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Osei-Kwasi, H.A., Powell, K., Nicolaou, M. et al. (1 more author) (2017) The influence of migration on dietary practices of Ghanaians living in the United Kingdom: a qualitative study. Annals of Human Biology, 44 (5). pp. 454-463. ISSN 0301-4460

https://doi.org/10.1080/03014460.2017.1333148

The influence of migration on dietary practices of Ghanaians living in the United Kingdom: A qualitative study

Hibbah Araba Osei-Kwasi[1], Katie Powell[1], Mary Nicolaou[2], and Michelle Holdsworth[1]

1 Public Health Section, School of Health and Related Research-ScHARR, University of Sheffield, Sheffield, UK.

2 Academic Medical Centre – University of Amsterdam, Department of Public Health, Amsterdam, the Netherlands.

Abstract

Background and aim

Previous studies have identified a process of dietary acculturation when migrant groups adopt the food patterns of the host country. The aim of this study was to explore the influence of migration on dietary practices and the process of dietary acculturation amongst Ghanaians living in the UK.

Subject and methods

A qualitative study of adults aged ≥ 25yrs (n=31) of Ghanaian ancestry living in Greater Manchester using face to face interviews. Participants varied in socioeconomic status, gender and migration status. Interviews were transcribed verbatim and analysed thematically.

Findings

Three distinct dietary practice typologies were discernible that differed in terms of typical meal formats, meal contexts, structure and patterning of meals, food preparation and purchasing behaviours: i. continuity practices, ii. flexible practices and iii. changed practices. The identified practices were shaped by interrelating factors that fell into four main clusters: social and cultural environment, accessibility of foods, migration context and food beliefs/perceptions.

Conclusion

Participants retained, to a varying degree, some aspects of Ghanaian dietary practices whilst adopting key features of UK food culture. This study demonstrates the complexity of dietary change, indicating that it is not a linear process and it is dependent on several factors.

Key words: Dietary acculturation, Ghanaians, migration, dietary practices and meal patterns.

Background

Migration from low to high income countries is associated with environmental and lifestyle changes that increase the risk for nutrition-related non-communicable diseases (NR-NCDs) (Smith et al., 2000, Meeks et al., 2016). Migrant groups from these regions experience higher risks than host populations. For example, one study found that the prevalence of type 2 diabetes (T2D) in North West Europe was about three times higher in people of Moroccan and Turkish origin compared to indigenous populations (Uitewaal et al., 2004). The prevalence of NR-NCDs are not only higher compared to host country populations, there is generally also an increased risk among migrants compared to their non-migrant compatriots living in their country of origin. For instance, recent evidence suggests that there are high risks of obesity and T2D among migrants from Ghana living in Europe compared to their co-patriots living in Ghana (Agyemang et al., 2016).

Several studies have underlined the important role of dietary factors in the obesity epidemic and its prevention (Landman and Cruickshank, 2001, Palou and Bonet, 2013). Previous studies have identified a process of dietary acculturation when migrant groups adopt the food patterns of the host country (Satia et al., 2001). Evidence from such studies has shown that dietary behaviours of migrant populations may become unhealthier following migration, as healthy components of traditional diets are replaced by convenient, processed and less healthy foods in the host country, which contributes to obesity risk (Gatineau and Mathrani, 2011, Gilbert and Khokhar, 2008). Given the rising levels of NR-NCDs among migrants and the role that diet plays, a clear understanding of the influence of migration on dietary practices of immigrants is needed to be able to design culturally sensitive preventive interventions.

Previous studies have indicated that changes in diet due to migration could take different forms. It could be in the form of completely abandoning traditional diets or maintaining traditional diets to combining traditional diets with the host diet (Satia-Abouta et al., 2002, Gilbert and Khokhar, 2008). Despite the recent interest in studies exploring dietary acculturation, there has been little attempt to explain the variations that have been observed in dietary patterns. Moreover, most studies have focused on healthy or unhealthy changes whilst drivers of different dietary patterns are not fully understood.

This study aims to fill this gap by not only focusing on what foods are maintained or adopted following migration but by also exploring in-depth the factors influencing variation in the degree of continuity and change in dietary practices. Thus, giving an insight into what circumstances and conditions may lead to change, as well as how traditional foods are maintained. Furthermore, in this study, we also include activities linked with eating, for instance, the context of eating, the structure of the meal, food preparation and shopping behaviours (Leech et al., 2015, Tuomainen, 2009).

Despite the increasing interest in research on the diet of ethnic minority groups in Europe (Mejean et al., 2007, Nicolaou et al., 2009, Garnweidner et al., 2012), very few studies have investigated the diet of immigrants from Sub-Saharan Africa (SSA), who have an increased risk of NR-NCDs. Ghanaians are one of the largest immigrant population groups from SSA living in Europe and the United States. For instance, 2009 estimates recorded 93,000 Ghanaian-born residents living in the UK (Office for National Statistics, 2014).
The aim of this study was to explore the influence of migration on dietary practices and the process of dietary acculturation amongst Ghanaians living in Greater Manchester in the UK.

Methods

Setting

Greater Manchester was chosen because it has one of the largest populations of Ghanaians in the UK (outside of London). In 2012, there were an estimated 1400 Ghanaians officially registered as living in Manchester (Office for National Statistics, 2014).

