

Perceived Discrimination During Prenatal Care, Labor, and Delivery: An Examination of Data From the Oregon Pregnancy Risk Assessment Monitoring System, 1998–1999, 2000, and 2001

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Although recent research has examined discrimination in health care, no studies have investigated women's experiences during prenatal or obstetrical care. Analyses of data from the Oregon Pregnancy Risk Assessment Monitoring System showed that 18.53% of mothers reported discrimination by providers during prenatal care, labor, or delivery, most commonly because of age or insurance status. Perceived discrimination was associated with maternal characteristics such as age, marital status, and type of insurance, but not with number of subsequent well-baby visits. (*Am J Public Health*. 2008;98:1818–1821. doi:10.2105/AJPH.2007.123687)

Discrimination in health care has been the focus of a number of studies in recent years.^{1–10} Research suggests that people experience discrimination when receiving health care on the basis of their race/ethnicity, socioeconomic status, type of insurance, gender, language abilities, or other factors.^{1–3,5,6,9,10} Studies also suggest that perceived (i.e., self-reported) discrimination in health care is higher among some sociodemographic groups than among others.^{1–4,6,8–10} Furthermore, greater amounts of such discrimination are associated with less satisfaction with care,⁵ delayed care

and not following doctors' advice,⁴ not receiving some preventive health services,⁹ more hospital admissions,² poorer mental health,¹⁰ greater levels of depression and posttraumatic stress, and poorer general health.⁵

A few studies have explored women's experiences with discrimination while receiving reproductive health care,^{6,11–13} but none has specifically examined women's experiences of discrimination while receiving prenatal or obstetric care. We assessed perceptions of discrimination during prenatal care, labor, and delivery among Oregon women. Our purpose was to examine the extent to which Oregon women perceive that health care providers discriminate against them during prenatal care, labor, or delivery; the relationship between maternal and infant characteristics and perceived discrimination; and the association between perceived discrimination during prenatal care, labor, or delivery and the frequency of well-baby visits.

METHODS

We used data from the 1998–1999, 2000, and 2001 Oregon Pregnancy Risk Assessment Monitoring System (PRAMS). Modeled on the multistate PRAMS program of the Centers for Disease Control and Prevention, the Oregon PRAMS collects data about maternal attitudes and experiences before, during, and immediately after pregnancy from Oregon mothers who have recently had a live birth. Data from the 1998–1999, 2000, and 2001 Oregon PRAMS surveys were not collected under a Centers for Disease Control and Prevention protocol.

Mothers who are Oregon residents and whose babies were born in Oregon were sampled with a stratified random sample of birth certificates. African American, American Indian/Alaska Native, Asian/Pacific Islander, and Hispanic mothers were oversampled. Unweighted response rates for 1998–1999, 2000, and 2001 were 64.0%, 73.1%, and 72.1%, respectively. Further details about the Oregon PRAMS are available online.¹⁴ We pooled data for the 3 cohorts, resulting in a total sample of 5762 women. The median time from delivery to survey completion was 101 days.

Perceived discrimination in health care was assessed by asking women if they felt they had ever been treated differently by health care providers during prenatal care, labor, or delivery because of their race, culture, ability to speak or understand English, age, insurance status,

neighborhood in which they lived, religious beliefs, sexual orientation or lifestyle, marital status, or desire to have an out-of-hospital birth. For each item, response categories were “yes” and “no.” We performed exploratory factor analysis on these 10 dichotomous items with varimax rotation to maximize the variance of the loadings within the factors to allow for ease of interpretation. Two factors with eigenvalues greater than 1 were extracted. However, all items loaded strongly on the first factor (eigenvalue=5.6), meaning that each item was strongly correlated with that factor. We therefore created 1 scale by summing the 10 items (Kuder–Richardson 20 coefficient=0.68). Because of its nonnormal distribution, we dichotomized the scale into “any discrimination” versus “no discrimination.”

