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## **‘A chronic disease is a disease which keeps coming back . . . it is like the flu’: chronic disease risk perception and explanatory models among French and Swahili speaking African migrants**

Maxwell Cooper<sup>a\*</sup>, Seeromanie Harding<sup>b</sup>, Kenneth Mullen<sup>b</sup> and Catherine O’Donnell<sup>a</sup>

<sup>a</sup>*Institute of Health & Wellbeing, University of Glasgow, Glasgow, UK;* <sup>b</sup>*Medical Research Council, University of Glasgow, Glasgow, UK*

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**Background.** African migrants to the West are at increased risk of hypertensive related diseases and certain cancers compared with other ethnic groups. Little is known about their awareness of this risk or knowledge of associated risk factors.

**Objectives.** To explore African migrants’ perceptions of chronic disease risk, risk factors and underlying explanatory models.

**Design.** In-depth interviews with 19 Africans from French or Swahili speaking countries living in Glasgow were conducted. Interviews were transcribed and 10 translated (3 Swahili and 7 French). Analysis was informed by a grounded theory approach.

**Results.** Narratives suggested low awareness of chronic disease risk among participants. Africans reported a positive outlook on life that discouraged thought about future sickness. Infectious diseases were considered the dominant health threat for African migrants, mainly HIV but also TB and flu. Chronic diseases were sometimes described as contagious. Explanatory models of chronic disease included bodily/dietary imbalance, stress/exertion, heredity/predisposition and food contamination. Cancer was feared but not considered a major threat. Cancer was considered more common in Europe than Africa and attributed to chemical contamination from fertilisers, food preservatives and industrial pollution. Evidence cited for these chemicals was rapid livestock/vegetable production, large size of livestock (e.g., fish), softness of meat and flavourless food. Chemicals were reported to circulate silently inside the body and cancer to form in the part where they deposit, sometimes years later. Cardiovascular diseases were described in terms of acute symptoms that required short-term medication. Confidentiality concerns were reported to prevent discussion of chronic disease between Africans.

**Conclusion.** This study suggests a need to improve chronic disease health literacy among African migrants to promote engagement with preventative behaviours. This should build on not only participants’ existing knowledge of disease causation and risk factors but also their self-reliance in the pursuit of a healthy lifestyle and desire to retain cultural knowledge and practice.

**Keywords:** chronic disease; obesity; cancer; hypertension; qualitative; Africa; migrants

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\*Corresponding author. Email: m.cooper@bsms.ac.uk

**Background**

45 Non-communicable chronic diseases are now the greatest cause of death in the world (Yach *et al.* 2004). This global epidemiological transition has been linked with adoption of less healthy diets, physical inactivity, tobacco use, urbanisation, increased life expectancy and poverty (World Health Organisation 2005). This epidemic has particular relevance to Africa and to African migrants because over the  
50 next decade the continent is expected to face the greatest rise in mortality from these conditions (Graft Aikins *et al.* 2010). Already in Africa there is an increasing incidence of cancer (Parkin *et al.* 2008), ischaemic heart disease (Mensah 2008), diabetes (Levitt 2008) and obesity (Dalal *et al.* 2011) and the lifetime risk of dying from cancer amongst women is almost double that of developed countries (Parkin  
55 *et al.* 2008).

Africans are a significant migrant group to the UK. Between 2002 and 2009 the Black African population of England and Wales grew 6.2% per year with significant migration from the African Commonwealth countries, as well as Somalia, Eritrea and the Democratic Republic of Congo (Office for National Statistics 2011). In 2009, 47,405 Africans and their dependents entered the UK, of whom 30,945 came as students and 16,460 on work visas (Home Office 2010). In addition, there is a substantial African asylum seeker and refugee population in the UK: in 2008 there were 7585 asylum applications from Zimbabwe, Eritrea, Somalia and Nigeria (Information Centre about Asylum and Refugees 2009). Over the past 10 years many  
60 asylum seekers have been moved from the South East of England to other UK cities (including Glasgow) as part of the UK Borders Agency dispersal programme. These changing patterns of migration mean that many British clinicians will be asked to provide care for African migrants.

African migrants to Europe are known to experience increased mortality and morbidity from major chronic diseases such as circulatory diseases, including stroke and diabetes (Harding *et al.* 2008, Vandenheede *et al.* 2012). Major cancers such as breast, colon and prostate cancers are also leading causes of cancer deaths (Harding  
70 *et al.* 2009). Higher rates of hypertension have also been reported in people of African descent in the UK (Agyemang and Bhopal 2003) and there is evidence that Africans who migrate have higher blood pressure and greater cardiovascular risk than their counterparts who do not (Dominguez *et al.* 2009).