Sampling and Recruitment

Purposive sampling was used to recruit participants to ensure diversity in terms of socioeconomic status (SES), gender, migration status (first and second generation) and age. Thirty- one individuals were interviewed using in-depth face-to-face interviews. Participants were eligible if they were ≥ 25yrs, resident in Greater Manchester and self-identified as Ghanaian. Previous studies involving Ghanaian migrants have shown that involvement of gatekeepers within the community enhanced participation (Agyemang et al., 2013). Therefore the Ghana Union of Greater Manchester, an organisation serving the Ghanaian population in the UK, was used to help recruit participants. In addition, one of the researchers (HO) is

Ghanaian, so she used her personal contacts to recruit other eligible participants through a snowballing technique. Interviews were conducted mostly in participants' homes. Recruitment ceased when preliminary analysis revealed that no significant new issues emerged.

Ethical approval

Ethical approval for the study was obtained in March 2015 from the University of Sheffield's School of Health and Related Research (ScHARR) Ethics Committee. People who expressed an interest in participating in the study were provided with an information sheet, outlining the aim of the study and the implications of participation. Participants were assured of confidentiality and anonymity. During recruitment, written informed consent was obtained from each participant to confirm they had read and understood the information provided and they were willing to participate. Participants were offered a £20 gift voucher to thank them for participating.

Interviews

Between March-May 2015, in-depth, face-to-face interviews were conducted by HO. Interviews were conducted mainly in English. However, some participants preferred to be interviewed in a Ghanaian language (i.e. "Twi)" and therefore the questions were translated into "Twi" verbally during interviewing as HO is fluent in "Twi". Generic questions were asked from the start, for instance, "can you tell me about yourself?" and responses to these questions provided an insight into participants' socioeconomic status (education or occupation) and demographic status (age, ethnicity). After a good rapport was established, semi-structured questions were used to explore the main topics of the interview. As we were interested in participants' migration stories, a narrative approach was encouraged so that people could tell their story, thus enabling them to identify any changes in dietary practices over time. There were three main sections during the interviews: personal history and social networks; perceptions of change in dietary practices following migration and food insecurity; and lastly beliefs and perceptions regarding dietary practices.

Data analysis

All interviews were recorded with permission from participants using a digital audio-recording device. Interviews were transcribed verbatim and notes taken on the setting.

Nvivo, a software package that is used to organise, analyse and find insights in unstructured qualitative data, was used to facilitate data management (QSR International, 2009).

The five steps in framework analysis were followed: familiarisation, identifying a thematic framework, indexing, charting, mapping and interpretation (Ritchie et al., 2013). The first stage of familiarisation involved immersion in the raw data by listening to audio recordings, reading transcripts and studying field notes to be able to list key ideas. Each audio recording was listened to at least twice, whilst checking for the accuracy of the transcripts to assess their validity. To identify themes, a combination of inductive and deductive approaches were employed. Line by line coding was used to generate initial ideas that were later built into a framework. After coding the first few transcripts in Nvivo, the codes were shared between the researchers (HO, KP, MN and MH) and discussed. The initial codes were consolidated into a number of themes that were applied to all subsequent transcripts as the first working analytical framework which later evolved from discussions to redefine themes throughout the data analysis process. An excel spreadsheet was used to generate a matrix. To identify similarities and differences in dietary practices, the framework matrix was studied for recurrent patterns. After identifying different connections, typology categories were developed in an iterative process which involved interrogation of transcripts until we identified typologies that were the best fit for all transcripts. To be able to explain the typologies that emerged from the interviews, we used emergent explanations from the data and explanations for particular determinants of dietary behaviours from a recent review of ethnic minority groups (Osei-Kwasi et al., 2016). In seeking to classify variations in the data in terms of dietary practices, Tuomainem's framework, (2009) and concepts outlined in a review by Leech and colleagues, (2015) helped to explain the patterns emerging from this study (Leech et al., 2015, Tuomainen, 2009).

The terms 'UK foods' and 'Ghanaian foods' as used in this study represents participants' own definitions. For instance, 'UK foods' were foods that are not perceived as Ghanaian and are widely consumed in the UK, including fast foods and foods perceived as typical English foods. 'Ghanaian foods' were perceived as traditional Ghanaian foods that are commonly eaten in Ghana.

Findings

Participants

The sample consisted of 19 women and 12 men aged between 25-68 years. Most participants (n=26) were first generation migrants. Most first-generation migrants (n=19) had arrived in the UK between 1990 and 2005; some participants had migrated in the 1980s (n=4), and in the 1970s (n=2) with most first-generation migrants (n=15) migrating from urban areas in Ghana (mainly Accra and Kumasi), whilst others were from smaller towns and villages. Some participants had lived in other parts of Europe before moving to the UK, i.e. two participants had migrated to Greater Manchester from the Netherlands, one each from Germany and Italy. Before settling in Greater Manchester, some (n=6) lived in London. Most participants were married (n=23). Half of the sample described work and education levels that can be classified as low SES and the remaining half of middle/ high SES across the age range (Table 1).Participants were mostly Christian (n=27), and a few were Muslim (n=4).

