

Very Low Birthweight in African-American Infants: The Role of Maternal Exposure to Interpersonal Racial Discrimination

by James W. Collins, Jr., Richard J. David,
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It has long been recognized that African-American infants are more than twice as likely as White infants to die in their first year of life. Reflecting the public health relevance of this phenomenon, the U.S. Department of Health and Human Services' *Health People 2010* calls for the elimination of the racial disparity in infant mortality rates. Infant birthweight is a primary determinant of infant mortality risk. The approximately 1% of births occurring at very low birthweight (VLBW; <1500 g.—3 lbs. 5 oz.), pathological in all populations, accounts for more than half of the neonatal deaths and 63% of the Black-White gap in infant mortality in the United States.

Chronic stress is a more prominent feature in the daily lives of African-American women than in the daily lives of White women. Although there have been several studies on the relation between chronic stress and infant birthweight, few studies have specifically focused on the relations between women's regular (ranging from a few times per year to nearly every day) exposure to racial discrimination—a nonrandom and race-related source of stress—and infant VLBW. To the extent that population differences in chronic stress from lifetime exposure to interpersonal racial discrimination underlie the observed racial differential in the rate of VLBW infants, one would expect an association between this exposure and VLBW among African Americans.

A causal association between African-American women's exposure to chronic stress from interpersonal racism and infant VLBW is biologically plausible. A 2001 *Maternal and Child Health Journal* study showed that chronic maternal exposure to stress—

through maternal cardiovascular, immune/inflammatory, and neuroendocrine processes—is detrimental to infants' birthweight. Moreover, psychophysiological stress is likely to accelerate the release of corticotropin-releasing hormone, which initiates a cas-

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cade of events leading to preterm delivery. Consistent with the larger literature on stress, clinical studies show that exposure to racial stressors leads to physiological reactivity. African-American women who were exposed to what they perceived as racial bias and internalized their responses to unfair treatment had a fourfold greater risk of hypertension. In another study, the viewing of racist situations was associated with a significant rise in blood pressure that correlated with the African-American subjects' responses on the Framington Anger Scale. A 1996 study by D. Jones and colleagues also reported significant changes in heart rate, digital blood flow and facial muscle activity in African-American women who encountered social situations that included blatant and more subtle forms of racism.

Our Case-Control Study

We therefore performed a case-control study among a sample of urban African Americans to determine the extent to which women's reported lifetime and pregnancy exposure to interpersonal racial discrimination is asso-

ciated with VLBW births.

African-American mothers delivering at Cook County Hospital and University of Chicago Hospital in Chicago, IL between November 1, 1997, and October 31, 2000, were recruited for this study. These hospitals serve critically ill and healthy infants across a broad range of socioeconomic status. Nevertheless, approximately two-thirds of the participants in the study were Medicaid recipients.

During the accrual period, 117 case subjects and 234 control subjects were potentially eligible. A combination of subjects refusing to be interviewed, failure of some subjects to arrive at scheduled interviews, and death within 72 hours of a few infants reduced interview data to 104 case subjects and 208 control subjects. Trained African-American interviewers administered a structured questionnaire in the hospital.

There were minimal differences between case subjects and control subjects (critically ill and healthy) with respect to marital status, income, Medicaid status, prenatal care usage, number of children and alcohol consumption. A slightly higher percentage of case subjects were found among the older, more educated women, and cigarette smokers. When women older than 30 or those having more than 12 years of education were compared with all others, a significantly increased association with VLBW was found. The distribution of sociodemographic, biomedical and behavioral characteristics did not vary between critically ill and healthy control subjects.

Our study adds to the small but growing evidence of a relation between African-American women's exposure to interpersonal racial discrimi-

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nation and pregnancy outcomes. We found that African-American mothers who delivered VLBW preterm infants were more likely to report experiencing interpersonal racial discrimination during their lifetime than African-American mothers who delivered NLBW (non-low birthweight) infants at term. Stratified analyses showed that this association persisted across the common risk categories for reproductive health. In multivariate logistic regression models, the adjusted odds ratio of VLBW for African-American mothers who experienced interpersonal racial discrimination in 1 or more and 3 or more (compared with none) categories equaled 1.7 and 2.6, respectively. Interestingly, among African-American women who worked outside the home, those who gave birth to VLBW infants were more likely to report racial discrimination in the workplace than were the working mothers of NLBW infants. These findings provide evidence that greater lifetime exposure to racial discrimination among African-American women contributes to the racial disparity in VLBW infants.

The conventional investigative approach to the racial disparity in the rates of VLBW births has been based on the implicit assumption that there is a set of risk factors that differ in quantity between the races but exert similar effects on African-American and White women. An extensive literature has shown that established risk factors have minimal impact on the rate of VLBW for African-Americans. Moreover, this conceptualization does not take into account the nonrandom, pervasive and multifaceted inequality that is bound up in the historical context of race, nor does it capture its effect on human beings over time. Because African-American women are regularly exposed to unique social risk factors closely related to race, restricting the search for such factors to a sample of African-American women seems reasonable. We used an interviewer-administered closed-ended questionnaire to capture the variability of life-

time exposure to incidents perceived as racial discrimination and describe its association with infant birthweight. The frequency of lifetime-reported incidents of interpersonal racial discrimination in at least one category was 40% among our control subjects. If we take this frequency as an accurate estimate for the general population of urban African-American women, then exposure to perceived racial discrimination is a common risk factor. This estimate is consistent with published prevalence rates.

Greater lifetime exposure to racial discrimination among African-American women contributes to the racial disparity in very low birthweight infants.