We generated unadjusted odds ratios to assess the association between maternal and infant characteristics and perceived discrimination. Characteristics that were associated with perceived discrimination at *P* at less than or equal to .1 were included in a multiple logistic regression. We also performed a multiple logistic regression to determine perceived discrimination's adjusted association with having had 3 or more well-baby visits. A significance level of .05 (2-tailed) was used for all analyses. To ensure that the data were representative of all live Oregon births, we used a weight that is a product of weights accounting for oversampling at the strata level, unit non-response, and noncoverage. Further details about the weighting methods for the PRAMS data appear elsewhere.¹⁴ All data presented are weighted except where noted.

RESULTS

Nearly one fifth (18.53%) of women reported experiencing discrimination by health care providers during prenatal care, labor, or delivery. Discrimination on the basis of age (8.44%) or insurance status (8.19%) was most common, and discrimination because of sexual orientation (0.96%) or because of the neighborhood lived in (0.96%) was least common. As shown in Table 1, several variables were significantly associated with perceived discrimination.

Adjusted odds ratios (Table 2) indicate that reports of discrimination were significantly more likely among young mothers (aged ≤19 years) and older mothers (aged ≥35 years) than among mothers aged 20 through 34 years,

women who were not married versus married women, and those with annual household incomes less than \$50 000 compared with those with annual incomes of \$50 000 or more. Receipt of prenatal care from a provider other than a private physician, health maintenance organization (HMO), hospital clinic, or health department was also significantly associated with perceived discrimination. In addition, reports of discrimination were significantly more likely among women who were unable to pay bills during pregnancy than among those who had no trouble paying. Reports of discrimination were also significantly more likely among those without employer-sponsored or Oregon Health Plan insurance coverage for delivery compared with those who had employer-sponsored coverage. The Oregon Health Plan is a state-run program that provides health care coverage to low-income Oregonians. By contrast, perceived discrimination was significantly lower among Hispanic women compared with White women.

Most mothers received their well-baby care from a private physician or HMO (68.57%), followed by a hospital clinic (15.54%) and a public health department (11.85%). More than half obtained 2 or fewer well-baby visits (53.38%). After adjusting for selected characteristics, perceived discrimination was not significantly associated with number of well-baby visits (Table 3).

DISCUSSION

Our results indicate that nearly 1 in 5 women in Oregon have experiences during prenatal care, labor, or delivery in which they feel they were treated differently by health care providers because of their age or other characteristics. Our study adds to the growing body of research suggesting that people experience discrimination while receiving medical care.¹⁻¹³

Type of insurance was associated with perceived discrimination, a result similar to those of other studies.^{4,9} We found (as did Trivedi and Ayanian⁹) that discrimination on the basis of insurance status was one of the types of discrimination most frequently reported. The financing of a woman's obstetric care may be an important influence on the quality of her interactions with providers and should be examined more closely.

Receipt of prenatal care from a provider other than a private physician or HMO, hospital

TABLE 1—Sample Characteristics and Their Unadjusted Association With Perceived Discrimination During Prenatal Care, Labor, or Delivery: Oregon PRAMS, 1998–1999, 2000, 2001

