

Designing and Evaluating Interventions to Reduce Obesity and Related Health Risks in Africa: How Nuclear Techniques Can Help

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Participants at the final coordination meeting in Mauritius.

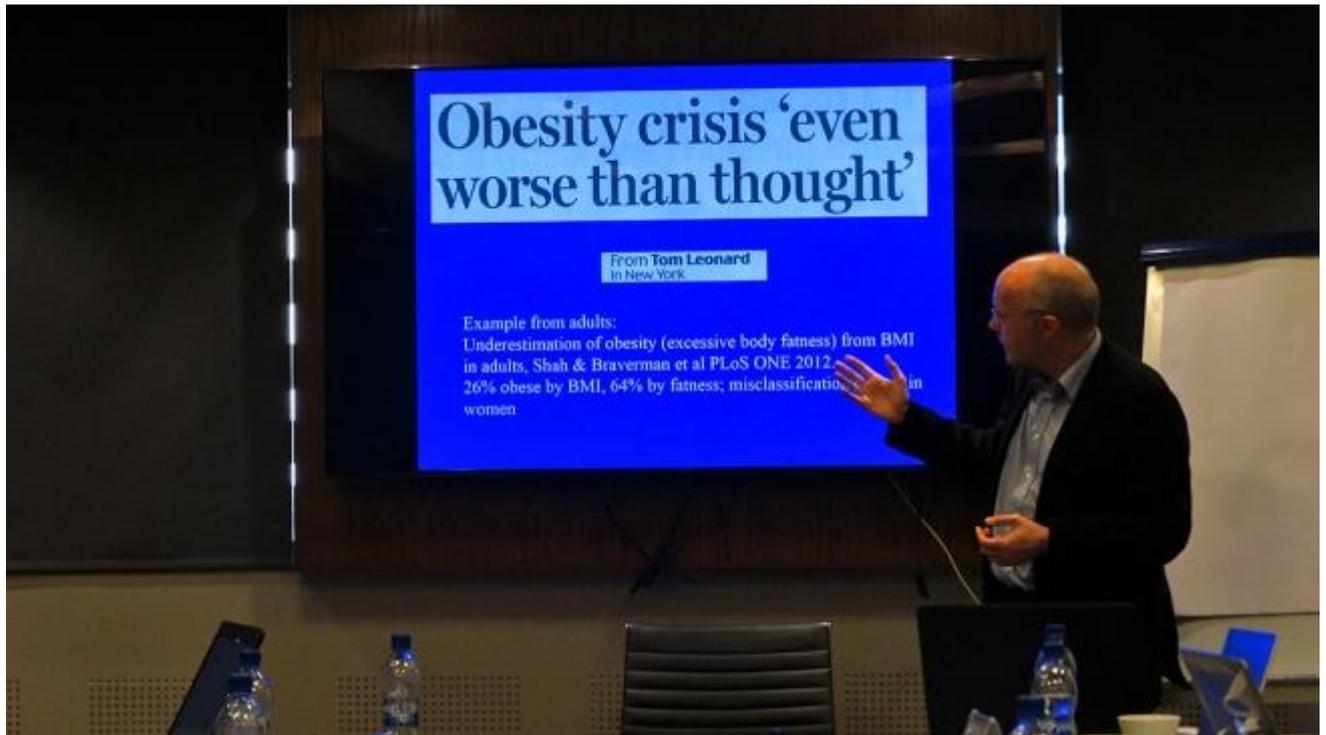
Obesity is the new ‘silent killer’ in Africa. Rapid changes in dietary habits, lifestyle, and lack of physical activity have led to rising rates of obesity, diabetes, hypertension and high blood pressure in African countries. More than one-third of African women (38.6%) and about a quarter of African men (22.9%) are estimated to be overweight (2014^[1]). The number of overweight children under 5 in Africa has increased by more than 50% since 2000^[2]. According to the Regional Office for Africa (WHO-AFRO), the increasing burden of chronic non-communicable diseases (NCDs), particularly in the WHO African Region, threatens to overwhelm already over-stretched health services. Indeed, obesity is associated with several chronic diseases such as type 2 diabetes, cardiovascular diseases, and some types of cancer. These health disorders challenge the health systems and absorb substantial amounts of resources. In Africa, NCDs accounted

for 2.5 million premature deaths per year in 2012, with the highest age-standardised NCD mortality rate of all WHO regions (625 per 100,000 population)[3]. These figures are projected to rise, adding to the already high burden of communicable diseases.

At the request of twelve Member States in the Africa region (Benin, Ghana, Kenya, Mali, Mauritius, Morocco, Namibia, Senegal, South Africa, Tunisia, Uganda and United Republic of Tanzania), an IAEA technical cooperation project[4] has been carried out between 2012 and 2016 with the aim of building capacities in the use of stable isotope techniques to assess body fat, total energy expenditure and physical activity. The end goal was to enable better design of, and improvements to, national nutrition and health interventions to prevent and control obesity and related health risks (such as diabetes) among children in Africa.

Stable isotope techniques provide accurate, more reliable information on the magnitude of overweight and obesity based on body composition, and on the physical activity levels of school children. As they are more accurate than widely used population-level methods, the stable isotope techniques can be used to validate these population-level measures of body size (Body Mass Index (BMI)-for-age, waist to height ratio) and physical activity (questionnaires and accelerometry). Stable isotope techniques are safe, accurate and suitable for use in field settings. All countries participating in the project developed or strengthened capacities in the use of stable isotopes, and completed or are about to complete data collection and analysis.

The regional project also facilitated an exchange of experiences across the region, as well as the creation of a regional consortium 'ROUND-IT' (Reducing Obesity Using Nuclear techniques to Design Interventions in Africa) that will compile individual Member State data in a pooled database for further analysis. ROUND-IT will continue to work on obesity and physical activity in the context of non-communicable diseases beyond the completion of the project. Some results have already been published and more publications are in preparation.



The obesity crisis is greater than expected.

A final coordination meeting was held from 10 to 14 October 2016 to present the achievements of the project. Hosted by the Biochemistry Department of the Central Health Laboratory Candos, Victoria Hospital, Mauritius, the meeting was attended by representatives from the participating Member States, a representative from WHO-AFRO, and two international experts. The project findings are particularly important as they are the first situation assessment to be carried out on overweight, obesity and physical activity levels in African school children in urban areas where the problem is most prevalent. The data collected through the project will be shared with policy makers and other stakeholders in order to support evidence-based intervention planning and the development of action plans. From the preliminary results presented, it is apparent that the WHO recommended BMI-for-age to classify overweight and obesity^[5] in children between 5-19 years old substantially underestimates the prevalence of overweight and obesity based on measures of body fatness in African school children.

The project contributes directly to the achievement of Sustainable Development Goal 3, Good Health and Wellbeing. It will help to reduce the burden on Member State health budgets by providing evidence relevant to the prevention and control of obesity and related diseases.

[1] WHO Global Health Observatory data repository; Overweight, data by WHO region, 2014, 18+ years

[2] UNICEF/WHO/World Bank Group, Joint Child Malnutrition Estimates, 2016 edition

[3] WHO Global Status Report on noncommunicable diseases 2014

[4] RAF/6/042, 'Applying Nuclear Techniques to Design and Evaluate Interventions to Reduce Obesity and Related Health Risks'

[5] For children aged between 5-19 years: overweight is BMI-for-age greater than 1 standard deviation above the WHO Growth Reference median; and obesity is greater than 2 standard deviations above the WHO Growth Reference median (WHO Fact sheet on obesity and overweight, updated June 2016)