There is a large body of evidence for the social patterning of ethnic differences in chronic disease mortality and morbidity in the UK (Davey-Smith *et al.* 2000), in Europe (Harding *et al.* 2008, Vandenheede *et al.* 2012) and the USA (Krieger 2000).  
80 Such differences may be attributed to a range of factors, including the structural conditions under which migrants live as well as aspects of individual behaviour and agency (Factor *et al.* 2011). Observed increased risk of and mortality in people of African descent, for example from prostatic cancer, may, therefore, be based on factors such as socio-economic status, diet, and/or differences in disease detection (Kheirandish and Chingwundoh 2011). Indeed, studies of cancer beliefs amongst migrants to the UK point to the impact of migration on health-related beliefs and behaviours that influence disease risk as people adapt to the new socio-economic and cultural context of their host country (Scanlon *et al.* 2006, Bache *et al.* 2012). Migrant studies thus provide insight into the contextual influences on the retention  
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90 of and change in beliefs about health and well-being and can inform the development of appropriate interventions.

95 To counter the chronic disease epidemic an expanded role for primary care services and community based interventions has been advocated in order to address more effectively both prevention and treatment (Allotey *et al.* 2011). Nevertheless, even where health care systems are orientated towards chronic disease management major challenges exist to providing care for migrant groups. First, migrants tend to use health care services for acute problems rather than for prevention (Mullen *et al.* 100 A02 2007). Second, migrants – including Africans – do not always understand the GP's role, may have difficulty adapting to a patient-focused consultation style and report discordant and unmet expectations of GP consultations (O'Donnell *et al.* 2007, 2008). Such divergence may occur around health beliefs, treatment expectations and compliance with medication (Pavlish *et al.* 2010). Central to this are the lay beliefs and explanatory models that underpin the way individuals and groups perceive health and illness.

### 105 Lay health beliefs and explanatory models of disease

Lay beliefs are key to understanding different groups' health seeking behaviour and attitudes towards preventative care. People's beliefs about chronic disease are shaped by its uncertain course, unlimited duration, alternating periods of crisis and remission, and – at times – asymptomatic nature (Scandlyn 2000). One theoretical approach to examining health beliefs is Kleinman's explanatory models of illnesses. This considers the informal notions held by patients, families or practitioners to account for the nature, cause, reason and treatment for an illness (Kleinman 1988, Kleinman and Benson 2006). These models are not necessarily the same as the general beliefs about health held by a given society and individuals may provide different explanations depending on whom they are speaking to (Helman 2007). 115 Indeed, clinicians are often unaware of their patients' explanatory models, especially those with lower educational levels (Helman 1985). Increasing cultural diversity has led to calls to improve the quality of clinical care for minority ethnic groups by promoting the cultural competence of practitioners, in particular communication skills to explore explanatory models and to elicit what is really at stake for patients in the lived experience of their illness (Kleinman and Benson 2006). 120

Chronic disease management of chronic conditions such as hypertension requires early diagnosis and adherence to lifestyle modifications and/or pharmacological treatments. There is a growing interest, therefore, in how best to promote adherence in the long-term management of chronic conditions in developing nations and in migrants from these countries. This is important amongst Africans because chronicity of disease may not be recognised as a concept by some African societies (Aikins *et al.* 2010). Similarly, African migrants have been found to emphasise symptoms above underlying diagnostic causes for their problems and that symptoms themselves thus come to account for illness (Pavlish *et al.* 2010). 130

Lay and patient knowledge of major chronic diseases in parts of Africa is considered to be poor and health beliefs are rooted in sociocultural knowledge systems (Aikins *et al.* 2010). Studies in Ghana have examined beliefs about chronic disease causation. Diabetics were found to use a number of explanations for their condition, including: high sugar diets, heredity, physiological imbalance, toxic foods 135

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and spiritual disruption (witchcraft and malevolent social actions) (Aikins 2005). Similarly, cardiovascular disease has been attributed by church members in Ghana to a variety of causes, including stress, an unhealthy diet, advanced age and lack of physical activity (Abanilla *et al.* 2011).

140 Another study compared explanatory models for hypertension among Ghanaians, African-Surinamese and native Dutch hypertensive patients in Amsterdam (Beune *et al.* 2006). Ghanaians and African-Surinamese perceived hypertension as a disease with immediate effects resulting mainly from stress as well as migration-related factors such as adapting to dietary and climate change. Many participants felt  
145 a return to their homeland could cure their hypertension and few associated hypertension with obesity, despite many being overweight. It was also noted that some Ghanaians held reservations about sharing their diagnosis with other community members as hypertension was perceived as a sign of domestic problems or an inability to fulfil social obligations.

150 In the UK, a qualitative study of African and Black Caribbean origin cancer survivors in London suggested a pessimistic view of cancer outcomes and only some knowledge of risk factors, based on diet, alcohol intake, travel history, place of residence and smoking status (Bache *et al.* in press). Cancer was believed to result from complex and diverse factors, again including stress, as well as genetic and divine  
155 causes

There is thus a need to explore and document chronic disease beliefs and explanatory models, particularly in the context of African migrants. Whilst health beliefs of African-Americans have been studied in depth, little is known about chronic disease risk perception and health beliefs among African migrants in the  
160 UK. This paper seeks, therefore, to explore and understand health beliefs in a sample of African migrants living in the West of Scotland.

