Family history: an opportunity for early interventions and improved control of hypertension, obesity and diabetes

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Objective To examine whether a family history of high-risk groups for major noncommunicable diseases (NCDs) was a significant risk factor for these conditions among family members in a study population in the Gambia, where strong community and family coherence are important determinants that have to be taken into consideration in promoting lifestyle changes.

Methods We questioned 5389 adults as to any first-degree family history of major noncommunicable diseases (hypertension, obesity, diabetes and stroke), and measured their blood pressure (BP) and body mass index (BMI). Total blood cholesterol, triglyceride, uric acid, and creatinine concentrations were measured in a stratified subsample, as well as blood glucose (2 hours after ingesting 75 g glucose) in persons aged $\geqslant 35$ years.

Findings A significant number of subjects reported a family history of hypertension (8.0%), obesity (5.4%), diabetes (3.3%) and stroke (1.4%), with 14.6% of participants reporting any of these NCDs. Subjects with a family history of hypertension had a higher diastolic BP and BMI, higher cholesterol and uric acid concentrations, and an increased risk of obesity. Those with a family history of obesity had a higher BMI and were at increased risk of obesity. Individuals with a family history of diabetes had a higher BMI and higher concentrations of glucose, cholesterol, triglycerides and uric acid, and their risk of obesity and diabetes was increased. Subjects with a family history of stroke had a higher BMI, as well as higher cholesterol, triglyceride and uric acid concentrations.

Conclusions A family history of hypertension, obesity, diabetes, or stroke was a significant risk factor for obesity and hyperlipidaemia. With increase of age, more pathological manifestations can develop in this high-risk group. Health professionals should therefore utilize every opportunity to include direct family members in health education.

Keywords: Hypertension/genetics; Obesity/genetics; Diabetes mellitus/genetics; Cerebrovascular accident/genetics; Genetic predisposición to disease; Risk assessment; Cross-sectional studies; Ghana (*source: MeSH*).

Mots clés: Hypertension artérielle/génétique; Obésité/génétique; Diabète/génétique; Accident vasculaire cérébral/génétique; Prédisposition génétique; Evaluation risque; Etude section efficace; Ghana (*source: INSERM*).

Palabras clave: Hipertensión/genética; Obesidad/genética; Diabetes mellitus/genética; Accidente cerebrovascular/genética; Predisposición genética a la enfermedad; Medición de riesgo; Estudios transversales; Ghana (*fuente: BIREME*).

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Introduction

Noncommunicable diseases (NCD), particularly cardiovascular diseases, are an important determinant of morbidity and mortality of people all over the world (*1*). This also holds for countries where the burden of infectious disease is high, such as in sub-Saharan Africa (*2*). Because NCDs affect mainly adults who are usually responsible for the economic and social welfare of both children and elderly people, these diseases have major repercussions for all age groups. An increased risk of NCDs for family members of NCD patients has been found in many studies among different populations, as discussed below.

Hypertension. In industrialized countries, the risk of becoming hypertensive for an individual with a family history of hypertension has been estimated to be up to four times higher than average (*3, 4*). To our knowledge, no studies in sub-Saharan countries relating to the risk of disease with a positive family history of hypertension have been published.

Diabetes. The risk of becoming diabetic for an individual with a positive family history of diabetes varies with the age of the proband when the diagnosis was made and the type of diabetes. A recent review concluded that having a parent with non-insulin-dependent diabetes mellitus (NIDDM) increases by two- to fourfold an offspring's chance of developing this condition, and that in this respect concordance between siblings appeared stronger than that between parent and child (*5*). In a study in northern Sudan, a family history of diabetes was 2.3 times more often reported among diabetics than non-diabetics (*6*).

Obesity. In Thailand, which has been described as being in a state of transition from a traditional to an industrialized society, a statistically significant relative risk of 3.1 for obesity was reported for those with a positive family history of the condition (*7*). No data relating to the risk of disease with a positive family history of obesity were found from studies in sub-Saharan Africa.

