EDITORIAL

Cardiovascular Risk in Women from a *Quilombo* Settlement: The Effect of Aggregated Vulnerabilities

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Editorial referring to the article: Accuracy of the Simplified Version of the Global Risk Score in Detecting Cardiovascular Risk in Women from Quilombola Communities in the State of Alagoas, Brazil

Cardiovascular risk (CVR) is a field of great relevance with a growing number of studies throughout the country due to the magnitude of cardiovascular diseases (CVD), which have caused nearly 18 million deaths in 2016 and represent 31% of worldwide deaths.[1-3] In Brazil, CVD also lead the mortality and disability-adjusted life years (DALYs) rates,[4,5] with negative effects on the quality of life of individuals, family members, and societies.[3,5] It is noteworthy that CVD has an unequal effect on populations, with greater morbidity and mortality among low-income and least educated individuals.[6] In this context, it is important to identify the modifiable risk factors (RF) associated with CVD, such as behavioral (tobacco, alcohol, unhealthy diet, sedentarism) and metabolic RF (obesity, diabetes, hypertension, dyslipidemia); given that the risk of death from CVD attributable to metabolic RF is 74%, revealing great potential for prevention.[7,8]

CVR scores are important because evidence has shown that when RF are aggregated, they have synergistic effects on the risk of major adverse cardiovascular events (MACE).[1,9] As such, CVR scores identify high-priority individuals for specific primary preventive interventions against MACE, making them cost-effective measures that are useful in primary care.[1,9-11] Beyond the incentive for a healthy lifestyle, individuals with higher CVR should be offered statin prescriptions and be evaluated for hypertension treatment at a lower threshold.[12] A meta-analysis showed that statins can prevent 23% (relative risk [RR] 0.77 95% confidence interval [CI] 0.71–0.84) of MACE.[13] However, for primary prevention this benefit is positively correlated with CVR and non-high-density lipoprotein (HDL) cholesterol values.[13]

The study conducted by Cavalcante et al.[11] analyzed the CVR of 1015 women from Quilombo settlements in the state of Alagoas, Brazil, aged 19 to 59 years. Their work covers a gap in knowledge by collecting data from poor communities in the rural area of the Northeast region of Brazil, combining interview data with anthropometric, blood pressure, and laboratory measurements through a precise and appropriate methodology. The results indicated that 73.6% of the women were contemplated by the Bolsa Família Program, with a high prevalence of RF: hypertension (22.3%), diabetes (25.1%), and overweight and obesity (66.8%). The authors highlight that these women live "*in a scenario marked by a low socioeconomic level, precarious environmental conditions, and a high prevalence of food insecurity (74.0%); and of the morbidities related to this context*."[11]

Using the 2008 Framingham Heart Study's Global Risk Score for CVD (GRS) proposed by D'Agostino et al.,[14] they found a 20.1% prevalence of high CVR; by using the GRS as reference, the authors evaluated the accuracy of two other CVR scores: the Hard Coronary Heart Disease Framingham Risk Score,[15] which found a prevalence of high CVR of 4.5%, and the simplified Global Risk Score (sGRS), which found a prevalence of 20.7%. In conclusion, the authors emphasize

Keywords

Heart Disease Risk Factors; Health Vulnerability; Hypertension; Diabetes Mellitus; Obesity.

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two aspects of their work: 1) the high CVR of these socially vulnerable women living in *Quilombos*; and 2) the potential of applying the sGRS in primary care settings due to its higher discriminatory power, evaluated by the receiver operating characteristic (ROC) curve (area under the curve [AUC] = 0.98; 95%CI: 0.98–0.99), and its simplicity, as it uses the body mass index instead of total and HDL cholesterol.[11]