### **Method**

A qualitative approach was chosen as this is considered particularly suitable for exploring in depth the subtle and sensitive nature of health beliefs. Individual in-  
165 depth interviews were conducted with 19 Africans to explore their experience of accessing health care. During the early interviews, Africans were asked which diseases they felt vulnerable to. This led to the emergence of chronic disease risk awareness as an important issue, which was then followed up in greater depth in later interviews. In addition to risk perceptions, later interviews were modified to use Kleinman's theory of explanatory models (Kleinman 1988, Kleinman and Benson  
170 2006) to explore participants' beliefs about the causes, nature and consequences of common chronic diseases and obesity.

### **Participants**

175 A decision was made to focus on French and Swahili speaking African migrants, as these were the languages spoken by the lead researcher (M.C.). Participants were recruited from community organisations, in particular two protestant churches and five African societies based on language or country of origin. A process of onward chain sampling ('snowballing') from initial contacts was employed to facilitate the identification of other, potential respondents (Faugier and Sargeant 1997).

180 A sampling frame was initially devised to seek maximum diversity in terms of age, gender and religion (i.e., Christian and Muslim traditions) of participants. A target of 24 participants was planned as it was anticipated that data saturation (i.e., when no new themes or issues are raised) would be obtained with such a sample. Initially new participants with similar characteristics were accepted in order to facilitate  
185 onward chain sampling. This was also because experience had shown that recruitment might not be straightforward (O'Donnell *et al.* 2007). However, data saturation was reached earlier and, along with a recognition of the length of time required for recruitment, transcription and translation by M.C., the study was curtailed after a total of 19 Africans had been reached. This included a range of  
190 participants with the notable exception of Muslim males. Nine primary participants were interviewed and onward 'snowball' recruitment resulted in four chains of one additional participant and one of six additional participants.

### Conduct of interviews

195 An interview schedule was developed based on knowledge of the literature and discussion with medical colleagues and members of African community organisations. Seven interviews were conducted in French, three in Swahili and the rest in English. As many participants were multilingual, interviews often contained words or phrases in the three study languages. Interviews lasted from 34 to 82 minutes (mean = 67 minutes) and were conducted at a time and venue chosen by the  
200 participant, including their home, Glasgow University teaching rooms and cafes in the city. Signed consent was obtained prior to interviewing. Africans were given £15 for participating. Ethical approval was granted by the Glasgow University Medical Faculty Ethics Committee.

### Translation and data analysis

205 Interviews were translated by the lead investigator who has experience of conducting qualitative research in French and Swahili in Africa. The accuracy and cultural appropriateness of the translations was assessed by asking native speakers to review randomly selected sections of interview transcriptions. In addition, the translation of quotations selected for this paper were reviewed by and discussed with native African  
210 speakers of Swahili and French in order to consider alternative interpretations of the data. Interview transcripts were imported into the NVivo software package to facilitate data coding and analysis. A grounded theory approach was used to inform data analysis, with constant comparison across interviews (Glaser and Strauss 1967) and across key variables such as gender and educational attainment. Following  
215 reading and rereading of the transcripts, codes were applied to portions of the text by MC. These were then reviewed and re-ordered into thematic categories. A sample of interviews was also coded by KM and COD. Emerging codes and themes were reviewed in data clinics, where the three coders discussed the identified codes and themes, allowing discrepancies to be reviewed and agreement on coding reached. The  
220 final coding framework was then applied to all the interviews. Quotations were selected to illustrate particular points. While seeking to preserve anonymity, quotations include reference to the participant number gender, and age as well as  
AQ3 the original language(s) of the quotation used (e.g., 3F 40–49 French).

**Results**

Nineteen participants were interviewed, of whom nine were women. Apart from three Muslim females all participants were from Christian traditions. Participants were from a broad range of African countries, including both Congo republics, Burundi, Rwanda, Somalia and Kenya. Additional demographic details of the study group are contained in Table 1. Participant health status was not directly sought during recruitment; however, three patients volunteered that they had hypertension (6 and 19), diabetes (6) or asthma (15).

In addition to perceptions of disease risk and beliefs about chronicity and medication adherence, this study identified the following explanatory models: bodily/dietary imbalance, stress/exertion, heredity/predisposition and food contamination with chemicals. These findings – as well participants’ beliefs about obesity in the development of chronic disease – are presented below in turn.

**Africans’ perception of chronic disease risk**

Early interviews examined Africans’ experiences of consulting doctors in the UK National Health Service. During these, a lack of awareness of chronic disease risk

Table 1. Participant characteristics.