Table 1 here

Dietary practices following migration

Participants retained, to a varying degree, some aspects of Ghanaian dietary practices whilst adopting different aspects of the UK food culture. Thus, there was an overlap between the dietary practice typologies that emerged. Three typologies were discernible through differences in meal format, context, structure and patterning and food preparation and purchasing behaviours. Meal format refers to the type of food combinations; context includes eating with family or others and meal location- eating at/out of home; structure and patterning of meals refers to regularity of meals, meal timing and meal skipping; and food preparation and purchasing behaviours refers to cooking and shopping practices, for instance, frequency of cooking and shopping and where food items are bought from (Leech et al., 2015, Tuomainen, 2009).

The typologies were: i) mainly continuity of Ghanaian dietary practices and limited adoption of UK dietary practices (continuity practices); ii) flexible use of Ghanaian or UK dietary practices (flexible practices); and iii) limited continuity of Ghanaian dietary practices and greater adoption of UK dietary practices (changed practices). Most participants had continuity practices (n=13), this was followed by participants with flexible practices (n=11), whilst a few had changed practices (n=7). Across the three typologies, there was most variation in terms of meal format, i.e., the types of foods commonly consumed and the context for eating Ghanaian and UK foods. People with continuity practices seemed to

consume more Ghanaian foods at all eating events, on any day of the week and special occasions whereas people with flexible practices adhered less strictly to what they perceived as Ghanaian dietary practices, and simultaneously adopting UK dietary practices. Participants with changed practices described themselves as having adopted the host country's dietary practices. Such participants mainly consumed foods they perceived as British and only consumed Ghanaian foods on few occasions, such as family visits. Additionally, there were some differences in meal structure between the groups. Most participants with continuity practices had a different meal structure from those reporting flexible and changed practices; either two meals a day or one meal a day as this participant explains:

"When I lived with my parents [in Ghana] we had two meals, no breakfast. [In the UK] I don't usually eat early in the morning. If I have anything at all it would be tea or coffee……. And once we eat [lunch] I don't have anything to eat again (P25, 1st generation, 65 +yrs.).

On the other hand, people with changed practices reported having a regular pattern of breakfast, lunch and supper at specific times. Participants with flexible practices tended to consume UK foods mainly for breakfast and lunch, but dinner varied between Ghanaian and UK foods. Participants with continuity practices always perceived UK foods as an exception or a way to get away from the usual and tended to buy prepared UK foods, such as KFC, whereas participants with flexible practices bought frozen UK foods that needed to be cooked before consuming and interchanged UK foods with Ghanaian foods. Food preparation and shopping seemed to be done in bulk to last for weeks or even months by participants with continuity practices and they usually shopped from African/Asian shops and open markets. Participants with flexible practices, on the contrary, described shopping more from supermarkets. Participants with changed practices described cooking for meals usually one at a time and rarely shopped from speciality ethnic shops.

Explanations for dietary practices following migration

Participants' accounts revealed several interrelated factors that influenced dietary practices. These factors were organised into four clusters of social and cultural environment, accessibility of food, migration context and food beliefs and perceptions, based on a recent review on factors influencing dietary behaviours amongst migrants (Osei-Kwasi et al., 2016). In a cluster, factors were grouped according to how they are seen to relate to each other (Trochim, 1989), thus, in a way that cuts across the more traditionally used socio-ecological

levels (individual, family, community and society). For example, cultural identity, perception of host country and conformity to tradition were included in the 'social and cultural environment' cluster because they are presumed to be related to the other factors such as social network (Osei-Kwasi et al., 2016).

Table 2 summarises all factors identified.

Table 2 here

Social and cultural environment

The set of values, expectations and understandings that encompass the context in which we live, such as one's cultural identity, religious beliefs, and social networks constitute the social and cultural environment.

Cultural identity

All participants emphasised the importance of maintaining cultural identity on dietary practices whilst describing why they retained traditional dietary practices in the UK. Participants used terms like "our foods" or "Ghanaian foods" or "African foods" or "we eat" or "our local foods" in describing what they perceived as Ghanaian foods. The importance of maintaining cultural identity was expressed particularly amongst participants with continuity practices. Within the Ghanaian population, there are several different sub-ethnic groups, and food was used as a marker of a participant's ethnic group among participants with continuity practices as this quotation illustrates:

"I am a traditional Ashanti man; [participant asks his daughter who was in the room] - what is my favourite food?. [She answers fufu.]- yes! Fufu, what the Ashanti man calls fufuo. You know what, until the day I die that will be my favourite food" (P30, 1st generation, 45-64yrs).

The importance of cultural identity in continuing Ghanaian dietary practices was also echoed by second-generation migrants with changed practices, although they did not attach the same level of importance to eating Ghanaian foods as most first-generation participants. For such participants with changed dietary practices, eating Ghanaian foods as a way of maintaining cultural identity was only practised in contexts such as during family visits. For instance:

"I eat it [referring to fufu] because that's our culture, that's our identity. So, I may not like to sit down to eat the food but I like it when I go home and I see my mom eating the food, so it's because it's my culture, my tradition" (P27, 2nd generation, 25-44yrs).