Characteristic	Respondents, Unweighted ^a No. (%)	Perceived Discrimination, %	Unadjusted OR (95% CI)
Total	5762	18.53	
Maternal age at delivery, y			
≤19	807 (14.01)	38.53	3.43*** (2.58, 4.55)
20–34 (Ref)	4329 (75.13)	15.47	1.00
≥35	626 (10.86)	19.23	1.30 (0.90, 1.87)
Maternal education, y			
<12	1538 (27.05)	24.79	1.00 (1.00, 1.02)
≥12 (Ref)	4146 (72.95)	16.75	1.00
Maternal marital status			
Not married	2109 (36.60)	30.26	2.75*** (2.19, 3.44)
Married (Ref)	3653 (63.40)	13.64	1.00
Maternal race/ethnicity			
White (Ref)	1956 (33.95)	18.26	1.00
African American	655 (11.37)	24.21	1.43** (1.13, 1.81)
American Indian/Alaska Native	657 (11.40)	30.70	1.98** (1.59, 2.48)
Asian/Pacific Islander	931 (16.16)	18.48	1.01 (0.81, 1.27)
Hispanic	1563 (27.13)	17.91	0.98 (0.80, 1.19)
Maternal residence			
Urban (Ref)	4061 (79.86)	17.99	1.00
Rural	1024 (20.14)	17.71	0.98 (0.73, 1.32)
Annual household income, \$			
<15 000	1776 (33.70)	25.79	3.48*** (2.36, 5.13)
15 000–29 999	1536 (29.15)	20.98	2.66*** (1.79, 3.95)
30 000–49 999	979 (18.58)	17.99	2.20*** (1.44, 3.35)
≥50 000 (Ref)	979 (18.58)	9.07	1.00
Received prenatal care during first trimester			
Yes (Ref)	3891 (70.50)	17.37	1.00
No	1617 (29.50)	22.52	1.30** (1.10, 1.53)
Type of prenatal care provider			
Private physician or HMO (Ref)	3112 (56.24)	15.12	1.00
Hospital clinic	1099 (19.86)	20.88	1.48** (1.10, 2.00)
Health department	919 (16.61)	24.25	1.80*** (1.33, 2.43)
Other	403 (7.28)	36.74	3.26*** (2.20, 4.83)
HIV test suggested by provider during pregnancy			
No (Ref)	1974 (38.65)	17.39	1.00
Yes	3483 (61.35)	19.67	1.03 (0.95, 1.11)
HIV test during pregnancy			
No (Ref)	1751 (37.54)	15.68	1.00
Yes	3547 (62.46)	20.95	1.01 (0.95, 1.07)
Homeless while pregnant			
No (Ref)	5317 (94.46)	18.04	1.00
Yes	312 (5.54)	33.98	2.34*** (1.52, 3.61)
Unable to pay bills during pregnancy			
No (Ref)	3854 (68.54)	14.41	1.00
Yes	1769 (31.46)	28.49	2.37*** (1.88, 2.98)

Continued

TABLE 1—Continued

Type of insurance coverage for delivery			
Employer-sponsored (Ref)	2640 (46.44)	12.55	1.00
Oregon Health Plan	2580 (45.38)	25.28	2.36*** (1.86, 2.99)
Other or none	465 (8.18)	30.34	3.03*** (2.06, 4.47)
Infant birthweight, g			
<1500	1073 (18.62)	21.27	1.20 (0.99, 1.46)
≥1500 (Ref)	4689 (81.38)	18.38	1.00

Note. PRAMS = Pregnancy Risk Assessment Monitoring System; OR = odds ratio; CI = confidence interval; HMO = health maintenance organization. Except where noted otherwise, data were weighted to account for oversampling, nonresponse, and noncoverage.

^aExcludes those who did not know or did not respond.

P* < .01; *P* < .001.

clinic, or health department was also associated with more discrimination than was receipt of care from a private physician or HMO. Unfortunately, only 17 of the 403 women who obtained prenatal care from other types of providers gave information about them, and those who did reported a range of provider types (e.g., midwives, a low-income clinic, and a diabetes clinic). Hence, drawing conclusions about this group of women is difficult. Studies that compare the quality of patient–provider interactions by different types of providers could shed light on these issues.

Women who were not married, were 19 years or younger, were 35 years or older, or had annual household incomes of less than \$50 000 reported more discrimination than did women who did not fall into these categories. These findings resemble those from a study of African American women that found that younger age and lower income (but not marital status) were associated with perceived race-based discrimination when getting contraceptive services.⁶ Unmarried women and young women may experience discrimination during prenatal care, labor, and delivery because of stigma associated with nonnormative childbearing (i.e., nonmarital and adolescent childbearing). Similarly, low-income women may experience discrimination because of the impression others have that they are unable to materially provide for a child.

