

## **NCD risk factors in Malawi: population characteristics matter**

Philippe Lacroix, Yessito Corine Nadège Houehanou Sonou, Pierre-Marie Preux, Dismand Stephan Houinato

► **To cite this version:**

Philippe Lacroix, Yessito Corine Nadège Houehanou Sonou, Pierre-Marie Preux, Dismand Stephan Houinato. NCD risk factors in Malawi: population characteristics matter. *Lancet Diabetes and Endocrinology*, Elsevier, 2018, 10.1016/S2213-8587(17)30433-3. hal-01689559

**HAL Id: hal-01689559**

**<https://hal-unilim.archives-ouvertes.fr/hal-01689559>**

Submitted on 22 Jan 2018

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## NCD risk factors in Malawi: population characteristics matter



Sub-Saharan Africa is facing a double challenge: a dramatic increase of the population on one hand, and an epidemiological transition on the other. The African population is predicted to reach more than 2.6 billion by 2050,<sup>1</sup> and the distribution will change from a predominantly rural population to a mostly urban one. Meanwhile, an epidemiological transition is happening in sub-Saharan Africa, with an increase in the burden of non-communicable diseases (NCDs)—including cardiovascular disease, cancer, and metabolic disorders—driven by common risk factors. The leading risk factors for the surge in cardiovascular disease and cancer in Africa described in the 2016 Global Burden of Diseases study<sup>2</sup> were smoking, high systolic blood pressure, high body-mass index (BMI), high fasting glucose, low birthweight, and short gestation.

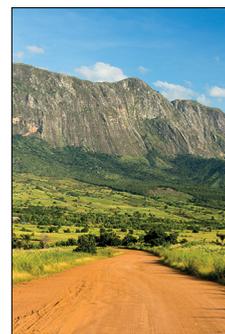
In *The Lancet Diabetes & Endocrinology*, Alison J Price and colleagues report findings from a large epidemiological survey done in two sites Malawi: rural Karonga District and urban Lilongwe.<sup>3</sup> More than 28 000 inhabitants aged over 18 years were included. The authors describe not only the increasing prevalence of overweight and obesity, hypertension, and diabetes, but also estimates analysed by sex, age, and rural or urban residence. The median age of the population was about 32 years. In this low-income country, prevalence of hypertension, diabetes, and overweight or obesity were respectively 15%, 2%, and 13% among men, and 14%, 2%, and 35% among women. The authors stratified participants by age, and—as might be expected—the risk ratios of hypertension, overweight, and obesity increased sharply with age. Notably, risk also increased earlier among urban residents and was associated with higher levels of education and wealth.

These data are in accordance with previous studies done in sub-Saharan Africa. In a 2009 survey<sup>4</sup> using a WHO STEPwise approach in Malawi,<sup>4</sup> 87.4% of the 5206 participants included were from rural areas. Raised blood pressure was highly prevalent in both rural and urban settings, affecting up to 32.9% of participants, and overweight and obesity were more common in urban than in rural areas. In the female population, BMI was 25 kg/m<sup>2</sup> or greater in 28.1% of participants, and 30 kg/m<sup>2</sup> or greater in 7.3% of participants. In Price and colleagues' study,<sup>3</sup> prevalence of BMI greater than

30 kg/m<sup>2</sup> was 13% (2245 of 17 829 participants) in the female population, with a clear predominance in the urban population (1674 [18%] of 9282 participants with available data vs 571 [8%] of 7497). Similar patterns were described in a STEP survey<sup>5</sup> from Benin, including 6762 participants. In this setting the prevalence of both obesity (16.5% vs 5.9%) and diabetes (3.3% vs 1.8%) was greater in urban than in rural areas, and these differences were most striking in women, reaching up to 24.6% in urban women compared with 8.9% in the rural female population. However, in women in low-income countries the relationship between location of residence and being overweight is more complex than these data suggest, where urban women have a higher risk of being overweight but as wealth and socioeconomic status improve, obesity shifts to groups with lower socioeconomic status.<sup>6</sup>

Although the female predominance of participants in both Malawian surveys might constitute a bias, the data they provide are informative. First, they confirm that the burden of NCDs associated with the leading risk factors for NCDs is substantial and differs according to location of residence. Second, the burden of overweight and obesity was particularly high in the urban female population, even for those younger than 40 years. Third, increased levels of education and wealth were not associated with reductions in risk factors for NCDs. Last, these risk factors often went undetected and untreated.

These data raise important questions. In such a young population, early exposure to these risk factors might result in a dramatic increase in NCDs, particularly diabetes and cardiovascular disease. In a low-income country, medical resources are often scarce and the low socioeconomic status of most people with NCDs further restricts their access to medical care, so prevention and early detection of individuals at risk remain the most important interventions. Prevention requires both population-wide and individual approaches. Interventions, particularly education tools, must be tailored to the target population's characteristics—including sex, residence, understanding and perceptions of the disorder, and socioeconomic status. Price and colleagues' study provides a comprehensive assessment of the burden of key NCDs and their associated risk factors in Malawi, and should contribute to the



Ashley Cooper/Science Photo Library

*Lancet Diabetes Endocrinol* 2018

Published Online  
January 19, 2018  
[http://dx.doi.org/10.1016/S2213-8587\(17\)30433-3](http://dx.doi.org/10.1016/S2213-8587(17)30433-3)

See Online/Articles  
[http://dx.doi.org/10.1016/S2213-8587\(17\)30432-1](http://dx.doi.org/10.1016/S2213-8587(17)30432-1)

development of programmes and policies to reduce the increase in NCDs.

\*Philippe Lacroix, Corine Houehanou, Pierre Marie Preux, Dismand Houinato

Department of Vascular Medicine, Dupuytren University Hospital, Limoges 87042, France (PL); INSERM UMR 1094 NET, Limoges, France (PL, CH, PMP, DH); and LEMACEN, University of Abomey-Calavi, Cotonou, Benin (CH, DH)  
philippe.lacroix@unilim.fr

We declare no competing interests.

Copyright © The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license.

- 1 Population Reference Bureau. 2017 world population data sheet. <http://www.prb.org/Publications/Datasheets/2017/2017-world-population-data-sheet.aspx> (accessed Jan 18, 2018).

- 2 GBD 2016 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risk or clusters of risks, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 2017; **390**: 1345-422.
- 3 Price AJ, Crampin AC, Amberbit A, et al. Prevalence of obesity, hypertension and diabetes, and cascade of care in sub-Saharan Africa: a cross-sectional population-based study in rural and urban Malawi. *Lancet Diabetes Endocrinol* 2018; published online Jan 19. [http://dx.doi.org/10.1016/S2213-8587\(17\)30432-1](http://dx.doi.org/10.1016/S2213-8587(17)30432-1).
- 4 Msyamboza KP, Ngwira B, Dzowela T, et al. The burden of selected chronic non-communicable diseases and their risk factors in Malawi: nationwide STEPS survey. *PLoS One* 2011; **6**: e20316.
- 5 Houehanou YC, Lacroix P, Mizehoun GC, et al. Magnitude of cardiovascular risk factors in rural and urban areas in Benin: findings from a nationwide steps survey. *PLoS One* 2015; **10**: e0126441.
- 6 Ford ND, Patel SA, Narayan KM. Obesity in low- and middle-income countries: burden, drivers, and emerging challenges. *Annu Rev Public Health* 2017; **38**: 145-64.