Regarding the first aspect, a recent study by Malta et al. (2021)[1] used laboratory data of 8953 individuals aged > 18 years from the National Health Survey (NHS) containing glycated hemoglobin, cholesterol, and blood pressure measurements. By applying the GRS, the study identified high CVR in 8.7% of women aged 30 to 74 years. The prevalence of high CVR increased with age and reflected social inequality, as it was higher in the least educated population (15.7%; 95% CI 13.5–18.3) and among Black women (14.4%; 95% CI 9.7–20.9).[1] As such, this study revealed a higher prevalence of high CV R than that reported by Cavalcante et al.,[11] probably because younger women were included in the latter.[11] In this context, we need to recognize that high CVR was found in women aged 19 to 59 years (56% < 40 years), since the strongest predictor of CVR in any risk equation is age. In fact, Cavalcante et al.[11] found that, when stratified by age, the prevalence of high CVR was 10 times higher among women aged 40–49.9 years and 30 times higher in women ≥ 50 years. It is important to note that the evaluation of the lifetime risk of CVD, in addition to the 10-year risk, should be considered for younger individuals to overcome this limitation.[16]

Regarding the second aspect, the use of the sGRS in primary care would indeed allow easier CVR assessment, which is an excellent characteristic for a screening tool and should prompt its promotion. Another suggestion by Cavalcante et al. is to use the information promptly available in primary care to calculate CVR, such as previous examinations or blood pressure measurements. Malta et al.[17] highlight how differences between CVR scores can derive from different aspects: the eligible population, predictors, and the weight of each predictor and/or outcomes (Table 1).[17] Finally, the cut-offs recommended by CVR calculators differ and are arbitrarily defined.[17] These divergences can confuse clinicians and result in misperceptions of risk and difficulties in implementing public policies, as emphasized in other international[18] and national[17] studies. In Brazil, the prevalence of individuals aged 45 to 64 years classified as intermediate or high CVR using data from the NHS had a large variation, from 2.5% (95%CI 1.8–3.3) to 44.1% (95%CI 39.7–47.3), according to which of the six scores was used.[18]

The definition of the best calculator to be implemented depends on the aim of the study. Some scores calculate only the risk of cardiovascular deaths, while others include non-fatal cardiovascular events.[13] According to Malta et al.,[17] "*the choice for which CVR calculator*

Table 1 – Characteristics of selected risk scores for the primary prevention of cardiovascular disease

	Age range	Predictors	10-year outcomes	Original cut-offs
Framingham (Global Risk Score – GRS)*	30–74	Age, sex, SBP, hypertension treatment, TC, HDL-C, diabetes, smoking	Fatal and non-fatal cardiovascular disease (coronary stroke, heart failure, intermittent claudication)	≥ 20%
Framingham (hard coronary disease)	30–79	Age, sex, SBP, hypertension treatment, TC, HDL-C, smoking**	MI (fatal or non-fatal)	≥ 20%
Pooled Cohort Equation (ACC/AHA)	40–79	Age, sex, SBP, hypertension treatment, TC, HDL-C, diabetes, smoking	Fatal coronary disease, non-fatal MI, fatal or non-fatal stroke	≥ 7.5%
WHO	40–79	Age, sex, SBP, TC, diabetes, smoking	MI or stroke (fatal or non-fatal)	≥ 20%
SCORE (High Risk – TC)	45–64	Age, sex, SBP, TC, smoking	Cardiovascular death (coronary stroke, arrhythmia, aortic aneurysm or peripheral vascular disease)	≥ 5%

SBP: systolic blood pressure; TC: total cholesterol; HDL-C: high-density lipoprotein cholesterol; MI: myocardial infarction; ACC/AHA: American College of Cardiology/American Heart Association; WHO: World Health Organization.
**In the simplified GRS (sGRS), the body mass index is used instead of TC and HDL. ** Diabetes is considered a coronary disease equivalent.*

should be used in Brazil is under debate, in the sense that there is no equation derived from a study conducted in the Brazilian population that considers the characteristics of our population, such as the racial composition, socioeconomic and geographic conditions." For that, longitudinal data evaluating MACE are needed but are not yet available in the country.[19]

Lastly, while identifying individuals with high CVR is important, population-wide strategies that promote a healthy lifestyle benefit all individuals, independently of their CVR, and are particularly relevant for socially vulnerable populations.[20] The WHO sets forth actions for the promotion of health, such as regulatory measures including the taxation of tobacco products, alcohol, and ultra-processed foods[21] and the creation of environments that render accessible and encourage healthy choices such as physical activity and healthy diets.[7,21] While mass preventive strategies are more politically challenging, particularly in a scenario of low investment in health, they need to be combined with strategies focused on individuals at high CVR to improve the cardiovascular health of all Brazilians.[22]

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