	Age	Religion	Languages (main language of interview given first)	Area of origin	Age of leaving education	Years in UK	Immigration status
1F	25–29	C	Eng/Sw	EA	17	5–10	R
2F	30–39	C	Eng/Sw/OA	EA	17	5–10	MWS
3F	30–39	C	Fr/Eng/OA/OE	Congo	27	5–10	MWS
4F	40–49	C	Fr/Eng/OA	Congo	22	5–10	R
5F	50–59	M	Sw/Eng/OA	EA	21	5–10	R
6F	60–69	C	Fr/OA	Congo	17	5–10	R
7M	20–25	C	Eng/Sw/OA	EA	Still in education	5–10	MWS
8F	30–39	C	Eng/Sw/OA	EA	21	10–15	R
9M	30–39	C	Eng/OA/Sw	EA	24	2–5	MWS
10M	18–24	C	Eng/Fr/Sw	Congo	Still in Education	10–15	R
11F	40–49	M	Swa/Eng	EA	0	5–10	R
12M	30–39	C	Eng/Fr/OA	Francophone West Africa	29	2–5	MWS
13M	30–39	C	Fr/Sw/Eng/OA	Congo	25	5–10	R
14F	30–39	M	Sw/Eng	EA	11	10–15	R
15M	30–39	C	Eng/Fr/Sw//OA	EA	24	10–15	R
16M	40–49	C	Fr/OA/Eng	Congo	25	5–10	R
17M	40–49	C	Fr/Eng/OA	Congo	27	10–15	R
18M	50–59	C	Fr/Eng/OA	Congo	c25	5–10	R
19M	50–59	C	Fr/OE/Eng/OA	Congo	c25	5–10	R

EA = Eastern Africa (Somalia/Tanzania/Uganda/Rwanda/Burundi); Congo = Democratic Republic of the Congo/Republic of Congo, OA = Other African language(s); OE = Other European languages, R = refugee; MWS = Migrant worker/student visa.

240 became apparent, even among participants with higher levels of education. Many appeared not to be worried about future illness and this was attributed to a focus on symptomatic conditions and a belief in serious disease as a phenomenon that affects other people:

245 [Africans are not worried] apart from what they are [already] suffering.... There's nothing people are worried of catching, nobody, I have never heard of anybody thinking about cancer. People think that cancer is maybe somebody else's disease... [laughter]... but not theirs... and you know such things... people are positive. (1 F 25–29 English)

250 When specifically questioned about major health threats facing African migrants, no participants without an existing chronic disease diagnosis identified cardiac disease, hypertensive disease or diabetes as important threats. Despite most having resided in the UK for 5 years or more, participants tended to talk about infectious and communicable diseases, for example, HIV, tuberculosis, flu, sexually transmitted diseases, colds and what was described as 'high fever.' This tendency to consider infectious over non-communicable, chronic disease was underlined by one participant who reported that for lung problems: 'I have always thought of an infection, tuberculosis [rather] than cancer' (17M 40–49 French).

255 The predominance of the infectious disease model appeared to influence the language participants used to describe chronic conditions. It was notable that some French speaking participants voluntarily described chronic diseases in terms of being 'caught.' This verb was used most commonly for cancer, but also for heart disease, diabetes and hypertension. For one participant, transmission was suggested by his attempt to explain diabetes: 'how to prevent diabetes from coming or from penetrating my body? I do not know what it is due to, what transports it, or is it the food, or is it the alcohol?' (16M 40–49 French). For another, it was even reported that Africans might avoid a diabetic 'thinking perhaps it is a contagious disease' (18M 50–59 French).

270 Amongst healthy participants the only chronic condition that was offered as a threat was cancer. Cancer was frequently recognised as something to be feared and was viewed as incurable. There was also a notion of lack of control over its causation: 'I think everyone is scared of getting cancer – but anyone can' (2F 30–40 English). One participant simplified cancer to internal and external forms: 'there's that cancer disease of the skin and cancer inside the body' (14F 30–39 Swahili). Others, however, recognised that cancer can affect many different parts of, and organs in, the body: 'I know that there are prostate cancers, there are breast cancers, there are stomach cancers, there are cancers in the arms, there are cancers that come in all types' (13M 30–39 French).

275 When asked, most participants volunteered at least one explanation for cancer, although one struggled to find an explanation:

280 like my friend who died of liver cancer he wasn't a heavy drinker, he wasn't someone who drank a lot. You know you are talking about someone who has four or five beers a weekend but he had liver cancer. I really don't understand, it is something up to this day, I don't understand how it happened. (7M 20–25 English)

However, no one suggested that Africans were at any greater risk of developing certain cancers than Europeans. Indeed, a commonly reported observation was that

285 cancer was significantly more common in Europe than Africa: ‘in our place [in Africa] there is not a lot of cancer, here there is a lot, but where does that come from, things in the food?’ (6F 60–70 French). Indeed, cancer was described as ‘a European disease’ (17M 40–49 French).

290 While some participants considered this observation to be correct, a few recognised the issue of under-diagnosis in Africa: ‘but now is when I understand that it is only the rich people who could afford to go for scans’ (7M 20–25 English). Only once was this perceived difference accounted for in terms of specific risk factors associated with a ‘luxurious life’: cancer was reported to be more common in Western ‘celebrities’ due to ‘cosmetic products’ and ‘frequent artificial suntans’ (17M 295 40–49 French).

When confronted with the suggestion that Africans were at increased risk of certain chronic conditions there was widespread surprise: ‘I could believe you as a scientist but just looking at [it] like that, I don’t think so’ (18M 50–59 French). It was reported that the African community was ‘not sufficiently informed’ about chronic diseases and that Africans only ‘learn by going [to the doctor], by falling ill, yes, you learn by falling ill that there is a [certain] disease that exists’ (13M 30–39 Swahili). To talk to other Africans about serious diseases was reported to be a ‘taboo’ (3F 30–39 French) and participants stated that the Internet and email were important resources for health information.