Our data show that the magnitude of the association between maternal reported lifetime exposure to racial discrimination and infant VLBW was strongest in the "finding a job" and "at place of employment" categories. Concordant with this phenomenon, working-class African-American mothers of VLBW preterm infants in our sample were more likely to regularly experience specific episodes of interpersonal racism at their primary place of employment than working-class African-American mothers of NLBW term infants. These findings are consistent with the limited literature showing a negative association between pregnant African-American women's psychosocial job strain and infant birthweight. A recent study found that African-American women with high job strain had infants with birthweights 273 grams less than those with low-strain jobs or those who did not work outside the home.

Our study provides empirical evidence supporting the conceptual model proposed by J. Rich-Edwards and colleagues in a 2001 article, in which African-American women's lifetime exposure to interpersonal racism is explicitly included as a chronic stres-

sor. Interestingly, we found no association between maternal self-reported exposure to interpersonal racial discrimination during pregnancy and infant VLBW. However, the prevalence of 1 or more reported incidents during pregnancy among case subjects and control subjects was low; moreover, the prevalence of 3 or more reported incidents during pregnancy among subjects was essentially nonexistent. Given the suspected strong association between reported incidents of interpersonal racial discrimination during pregnancy and VLBW among the subgroup of low-income African-American mothers with high-risk behavioral characteristics, our study did not have sufficient power to address the role of reported incidents during pregnancy.

Study Limitations

Our study had a number of important limitations. First, because the experience of racial discrimination is a complex and multidimensional phenomenon, a more sensitive questionnaire may have led to better ascertainment of the exposure of chronic interpersonal racism. However, the assessment of discrimination in multiple categories and the characterization of regular exposure to discrimination in the workplace are strengths of the instruments used in our study. In addition, the consistency of the elevated point estimates derived from two independently constructed instruments suggests that we accurately assessed exposure to interpersonal racial discrimination. Second, our findings may have stemmed from a recall bias associated with the maternal anxiety associated with the admission of her infant to a neonatal intensive care unit. However, we found no difference in the prevalence of reported racism among control mothers of critically ill NLBW infants (a cohort with anxieties similar to those of case subjects) and the control mothers of healthy NLBW infants. Third, interviewer bias could have also influenced our results. However, the interviewers were trained to collect data using a structured questionnaire

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assure that those eligible for Medicare and related programs are enrolled in those programs, are able to navigate them effectively, and have access to providers from whom they can receive culturally competent and continuous care, and who will be strong advocates to help them obtain the services they need.

As nearly 40 years of history demonstrates, a national program like Medicare can effectively address diverse groups by doing what it does best: It can assure that resources are distributed in a relatively equitable fashion across the nation; it can improve the quality of care for all beneficiaries; it can assure that federal outreach and education is linguistically and culturally appropriate; and that states and communities have materials and tools they can use to meet local needs.

At the same time, research and practical experience demonstrate that many of the obstacles and solutions vary by region and culture, so there probably will never be one model for care that would work in all communities. Local medical and social cultures vary dramatically across the country, as do the populations receiving care. Local understanding of cultures and barriers can be addressed by community groups and institutions with federal financial assistance. Ideally, a mid-21st century Medicare program will be better able to address the needs of its much more diverse beneficiary population.

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PRRAC Update

- This fall we welcome PRRAC's newest law & policy intern, **Danielle Wilson**, a third-year student at Howard Law School. **Christine Kim**, a second-year student at Georgetown Law School, is continuing her summer internship with us this fall.
- And we say good-bye and thanks to **Alexandra Cawthorne**, our 2005 Bill Emerson Congressional Hunger Fellow—who, we're happy to report, is close by, having joined the staff of the Citizens Commission on Civil Rights, headed by PRRAC Board member Bill Taylor.
- PRRAC Executive Director **Philip Tegeler** has published "The Persistence of Segregation in Government Housing Programs," in *The*

Geography of Opportunity: Race and Housing Choice in Metropolitan America, a new collection edited by Xavier de Souza Briggs and published by Brookings Institution Press.

- On Sept. 26, PRRAC co-hosted (with The Urban Inst., the National Fair Housing Alliance & the George Washington Univ. Dept. of Sociology) a book party, at The Urban Inst., for **James Loewen's** just-published (and fantastic) book, *Sundown Towns: A Hidden Dimension of American Racism* (New Press).

- We acknowledge with thanks recent financial contributions from **Dylan Conger, Fred & Kathleen Rotondaro, Alan Rabinowitz & Theodore Pearson**.

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in an identical fashion for case subjects and control subjects. They were also blinded to the study hypotheses. Fourth, sample size considerations limited our ability to fully address the association of racism and infant VLBW across the full range of maternal sociodemographic, biomedical and behavioral characteristics. Lastly, the results of our study may be limited by the possible confounding of unmeasured variables closely related to interpersonal racial discrimination. Lifelong exposure to interpersonal racism is unlikely to operate as a risk factor for pregnant women solely at the individual level, but it also expresses the cumulative impact of societal-level (i.e., institutional) racism exposures on birth outcome. Our study suggests that a mechanism by which institutional racism affects female reproductive health is likely to be found in the reported incidents of racial discrimination in the workplace. As such, interventions that target both the reported incidents of racial discrimination in the workplace and the structural issues of

race inequality that place a large percentage of African-American women in conditions of severe income insecurity are needed to narrow the racial disparity in infant VLBW.

In conclusion, the reported lifelong accumulated experiences of interpersonal racial discrimination by African-American women constitute an independent risk factor for infant VLBW.

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