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

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Objectives. We determined whether African American women's lifetime exposure to interpersonal racial discrimination is associated with pregnancy outcomes.

Methods. We performed a case–control study among 104 African American women who delivered very low birthweight (<1500 g) preterm (<37 weeks) infants and 208 African American women who delivered non–low-birthweight (>2500g) term infants in Chicago, Ill.

Results. The unadjusted and adjusted odds ratio of very low birthweight infants for maternal lifetime exposure to interpersonal racism in 3 or more domains equaled 3.2 (95% confidence intervals=1.5, 6.6) and 2.6 (1.2, 5.3), respectively. This association tended to persist across maternal sociodemographic, biomedical, and behavioral characteristics.

Conclusions. The lifelong accumulated experiences of racial discrimination by African American women constitute an independent risk factor for preterm delivery. (*Am J Public Health.* 2004;94:2132–2138)

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.[1,2] Reflecting the public health relevance of this phenomenon, *Healthy People 2010* calls for the elimination of the racial disparity in infant mortality rates.[3] Infant birthweight is a primary determinant of infant mortality risk. The approximately 1% of births occurring at very low birthweight (VLBW; <1500 g), pathological in all populations,[1,4,5] accounts for more than half of the neonatal deaths and 63% of the Black–White gap in infant mortality in the United States.[4] An extensive literature has treated pregnancy as a condition influenced by proximal events and has been unable to delineate the mechanisms underlying African American infants' threefold greater rate of VLBW.[6–14] A seminal study by Kleinman and Kessel[6] found not only a persistent but a widening racial gap in the incidence of VLBW infants as sociodemographic risk declines (i.e., VLBW risk declines as socioeconomic status increases). Another study found that in a prepaid health plan, the racial disparity in the rates of VLBW persisted among college-educated mothers who received adequate prenatal care.[7] Behavioral risk factors during pregnancy—cigarette smoking and alcohol and illicit drug usage—also have a negligible impact on the racial gap.[14] Numerous epidemiological studies have found that the racial differential in the rate of VLBW infants exists among women who reside in nonimpoverished neighborhoods.[10–13]

New conceptual models have been proposed to elucidate the contribution of chronic stress to preterm (<37 weeks) delivery and consequent VLBW risk.[15–17] Rich-Edwards et al.[16] speculated that chronic stress from maternal lifetime exposure to interpersonal racism is a risk factor for infant VLBW. Misra et al.[17] proposed that social (i.e., socioeconomic status) factors are antecedent to both psychosocial (i.e., stress, social support) factors and biomedical (i.e., health behaviors, preexisting diseases) factors; the latter are in turn risk factors for infant VLBW. Hogue et al.[15] proposed the classic host (i.e., pregnant women), environment (i.e., chronic social stressors), and agent (i.e., immediate emotional or physical stressors) triangle of epidemiological causality.[5]

Chronic stress is a more prominent feature in the daily lives of African American women than in the daily lives of White women.[18] Although there have been several studies on the relation between chronic stress and infant birthweight,[19–21] few studies have specifically focused on the relation 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.[18] 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. Wadhwa et al.[22] 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 cascade of events leading to preterm delivery.[16,22] Consistent with the larger literature on stress, clinical studies show that exposure to racial stressors leads to physiological reactivity.[23–27] 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.[23] 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.[24] Jones et al.[25] also reported significant changes in heart rate, digital blood flow, and facial muscle activity in African American women who en-

countered social situations that included blatant and more subtle forms of racism.

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 associated with VLBW births.

METHODS

Study Sample

African American mothers delivering at Cook County Hospital and University of Chicago Hospital in Chicago, Ill, 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.