### 305 **Explaining chronicity: imbalance and short-term treatment for symptoms**

Some participants struggled to explain chronic diseases and there was sometimes resistance to questioning on the grounds that this information was specialist knowledge for doctors. Chronic disease was described as ‘permanent disease’ (18M 50–59 French) or an ‘incurable disease’ (16M 40–49 French). One participant offered an association with recurrence: ‘a chronic disease is a disease which keeps coming back . . . it is like the flu and then everyone can have like me a cold, it is chronic’ (17M 310 40–49 French).

At other times chronic conditions were described in terms of extremes or imbalances of normal physiological states. These diseases were often described as having abnormal states at each end of the spectrum. For blood pressure this appeared to be based on a layperson’s description of the problem: ‘hypertension it is when you have, your pressure is very high and hypotension is when your pressure is very, too low’ (13M 30–39 French). For heart disease, however, one participant based their account on an awareness of medical terminology: ‘you can have tachycardia or bradycardia . . . and if that goes up to 140 beats per minute the heart cannot cope, your heart is ill’ (16M 40–49 French).

320 Diabetes was reported to be due to both a physiological and a dietary imbalance of sugar. This led to two ways in which this balance could be adjusted or maintained. First was dietary restriction and exercise:

325 They say perhaps [you get diabetes] if you are eating a lot of sugar. I argue with my young boy here. He loves sugar. When he drinks tea he just puts in a lot of sugar. Me I [do] tell him. Perhaps the thing that is helping him is those [physical] exercises. (11F 40–49 Swahili)

330 Second was the use of insulin: ‘it’s like it’s your sugar level and like constantly you have to inject yourself with insulin like trying to balance’ (10M 18–24 English). Nevertheless, deep concern over insulin was identified by the only diabetic participant: ‘I do not like medicines against diabetes: the injections every day! No, no I don’t like that. I ask God to heal me’ (6F 60–70 French).

335 There was also a belief that medication was only indicated for symptomatic – rather than long-term – disease: ‘when we don’t feel well [that is when] we take the medicines, if we feel well I don’t think that the [medicines] will be important, even as a preventative’ (17M 40–49 French). As a result hypertension was reported to require only a brief course of treatment:

340 Interviewer: ‘and if someone has got hypertension how long do you think they need to take medicine for?’

Participant: ‘I think maybe a week or something, a week, some, some may not need to take medicine, make to rest only . . .’ (15M 30–39 English)

### **Chronic disease as an acute phenomenon resulting from stress, exertion and older age**

345 Cardiovascular conditions were commonly associated with stressful events and lifestyles, in particular resulting from hardship associated with seeking asylum. Heart disease was reported to occur in someone ‘when he or she then gets to hear bad news or something shocking’ (11F 40–49 Swahili), although one participant suggested a moral dimension by blaming envy of others’ material ‘lifestyle’ as a cause of hypertension because ‘humans are created with a heart of envy’ (14F 30–39 Swahili).

350 Hypertension was perceived as a serious condition that could result in sudden, unexpected death: ‘I think that it is a very serious problem, very serious. Because we have seen people die without even saying a word, straight away, because they have an attack of hypertension’ (17M 40–49 French). Two people associated a hypertensive ‘attack’ with acute symptoms of breathlessness: ‘Your breath is taken away from you and you do not breathe the air well’ (11F 40–49 Swahili).

355 Two participants offered descriptions of disease in terms of sudden end points. One participant gave the following description of a heart attack: ‘I would think it is a stoppage of how the heart pump the blood through the system you know . . . dysfunctions’ (15M 30–39 English). Another participant offered the following explanation of a stroke: ‘it is like . . . a crack in the nerves of the head, I think’ (17M 40–49 French).

365 There was confusion for some over the role of physical exertion in hypertension. One participant associated hypertension with excess physical exercise, suggesting the following therapy: ‘don’t get yourself tiredness . . . so you don’t do very physical things’ (15M 30–39 English). Conversely, another suggested that heart disease was more common in those ‘who don’t do that much physical activity . . . like who don’t do that much sport . . . or who don’t walk that much . . .’ (12M 30–39 English).

370 Chronic diseases were sometimes perceived as normal in older age. For example, hypertension was reported to be found in ‘people in their fifties, it is not for young people’ such that ‘the people do not consider it like a disease, especially in Africa the people believe that it is a normal thing when they are old’ (16M 40–49 French).

**Heredity: an explanation for unexplained cases and an inevitable fate**

375 It was striking that heredity was invoked to account for chronic disease when no  
 other cause could be identified. For example, this was the only suggestion that one  
 participant, whose friend died of liver cancer, could provide: ‘I really don’t even  
 know [what causes cancer], well I think it is hereditary’ (7M 20–25 English). Heredity  
 380 was offered as a reason for conditions such as asthma, diabetes and obesity. At times  
 it was linked to a genetic basis and even to an interaction between genes and  
 environment. For example, one participant linked obesity to genetic predisposition  
 and easy access to food in the Europe: ‘their body already had the DNA . . . because  
 [obesity] was in the family and then, well, here, with all that they can eat here that can  
 385 encourage the disease to come out [literally to “hatch”] in him’ (18M 50–59 French).