Other participants with changed practices (and one with flexible practices) described themselves as having hybrid British-Ghanaian identities and perceived that this had naturally shaped their dietary practice towards greater adoption of UK dietary practices.

Whilst discussing cultural identity participants with continuity practices, described eating from a communal bowl as being the traditional practice of eating which they perceived desirable, although they mentioned this practice had faded over the years, even in Ghana before they migrated. In contrast, participants with changed practices did not seem to like the communal eating practice. For instance:

"*I didn't like to eat together from the same bowl because I am like very hygienic" (P10, 2nd generation,25-44 yrs).*

Social network

The social networks of participants unsurprisingly influenced their dietary practices. Participants with continuity practices reported having close relationships and frequent contacts with Ghanaians including family, Ghanaian friends and church members. Some participants were a part of church congregations that were a mixture of British, other African and Ghanaian members. However, they mentioned that during church gatherings, Ghanaian foods were served and all church members enjoyed eating these foods. Similarly, participants with changed practices emphasised the influence of their close relationships with non-Ghanaians on their heavy adoption of UK foods as this quote illustrates:

"*Especially growing up in this culture and visiting friends and being invited to a dinner, that's when I started getting exposed to other dishes*" *(P8, 2nd generation, 25-44 yrs.).*

Participants who migrated as children were also more likely to adopt UK dietary practices through social networks. For instance, one participant talked about how his preference for the 'Ghanaian taste' changed over time and suggested it could be an influence from his non-Ghanaian social network.

"I have different social network groups, maybe because of my identity, and it's not like I have made a conscious effort to separate them. For instance, this weekend we have a group of people from church, it's really an African contingency, and I have an entirely separate western group of friends that I hang out with at work. You know every so often we go out for food and beer. Very different experience, totally different. One thing I will say interestingly is that I found out the hard way that my taste in Ghanaian cuisine changed, I don't know exactly

when, but I know that there are certain foods that I loved as a young boy that I can't bring myself to even try it" (P4, 1st generation, 25-44 yrs.).

Accessibility of food

This cluster includes factors relating to access to food, for instance, availability of food, physical access and cost of traditional foods. ***Availability of traditional foods***

Availability of traditional foods was discussed as an important driver of dietary practices amongst participants with continuity practices. In explaining the importance of availability, participants who migrated in the early years of migration (1970-1980's), revealed that they were forced to adopt certain foods found in the UK because Ghanaian foods were unavailable then, for example:

"When I came in 72 we didn't have all these Ghana shops so we had to eat their potatoes and all the foods local to this place but now we get Ghanaian foods from the Ghana shops" (P2, 1st generation, 45-64yrs).

The interviews also indicated that, because Ghanaian foods were perceived to be readily available at present, participants tended to eat more Ghanaian foods now than they did when they first migrated. In contrast, participants with changed practices mainly relied on large supermarkets but they also thought that supermarkets sold more speciality ethnic foods currently than they had done in the past, especially in areas with large migrant populations. However, these participants rarely bought these Ghanaian foods.

Participants who had migrated to the UK in the last decade did not describe having any difficulty with the availability of Ghanaian foods. Change in dietary practices amongst these more recent migrants was not described as abrupt. Participants mentioned adopting potatoes very quickly because it was perceived to be like yam in terms of what it could be used to prepare and in taste as illustrated by this only first generation participant with changed practices:

"So, availability was one of the reasons why we had to adapt. Because potatoes were like yam/cocoyam, it was easy to switch to potatoes and do with potato whatever we did with yam or cocoyam. And then you get gradually introduced into other college menus, and you realise oh that was interesting, so you develop a taste for other foods that way" (P30, 1st generation, 45-64 yrs.).

Access to traditional foods

In terms of economic access, all participants in this study mentioned that traditional foods were more expensive compared to UK foods. However, the bulk of participants with continuity practices did not think the cost of food affected their dietary choices and practices. Some participants with flexible practices mentioned the cost of traditional foods influenced their shopping habits and their ability to readily access traditional foods. However, these participants discussed ways in which they could substitute and combine cheaper alternatives from the supermarkets to be able to get the traditional Ghanaian taste they desired, as this example illustrates:

"The African foods are costly at times, so I try to blend with the foods here which are relatively cheaper" (P19, 1st generation, 45-64 yrs.).

Another participant's strategy was to buy Ghanaian foods in bulk and freeze them during seasons when prices were cheaper:

"Regarding the yams and plantains they are seasonal, so when the season is up, I buy. For the yam, I can freeze them. For the plantain, I buy them when the need arises and when the prices are down" (P26, 1st generation, 25-44 years).

Time for cooking traditional foods

All participants identified a preference for Ghanaian foods over UK foods because the former was associated with more spice and a better taste, as this participant exemplifies:

"When we eat African food, it must be lots of oil; it has to have pepper, it has to taste special so that you want to chew your fingers off at the end of the meal (laughs), that comes part and parcel" (P4,1st generation, 25-44 years).

Although preference for Ghanaian food was similar across all groups, it did not imply all groups valued consuming Ghanaian foods all the time. For instance, those with changed practices were of the view that preparation of Ghanaian foods was time-consuming and did not think it was not necessary to spend that much time cooking. Participants mentioned that they consumed Ghanaian foods when they lived with their parents and their diets had changed significantly since living alone because they perceived that they did not have the time to cook or the skills to prepare Ghanaian foods.