The medical record was abstracted to determine infants' birthweight as defined by nursing measurement, gestational age based on physicians' physical assessment of the neonate, and maternal race as self-defined. Case subjects were restricted to mothers of singleton VLBW (<1500 g) preterm (<37 weeks) infants. Control subjects were restricted to mothers of (1) critically ill singleton non–low-birthweight (NLBW; >2500 g), term infants admitted to the neonatal intensive care unit for ventilator management; and (2) healthy singleton NLBW infants admitted to the normal newborn nursery. We approached the mothers of all eligible VLBW and critically ill NLBW infants. To ensure a 1:2 case-to-control ratio, we approached mothers of healthy NLBW infants who most approximated case infants with respect to time and day of admission within each participating hospital. We offered a $10 participation reward to all eligible subjects. Study personnel approached African American mothers within 72 hours of their infants' admission to the neonatal intensive care unit or normal newborn nursery. We obtained informed consent from the women before study enrollment. Mothers of infants who expired within 72 hours of birth were not requested to complete the study questionnaire.

During the accrual period, 117 case subjects and 234 control subjects were potentially eligible. Of these, 3 case subjects and 5 control subjects refused interviews; 4 case subjects and 5 control subjects consented but failed to arrive at 3 scheduled appointments; we were unable to schedule interviews for 2 case subjects and 16 control subjects. The infants of 4 case subjects expired within 72 hours of birth. Thus, we obtained interview data for 104 case subjects and 208 control subjects.

Study Questionnaire

Trained African American interviewers administered a structured questionnaire in the hospital. They collected data on mothers' age, education, marital status, parity, prenatal care initiation, cigarette smoking, and alcohol use. Using previously validated instruments, they asked about lifetime and pregnancy exposure to interpersonal racial discrimination.[23,28] All participants were asked their lifetime and pregnancy exposure to interpersonal racial discrimination in 5 domains: at work, getting a job, at school, getting medical care, and getting service at a restaurant or store.[23] The questions were formatted for yes or no answers.[23] We determined the distribution of reported interpersonal racial discrimination in each domain, 1 or more domains, and 3 or more domains. Current or recently employed participants were asked an additional 20 questions about their lifetime and past year's experiences with interpersonal racial discrimination at their primary place of employment.[28] We empirically dichotomized responses after data collection into none (none or less than once per year) and regularly (few times per year, few times per month, at least once a week, and nearly every day).

Statistics

We calculated the odds ratio and 95% confidence intervals of exposure to measured risk factors.[29] Confidence intervals were estimated by the Taylor series method.[29] We used multivariable logistic regression (PROC LOGISTIC[30]) to estimate the independent association of maternal lifetime exposure to racism and VLBW.

RESULTS

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, parity, and alcohol consumption (Table 1). A slightly higher percentage of case subjects were found among the older, more educated women, and cigarette smokers (Table 1). When women aged older than 30 years or those having more than 12 years of education were compared with all others, a significantly increased association with VLBW was found (χ^2=4.8, P=.03 for age, χ^2=5.4, P=.02 for education). The distribution of sociodemographic, biomedical, and behavioral characteristics did not vary between critically ill and healthy control subjects (data available from authors by request).

Table 2 examines the relation between maternal exposure to interpersonal racism and VLBW in 5 domains. With the exception of the "getting medical care" domain, the odds ratio of VLBW for maternal lifetime exposure to interpersonal racial discrimination exceeded unity. The magnitude of the association between racial discrimination and VLBW was strongest in the "finding a job" and "at work" domains. The odds ratio of VLBW for maternal lifetime exposure to interpersonal racial discrimination in 1 or more domains was 1.9 (95% CI=1.2, 3.1). The odds ratio of VLBW for maternal lifetime exposure to interpersonal racial discrimination in 3 or more domains was 3.2 (95% CI=1.5, 6.6), suggesting a dose-response relation. In contrast, there was no consistent association of VLBW with incidents of perceived discrimination during the pregnancy.