In the absence of a family history, a related explanation of personal predisposi-  
 tion was employed to account for unexplained cases of chronic disease:

‘I think that perhaps it is a bodily predisposition, it’s like, er, people who easily fall sick  
 from diabetes, and others, who do not fall sick from diabetes, and others who do not fall  
 390 [ill], and I believe there is a bodily predisposition. The human body of an individual can  
 be fragile and ready to receive that disease. Meanwhile the body of another person is not  
 like that . . . I believe that it is a problem of predisposition. (13M 30–39 French)

Family history of chronic disease was discussed as an almost inevitable fate:

for me here now I have already accepted that I am going in this family way, stroke is  
 around in our family right now, and diabetes is in the family, here I feel it is heredity  
 395 which is coming to me. (14F 30–39 Swahili)

This idea of chronic disease being a normal event within families was suggested by  
 the language used by two male participants. One hypertensive participant stated that  
 his ‘familial’ hypertension was ‘not so bad’ (19M 50–59 French) while an asthmatic  
 400 man described his condition as a ‘normal thing’ (15M 30–39 English). Indeed, for  
 one, acquiring chronic disease was discussed in terms of being a positive thing in the  
 context of family history: ‘They say that in their families in [Africa] there are some  
 people have suffered from that [diabetes] . . . yes . . . yes . . . also they have that . . . and  
 then they think that it is good for them because it is the family’ (18M 50–59 French).

A perception of inevitability was reported to motivate some participants to be  
 405 tested: ‘I used to be worried about diabetes because my dad has diabetes but I went  
 to get checked and I was pretty okay’ (7M 20–25 English). Conversely, it was  
 reported that this belief led others to avoid screening: ‘lots of women are saying  
 ‘breast cancer, ah no I have never tested [because it has] never happened in my  
 family’ (18M 50–59 French).

**Accounting for perceived increased cancer in the West: unseen contamination with toxic agents**

410 Contamination by chemicals in food was a commonly reported explanation of cancer  
 and used to account for its perceived increased incidence in western countries.  
 Chemical sources included unnatural fertilisers, chick feed for battery hens and  
 415 preservatives or ‘medicines’ in tinned foods. Industrialisation in Europe was also

implicated as waste was believed to emit toxins into the environment. Some participants offered their own accounts based on their observations of food production in Europe to support their view that food was contaminated with toxins. First was the different texture or taste of food: 'here you have the impression that chicken [meat] is soft, very soft, [whilst] an African chicken [is so tough] it can pull your tooth out . . . because this chicken has been running [about] everywhere' (13M 30–39 French and Swahili). Second was the greater size of livestock available in shops in Europe, in particular: 'strong fertilisers that help the fish to get big, to fatten the cattle, the pigs, so we say to ourselves "aha, here they eat anything." Even we are afraid because by changing [to this food] we are going to have cancer' (18M 50–59 French). Further evidence was offered in relation to the taste and strength of flavours in food: 'when you are cutting an onion your must cry, the tears must run, but here the tears hardly flow because [the onion] has lost its flavour' (18M 50–59 French).

Chemical contamination was particularly linked to cancer causation, with chemicals considered to affect the cells of the body. One participant described the effect of chemical contamination in terms of a small substance that changed the whole body: 'it is like taking a bottle of clean water, then take [some] colour and drop it into that water: it changes [and] that's the way the body is' (5F 50–59 Swahili and English). The effects of chemical contamination were considered silent and delayed, with chemical products transported throughout the body in the bloodstream. Indeed, one participant described contamination from chemicals in food in terms resembling metastasis: 'my body will just receive it inside there, you do not know if it will settle in the breasts, it will go to settle in the stomach, it will go to the legs' (14F 30–39 Swahili).

Not all participants offered explanations about where these beliefs originated from. However, one did suggest that doctors in Africa promoted an association of cancer with food contamination.

since my childhood, well, the general theory that the doctors were giving in Africa at the time it was to avoid [food] stuff that was burned to excess and then, for example, certain [cooking] receptacles, to avoid certain cooking pots . . . which were giving out something that can cause cancer in the future. (17M 40–49 French)

Exposure to other toxic agents was cited as a cause of cancer. These included unseen waves from microwave ovens and regular use of a mobile phone. Finally, excessive sunlight and ultraviolet rays were also discussed as sources of cancer. In this regard one participant differed, suggesting: 'what causes skin cancer? I don't know, maybe some lack of sun' (12M 30–39 English).

### **Obesity, diet and physical exercise**

Some participants volunteered that obesity was linked with chronic conditions, in particular hypertension, diabetes, heart attacks and 'problems with bones.' Only one participant linked obesity with more than two chronic condition: 'this obesity leads to lots of things and when the heart beats it tires itself and leads to lots of diseases like hypertension, all that, some little things like that and even the sugar level starts to rise' (17M 40–450 French). However, not all participants associated obesity with disease and some suggested that Africans were naturally prone to weight gain

460 because: '[obesity] does not constitute a disease but it is a malformation . . . [because] Africans by nature are fat . . . I would say . . . above all the women naturally put on a lot of weight' (13M 30–39 French).