Often, pathophysiological changes, qualitatively similar to those found among patients with NCDs, can be detected in the pre-disease phase. These include metabolic changes such as lower insulin sensitivity, higher levels of both total and low-density cholesterol and triglycerides, as well as cardiac and renal morphological and functional changes (*8–10*). Similar observations have been made in sub-Saharan Africa (*11*), which highlights the need for early intervention if asymptomatic disease is to be prevented.

The increase of NCDs in developing countries is seen as a consequence of a combination of demographic transitions — increase in life expectancy and an increasing proportion of the population in older age groups — and an epidemiological transition; the availability of immunizations and treatment for infectious diseases is reducing the immediate impact of many such diseases. In contrast, changes in lifestyle related to urbanization and "westernization", such as diet, smoking, physical inactivity and increased levels of stress, lead to an increase in risk factors for NCDs (*12, 13*). The combined effect of these transitions has been summarized as a "health transition" (*14, 15*).

The present study assesses the risks related to a family history of hypertension, diabetes or obesity in a sub-Saharan African country in transition.

Methods

The Gambia is situated in West Africa in the arid Sahel belt along both sides of the river Gambia. According to the national census, the population was just over 1.03 million in 1993, with an annual growth rate of 4.2% and high population density (97 per km^2). Adult literacy is low, especially among females. The predominant religion (95%) is Islam. In 1993, life expectancy was 54 years for men and 56 years for women (*16*).

Between October 1996 and June 1997 we conducted a community-based survey on the prevalence of several major NCDs in two areas: urban (the capital Banjul) and rural (20 villages scattered around the town of Farafenni, approximately 150 km inland). Banjul, with a population of around 40 000, is situated on an island in the river Gambia and is the oldest urban settlement in the country. There is no major industry and many in the working population of Banjul are involved in small industries, trades or crafts, or are employed as civil servants. Subsistence farming is the occupation of the vast majority of the population in the villages around Farafenni, as with most rural populations in the Gambia. The main crops cultivated are millet, groundnuts and rice. Approximately 45% of the rural population has an annual income of less than US$ 150, compared with 7% in Banjul (*16*). In 1994 the gross national product (GNP) per capita for the country was US$ 330.

Using a stratified cluster sample survey of the two study populations, we collected data from 2166 adults (aged ⩾15 years) in Banjul and from 3223 adults in the 20 study villages. The subjects were asked to report to a local community centre in Banjul, while mobile clinics were organized in the villages. After obtaining informed signed consent, a general questionnaire was administered by a field worker in a locally appropriate language. The questionnaire included sections on demography, socioeconomic status, symptoms of NCDs, drug use, smoking, past medical history, and first-degree family history of NCDs.

The blood pressure (BP) and pulse rate of all subjects, while in a seated position with the arm at heart level, were recorded after a 5-minute rest using a validated oscillometric automated digital BP machine (Omron® HEM-705CP, Japan) (*17*). The mean of two readings was used in the analysis. Anthropometric data (height and weight, and circumference of the waist and hip) were also measured. The waist:hip ratio was calculated to assess central obesity. Venous whole blood glucose, 2 hours after a 75 g glucose load, was measured in subjects aged ⩾35 years (*n* = 2301) using a portable glucose meter (HemoCue-B®, AB HemoCue, Sweden) since routine collection of the fasting blood glucose was not feasible and reliable in these study communities. At the same time, an additional venous blood sample was collected from a systematic subsample (every tenth participant among those aged <35 years and every fifth participant among those aged ⩾35 years) (*n* = 1075). This was analysed for total cholesterol, triglycerides, uric acid and creatinine using a centrifugal analyser (Cobas Fara®, Roche, United Kingdom) at the MRC biochemistry laboratory in Fajara; daily quality control checks were performed using external samples.

Following WHO guidelines, hypertension was defined as BP ⩾160/95 mmHg. Obesity was defined as a body mass index (BMI = weight in kg/(height in m)^2) of ⩾30, and diabetes as a blood

glucose — post-2-hour loading — of $\geqslant 10.0$ mmol/l, or (if known to be) reporting currently using anti-diabetic drug treatment and therefore excluded from confirmation by oral glucose tolerance testing (*18*). Participants who reported that they spent more than half the day on their feet or that they were involved with daily exercise were classified as physically active. Those who spent less than half the day on their feet or led a sedentary life were classed as physically inactive.