When case subjects were compared only with critically ill control subjects, the odds ratio for exposure to racial discrimination in 1 or more and 3 or more domains equaled 1.9 (95% CI=1.1, 3.2) and 3.4 (95% CI=1.4, 8.3), respectively. When case subjects were compared only with healthy control subjects, the odds ratio for exposure to racial discrimination in 1 or more and 3 or more domains equaled 1.9 (95% CI=1.1, 3.4) and 3.0 (95% CI=1.3, 7.3), respectively. We further tested for the presence of recall bias by comparing the frequency of reported exposure to interpersonal racial discrimination in the 2 control groups of African American women with NLBW infants. The odds ratio for exposure to racial discrimination in 1 or more and 3 or more domains for critically ill (compared with well) control

TABLE 1—Sociodemographic, Biomedical, and Behavioral Characteristics of the Study Sample: Chicago, Ill, November 1, 1997–October 31, 2000

	Percentage (No.) of VLBW Cases (n = 104)	Percentage (No.) Of NLBW Controls (n = 208)	Odds Ratio (95% Confidence Interval)
Maternal age, y			
<20	27 (28)	31 (62)	1.1 (0.6, 2.1)
20–24	25 (26)	31 (63)	1.0
25–29	19 (20)	21 42)	1.2 (0.6, 2.3)
≥30	28 (29)	17 (35)	2.0 (1.0, 3.9)
Education, y			
<12	31 (31)	39 (77)	0.5 (0.3, 0.9)
12	34 (34)	39 (77)	0.6 (0.3, 1.0)
>12	36 (36)	23 (46)	1.0
Living arrangements			
Married	23 (22)	15 (31)	1.0
Unmarried, living together	12 (11)	18 (36)	0.4 (0.2, 1.0)
Unmarried, not together	65 61)	67 (134)	0.6 (0.3, 1.2)
Income quartile, $[a]			
1: <5000	28 (20)	29 (31)	0.8 (0.3, 1.9)
2: 5000–15 999	23 (16)	29 (31)	0.7 (0.3, 1.6)
3: 16 000–30 999	27 (19)	23 (25)	1.0 (0.4, 2.3)
4: ≥31 000	23 (16)	19 (20)	1.0
Payment method			
Medicaid	62 (58)	68 (138)	0.8 (0.5, 1.2)
Other payments	38 (35)	32 (63)	1.0
Prenatal care			
Early[b]	69 (71)	61 (127)	1.0
Late or none	31 (32)	39 (81)	0.7 (0.4, 1.2)
Pregnancies, No.			
1–3	86 (89)	85 (171)	1.0
≥4	14 (14)	15 (31)	0.9 (0.4, 1.7)
Cigarette smoking			
Smoker	30 (31)	21 (43)	1.6 (1.0, 2.8)
Nonsmoker	70 (72)	79 (163)	1.0
Alcohol consumption			
Yes	18 (19)	15 (32)	1.2 (0.7, 2.3)
No	82 (84)	85 (176)	1.0

Note. VLBW = very low birthweight; NLBW = non–low-birthweight.
[a] For household income, 43% are missing data.
[b] Defined as initiation in the first trimester.

subjects were 1.0 (95% CI=0.6, 1.7) and 1.1 (95% CI=0.4, 3.1), respectively.

Table 3 shows that the association between maternal lifetime exposure to interpersonal racism and infant VLBW persisted across traditional sociodemographic, biomedical, and behavioral risk categories; however, there was some evidence of effect modification. The adverse effect of perceived discrimination was strongest among women aged 20 to 29 years, generally considered the optimal childbearing decade, whereas it was reduced or absent among teenaged women and women aged older than 30 years. Similarly, the association between maternal exposure to interpersonal racial discrimination and VLBW was strongest among women with more than 12 years of formal education. The odds ratios of infant VLBW for college-educated women who reported racial discrimination in 1 or more and 3 or more domains were 2.8 (95% CI=1.1, 7.1) and 7.3 (95% CI=1.9, 28.9), respectively. By contrast, for alcohol use and prenatal care categories, the racism effect was consistently stronger among women in the traditional high-risk sociodemographic, biomedical, and behavioral categories. Most important, 43 of the 48 odds ratios of VLBW for maternal lifetime exposure to interpersonal racial discrimination across the measured traditional risk factors were above unity; 95% confidence intervals often included 1.

