

Pregnancy Risk Factors and Birth Outcomes in Washington State: A Comparison of Ethiopian-Born and US-Born Women

ABSTRACT

This study compared birth outcomes of three cohorts of women with singleton live births in Washington State between 1980 and 1991: all Black Ethiopian-born women ($n = 264$) and samples of US-born Black ($n = 526$) and White ($n = 546$) women. Ethiopians were older, more likely to be married, and less likely to smoke than were US-born women, and they were less likely to have anemia than US-born Blacks. The adjusted low-birthweight risk among Ethiopians was similar to that of US-born Blacks (relative risk [RR] = 0.9) and Whites (RR = 1.1). Ethiopians were more likely to have high-birthweight infants than were US-born Blacks (RR = 4.0). Cultural and behavioral etiologies may explain these favorable birth outcomes. (*Am J Public Health*. 1994;84:1505-1507)

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Introduction

Blacks born outside of the United States have generally been found to have more favorable pregnancy outcomes in America than their US-born counterparts, with lower rates of prematurity and higher birthweights.¹⁻⁵ The research producing these results, primarily studies of Caribbean-born immigrants of high socioeconomic status and educational levels, has not included foreign-born Black women arriving under refugee circumstances. It is unclear whether these more favorable outcomes occur as well in Black refugee populations, which may be more similar in socioeconomic status to US-born Blacks.

To address this question, we compared birth outcomes of Ethiopian-born women delivering infants in Washington State with those of US-born Black and White women. Famine, displacement, and civil war in Ethiopia in the mid-1980s led to greatly increased emigration, and most Ethiopian women in the United States are likely to have arrived recently under refugee circumstances.^{6,7}

Methods

Birth certificates for all Washington State singleton births between 1980 and 1991 to Black women born in Ethiopia ($n = 264$) were obtained and matched in a 1:2 ratio by delivery year to births to randomly selected US-born White ($n = 546$) and Black ($n = 532$) Washington women.

Birth certificate data were used to examine demographic differences among these cohorts, and the association between maternal birthplace and infant birthweight was calculated with the Mantel-Haenszel pooled estimator of relative risk (RR) and Greenland/Robins 95% confidence intervals (CIs). Several potential confounders of this association (age, smoking, marital status, parity, prenatal care, and diabetes) were considered, and those variables that altered the relative

risk by 10% or greater were included as confounders. US census data were used to calculate family income, defined as the median income of the census tract of residence, for urban residents only.

Results

Births in Washington State to Ethiopian-born women increased from 16 in 1980 through 1982 to 136 in 1989 through 1991. Ethiopian women were older, more likely to be married, less likely to smoke, and less likely to be primiparous than US-born Black and White women (Table 1). The family income of both urban Ethiopians and US-born urban Black women was substantially lower than that of urban White women. Ethiopians and US-born Blacks were less likely than Whites to initiate prenatal care early (Table 2). Gestational diabetes and pre-eclampsia were more common among Ethiopians than among both US-born groups, while chronic hypertension was less frequent. Anemia during pregnancy occurred among Ethiopian women half as often as among US-born Black women.

Ethiopian-born women were less likely than US-born Blacks to have low-birthweight infants (5.3% vs 7.6%). After adjustment for smoking, marital status, and prenatal care, the relative risk of low birthweight among Ethiopians was similar to that of US-born Blacks (RR = 0.9, 95% CI = 0.5, 1.7) and Whites (RR = 1.1, 95% CI = 0.6, 2.1). Twenty percent of infants born to Ethiopian women weighed 4000 g or more, in comparison with 4% of

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TABLE 1—Demographic and Behavioral Characteristics of Cohorts Giving Birth in Washington State, 1980 through 1991

	Ethiopian (n = 264)	Black (n = 532)	White (n = 546)
Maternal age, no. (%)			
< 20 y	6 (2.3)	112 (21.1)	48 (8.8)
20–29 y	158 (60.3)	335 (63.0)	337 (61.7)
30+ y	98 (37.4)	85 (16.0)	161 (29.4)
Unknown	0 (0.0)	2 (0.8)	0 (0.0)
Marital status, no. (%)			
Married	240 (90.9)	261 (49.1)	438 (80.7)
Unmarried	24 (9.1)	271 (50.9)	105 (19.3)
Unknown	0 (0.0)	0 (0.0)	3 (0.6)
Smoking during pregnancy, no. (%)			
No	174 (97.8)	296 (78.1)	356 (77.6)
Yes	4 (2.2)	83 (21.9)	103 (22.4)
Unknown	86 (32.6)	153 (28.8)	87 (15.9)
Family income,^a dollars	25 971	25 483	35 640
Urban residence,^b no. (%)	240 (91.0)	452 (85.0)	256 (47.0)
Parity, no. (%)			
0	94 (36.0)	230 (43.6)	216 (40.1)
1	86 (33.0)	147 (27.9)	193 (35.9)
2+	81 (31.1)	150 (28.5)	129 (23.9)
Unknown	3 (1.1)	5 (0.9)	8 (1.5)

^aAmong urban residents, measured as median income of census tract.