The family history was defined as positive when a person recollected having a first-degree relative (a parent, grandparent, sibling or child) who had ever been diagnosed with hypertension, diabetes, obesity or stroke by a health worker: for example, "Has anybody in your family ever been told by a doctor that they had x, y, z?". If the answer was positive, the fieldworker would probe further ("Was it your father? Your mother?" etc.). The family history was defined as negative if the interviewed person reported the absence of a specific condition among first-degree relatives, and as missing if she/he reported not knowing whether any relatives had ever been told that they were affected (*19, 20*).

Data were analysed using the Stata package version 6.0 (Stata Corporation, Texas, USA). Student's *t*-test was used to calculate statistical significance between the two groups; for comparisons among more than two groups, homogeneity was assessed using χ^2 tests. Since the biochemical variables did not have a normal distribution, these were analysed after being normalized by log transformation. Adjusted odds ratios were calculated using multiple logistic regression models; multiple linear regression was used to assess independent effects on continuous variables. Significance was assigned by a two-sided alpha level of 0.05.

The study was approved by the Gambia Government/MRC Ethics Committee.

Results

Of the 3202 eligible people in the urban area, 2166 (67.6%) participated in the study. In the rural area, 3223 (87.1%) out of 3699 participated. Overall participation was 78.1%. The mean age was 35.4 years and 58.5% of the participants were females. The prevalence of hypertension was 7.1% (*21*), of obesity 4.0% (*22*), and of diabetes (among people aged $\geqslant 35$ years) 3.4% (M. van der Sande et al., unpublished results, 2001).

A total of 789 (14.6%) out of 5389 subjects reported a positive family history for hypertension, obesity, diabetes and/or stroke; 465 (8.6%) of the participants were not sure whether any of their first-degree family members had ever been diagnosed with any of these conditions.

There were several significant differences in demographics, education, and occupation between subjects who did and who did not report a family history, and between those who did and did not know (Table 1). A family history was reported significantly

more often by younger subjects, women, persons with formal education, and non-manual workers, and among the participants from Banjul.

Subjects who were not aware of their family history were significantly older; were more often from the rural study area, and had less formal education but more Islamic education compared with subjects who recalled either a positive or negative family history. The main significant difference was in the mean ages of subjects when comparing people who did not know their family history and those who reported a negative family history.

Reported smoking was high in all groups, particularly among men. Subjects who did not know their family history reported a higher frequency of "ever smoking" than those who knew the family history, but this was not significant after adjustment for age. In this largely Islamic society, the reported consumption of alcohol was negligible.

Hypertension. A total of 431 participants (8.0%) reported a family history of hypertension; compared with those reporting not having a family history of hypertension, they were significantly younger and more often from the urban area. In addition they had a higher mean diastolic BP ($P = 0.06$), a significantly higher mean BMI ($P < 0.001$), and higher mean cholesterol ($P < 0.001$) and mean uric acid concentration ($P = 0.02$). After

Table 1. **Baseline data concerning the 5389 subjects who reported a family history (positive family history) of noncommunicable diseases and those with a negative family history**

	Family history		P-value[a]	Unknown family history
	Positive	**Negative**		
No. of persons	789 (14.6)[b]	4135 (76.7)	—	465 (8.6)
Mean age (years) $\pm$ SD	32.7 $\pm$ 14.7	35.4 $\pm$ 16.7	<0.001	41.0[c] $\pm$ 18.5
Females (%)	62.6	58.2	0.02	55.9
Urban (%)	66.5	36.8	<0.001	26.0[c]
Unskilled manual work (%)	46.8	67.1	<0.001	70.4[c]
Skilled manual (%)	17.7	14.5	0.02	12.6
Non-manual (%)	10.8	4.0	<0.001	2.8[c]
Not working (%)[d]	24.6	14.4	<0.001	14.1
No education (%)	11.2	16.5	<0.001	12.3
Islamic education (%)	34.4	61.0	<0.001	72.6[c]
Formal education	54.4	22.5	<0.001	15.1[c]
Smokers (%)				
Ever	25.6	24.6	NS	29.7
Current	16.9	18.7	NS	19.7
Physically active (%)	36.7	45.9	<0.001	32.8

[a] *P*-value: significance testing of the difference between those who report a positive and who report a negative family history.