"I like to try different dishes, but my mom has always prepared Ghanaian dishes. But I find them quite time-consuming; they take hours to prepare and minutes to eat" (P8, 2nd generation, 25-44 yrs.).

On the contrary, given the importance that was attached to traditional foods by the participants with continuity practices, and living in a context where they do not have the time and resources to cook every day, they reported cooking in bulk to last for weeks or months to save time.

Migration context Pre-migration history was another important influence on the degree of change in dietary practices. Factors such as country of birth, year/age at migration, rural vs. urban residency in Ghana were important in predicting the different typologies of dietary practice that participants conformed to. For instance, participants, who migrated to the UK as children and second generation migrants born in the UK, were inclined towards having changed practices. Additionally, being a rural dweller before migrating could result in unfamiliarity with host country foods which in turn makes it difficult to change from the original food culture. For example:

"It's hard for us to have tea, tea stuff, as for us who were village people back in Ghana, we ate the very traditional local Ghanaian foods before moving here like Fufu, ampesi etc. So we continued that tradition here" (P1, 1st generation, 44-64yrs).

Food beliefs and perceptions

Factors that are related to beliefs and perceptions of migrants and influence individuals to choose or avoid certain foods and dietary practices constitute the food beliefs and perception cluster. Examples include the perception of host country/traditional foods and perception of healthy foods.

Perception of host country/traditional foods.There were some differences in the context for eating UK or Ghanaian foods based on participants' perceptions of these foods. For instance, participants with continuity practices perceived UK foods as an exception or a way to get away from the usual, and thus described fewer contexts in which they ate UK foods.

"It's not because we think it's posh. Sometimes we just feel like buying something from outside. Sometimes we buy KFC or something else, and we won't cook just to have a change" (P12, 1st generation, 45-64yrs).

On the other hand, participants with flexible practices perceived UK foods as being convenient for the busy lifestyle in the UK. Consequently, these participants reported consuming Ghanaian foods only when there was perceived to be enough time to prepare them such as on a day off from work. For instance, one participant explained that on days that she is working she eats a mixture of Ghanaian and UK diets, but when she has off days she and her family are more likely to have Ghanaian foods throughout the day.

"For those days I don't work, we eat our own local foods three times a day, either we have cereal in the morning or porridge, then in the afternoon it could be fufu, yam, rice or anything since we are home. On my working days, I have breakfast then take packed lunch, I do the same with my children, I prepare packed lunch for them, and when we get home, we have cereals" (P23 1st generation, 25-44 yrs.).

Perception of healthy eating

Participants' perception of the healthiness of Ghanaian vs. UK foods varied for different typologies. Some participants with continuity practices mentioned that Ghanaian foods were healthier than UK foods, which could have health consequences:

"*I see British foods as junk [unhealthy foods], I am not gonna be eating potatoes, no I prefer 'akple'. Give someone 'akple' and fried fish, okra, green leaf and another fish and chips for six months, and you will see the difference*". *(P29, 1st generation, 25-44yrs).*

Some participants with changed practices were of the view that UK foods were healthier than Ghanaian foods. One participant differentiated cooking practices between Ghanaians and the English and described the former as unhealthy:

"*Ghanaian foods are heavily dependent on cooking oil. Especially our stews and sauces. English foods are mostly boiled. It's funny because the English traditional foods are healthier. As a matter of fact, with English foods, they take the oil out, Ghanaian foods we put the oil (P5, 2nd generation,25-44yrs).*

Exposure to host culture through the media and books was reported as contributing to dietary change among participants with changed practices. Nutrition knowledge obtained through the

media was mentioned as influencing some participants to adopt healthy eating habits. Apart from television, participants also mentioned government programmes that were aimed at promoting healthy eating. According to participants, this does not mean that in Ghana they did not have the knowledge to eat healthily. Participants were of the view that, national consciousness of health differed between the two countries. They implied in the UK; all media outlets talked about healthy eating behaviours, which was not the case in Ghana, where the media did not emphasise eating healthily. One participant with changed practices stated:

"But the culture here on TV emphasises health and balanced diet. So, it started growing on me to the point where I started to check what I eat. There is advanced interest in this country as compared to home" (P30, 1st generation, 45- 64 yrs.)

Discussion

This study sought to describe and explain patterns in dietary practices amongst first and second generation Ghanaian migrants living in Greater Manchester. In exploring participants' dietary practices, three overarching dietary practice typologies emerged. Each typology was characterised by the meal format, the contexts for consuming such foods, structure and patterning of meals, food purchasing and preparation (Leech et al., 2015). Findings show all participants retained some Ghanaian dietary practices and adopted UK dietary practices to a varying degree. These were: i) continuity practices; ii) flexible practices; and iii changed practices. The dietary practices identified were shaped by interrelating factors that fell into four main clusters: social and cultural environment, accessibility of foods, migration context, and food beliefs/perceptions. The importance that participants associated with cultural identity, having Ghanaian social networks and the availability of ethnic shops in the UK were crucial in maintaining traditional dietary practices. Important factors that increased the likelihood of adopting UK dietary practices were being a second generation migrant, having non-Ghanaian social networks, having a busy lifestyle, and not having enough time to cook Ghanaian foods.