465 Africans were reported to be unaware of the relationship between obesity and health problems: 'obesity is a big problem but the people, they are not well informed about obesity' (19M 50–59 French). This was supported by one participant: 'what [health problems] can obesity bring? Well, I have no idea' (16M 40–49 French). This was despite it being such a problem that 'everyone has to change his wardrobe every  
AQ4 six months because his size is increasing exponentially' (17M 40–50 French). One participant concluded that obesity was a consequence – rather than a cause – of diabetes: 'most of the diabetics that I often see they are a bit fat . . . well, I do not know what this fatness is due to, perhaps it is the effects of the disease, yes it is that' (16M 40–49 French). At other times an association between diabetes and obesity was dismissed because 'somebody who suffers from diabetes can be normal [i.e., slim] like you and me. You will not know that this person has diabetes' (13M 30–39 French).

475 Availability of cheap food in the UK was offered as a possible reason for the development of obesity. Obesity was also reported to imply affluence – and even greater health status – amongst older Africans, although this was not necessarily the view of younger participants. However, traditional cooking methods were also held to be responsible. African food was at times considered to be unhealthy, for example using excess oil and lengthy preparation times:  
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when you go into my mum's kitchen there is a lot of palm oil, like just a lot of oil, they are frying stuff . . . when you come to eating vegetables we like cook them for a really long time and then add oil in them, so people when you eat well you might put on some weight I think. (10M 18–24 English)

485 One participant suggested that increased rates of cardiovascular disease amongst Asian people was because 'spices, I believe that they bring diseases like heart disease a lot . . . because a lot of spices are cooked with oil' (14F 30–39 Swahili). Salt intake was linked to heart disease by one participant: 'heart disease [results from] using a lot of salt at meal times' (11F 40–49 Swahili). Exercise was considered to be a problem for many Africans here: 'we do not do enough exercise, for example, most [Africans] are stuck in the house, that is to say are not moving, not doing much sport' (19M 50–59 French).

## Discussion

495 This study suggests low awareness of chronic disease risk among African migrants living in the West of Scotland. Concern over infectious disease dominated participants' perceived health threats and chronic diseases were described by some as contagious. Overarching explanatory models were bodily/dietary imbalance, stress/exertion, heredity/predisposition and chemical contamination. These revealed some knowledge about chronic disease risk factors, for example, the relationship between lifestyle and developing cancer, between obesity and other chronic diagnoses and a role for the interaction of genes and environment in disease causation.  
500 Nevertheless, cancer was considered more common in Europe due to chemical

contamination and cardiovascular disease described in terms of acute symptoms requiring short-term medication.

505 Our finding with respect with cardiovascular disease mirrors that of Beune's (2006) Dutch study, where some participants described cardiovascular disease in terms of acute symptoms and often associated with stress. Certain findings reported here are also common to studies of European populations, for example, perceiving cancer as incurable and implicating hereditary factors in its causation (Scanlon *et al.* 510 2006). Unlike research elsewhere showing that family history may not be recognised as a risk factor even by people with a large number of relatives with heart disease (Hunt *et al.* 2001), in the present study many participants were quick to volunteer increased personal risk based on family history. Nevertheless, at times familial conditions were perceived as less severe forms.

515 An interesting component of these narratives was the description by certain participants of chronic diseases as contagious. This perspective may provide insight into participants' understanding of the role for medication adherence and long term management in chronic conditions. Although anthropological studies show contagion theories to be important in Africa for infectious diseases (Green 1999) we have 520 been unable to identify reports of such beliefs for chronic conditions. This perspective may reflect previous experience of infectious diseases in Africa. Alternatively, it may result from unfamiliarity with terms such as 'to acquire' amongst participants, most of whom were speaking in a second language. A third, important reason could underlie this belief: it is known that infections are indeed an 525 important primary cause of many chronic diseases. This belief may, therefore, have arisen because of previous exposure to education about infective diseases in Africa, particularly concerning cancer risks associated with HIV. Other infective examples that occur in Africa include cancers of the liver, cervix and skin caused by viruses, chronic cardiac disease from syphilis and epilepsy from tapeworm infection of the 530 brain. Knowledge that primary infective causes exist for common chronic diseases could pose a challenge to health promotion. In particular, this suggests a need to inform Africans about prevention of acquired chronic diseases through lifestyle change alongside existing interventions to promote knowledge of – and behavioural changes to prevent – infections such as HIV.

535 Participants in this study offered articulate and rational explanations for disease causation constructed from personal observation. Nevertheless, these findings suggest a need to inform Africans and promote discussion about their increased risk of certain chronic diseases. This was most striking in participants' perception that cancer rates in Europe were significantly higher than in Africa. This suggests an important need to 540 challenge the notions both of cancer as a 'European' and a random disease as well as informing African migrants of key risks such as prostatic cancer.