[b] Figures in parentheses are percentages.

[c] Denotes statistical significance (*P* <0.05) of the difference between those with a known and with an unknown family history.

[d] Includes students, unemployed people, handicapped people.

being adjusted for age and sex, a family history of hypertension was associated with a significantly higher mean diastolic BP (+2.5 mmHg, $P <0.001$); and a significantly higher mean blood glucose concentration (2 hours after the 75 g glucose load) among subjects aged $\geqslant 35$ years (+0.3 mmol/l, $P = 0.05$). The mean adjusted systolic BP was 1.5 mmHg higher ($P = 0.1$) (Table 2). A total of 264 (4.9%) subjects did not know if any of their first-degree family members had ever been diagnosed as hypertensive.

Obesity. The 293 (5.4%) of study subjects who reported a family history of obesity had significantly higher mean BMI ($P <0.001$) than those who reported no such history. The unadjusted mean systolic BP was 3.1 mmHg lower among subjects with such a family history, but when adjusted for age

and sex this became marginally lower (–0.8 mmHg; $P = 0.5$) (Table 3). A total of 227 (4.2%) participants did not know whether any of their first-degree family members had ever been diagnosed as obese.

Diabetes. A total of 180 subjects (3.3%) recalled a family history of diabetes. Compared with those who reported not having a family history of diabetes, they had a significantly higher mean BMI ($P <0.001$), mean post-2-hour blood glucose ($P <0.001$), mean cholesterol ($P <0.001$), mean triglycerides ($P <0.01$), and mean uric acid concentration ($P = 0.02$). The mean age of individuals with or without a family history of diabetes did not differ, but nearly all subjects with a family history were from the urban study area (Table 4). A total of 202 (3.7%) participants did not know if any of their first-degree family members had ever been diagnosed as diabetic.

Stroke. Subjects who reported a family history of stroke (77, 1.4%) had a significantly higher BMI ($P <0.001$), mean cholesterol ($P = 0.02$), mean triglycerides ($P <0.001$), and mean uric acid concentration ($P <0.001$) than those who reported no such history (Table 5). A total of 232 (4.3%) participants did not know if any of their first-degree family members had ever been diagnosed with stroke.

Odds ratios. After adjustment for age, sex and area of residence, the odds ratios (OR) for obesity were significantly higher for each of the family histories reported, and highest for individuals who reported a family history of obesity (OR = 3.8). The adjusted OR for hypertension was not higher for those with a family history of the condition. Among subjects who reported a family history of diabetes, the adjusted odds ratio for diabetes (among those aged $\geqslant 35$ years) was significantly higher (OR = 6.2) (Table 3). Adjusted for age, sex and area, none of the family histories was independently associated with elevated cholesterol or elevated uric acid concentration. An elevated triglyceride concentration was associated with a family history of diabetes (OR = 3.1) and of stroke (OR = 10.3); an elevated creatinine concentration was associated with a family history of obesity (OR = 2.6).

Obese and diabetic adults were more likely to report a positive family history of these conditions than hypertensive subjects (Fig. 1).

