

## Mini Review

# Discrimination Associated with Metabolic Syndrome among African Americans from the Jackson Heart Study

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## Introduction

We enthusiastically read the paper entitled "Experiences of Discrimination Are Associated with Worse Metabolic Syndrome Severity Among African Americans in the Jackson Heart Study" by Cardel et al. [1]. Despite the detected association between experiences of discrimination and metabolic syndrome (MetS) severity (using the Z-score described), some limitations in the methodology should be further discussed.

First, the validity of the MetS Z-score used remains debatable. The underlying assumption in the calculation of this Z-score is based on simultaneous use of the known five biomarkers namely blood pressure, fasting blood glucose, abdominal fat/circumference, fasting blood triglycerides, and fasting blood high-density cholesterol as a cluster of circumstances that bundle together to define MetS by Adult Treatment Panel III (ATP III) criteria [2]. Even though previous research may be in support of this approach [3-6], the assumption has major limitations. Each biomarker has a defined threshold, with the value above that threshold showing a certain amount of future cardiovascular and metabolic disease risk. However, the value below that threshold has no distinct risk prediction capability. In other words, adding these biomarker scores together has more limited prediction ability because any increase risk detected by these individual biomarkers only increases the opportunity of creating a new parameter with relatively lower prediction ability. As an exemplification; in this study, there are higher baseline MetS scores among the older / aging participants, especially in 46 to 64 years group. Nevertheless this phenomenon is expected given that 1) interaction with time will enhance the correlation; and 2) the MetS older individuals criteria is determined by extreme measurements of at least three MetS biomarkers [2].

Second, although the prevalence of MetS diagnosed by ATP III is ascertained, the authors did not provide any data to compare proposed MetS Z-score with traditional ATP III dichotomous criteria to see whether the effect of discrimination on MetS is different. If

there is no significantly better prediction of discrimination for MetS between the two methods, why MetS Z-score should be calculated and used?

Third, the linkage between discrimination and MetS remains unclear (and underdeveloped) because 1) MetS is the risk predictor for later cardiovascular and metabolic disease instead of the health outcome caused by certain psychological factor like discrimination [2]; and 2) the process that affects MetS development is complex. Both intrapersonal determinants like awareness and interpersonal factors like social network may contribute to MetS progression. Therefore, a theoretical mechanism/model for discrimination associated with MetS is needed to unravel the interplay with personal and societal correlates that can holistically describe how MetS progresses among African Americans.

Clearly, the statistical approach used to generate MetS Z-score warrants further validation. A theorized framework supporting the relationship between the MetS and its predictive ability is needed in order to explain how MetS' consequences develop and inform future use of MetS per se or its derived Z-score for risk assessment.

## Disclaimer

The views expressed are those of the authors and do not necessarily reflect the official policy or position, either expressed or implied, of Colorado State University, Brigham and Women's hospital, Harvard University, or Indiana University Bloomington.

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