The three typologies identified in this study are similar to the three patterns demonstrated in the model of dietary acculturation by Satia-Abouta (2001), except Satia-Abouta's model implies a strict division within the three patterns, whereas we found evidence of an overlap between typologies; an indication that dietary acculturation is not an all or nothing process. In other words, no participant had completely changed all Ghanaian dietary practices to those in

the UK or completely maintained traditional dietary practices. Two of the typologies (flexible practices and changed practices) identified in this study have been observed in previous studies on migrants (Garnweidner et al., 2012, Tuomainen, 2009), the only difference being that in this study the first pattern is not 'strictly continuity', it is 'mainly continuity' of traditional dietary practices in combination with a few dietary practices of the host population. The overlap between the UK and Ghanaian dietary practices across all typologies suggests that participants in this study have 'bicultural' dietary practices or are 'integrated', which refers to a situation when migrant groups have an interest in both maintaining original culture whilst trying to adopt some cultural aspects of the new society (Berry, 1997).

A recent systematic mapping review of dietary behaviours of ethnic minorities in Europe has shown that in the UK and Europe few studies have included migrants from Sub-Saharan Africa (Osei-Kwasi et al., 2016). The current research attributes change in dietary practices within this population group to a combination of complex interrelated factors as demonstrated in Satia's model of dietary acculturation (Satia et al., 2001). Most of the important factors identified in this current study fit into four of the clusters that emerged in this review for explaining dietary behaviours of ethnic minority groups in Europe (Osei-Kwasi et al., 2016); 'social and cultural environment', 'accessibility of foods' 'migration context' and 'food beliefs and perceptions'

Process of change

Amongst participants with flexible and changed practices, the study showed that breakfast habits had generally shifted towards those of the majority population, which is consistent with Koctürk's model (Kockturk-Runefors, 1991). For those with flexible practices, lunch varied between Ghanaian and UK foods. However, dinner still had cultural importance and family members were more likely to be around at the end of the day or during the weekends for participants in both the 'continuity' and 'flexible' groups. This finding supports Koctürk's hypothesis that posits that changes may begin with breakfast followed by lunch, while supper usually remains unchanged for a longer time. Other studies have also shown this process of change among migrants (Tuomainen, 2009, Mellin-Olsen and Wandel, 2005). It is important to note that a couple of participants with continuity practices reported strictly consuming Ghanaian foods, a contrast with Koctürk's argument that it is impossible for immigrants to completely adhere to old food habits following migration (Kockturk-Runefors, 1991). It is worth noting, however, that these cases were deviant, as the bulk of participants consumed

both Ghanaian and UK foods. A possible explanation for these deviant cases might be that immigrants change certain foods or preparation methods without even realising; newly adopted foods (such as snacks and sweets) may not be perceived as real food, thus falling outside the scope of the usual diet (Kockturk-Runefors, 1991). To be able to clarify this, there is the need for future studies to undertake a detailed dietary assessment.

In terms of what changed, this study showed that for migrants who migrated in early years, (1970 – 1980), the unavailability of Ghanaian shops meant they were forced to adapt staple foods like potatoes first, suggesting that, during this period, availability of traditional foods was a more important driver of change than other factors This finding contrasts with Koctürk's model, which suggests that staple foods are the last to change following migration. The theory may apply for those who migrated in later years and who live in areas with easy accessibility to ethnic shops to purchase traditional foods, or it may reflect the fact that Koctürk's model was based on her research among Turkish migrants, whose staples might have been more available in the host environment, whereas African staples differ considerably from what is/were available in Europe.

Drivers of dietary change

Findings also revealed that although participants perceived there was greater availability of shops with Ghanaian foods now compared with earlier years of migration, Ghanaian foods were perceived as expensive, mainly because they were imported. Contrary to expectations, the relatively higher perceived cost did not seem to influence continuity of traditional foods amongst the bulk of the participants, perhaps because strategies were devised which included substituting certain ingredients to prepare Ghanaian foods and to maintain the 'Ghanaian taste'. Similar strategies to maintain traditional foods were also reported in a study conducted amongst migrants residing in Europe (Škreblin and Sujoldžić, 2003, Lawton et al., 2008, Garnweidner et al., 2012). Fluency with the host language and the years living in the host country were not as important in driving change as cultural factors, such as religion, cultural beliefs and living in ethnic enclaves, as demonstrated in other studies (Jonsson et al., 2002, Satia et al., 2001). One possible explanation could be because almost all participants could speak English, which is the official language used in Ghana. Secondly, because most participants were Christians, religious prescriptions on foods like 'halal' did not seem to be an important determinant of diet, even among the few Muslims in the study.

Although findings in the literature suggest that changes in diet following migration may result in unhealthy dietary change (Gilbert and Khokhar, 2008), our study suggests that, among participants with changed practices, the host environment contributed to healthier dietary practices. Our finding concurs with another study conducted amongst international students in Belgium that reported increases in the consumption of healthy foods following migration (Perez-Cueto et al., 2009). It was suggested that exposure to host culture through the media, friendships and the work environment resulted in increased nutrition knowledge, which in turn led some participants to adopt what they perceived to be healthier eating habits. In contrast, others with continuity practices were of the view that greater availability resulted in unhealthy dietary practices due to the low cost of unhealthy foods in the UK.