Discussion

Self-reported family histories of disease, defined as the recollection of a diagnosis in a first-degree relative, are easy to ascertain, and several studies have demonstrated the accuracy of such histories (*19, 20*). Bias due to differential recall cannot be excluded, however, especially in a population where cardiovascular diseases (e.g. hypertension) and obesity are not recognized as important contributors to morbidity and mortality. Subjects reporting a family history of either of these NCDs were younger, more liable to live in a city, better educated, and more often female

Table 2. **Cardiovascular markers among subjects with and without a self-reported family history of hypertension**

	Family history of hypertension		
	Negative	Positive	*P*-value
No. of subjects	4694	431	
Age (years)	35.5 (16.7)[a]	31.2 (13.8)	<0.001
% female	58.5	61.3	NS[b]
% urban	37.3	78.4	<0.001
Mean systolic BP (mmHg)	120.7 (23.2)	119.3 (21.6)	NS
Mean diastolic BP (mmHg)	70.9 (12.4)	72.1 (12.1)	0.06
Mean pulse rate	81.5 (14.2)	81.4 (13.2)	NS
Mean BMI (kg/m^2)	21.0 (3.9)	23.0 (5.4)	<0.001
Mean glucose level (mmol/l)	6.2 (1.9)	6.5 (2.2)	0.1
Mean cholesterol level (mmol/l)	4.3 (1.1)	4.8 (1.3)	<0.001
Mean triglyceride level (mmol/l)	0.79 (0.34)	0.82 (0.46)	NS
Mean uric acid level (mmol/l)	0.28 (0.08)	0.30 (0.08)	0.02
Mean creatinine level (µmol/l)	73.8 (30.1)	73.8 (17.2)	NS

[a] Figures in parentheses are standard deviations.

[b] NS = not significant.

Table 3. **Cardiovascular markers among subjects with and without a self-reported family history of obesity**

	Family history of obesity		
	Negative	Positive	*P*-value
No. of subjects	4869	293	
Age (years)	35.2 (16.7)[a]	32.7 (14.3)	0.01
% female	58.0	67.9	<0.001
% urban	40.7	48.1	0.01
Mean systolic BP (mmHg)	120.8 (23.7)	117.7 (20.2)	0.03
Mean diastolic BP (mmHg)	71.1 (12.4)	70.7 (12.2)	NS[b]
Mean pulse rate	81.6 (14.2)	81.2 (13.9)	NS
Mean BMI (kg/m^2)	21.1 (4.0)	22.4 (5.2)	<0.001
Mean glucose level (mmol/l)	6.3 (1.9)	6.2 (1.5)	NS
Mean cholesterol level (mmol/l)	4.3 (1.1)	4.1 (1.1)	NS
Mean triglyceride level (mmol/l)	0.79 (0.37)	0.80 (0.56)	NS
Mean uric acid level (mmol/l)	0.28 (0.08)	0.28 (0.10)	NS
Mean creatinine level (µmol/l)	74.4 (34.2)	74.7 (21.1)	NS

[a] Figures in parentheses are standard deviations.

[b] NS = not significant.

compared with those who did not report such a history. People who were unaware of their family history were most likely not to have an affected family member; the data in Table 1 indicate that this group resembles those who reported a negative family history. Including the "non-responders" with those reporting no family history did not change the results of the analysis.

Reporting a family history depends on the prevalence of the diseases, the number of family members, availability of diagnostic facilities, health-seeking behaviour of patients, and on how familiar they are with diagnoses among their family members. Most of these factors are likely to be commoner in an urban environment; recall is likely to be clearer among people who are more health conscious (i.e., better educated and living in an urban environment) and are younger (see Table 1). However, any such bias will only have diluted the associations with cardiovascular risk factors that we found among first-degree family members.

The reported number of positive family histories is likely to be an underestimate, particularly for hypertension, which may often remain subclinical as long as damage to target organs remains within acceptable limits for an affected individual. Under-reporting might be less marked for diabetes, which tends to manifest itself earlier than hypertension, and for obesity, which is a visible condition and less dependent for its diagnosis on medical testing.

The increased risk of obesity and diabetes observed among those who reported a positive family history is in accord with the results from other studies. We did not find an increased risk for hypertension among those who reported a family history of the condition, although their adjusted mean blood pressures were higher. A review of studies on the effect of a family history on blood pressure concluded that the majority of such studies could not demonstrate a directly increased risk for hypertension (*23*). There is evidence that hyper-tension is a relatively late manifestation of the disease process; thus normotensive people with a family history have been classified as "normotensive hypertensives" (*24*). This could be an important concept in our young study population. Blood pressure would be expected to rise with age and the prevalence of hypertension would thus be higher among first-degree relatives.