Seventy-six percent (n=238) of women in the study sample had worked outside the home during their lifetime. Two thirds (n=163) of them were employed during their pregnancy. They worked an average of 35 hours per week. The leading employment categories were cashiers (23%), clerks (13%), teachers (10%), laborers (10%), and health care workers (8%). These 163 women answered additional questions about specific scenarios with racial discrimination at their primary place of employment, either anytime during their lifetime (10 questions) or during the past year (10 questions). For each of the questions in which there were sufficient responses for reasonably stable rate calculations, the point estimates for the association between regular (defined as "few times/year," "few times/month," "at least once a week," or "nearly everyday") exposure and VLBW exceeded unity (Table 4). The scenarios that had the strongest association with VLBW were "Because you are African American, you feel as if you have to work twice as hard" and "Whites often assume that you work in a lower status job than you do and treat you as such." The odds ratios were between 1.1 and 2.6, although few were statistically significant.

Lastly, we performed multivariate logistic regression analyses to further explore the independent association of maternal reported lifetime exposure to interpersonal racial discrimination and pregnancy outcome. When maternal age, education, and cigarette smoking were included in logistic models, the adjusted odds ratio of infant VLBW for maternal reported exposure to interpersonal racial discrimination in 1 or more domains was 1.7 (95% CI = 1.0, 9.2); the adjusted odds ratio of infant VLBW for maternal reported expo-

TABLE 2–Maternal Exposure to Interpersonal Racial Discrimination and Infant Very Low Birthweight

	Reported Racial Discrimination Incidents							
	Lifetime				This Pregnancy			
	Percentage (No.) VLBW n = 104	Percentage (No.) NLBW n = 208	OR	95% CI	Percentage (No.) VLBW n = 10	Percentage (No.) NLBW n = 2088	OR	95% CI
Finding a job	29 (30)	13 (25)	3.0	1.6, 5.4	2 (2)	1 (3)	1.3	0.2, 8.1
At work	24 (25)	14 (29)	2.0	1.1, 3.5	4 (4)	5 (10)	0.8	0.2, 2.6
At school	18 (19)	11 (22)	1.9	1.0, 3.7	2 (2)	2 (4)	1.0	0.2, 5.6
In public settings	37 (38)	29 (61)	1.4	0.8, 2.3	13 (14)	15 (31)	0.9	0.5, 1.8
Getting medical care	5 (5)	5 (11)	0.9	0.3, 2.7	4 (4)	2 (4)	1.6	0.4, 6.2
≥1 domains	56 (58)	40 (83)	1.9	1.2, 3.1	19 (20)	20 (42)	0.9	0.5, 1.7
≥2 domains	41 (32)	25 (41)	2.1	1.2, 3.8	6 (6)	4 (8)	1.5	0.5, 4.4
≥3 domains	30 (20)	12 (17)	3.2	1.5, 6.6	0 (0)	1 (2)	. . .	. . .

Note. VLBW = very low birthweight; NLBW = non–low-birthweight; OR = odds ratio; CI = confidence interval.

sure to interpersonal racial discrimination in 3 or more domains was 2.6 (95% CI = 1.2, 5.3).

DISCUSSION

Our study adds to the small but growing evidence of a relation between African American women's exposure to interpersonal racial discrimination 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 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) domains 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.[6,7] 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.[18,31,32] Because African American women are regularly exposed to unique societal risk factors closely related to race,[18,31–33] 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 lifetime 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 1 domain 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.[34]

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" domains. 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.[35] 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.[35]

Few published studies have explicitly examined the relation between maternal exposure to racial discrimination and infant birthweight.[36,37] Using mailed questionnaire data from the Black Women's Health Study, Rosenberg et al.[37] recently reported a small increase in preterm delivery among women who reported lifetime experiences of racism, particularly women with low levels of education.[7] In contrast, our study shows that the association between maternal reported lifetime exposure to interpersonal racism and infant VLBW is strongest among college-educated women. Because reporting discrimination may adversely affect self-esteem and perceptions of control,[38] differences in the methodology (i.e., mailed survey vs face-to-face interviews) used to assess lifetime incidents may contribute to the dissimilar findings. Further

