

Statistical Brief



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Racial Disparities in Birth Outcomes Increase with Maternal Age: Recent Data from North Carolina

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Introduction

There are longstanding disparities in birth outcomes between whites and African Americans in North Carolina and the United States. For infant mortality and low birth weight, African Americans have rates at least two times those for whites, and the gap has been increasing over time. Arline Geronimus has proposed a “weathering hypothesis” to help explain this pattern.^{1,2} The weathering hypothesis proposes that the health of African American women may begin to deteriorate in early adulthood as a physical consequence of cumulative socioeconomic disadvantage. As a result, the racial differential in infant mortality, for example, is larger at older maternal ages than at younger ages. A conclusion from this is that improvements in health among adult African American women would help reduce their infant mortality rate. This report examines recent North Carolina data to see if this hypothesis is supported.

Methods

We looked at 1999-2003 rates of low birth weight (<2,500 grams), very low

birth weight (<1,500 grams), infant mortality (deaths in the first year of life), neonatal mortality (deaths in the first 27 days), and postneonatal mortality (deaths from 28-364 days of age) for African Americans and whites (non-Hispanic) for the following maternal age categories: 15-19, 20-34, and 35+. We also present selected 2001-2003 health indicators from the North Carolina Behavioral Risk Factor Surveillance System (BRFSS) for African American and white (non-Hispanic) women for ages 18-24, 25-34, and 35-44. The BRFSS is an ongoing random telephone health survey of adults in North Carolina.

Several years of vital records and BRFSS data were aggregated to yield large enough numbers for meaningful analyses by race and age. The 15-19 year-old age group was used for the birth and infant death data because this is a grouping commonly used for analysis of teen birth statistics; there are very few births to girls under age 15. The BRFSS survey interviews only persons ages 18 and older; the 18-24 year-old age group was used to define young adults.

Results

Table 1 shows the distribution of live births in North Carolina during the period 1999-2003 for African Americans and whites, by maternal age. Twenty-eight percent of all live births shown in Table 1 were to African Americans, while 44 percent of the teen births (ages 15-19) were to African Americans. Table 1 reveals that teens comprised 18.7 percent of African American births, compared to 9.2 percent of white births.

Table 1: 1999-2003 North Carolina resident live births by maternal race and age

Age group	African American Number	African American Percent	White Number	White Percent
15-19	26,065	18.7	32,659	9.2
20-34	101,249	72.8	276,536	77.6
35+	11,783	8.5	47,259	13.2



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Table 2 shows differences in selected birth outcomes by maternal race and age. Although there are some exceptions, the general pattern is that birth outcomes for African Americans become worse with increasing maternal age and that the racial disparities increase with increasing maternal age. The two measures that are most associated with preterm delivery, the percentage of very low birth weight and the neonatal death rate, have the largest racial disparities at the older ages. The teen postneonatal death rates are the same for African Americans and whites (3.8), but for mothers ages 20 and older, the rates for African Americans are more than two times the rates for whites.

Table 3 shows differences in selected women’s health indicators by maternal race and age. We include several chronic disease indicators and two measures of smoking, a behavioral risk. The general pattern here is similar to that for the birth outcomes: the measures for African American women become worse with increasing age and the racial disparities in these indicators increase with increasing age. For four of the measures – percent with fair or poor health, percent with high cholesterol, percent who currently smoke, and percent of mothers who smoked during pregnancy – African American 18-24 year-olds have much lower rates than white 18-24 year-olds. But the African American rates increase substantially with age, so that by ages 35-44 African American women have higher rates than white women for all but one of these four measures.

Discussion

A much higher percentage of births occur to teens among African Americans than among whites (19% vs. 9%). Also, African American teens often experience better birth outcomes than older African American women.