In the course of this study, a high-risk population has been identified, particularly in the urban area. Subjects who report a family history are much more likely to be obese, and to have higher concentrations of serum lipids. This finding supports the idea of a metabolic syndrome in which insulin resistance provides a common pathway for the development of hypertension, diabetes, obesity, and hyperlipidaemia and hyperuricaemia (*25*). Obesity and age are the main environmental risk factors for the development of diabetes, where the offspring of hypertensive parents have been shown to be particularly prone to gain excess weight (*26*). Lower

Table 4. **Cardiovascular markers among subjects with and without a self-reported family history of diabetes**

	Family history of diabetes		
	Negative	**Positive**	**P-value**
No. of subjects	5007	180	
Age (years)	35.4 (16.7)[a]	35.5 (16.6)	NS[b]
% female	58.6	13.9	<0.001
% urban	38.6	70.6	<0.001
Mean systolic BP (mmHg)	120.8 (23.7)	118.6 (21.9)	NS
Mean diastolic BP (mmHg)	71.1 (12.5)	72.1 (10.8)	NS
Mean pulse rate	81.4 (14.2)	82.9 (14.2)	NS
Mean BMI (kg/m^2)	21.0 (3.9)	24.8 (6.2)	<0.001
Mean glucose level (mmol/l)	6.2 (1.8)	8.4 (3.9)	<0.001
Mean cholesterol level (mmol/l)	4.3 (1.1)	5.0 (1.2)	<0.001
Mean triglyceride level (mmol/l)	0.78 (0.36)	0.91 (0.57)	0.009
Mean uric acid level (mmol/l)	0.28 (0.08)	0.30 (0.09)	0.02
Mean creatinine level (μmol/l)	74.7 (34.2)	73.2 (19.6)	NS

[a] Figures in parentheses are standard deviations.

[b] NS = not significant.

Table 5. **Cardiovascular markers among subjects with and without a self-reported family history of stroke**

	Family history of stroke		
	Negative	**Positive**	**P-value**
No. of subjects	5079	77	
Age (years)	35.0 (16.6)[a]	35.4 (14.0)	NS[b]
% female	58.7	51.9	NS
% urban	41.0	70.1	<0.001
Mean systolic BP (mmHg)	120.6 (23.1)	119.3 (19.8)	NS
Mean diastolic BP (mmHg)	71.1 (12.4)	73.0 (13.0)	NS
Mean pulse rate	81.6 (14.2)	80.3 (12.1)	NS
Mean BMI (kg/m^2)	21.2 (4.1)	23.0 (5.1)	<0.001
Mean glucose level[c] (mmol/l)	6.2 (1.9)	6.0 (1.3)	NS
Mean cholesterol level (mmol/l)	4.3 (1.1)	5.0 (1.4)	0.02
Mean triglyceride level (mmol/l)	0.78 (0.38)	1.18 (0.69)	<0.001
Mean uric acid level (mmol/l)	0.28 (0.08)	0.35 (0.11)	<0.001
Mean creatinine level (μmol/l)	74.3 (33.7)	77.7 (26.6)	NS

[a] Figures in parentheses are standard deviations.

[b] NS = not significant.

[c] Glucose: measured in whole venous blood among subjects aged ≥ 35 years only, 2 hours after a 75-g glucose load.
Similar results were obtained when biochemical data were normalized by log transformation before analysing.

levels of physical activity, linked to increased obesity, have been demonstrated among the family members of hypertensives (*27, 28*).