TABLE 3—Maternal Lifetime Exposure to Interpersonal Racial Discrimination and Infant Birthweight by Selected Characteristics

	Reported Racial Discrimination Incidents in ≥1 Domains (vs No Reported Discrimination)				Reported Racial Discrimination Incidents in ≥3 Domains (vs No Reported Discrimination)			
	Percentage (No.) VLBW n = 104	Percentage (No.) NLBW n = 208	OR	95% CI	Percentage (No.) VLBW n = 104	Percentage (No.) NLBW n = 208	OR	95% CI
Maternal age, y								
<20	50 (14)	44 (27)	1.3	0.5, 3.2	13 (2)	15 (6)	0.8	0.2, 4.6
20–24	62 (16)	32 (20)	3.4	1.3, 8.9	33 (5)	4 (2)	10.8	1.8, 63.6
25–29	60 (12)	40 (17)	2.2	0.7, 6.5	43 (6)	14 (4)	4.7	1.1, 20.9
≥30	52 (15)	49 (17)	1.1	0.4, 3.0	33 (7)	18 (4)	2.3	0.5, 9.2
Education, y								
<12	39 (12)	34 (26)	1.2	0.5, 2.9	14 (3)	7 (4)	2.0	0.4, 9.8
12	53 (18)	39 (30)	1.8	0.8, 4.0	24 (5)	15 (8)	1.8	0.5, 6.4
>12	75 (27)	52 (24)	2.8	1.1, 7.1	57 (12)	15 (4)	7.3	1.9, 28.9
Married	64 (14)	55 (17)	1.4	0.5, 4.4	56 (10)	22 (4)	4.4	1.0, 18.6
Living together	73 (8)	31 (11)	6.1	1.3, 27.3	25 (1)	11 (3)	2.8	0.2, 36.0
Not together	48 (29)	39 (52)	1.4	0.8, 2.6	16 (6)	10 (9)	1.7	0.6, 5.2
Income quartile, $[a]								
1: <5000	40 (8)	29 (9)	1.6	0.5 , 5.3	8 (1)	4 (1)	1.8	0.1, 32.0
2: 5000–15 999	75 (12)	39 (12)	4.8	1.2 , 18.2	50 (4)	14 (3)	6.3	1.0, 40.1
3: 16 000–30 999	47 (9)	48 (12)	1.0	0.3 , 3.2	29 (4)	13 (2)	2.6	0.4, 17.1
4: ≥31 000	69 (11)	80 (16)	0.6	0.1 , 2.5	55 (6)	56 (5)	1.0	0.2, 5.6
Payment method								
Medicaid	50 (29)	37 (51)	1.7	0.9 , 3.2	22 (8)	11 (10)	2.4	0.9, 6.7
Other payment	64 (23)	45 (29)	2.1	0.9 , 4.9	38 (8)	13 (5)	4.3	1.2, 15.6
Prenatal care								
Early[b]	52 (37)	42 (53)	1.5	0.8, 2.7	28 (13)	14 (12)	1.7	1.0, 5.7
Late or none	63 (20)	37 (30)	2.8	1.2, 6.6	37 (7)	9 (5)	3.1	1.5, 6.2
Pregnancies, No.								
1–3	60 (53)	40 (68)	2.2	1.3, 3.8	32 (17)	13 (15)	3.2	1.5, 7.2
≥4	36 (5)	42 (13)	0.8	0.2, 2.8	25 (3)	5 (1)	6.0	0.5, 66.2
Cigarette smoking								
Smoker	52 (16)	30 (13)	2.5	0.9, 6.4	21 (4)	14 (5)	1.6	0.4, 6.8
Nonsmoker	57 (41)	43 (70)	1.8	1.0, 3.1	34 (16)	11 (12)	4.0	1.7, 9.4
Alcohol consumption								
Yes	68 (13)	34 (11)	4.1	1.2, 13.9	40 (4)	9 (2)	7.0	1.0, 48.0
No	52 (44)	41 (72)	1.6	0.9, 2.7	29 (16)	13 (15)	2.8	1.3, 6.1