Table 2: Selected birth outcome measures by maternal race and age for North Carolina residents, 1999-2003

	15-19	20-34	35+
% Low Birth Weight (<2,500 grams)			
African American	14.4	13.5	16.7
White	9.5	7.1	8.3
Ratio	1.52	1.90	2.01
% Very Low Birth Weight (<1,500 grams)			
African American	3.2	3.5	4.4
White	1.8	1.3	1.6
Ratio	1.78	2.69	2.75
Infant Deaths (<1 year of age) per 1,000 Births			
African American	14.3	15.0	15.3
White	10.7	5.8	5.5
Ratio	1.34	2.59	2.78
Neonatal Deaths (<28 days of age) per 1,000 Births			
African American	10.5	10.7	12.1
White	7.0	4.1	4.0
Ratio	1.50	2.61	3.03
Postneonatal Deaths (28-364 days of age) per 1,000 Births			
African American	3.8	4.2	3.1
White	3.8	1.7	1.5
Ratio	1.00	2.47	2.07

The BRFSS data presented here show that selected health indicators for African American women worsen substantially with age and that racial disparities in women’s health increase with age. Geronimus found sharp increases with age in the African American/white ratios of hypertension and high blood lead level prevalence among women.¹ These results suggest the importance of targeting health interventions to African American women in their 20s and 30s as a means of reducing the overall racial disparity in low birth weight and infant mortality.

Table 3: Selected women’s health indicators by maternal race and age for North Carolina adults, 2001-2003 BRFSS data

	18-24	25-34	35-44
% Obese (BMI >= 30)			
African American	24.2	32.2	43.9
White	12.4	18.7	19.1
Ratio	1.95	1.72	2.30
% Who Report Their Health as Fair or Poor			
African American	4.5	7.7	21.1
White	7.1	6.7	12.2
Ratio	0.63	1.15	1.73
% With High Blood Pressure			
African American	11.9	16.5	32.0
White	6.1	5.5	12.7
Ratio	1.95	3.00	2.52
% With High Cholesterol			
African American	5.2	17.0	25.3
White	13.6	17.4	22.9
Ratio	0.38	0.98	1.10
% Who Currently Smoke			
African American	16.8	15.5	23.1
White	34.1	25.8	32.5
Ratio	0.49	0.60	0.71
% Who Smoked During Pregnancy*			
African American	8.3	11.4	14.5
White	31.1	16.5	11.0
Ratio	0.27	0.69	1.32

*This measure is based on 1999-2003 birth certificate data; age groups are 15-19, 20-34, and 35+.

A limitation of this study is that it presents only descriptive statistics, without other control variables. Therefore the differences that are attributed here to race and age could be due substantially to other factors (such as education, income, social support, or medical conditions) that are associated with race and age.

The observation that racial disparities in neonatal mortality widen with maternal age is consistent with the view of aging as a “weathering” process, which may involve life circumstances

that undermine women’s health in ways that can affect reproduction.¹ Racism, poverty, crime, and environmental problems disproportionately take their toll on the health of African American women,³ leading to increasing health disparities as age increases. A recent North Carolina study suggests that unequal treatment based on race has negative effects on adult health and that African Americans are much more likely than whites to experience unequal treatment based on their race.⁴ Eighteen percent of African American adults reported having emotional upset and/or physical symptoms due to treatment based on race, compared to four percent of white adults; seven percent of African Americans reported experiences worse than other races when seeking health care, compared to one percent of whites.⁴ There is evidence that prolonged, active coping with social injustice may exact a physical price.¹ High levels of stress may have negative effects on health, and stress can affect maternal behaviors such as smoking, nutrition, and substance use.⁵

Quoting from Geronimus: “While most Americans take for granted their good health during their young and middle adulthood – indeed these ages are referred to as the ‘prime’ of life and the 20s as the ‘prime childbearing ages’ – our findings suggest that among African American women in poverty, health deterioration may begin on an accelerated course in the mid-20s, and reproductive disadvantage may intensify.”¹

In conclusion, an effective strategy to prevent infant deaths and reduce racial disparities in birth outcomes must include measures to improve women’s health *before* they become mothers and to sustain their health throughout the reproductive years.

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