Although family history is a predictor of increased susceptibility to disease because of an interaction between genetic traits, environmental factors and behaviour, which are shared to a larger extent than among the general population, these factors are notoriously difficult to disentangle (*29*). Regardless of the etiology of the disease concerned, a healthier lifestyle will contribute to modifying the risks. In many sub-Saharan African societies, such as in the Gambia, the traditionally strong community

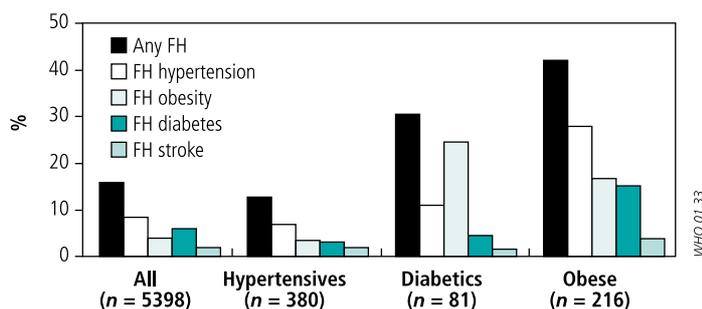Fig. 1. **Reported family history (FH) of various noncommunicable diseases among different study groups**

Table 6. **Adjusted odds ratios (OR)[a] for hypertension, obesity, and diabetes, by family history**

	Family history of			
	Hypertension	**Obesity**	**Diabetes**	**Stroke**
OR for hypertension	0.95 (0.59–1.53)[b]	0.57 (0.29–1.12)	0.62 (0.32–1.22)	0.73 (0.28–1.92)
OR for obesity	*3.10*[c] (2.11–4.55)	*3.95* (2.44–6.42)	*2.29* (1.43–3.65)	1.71 (0.70–4.18)
OR for diabetes[d]	1.35 (0.61–3.00)	1.19 (0.35–4.00)	*7.24* (3.75–13.95)	0.45 (0.06–3.44)

[a] ORs adjusted for age, sex and residence.

[b] Figures in parentheses are 95% confidence intervals.

[c] Figures in italics are ORs which are statistically significant ($P < 0.001$).

[d] ORs for diabetes were calculated for subjects aged $\geqslant 35$ years.

ties and family coherence can be important factors for an individual or a group to reject or adopt lifestyle changes. The increased risk of obesity, with the decreased level of physical activity among family members, suggests that modification of diet and activity patterns could be effective interventions. Having witnessed the burden of these diseases within the family, people are more likely to be motivated to modify their behaviour; their motivation for behaviour change will therefore be higher than that among the general population. In a society where family ties are very strong, and most people eat from communal family food bowls, a behavioural change might be impossible to implement and consolidate if it is not accepted as a family commitment.

It has been demonstrated that decentralization of care can help to improve the control of noncommunicable diseases (*30*); involving the family as a unit may be a crucial step in this process. Thus, family involvement would be beneficial for both the identified patient and her/his (immediate) family members who are at increased risk of becoming patients themselves. With progress in westernization and urbanization, family ties are likely to become looser, but in a relatively small and cohesive country like the Gambia, this process will take time. This presents a window of opportunity for the implementation of health promotion and prevention of these noncommunicable diseases.

Conclusion

Health professionals who deal with patients with cardiovascular diseases should utilize every opportunity to involve the families concerned in health education. An intervention that includes individuals in high-risk families, e.g. to promote lifestyle changes in their diet and physical activity, is therefore a rational strategy that will contribute to the control and prevention of cardiovascular diseases in transitional societies where family coherence is strong. ■

Résumé

Antécédents familiaux : améliorer la précocité des interventions et la lutte contre l'hypertension, l'obésité et le diabète

Objectif Rechercher si un antécédent familial d'appartenance à un groupe à haut risque pour des maladies non transmissibles majeures est un facteur de risque important pour ces affections parmi les membres de la famille. La relation a été étudiée en Gambie, dans un groupe de population où la cohésion familiale et communautaire est forte, et ce sont des facteurs importants dont il faut tenir compte pour promouvoir les modifications du mode de vie.

Méthodes Nous avons interrogé 5389 adultes sur leurs antécédents familiaux de maladies non transmissibles majeures (hypertension, obésité, diabète et accident cérébrovasculaire) chez des parents au premier degré ; leur tension artérielle a été prise et l'indice de Quételet calculé. Différents paramètres, tels que cholestérol total, triglycérides, acide urique et créatinine ont été mesurés dans le sang chez un sous-échantillon stratifié, ainsi que la glycémie (deux heures après l'ingestion de 75 g de glucose) chez les personnes $\geqslant 35$ ans.

