



Published in final edited form as:

Obesity (Silver Spring). 2016 December ; 24(12): 2447. doi:10.1002/oby.21642.

Race, obesity, and birth outcomes: unraveling a complex association to improve maternal-child health

Jonathan M Snowden^{1,2}, Whitney R Robinson³, Nicole E Marshall¹, and Janne Boone-Heinonen²

¹Department of Obstetrics & Gynecology, Oregon Health & Science University, Portland OR, USA

²School of Public Health, Oregon Health & Science University/Portland State University, Portland, OR, USA

³Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA

The obesity epidemic and racial disparities in birth outcomes are among the most pressing and persistent population health challenges in the United States. A study by Lemon et al. in this issue of *Obesity* considers the convergence of these two issues: how racial disparities in maternal obesity contribute to persistent racial disparities in stillbirth and infant death.(1)

The authors use an innovative analytical technique to address the complex interpretation of race as an exposure in epidemiologic research, and also racial differences in how maternal obesity predicts perinatal complications.(2, 3) They use causal diagrams to elucidate their research question and employ an inverse probability weighted estimator, and they are appropriately cautious to avoid claims of causality. Notably, they consider race a marker of disparity rather than a cause, *per se*, thereby remaining agnostic in debates in epidemiology about whether race and obesity may be considered causes.(4, 5, 6, 7) The study estimated that approximately 10% of the black/white racial disparity in stillbirth and infant death is attributable to the higher prevalence of obesity in African-American women.(1)

The study raises three important questions for future obesity research. The first is the extent to which maternal obesity is modifiable and therefore a promising target for intervention. The general lack of effective, sustained non-surgical obesity treatments raises doubts about the effectiveness of targeting maternal obesity to reduce black/white perinatal inequalities, leading us to consider which levers we would intervene on during this life stage. The translation of research findings into feasible interventions is critically important to inform practical and effective solutions.

Obesity is a complex and multifactorial phenomenon, which leads to the second question: what specifically about obesity explains this proportion mediated? One complexity of attributing racial disparities to obesity is the strong social patterning of obesity in the U.S.:

Corresponding author: Jonathan M. Snowden, PhD, Oregon Health and Science University, 3181 SW Sam Jackson Park Rd., Mailing Code: L466, Portland, OR 97239, Phone: (503) 494-0904, Fax: (503) 494-4473, snowden@ohsu.edu.

Disclosure:

We declare that we have no real or perceived competing interests.

socially disadvantaged young women are more likely to develop obesity. Multiple factors which are not considered in this analysis covary with obesity (e.g., stress, social isolation, comorbidities, endocrine factors), so these estimates of the proportion of disparity attributed to obesity should be considered upper bounds.

Perhaps the most important question raised by this study is the third: is a 10% proportion explained meaningful, such that it should drive changes in clinical practice and/or public health efforts? Given the gravity of this outcome and the persistence of the black/white perinatal death disparity, every etiologic clue is essential. Even for readers who consider this a modest finding, this study highlights the need to continue investigating mediators to target in our quest to eliminate this disparity. This preventive work should not be limited to targeting childbearing-aged women; rather we must also consider prevention of childhood obesity as part of a life course-oriented strategy to reduce maternal obesity.

This paper raises complex questions that defy simple answers. Yet it is clear that thoughtful research approaches such as this will be required to disentangle these complexities and to mitigate obesity-related and non-obesity-related racial disparities in birth outcomes.

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