^bDefined as giving birth in King, Pierce, or Snohomish counties.

US-born Black women's infants. After adjustment for smoking, maternal age, and marital status, Ethiopians maintained a significant elevation of macrosomia risk (RR = 4.0, 95% CI = 2.3, 6.8) relative to Black women; however, they evidenced no excess risk (RR = 1.1, 95% CI = 0.8, 1.4) when compared with Whites. Among nonsmokers, Ethiopians had infants of significantly higher mean birthweight than Blacks above 38 weeks gestation ($P < .0001$) (Figure 1).

Discussion

The interpretation of our findings is potentially limited by the absence of detailed socioeconomic information, making it possible that the favorable birth outcomes among Ethiopians in comparison with US-born Blacks were due to socioeconomic advantages. However, reports describing Ethiopian refugees indicate that, unlike the more urban, educated Ethiopians entering the United States in the early 1980s, many of those entering during the mid-1980s and later were illiterate and poor, had little formal education or skills, and were from rural areas.^{7,8} The dramatic increase in Washington State deliveries among Ethiopians during the mid- and late 1980s, when a large population of Ethiopian refugees was displaced and left Ethiopia, suggests that many, if not most, of the Ethiopian women in our study were refugees.^{9,10} In addition, we found that family income, measured by median income of census tract of residence, was similar among Ethiopians and US-born Blacks, making it unlikely that Ethiopians were an advantaged group.

That Ethiopian women had no greater risk of delivering low-birthweight infants than US-born Whites is surprising in light of their lack of prenatal care and the difficulties they may face upon entering the country. Even more surprising, however, is that 20% of Ethiopian women delivered infants weighing more than 4000 g. The high proportion of large infants born to Ethiopians in comparison with US-born Blacks was not associated with differences in parity, gestational age, or gestational diabetes. Furthermore, among term deliveries, the mean birthweight of Ethiopians was more similar to that of US-born Whites than to that of US-born Blacks. The higher apparent mean birthweight among Blacks at less than 35 weeks gestation shown in Figure 1

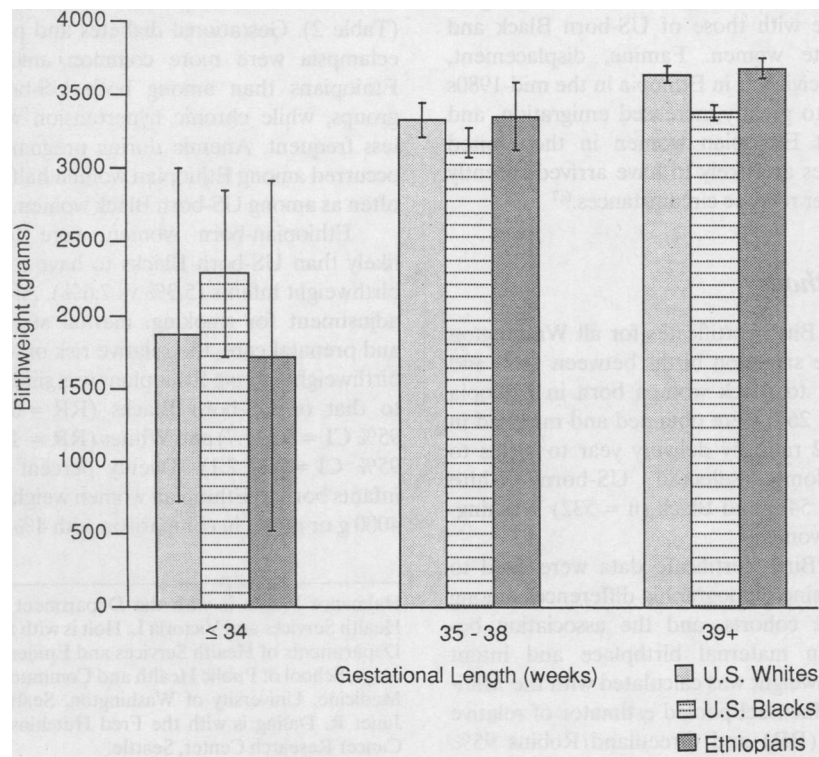


FIGURE 1—Mean birthweights (and 95% confidence intervals), by gestational age and race/ethnicity among nonsmokers.