Résultats Un nombre important de sujets ont signalé des antécédents familiaux d'hypertension (8,0 %), d'obésité (5,4 %), de diabète (3,3 %) et d'accident

cérébrovasculaire (1,4 %) ; on notait des antécédents de l'une ou de l'autre de ces affections chez 14,6 % des participants. Les sujets ayant des antécédents familiaux d'hypertension avaient une tension diastolique, un indice de Quételet, une cholestérolémie et une uricémie supérieurs, ainsi qu'un risque accru d'obésité. Les patients ayant des antécédents familiaux d'obésité avaient un indice de Quételet supérieur et étaient exposés au risque d'obésité. Chez les individus ayant des antécédents familiaux de diabète, les paramètres tels qu'indice de Quételet, glycémie, cholestérolémie, tri-glycéridémie et uricémie étaient plus élevés, ainsi que le risque d'obésité et de diabète. Chez les sujets ayant des antécédents familiaux d'accident cérébrovasculaire, l'indice de Quételet était plus élevé, de même que la cholestérolémie, la triglycéridémie et l'uricémie.

Conclusion Les antécédents familiaux d'hypertension, d'obésité, de diabète ou d'accident cérébrovasculaire étaient un facteur de risque important d'obésité et d'hyperlipidémie. Avec l'avancement en âge, des manifestations pathologiques plus nombreuses sont susceptibles d'apparaître dans ce groupe à haut risque. Il est donc conseillé aux soignants de mettre à profit toutes les occasions qui se présentent pour faire bénéficier de l'éducation pour la santé les membres de la famille proche.

Resumen

Antecedentes familiares: una oportunidad para intervenir precozmente y mejorar el control de la hipertensión, la obesidad y la diabetes

Objetivo Determinar si la existencia de unos ante-cedentes familiares de alto riesgo de sufrir enfermedades no transmisibles (ENT) constituía un factor de riesgo relevante para esas dolencias entre los miembros de la familia en una población de estudio de Gambia, país donde los sólidos lazos comunitarios y la cohesión familiar son determinantes importantes que deben tenerse en cuenta a la hora de promover cambios del estilo de vida.

Métodos Pedimos a 5389 adultos que mencionaran cualquier antecedente, entre los familiares de primer grado, de ENT importantes (hipertensión, obesidad, diabetes y accidente cerebrovascular), y medimos su tensión arterial (TA) y su índice de masa corporal (IMC). Se determinaron las concentraciones de colesterol total, triglicéridos, ácido úrico y creatinina en sangre en una submuestra estratificada, así como la glucosa sanguínea (dos horas después de ingerir 75 g de glucosa) en personas de más de 34 años.

Resultados Un número importante de individuos refirieron antecedentes familiares de hipertensión (8,0%), obesidad (5,4%), diabetes (3,3%) y accidente cerebrovascular (1,4%), elevándose al 14,6% los participantes que mencionaron cualquiera de esas ENT. Las personas con antecedentes familiares de hiperten-sión presentaban una TA diastólica y un IMC superiores a la media, concentraciones mayores de colesterol y de ácido úrico y un mayor riesgo de obesidad. Las personas con historia familiar de obesidad tenían un IMC mayor y presentaban un riesgo más elevado de obesidad. Los individuos con antecedentes familiares de diabetes presentaban un mayor IMC, niveles más altos de glucosa, colesterol, triglicéridos y ácido úrico, y un mayor riesgo de obesidad y diabetes. Y los individuos con antecedentes familiares de ictus presentaban un IMC más elevado, así como concentraciones más altas de colesterol, triglicéridos y ácido úrico.

Conclusiones Unos antecedentes familiares de hiper-tensión, obesidad, diabetes o accidente cerebrovascular constituyen un factor de riesgo importante de obesidad e hiperlipidemia. Con el aumento de la edad, en este grupo de alto riesgo pueden aparecer más manifestaciones patológicas. Así pues, los profesionales de la salud deben aprovechar cuantas oportunidades tengan de extender a los familiares directos la educación sanitaria.

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