better and they could afford to buy any food they desired. However, they admitted that some people in their communities still had access challenges. Opinions were mixed in this theme as seen by the following comment:

“The right food would keep you healthier but quite expensive so we buy less expensive food which causes these diseases” [Woman, 34 years]

“Food is available throughout the year here in the UK and affordable, but still some people cannot afford to buy some” [Man, 31 years]

There were comments about easy access to fast food outlets on the high streets. Their meals seem to be cheaper than home-cooked meals, which some complained take a long time to prepare.

Discussion

The quantitative findings indicate a high level of awareness of NCD within this ethnic minority community (Table 2). This also suggests that media have been successful in providing information and increasing knowledge about NCDs. All the respondents were first-generation migrants living in London and 88.1% reported that their food choices and eating habits had changed since moving to the UK, which may imply that immigration could be a contributory factor to why ethnic minority groups are more predisposed to some NCDs than their fellow Europeans as evidenced in other studies (Raleigh and Holmes, 2021). The majority of responders acknowledged that there was a link between food and non-communicable diseases, regardless of gender and nationality.

Regarding the qualitative findings, although we attempted to make a distinction between common themes and ethnic-specific influences, this dichotomy was not always apparent, reflecting the subtle interplay between ethnic-specific and more common or shared themes. The main themes revealed in this study are consistent with findings from other studies of Pakistani, Bangladeshi, and other similar populations and other ethnic-specific qualitative research in the UK (Lucas, Murray and Kinra, 2013). In the UK, most migrants tend to be disadvantaged due to limitations in accessing their ideal occupations and social protection schemes. This puts them in the low socio-economic category and with low incomes, they have to run between two or three jobs. This is neither conducive for family life nor for having time to sit and have healthy home-cooked meals. It does not also allow for time to engage in adequate physical activity, even though there may be gym facilities in the communities nearby. The interplay between themes, particularly the interaction with socioeconomic status, revealed that ethnic-specific themes were slightly nuanced.

Stress from long working hours could lead to a lowering of the immune system and risk of disease (Segerstrom and Miller, 2004). Another factor is the cost of healthy food which is higher per calorie than the sugary and fat-filled processed foods. With low incomes, some people, in their effort to make ends meet, prefer to buy less healthy, cheaper food to save money.

Regarding food access, it was observed that socio-economic status impacted on both the quantity and quality of food. In cases where participants preferred indigenous foods imported from their home countries, these were priced up to five times that of foods produced locally.

That fatty foods are still viewed as evidence of affluence is consistent with another qualitative study in the Bangladeshi community in the UK, where cooking curry for guests with reduced

oil or spicy content is considered shameful to the host (Chowbey and Harrop, 2016). This highlights the need for novel strategies to address social norms and create an environment where eating oily stews is less desirable and less acceptable. It has also been pointed out that, in general, Western alternatives of traditional foods are not used by the first-generation immigrant due to the lack of knowledge on their preparation and cooking. Overall, this theme brought out the impact of cooking and processing on food nutrient quality and its implications on food security with regards to the utilisation pillar of food security.

A study conducted among adult African and Caribbean women living in London found that consumption of salt, free sugar, total and saturated fat were above dietary recommendations (Evwierhoma, et al., 2019). Moore et al. (2019) reported similar findings, where participants were motivated to avoid diabetes-related consequences although they did not always understand the negative impact of their current health behaviours on long-term diabetes outcomes. Barriers to healthful behaviour included gaps in knowledge related to diet, physical activity and weight management. In addition, motivation and social opportunity barriers included an acceptance of larger body sizes, rejection of body mass index for weight guidance, and cultural identity being strongly linked to consumption of traditional starchy foods. There was a lack of social opportunity to perform moderate to vigorous physical activity, although walking and dance were culturally acceptable (Moore et al., 2019).

Several positive factors also emerged from the KII and FGD. For example, healthy traditional cuisine using fresh food obtained in the local market was considered an ideal eating practice.

Strengths and limitations

One strength of this study was that data were collected by a facilitator who was familiar with the communities, and the facilitator was not seen as an ‘outsider’ or ‘untrusted’ (Ochieng, 2010). Nevertheless, a number of limitations should be noted. Household food security and current dietary intake were not measured, and this quantitative information would have added to findings and informed the conclusions; however, it would have placed an additional burden on participants. We did not collect data on gender, socio-economic status and ethnicity of those who declined the study invitation or did not complete the study. This information would have helped to identify any potential non-response bias. Overall, the participants were highly educated, only a few of them were unemployed and the majority were of African background. Therefore, our results cannot be generalised to the wider African population living in the UK. In addition, only X participants were from the Caribbean. In addition, despite the attempt to apply an integrative method of analysis to explore both numeric data and qualitative textual evidence, there is still a lack of pragmatic guidance in the research literature on how to combine and integrate both quantitative and qualitative findings in practice (Twycross, 2004).

KII, involving individuals within the population under study who are quite knowledgeable in issues, included: community leaders, professionals and ordinary members. This is a good approach for gathering detailed information and raising awareness and interest around an issue concerning a population. It also offers the opportunity to establish some rapport with respondents in order to go back and clarify answers if need be. Additionally, interviews are more appropriate for discussion of sensitive topics, for example, issues related to food affordability. On the other hand, there are challenges in choosing the right informants to represent the wider group. The face-to-face interviews lasted longer and were more interactive compared to telephone interviews.

FGD have advantages for researchers in the field of health and medicine in that they do not discriminate against people who cannot read or write and they can encourage participation from people reluctant to be interviewed on their own or who feel they have nothing to say (Kitzinger,

1995). While it would have been interesting to conduct discussions with only men and only women, the focus groups were gender mixed because of the respondent's availabilities and time constraints. Although it is suggested that having demographically homogenous groups may help put participants at ease, the evidence is sparse. The FGDs were ethnically homogenous.

It is to be noted that both main and sub themes are not suggested here to be confined to only one methodology. All the themes analysed emerged from both DGDs and KIIs.

Conclusions

This study showed that there are complex reasons why ethnic minority populations are at higher risk of NCDs. Changing diet habits and patterns among immigrants do have a part to play in predisposing them to these conditions. Our findings emphasise the need for a holistic and multidisciplinary and multilevel approach to address the factors that influence lifestyle and ethnic health inequalities.

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