TABLE 2—Pregnancy and Neonatal Characteristics of Cohorts Giving Birth in Washington State, 1980 through 1991

	Ethiopian (n = 264)	Black (n = 532)	White (n = 546)
Prenatal care onset, no. (%)			
1st trimester	147 (63.6)	326 (65.2)	413 (77.9)
2nd or 3rd trimester or no care	84 (36.4)	174 (34.8)	117 (22.1)
Unknown	33 (12.5)	32 (6.0)	16 (2.9)
Diabetes, no. (%)			
None	220 (94.4)	431 (99.3)	504 (98.1)
Established diabetes	2 (0.9)	1 (0.2)	1 (0.2)
Gestational diabetes	11 (4.7)	2 (0.5)	9 (1.8)
Unknown	31 (11.7)	98 (18.4)	32 (5.9)
Anemia during pregnancy, ^a no. (%)			
No	132 (93.6)	226 (86.6)	307 (96.8)
Yes	9 (6.4)	35 (13.4)	10 (3.2)
Unknown	123 (46.6)	271 (50.9)	229 (41.9)
Pre-eclampsia, no. (%)			
No	216 (92.7)	403 (93.1)	483 (94.2)
Yes	17 (7.3)	30 (6.9)	30 (5.8)
Unknown	31 (11.7)	99 (18.6)	33 (6.0)
Chronic hypertension, no. (%)			
No	232 (99.6)	424 (97.7)	506 (98.6)
Yes	1 (0.4)	10 (2.3)	7 (1.4)
Unknown	31 (11.7)	98 (18.4)	33 (6.0)
Birthweight, no. (%)			
< 1499 g	5 (1.9)	12 (2.3)	2 (0.4)
1500–2499 g	9 (3.4)	28 (5.3)	23 (4.2)
2500–3999 g	196 (74.2)	470 (88.4)	429 (78.6)
4000+ g	54 (20.5)	22 (4.1)	92 (16.9)
Unknown	0 (0.0)	0 (0.0)	0 (0.0)
Mean birthweight, g	3486	3176	3492

^aAnemia information was available on the birth certificate in 1989 through 1991 only.

was due to a large number of Black births near the upper age limit of this category.

The favorable pregnancy outcomes of Ethiopian women relative to US-born Blacks may be due to several factors. The US-born Black and Ethiopian populations may differ in their responses to physical and emotional stress, and pregnant Ethiopian women may receive more psychological and emotional support than US-born Black women. Hispanic women in the United States have been shown to have pregnancy outcomes more like those of Whites than those of Blacks, attributed in part to supportive communities that

may help buffer psychological stress and deter harmful behavioral practices such as smoking and alcohol and drug use.¹¹ This mechanism may be operating in the Ethiopian community as well, as evidenced by the high marriage and low smoking rates among our Ethiopian subjects. There may also be nutritional differences between Ethiopian and US-born Black women before and during pregnancy. This hypothesis is also supported by our data: the frequency of anemia during pregnancy among Ethiopians was half that of US-born Black women. Finally, genetic differences be-

tween Ethiopians and more ethnically heterogeneous US-born Black women may account for some of the difference in birthweight distributions.

Future investigation of the Ethiopian community structure, as well as dietetic and behavioral practices during pregnancy, is warranted to illuminate the reasons for the favorable pregnancy outcomes of Ethiopian women. Such research will promote identification of additional modifiable factors applicable to decreasing low birthweight rates among US-born Black women. □

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References

1. Cabral H, Fried LE, Levenson S, Amaro H, Zuckerman B. Foreign-born and U.S.-born black women: Differences in health behaviors and birth outcomes. *Am J Public Health.* 1990;80:70–72.
2. Centers for Disease Control. Ethnic variation and maternal characteristics among blacks—Massachusetts, 1987 and 1988. *MMWR.* 1991;40:403–411.
3. Valanis BM, Rush D. A partial explanation of superior birth weights among foreign-born women. *Soc Biol.* 1979;26:198–210.
4. Kleinman JC, Fingerhut LA, Prager K. Differences in infant mortality by race, nativity status, and other maternal characteristics. *Am J Dis Child.* 1991;145:194–199.
5. Doucet H, Baumgarten M, Infante-Rivard C. Risk of low birthweight and prematurity among foreign-born mothers. *Can J Public Health.* 1992;83:192–195.
6. Parenti DM, Lucas D, Lee A, Hollenkamp R. Health status of Ethiopian refugees in the United States. *Am J Public Health.* 1987;77:1542–1543.
7. Chaos in the Horn of Africa. *Refugee Rep.* 1991;12:8–11.
8. Ethiopian refugee resettlement in the US. *Refugee Rep.* 1991;12:11–15.
9. Ruiz HA. *Beyond the Headlines: Refugees in the Horn of Africa.* Washington, DC: US Committee for Refugees; 1988.
10. *World Refugee Survey.* Washington, DC: US Committee for Refugees; 1991.
11. James SA. Racial and ethnic differences in infant mortality and low birthweight: a psychosocial critique. *Ann Epidemiol.* 1993; 3:130–136.