This contradiction in the influence of migration on healthy eating confirms the idea that dietary acculturation is a complex process which depends on several factors. The operant model of acculturation and ethnic minority health behaviour (Landrine and Klonoff, 2004), may go some way to explaining these seemingly contradictory findings. The model suggests that the context from which migrants originate interacts with the context to which they migrate in shaping health behaviours. If for example, migrants originate from a context where fruit and vegetables are less available/consumed into a context where fruit and vegetables are more available/consumed then, with acculturation, they will be more likely to increase their consumption of fruit and vegetables, thus implying a healthy change. However, if they originate from a context where there is greater availability/consumption of fruit and vegetables to a context where there is less availability/consumption, then migrants may tend to eat less fruit and vegetables, hence an unhealthy change.

An implication of the varying perceptions regarding change in dietary practices resulting in healthy/unhealthy dietary practices is that it is possible that within this seemingly homogenous population, not everyone may require the same kind of intervention. Consequently, our study suggests the need for deep structure sensitivity in interventions, i.e. understanding the cultural, social, environmental, psychological and historical forces that influence dietary behaviour within a population, before designing interventions (Resnicow et al., 1998).For instance, exploring fruit and vegetable habits before migration vs. fruit and vegetables habits in the new environment. This is an important finding, given that acculturation studies generally lumps people who identify themselves as one ethnic identity into broad categories and assumes ethnic minority groups to be identifiable groups of individuals with distinct characteristics (Hunt et al., 2004).

The context for consuming Ghanaian foods differed significantly for the different groups identified in this study. Amongst participants with changed practices, Ghanaian foods were eaten only during occasions such as family visits and Ghanaian parties. For these participants, being born and raised in the UK predisposed them to more socialisation with non-Ghanaians. The perception of social eating varied with context. Participants, who had continuity practices, described eating from a communal bowl as being the traditional practice, which they perceived as desirable. Traditionally Ghanaians eat in groups from a communal bowl based on gender and age and the meal eaten together is a medium for building relationships between families. However, this practice seemed to fade away for participants who migrated to urban areas in Ghana even before migration to the UK, when it totally disappears. The disappearance of communal eating among Ghanaians is consistent with previous studies (Tuomainen, 2014).

Drivers of maintenance of Ghanaian diets

The foremost explanation from participants' accounts that explains continuity of Ghanaian dietary practices and limited adoption of UK dietary practices was maintaining cultural identity as Ghanaian but also the importance attached to the specific ethnic group identity within the large Ghanaian community. Continuing with Ghanaian dietary practices was deemed as important by both first and second generation migrants. This was unsurprising given that the importance of one's identity in dietary choices and the role of food culture in migrants' identity have been shown in previous studies. (Kassam-Khamis et al., 2000, Kohinor et al., 2011, Nicolaou et al., 2009). Due to the importance attached to eating traditional foods, participants with continuity practices used strategies such as cooking in bulk to be able to consume Ghanaian food all the time. People who had changed practices, on the contrary, did not attach the same level of importance to eating traditional foods and seemed to consume Ghanaian foods only in particular contexts, such as family visits or Ghanaian occasions.

Participants with continuity practices identified Ghanaian social networks, church social gatherings, desire to conform to tradition and more readily available ethnic shops as facilitating continuity of Ghanaian dietary practices. Having non-Ghanaian social networks, as expected, seemed to influence the degree of adoption of UK dietary practices amongst participants with changed practices. The role of social networks in driving dietary behaviours

and food choice amongst migrant populations has been identified in previous studies (Nicolaou et al., 2006, Mellin-Olsen and Wandel, 2005).

Participants' perception of host dietary practices reinforced continuity of traditional dietary practices. Participants compared the taste of Ghanaian foods with UK foods, and in all accounts perceived UK foods as tasteless and not spicy enough. This may explain why participants in all three typologies identified a taste preference for Ghanaian foods over UK foods. The importance of spiciness also emerged in a study amongst migrants in Norway (Garnweidner et al., 2012) and contradicts Koctürk's theory (1999) that accessory foods which include spices are the first to change in the process of adaptation to a new food pattern. Taste has been mentioned in several studies as an important driver of food choice amongst migrant population (Khunti et al., 2008, Halkier and Jensen, 2011, Garnweidner et al., 2012). In addition, UK foods were perceived by people with continuity practices as unhealthy and limited in variety, whilst participants with changed practices often perceived UK dietary practices as healthier. These contrasting views might be due to several reasons. For instance, in this study, perspectives of participants of UK foods comprise a range of foods which includes fast foods, and therefore comparisons could have been made between traditional Ghanaian foods and fast foods.