Note. VLBW = very low birthweight; NLBW = non–low-birthweight; OR = odds ratio; CI = confidence interval.
[a] Forty-three percent are missing data for household income.
[b] Defined as initiation in the first trimester.

research is needed to determine whether the inconsistencies reflect differences in unmeasured contextual variables.[10,12,13,39–41]

Our study provides empirical evidence supporting the conceptual model proposed by Rich-Edwards et al.[16] in which African American women's lifetime exposure to interpersonal racism is explicitly included as a chronic stressor.[16] 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,[36] our study did not have sufficient power to address the role of reported incidents during pregnancy.

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 ascertain-

TABLE 4—Maternal Exposure to Interpersonal Racial Discrimination in the Workplace and Infant Very Low Birthweight

	Lifetime				Past Year			
Specific Perceptions	Percentage VLBW n = 53	Percentage NLBW n = 110	OR	CI	Percentage VLBW n = 53	Percentage NLBW n = 110	OR	CI
Because you are African American, you are assigned the jobs no one else will do.	19	12	1.7	0.7, 4.3	12	8	1.4	0.5, 4.2
You are treated with less dignity and respect than you would be if you were White.	21	12	2.0	0.8, 4.7	23	11	2.3	1.0, 5.5
You are watched more closely than other workers because of your race.	17	8	2.3	0.8, 6.1	10	8	1.3	0.4, 4.1
Racial jokes or harassment are directed at you.	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Because you are African American, you feel as if you have to work twice as hard.	28	17	1.9	0.9, 4.1	25	18	1.6	0.7, 3.5
Tasks that require intelligence are generally given to Whites, while African-Americans get those that don't require much thought.	20	12	1.8	0.7, 4.6	14	11	1.3	0.5, 3.6
You are often ignored or not taken seriously by your boss because of your race.	. . .	6	. . .	. . .	. . .	5	. . .	. . .
Whites often assume that you work in a lower status job than you do and treat you as such.	29	15	2.3	1.0, 5.1	32	15	2.6	1.2, 5.8
A White coworker with less experience and qualifications got promoted before you did.	. . .	10	. . .	. . .	. . .	9	. . .	. . .
When different opinions would be helpful, your opinion is not asked for because of your race.	10	9	1.1	0.3, 3.3	. . .	5	. . .	. . .
Total positive responses								
≥1	47	34	1.7	0.8, 3.5	49	32	2.0	1.0, 4.3
≥3 or more	26	16	1.7	0.7, 4.0	27	16	1.8	0.8, 4.4

Note. VLBW = very low birthweight; NLBW = non–low-birthweight; OR = odds ratio; CI = confidence interval; . . . = undefined (< 5 subjects).

ment of the exposure of chronic interpersonal racism. However, the assessment of discrimination in multiple domains and the characterization of regular exposure to discrimination in the workplace are strengths of the instruments used in our study.[23,28,38] In addition, the consistency of the elevated point estimates derived from 2 independently constructed instruments suggests that we accurately assessed exposure to interpersonal racial discrimination.[23,28] 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 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.[41] 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.[32,39] 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.[41]

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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J. Collins originated the study, led the writing, and supervised all aspects of its implementation. R. David led the analyses and supervised subject recruitment at Cook County Hospital. A. Handler assisted with the study and questionnaire development. S. Wall assisted with the study and supervised subject recruitment at the University of Chicago. S. Andes synthesized the analyses and supervised data entry. All authors helped to conceptualize ideas, interpret findings, and review drafts of the article.

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Human Participant Protection

Institutional review board approval was obtained at each hospital and participants provided written informed consent.

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