OBSERVATIONS

Cardiometabolic Risk in a Rural Ugandan Population

Although many studies have examined metabolic syndrome (MetS) and the Framingham Risk Score (FRS), few studies have been carried out in African populations. This limited information on MetS and FRS leaves us with an incomplete understanding of the prevalence and distribution of risk of cardiometabolic disease in sub-Saharan Africa (SSA). It also prevents us from critically evaluating how each of the varying definitions of MetS compares in African populations. A clearer understanding of MetS and FRS in African populations may provide the basis for better identifying the impact of these definitions and tools on disease risk and, furthermore, help to evaluate the usefulness of such tools for research and for informing public health care and prevention policy in SSA.

In this study, we examined the prevalence and distribution of MetS and high (>20%) FRS and compare the World Health Organization (WHO), Adult Treatment Panel (ATP) III, International Diabetes Federation (IDF), and the newly proposed harmonized definitions of MetS in a rural Ugandan population (1). A total of 8,087 participants, aged 13 years and older, were surveyed, of whom 7,423 (55% women) had complete data for analysis. Data were collected using standard procedures, and prediabetes was defined using HbA_{1c} ≥5.7% (≥39 mmol/mol) (2).

The prevalence of MetS varied by definition used, with the WHO, ATPIII, IDF, and harmonized definitions resulting in MetS prevalence of 4.1%, 9.9%, 8.9%, and 13.7%, respectively. The harmonized definition was the most sensitive, capturing all those identified using ATPIII and IDF and 85.4% of those identified using the WHO criteria. MetS increased with age (P value < 0.001), with a distinctive peak in the prevalence at ages 50–59 years for men for all definitions.

The age-standardized prevalence of MetS, for all definitions, was higher in women (5.0% [95% CI 4.3–5.6] to 18.6% [95% CI 17.5–19.7]) than men (1.1% [95% CI 0.7–1.5] to 7.0% [95% CI 6.1–7.9]). The largest difference in MetS prevalence between men and women (1.1% [95% CI 0.7–1.5] vs. 14.5% [95% CI 13.5–15.6]) was found for the IDF definition. This was likely due to the substantial sex difference in central obesity (1.6% [95% CI 1.2–2.0] in men versus 29.7% [95% CI 28.4–31.0] in women), which is required in the IDF definition of MetS. Since there is no validated waist circumference cutoff for Africans, the IDF definition may currently be inappropriate for African populations (3).

The mean value of FRS was 2.98 (SD 6.0), with 2.7% having high FRS. Only 5–14%, depending on the MetS definition, had both MetS and high FRS. By contrast to MetS, high FRS was more common among men (4.6% [95% CI 4.4–5.7]) than women (1.2% [95% CI 0.7–1.4]). High FRS increased with age (P value < 0.001).

We found marked differences in the prevalence and distribution of cardiometabolic disease risk according to FRS and MetS definitions in this rural Ugandan population. These inconsistencies emphasize the need to more reliably assess the impact of these risk classifications in SSA populations. Prospective observational studies will be essential to evaluate and assess the distribution and determinants of cardiometabolic disease risk and to help to inform policy and health care programs in SSA (4).

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G.A.V.M. researched data, wrote the manuscript, and led data collection and management, and reviewed the manuscript. G.A. led data collection and management and reviewed the manuscript. E.H.Y. and J.S. researched data, wrote the manuscript, developed hypotheses, developed the study design, and reviewed the manuscript. D.M. developed the study concept, hypotheses, and study design; provided guidance on methodology; and initiated the study. R.N.N. led data collection and management and reviewed the manuscript. M.S.S. researched data, wrote the manuscript, developed hypotheses, developed the study design, and reviewed the manuscript. A.K. developed hypotheses, developed the study design, and reviewed the manuscript. M.S.S. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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