Although participants' use of their own definitions of what comprises Ghanaian and UK foods may be considered a strength of this study, it has implications. For instance, there were some contradictions in the different accounts with regards to what was perceived as Ghanaian or traditional foods. Some participants perceived non-alcoholic beverages such as tea with milk as not traditional, whilst others perceived this as a typical Ghanaian breakfast. This varying perception is not surprising given that dietary practices are not static and have evolved over the years due to, for example, the nutrition transition (Popkin and Gordon-Larsen, 2004). Moreover, participants migrated at different time points, and therefore memories of changes in dietary practices may differ depending on the period. Another explanation for not having a distinct line between certain foods as Ghanaian or UK foods might also be due to the historical colonial influence by the British. The concept of acculturation relies on an important premise about historical origin and movement of a minority population, with the assumption that two distinct groups are coming into new contact following migration for the first time (Hunt et al., 2004). While the notion that the first encounter between two previously separated cultures may make some sense for some immigrant situations it may not be the case for others. In the present study, some participants

seemed to be familiar with UK foods before migration, which implies migrating to the UK was not the first encounter with the UK culture. The British presence in West Africa brought about changes in the traditional diet. In Ghana, people in the urban south, where the British predominantly resided incorporated some practices like including milk, tea and breakfast cereals in their regular diet (Tuomainen, 2009), which further blurs the line between what is traditional Ghanaian and not traditional. For such groups of migrants who were already familiar with UK diet a question arises: does the change/continuity of UK foods merit the label of dietary acculturation? This is an important area for future research.

One possible weakness of this study is translation bias that might have been introduced through the five interviews conducted in Twi. While translation is acceptable in research, it is known to potentially introduce bias through incorrect interpretations (Temple and Young, 2004) Nonetheless, the researcher (HO) who conducted the interviews, who is a Ghanaian, and speaks some Ghanaian languages fluently was able to serve as the translator, therefore checking the validity of interpretations. Her cultural identity as Ghanaian also facilitated recruitment of participants into the study. Finally, although we sought diversity in terms of generation type, age and SES, only a few second-generation migrants are represented in this study. Hence the findings may be biased toward first generation migrants. A clear strength of this study is that it is the first to explore the influence of migration on dietary practices of Ghanaians living in the Greater Manchester. It does not only explore the process of dietary acculturation but goes further to analyse in-depth the factors influencing variations in the degree of continuity and change.

Conclusion

This study's findings demonstrate the complexity of dietary change, indicating that it is not a linear process and it is dependent on several factors. Our study population can be described as an integrated group with bicultural dietary practices (i.e. both Ghanaian and British). All participants continued with some traditional practices, which is an indication of how migrants value their original habits, although the importance of cultural identity as a driver of dietary practices varied across groups. The dietary practices identified were shaped by interrelating factors that fell into four main clusters: social and cultural environment, accessibility of foods, migration context, and food beliefs/perceptions. The importance that participants associated with cultural identity and the availability of ethnic shops in the UK were crucial in maintaining traditional dietary practices. Important factors that increased the likelihood of

adopting UK dietary practices were being a second generation migrant, having non-Ghanaian social networks, having a busy lifestyle, and not having enough time to cook Ghanaian foods.

Our findings reinforce earlier studies that have advocated for the need for culturally sensitive interventions based on individual/group food beliefs and perceptions, migration context cultural, social environment. For public health experts to effectively design these interventions, a greater understanding of what accounts for these differences is crucial. Future research should consider temporality in the assessment of diet so that dietary change is well captured. Measurement of diet in combination with health parameters is also recommended to be able to assess the implications of dietary change on health outcomes among this population.

Abbreviations

NR-NCDs, nutrition related non-communicable diseases; Sub-Saharan Africa, SSA; T2D, type 2 diabetes; SES, socio-economic status.

Acknowledgement

The authors would like to thank the chairman of the Ghana Union of Greater Manchester for his support in recruiting participants, members of the Ghana Union of Greater Manchester and all participants. This study was supported by the Ahmadiyya Muslim Jamaat (AMJ) International.

Disclosure statement

The authors report no conflicts of interest.

Biographical note

HO is a PhD student of Public Health Nutrition, School of Health and Related Research, University of Sheffield, UK. KP (PhD) is a Research Fellow and University Teacher in Public Health, School of Health and Related Research, University of Sheffield, UK. MN (PhD) is a Researcher at Academic Medical Centre, Department of Public Health, Amsterdam, the Netherlands. MH (PhD, RD, RNutr) is a Professor of Public Health, School of Health and Related Research, University of Sheffield, UK.

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Table 1: Summary of participants' characteristics (n=31)

	Males (n=12)	Females (n=19)	Total
Age (yrs)			
25-44	8	10	18
45-64	2	8	10
65+	2	1	3
SES level			
Low	4	10	14
Middle/high	8	9	17
Migration status			
First migration	10	16	26
Second migration	2	3	5
Duration of stay in the UK (yrs)			
≤20	5	15	20
≥21	5	1	6

Table 2: Cluster of factors that influence dietary practices of Ghanaians living in Greater Manchester

Social and Cultural environment	Accessibility of food	Migration context	Food beliefs and perceptions
Cultural identity/ Ethnic identity	Availability of traditional foods	Country of birth	Perception of host country food/traditional food
Social network	Access to traditional foods/cost of traditional foods	Year of migration/ age at migration	Perception of healthy foods
	Lack of time for cooking traditional foods	Urban/rural dweller	