545 Explanatory models for perceived increased cancer rates in Europe were based on food contamination with toxins and this belief arose across age, gender and religious categories. This may also explain why some participants described cancer in terms of being 'caught.' Similar concern over canned food and fertilisers in cardiovascular causation has been reported from Ghana (Abanilla *et al.* 2011). These beliefs require additional research, not least because such fears may be real. There is good evidence for transmission from canned products of chemicals positively associated with cardiovascular disease and diabetes (Carwile *et al.* 2011). There are also case reports 550 from Africa of fatal botulinum infection arising from canned food (Freaun *et al.*

2004). In addition, we have identified Internet pages in Swahili linking canned and processed food to cancer. As participants in this study cited the Internet and email as important sources of health information, it is possible that the origins of these beliefs may lie in online or media sources. Alternatively, personal observation of decaying cans in Africa's warm climate could be the basis for contamination fears. These findings should inform health promotion in order to emphasise risk factor reduction through multiple dimensions of lifestyle change, rather than just the prevention of contamination. Nevertheless, such interventions should build upon the positive aspects of explanatory models identified in this study, for example a preference for preservative free and unprocessed food.

### **Additional implications for health promotion**

Additional health beliefs identified in this study should inform health promotion. First is the notion that hypertension is a condition of older people and indeed a normal feature of aging. This could inform the development of patient-centred interventions to detect hypertension, particularly for younger, asymptomatic African migrants. Second is the perception that it may be inevitable for Africans to acquire chronic diseases already present in family members, although this was linked to a favourable view of screening and early detection. Third, there was the view that certain conditions only required medication for a short period of time, particularly when the condition is largely asymptomatic. Future research should focus on developing interventions to promote long-term compliance with medication for chronic disease, particularly in asymptomatic patients. Finally, these findings suggest a need to inform newly arrived African migrants of the risks associated from obesity, resulting from reduced exercise and easy access to high calorie food in the West.

### **Study limitations and strengths**

In this study selection bias resulted from two factors. First, initial interviews arose from positive responses from certain churches and community organisations for Africans from specific countries or language groups. Second, use of a chain-sampling approach may have limited diversity in age, religion, gender and educational level. A further reason for few Muslims was that some participants came from countries where Islam is not widespread. The absence of male Muslim participants may have missed perspectives from members of a part of African society with distinct beliefs and practices (Rasmussen 2008). This is relevant to the implications of our findings because there is evidence that Muslim migrants' knowledge of chronic disease may be underestimated and because Islam may have an important role in supporting health promotion (Clare *et al.* 2008). A further limitation is that the relatively high educational level of participants in this study may have elicited explanations closer to Western models rather than private folk beliefs described in Africa such as taboo violation and magical causation of disease (Green 1999). The interpretation of findings is also limited by absence of a comparison group from the indigenous population. It is, therefore, not possible to draw conclusions about the impact of African origin and migration upon these results. The study would also have been strengthened by greater sample size to examine additional demographic characteristics, in particular socio-economic status, detailed educational level and age at

595 migration. Whilst this was considered during the planning phase, it was decided that  
recruiting a participant group large enough to incorporate these variables (in  
600 addition to age, sex and religion) was beyond the scale and resources of the current  
project. Similarly, it would have been desirable to include UK-born Africans to  
explore longer-term effects of migration on chronic disease beliefs.

605 Furthermore, although the term ‘Africans’ is used here it is important to note that  
nearly all participants came from across Africa’s central belt. Within African migrant  
populations there is known to be great diversity in diet, culture and psychosocial  
610 factors that impact on chronic disease risk (Okwuosa and Williams 2012).  
Additional diversity such as religious faith, language use and personal migration  
history can also influence perceptions of health and well-being. A further caution to  
generalisation of findings is that some participants belonged to small social networks  
and even within this reported a reluctance to discuss serious health problems with  
other Africans. A particular strength of this study was that it did not require  
interpreters, easing concerns about confidentiality and permitting participants to use  
615 preferred tongues. This facilitated participant recruitment and appears to have been  
important in eliciting accounts that represented wide diversity in nationality (albeit  
from Africa’s central belt), cultural heritage and personal experience.

### **Conclusions**

620 Like most qualitative research we have gained important knowledge about the  
perspectives of a range of participants and the agreement of our results with other  
similar studies implies that our findings include important overarching themes. Most  
notably these are the pre-eminence of infection in African migrants’ perceptions of disease  
risk and a belief in increased cancer incidence in Europe due to chemical contamination.

625 This study contributes to the sparse literature of beliefs about chronic disease  
among African migrants’ in the UK. These findings can inform education and  
training for health care professionals, for example, the importance of distinguishing  
with patients between terms such as chronic, terminal, incurable and recurrent. The  
findings reveal a need to improve chronic disease health literacy in Africans in  
Glasgow to promote their engagement with preventative behaviours. This should  
630 build on not only participants’ existing knowledge of risk factors and disease, but  
also their self-reliance in the pursuit of a healthy lifestyle and desire to retain cultural  
knowledge and practice.

### **Key messages**

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### **Acknowledgements**

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