Our results indicate that Hispanic women perceived less discrimination during prenatal care, labor, and delivery than did White women. Previous research on racial/ethnic differences in perceived discrimination has produced mixed findings.^{1,4,9} A potential explanation for our findings is that Hispanic women in Oregon may be able to access

culturally appropriate care and, as a result, are less likely to experience discrimination.

Research has found varying relationships between perceived discrimination and health care utilization.^{2–5,9} In our study, however, perceived discrimination during pregnancy, labor, or delivery did not significantly lower the odds of having 3 or more well-baby visits. Possibly, women viewed discriminatory experiences as provider-specific, did not expect similar treatment for their children, or were highly motivated for their infant’s health. Future research, both qualitative and quantitative, should examine a range of potential patient responses to discrimination, including other behaviors such as timely receipt of prenatal care or use of the same provider for a subsequent pregnancy.

The strengths of our study were the probability sampling and high response rates of the Oregon PRAMS. In addition, the discrimination question asked about differential treatment in a specific situation and about multiple types of discrimination. As a result, the measure is less likely to underestimate exposure to discrimination and is more informative than are questions that are global or ask about one type of discrimination.¹⁵

Our study did have some limitations. First, our findings may have limited generalizability because the characteristics and experiences of Oregon mothers may differ from those in other states. For example, Oregon has relatively little racial/ethnic diversity. Second, combining prenatal care, labor, and delivery in 1 discrimination measure could not capture any differences in women’s experiences across these settings. Further, the data are retrospective self-reports. A variety of factors may have influenced women’s reports of discrimination, including greater awareness of discrimination than women not

TABLE 2—Multiple Logistic Regression Analysis of Perceived Discrimination During Prenatal Care, Labor, or Delivery: Oregon PRAMS, 1998–1999, 2000, 2001

Characteristic	Adjusted OR (95% CI)
Maternal age at delivery, y	
≤19	2.43*** (1.67, 3.54)
20–34 (Ref)	1.00
≥35	1.91** (1.26, 2.91)
Maternal marital status	
Not married	1.79*** (1.30, 2.47)
Married (Ref)	1.00
Maternal race/ethnicity	
White (Ref)	1.00
African American	0.89 (0.65, 1.22)
American Indian/ Alaska Native	1.14 (0.85, 1.53)
Asian/Pacific Islander	1.22 (0.92, 1.61)
Hispanic	0.60** (0.44, 0.81)
Annual household income, \$	
<15 000	1.76* (1.05, 2.97)
15 000–29 999	1.96** (1.22, 3.14)
30 000–49 999	1.77* (1.12, 2.82)
≥50 000 (Ref)	1.00
Received prenatal care during first trimester	
Yes (Ref)	1.00
No	1.10 (0.73, 1.67)
Type of prenatal care provider	
Private physician or HMO (Ref)	1.00
Hospital clinic	1.29 (0.90, 1.85)
Health department	1.40 (0.90, 2.19)
Other	2.96*** (1.83, 4.78)
Homeless while pregnant	
No (Ref)	1.00
Yes	1.38 (0.81, 2.37)
Unable to pay bills during pregnancy	
No (Ref)	1.00
Yes	2.12*** (1.61, 2.79)
Type of insurance coverage for delivery	
Employer-sponsored (Ref)	1.00
Oregon Health Plan	1.11 (0.77, 1.59)
Other or none	1.81* (1.14, 2.88)
Infant birthweight, g	
<1500	0.98 (0.77, 1.23)
≥1500 (Ref)	1.00

Note. PRAMS = Pregnancy Risk Assessment Monitoring System; OR = odds ratio; CI = confidence interval; HMO = health maintenance organization. Data were weighted to account for oversampling, nonresponse, and noncoverage.

P* < .05; *P* < .01; ****P* < .001.

TABLE 3—Multiple Logistic Regression Analysis of Having 3 or More Well-Baby Visits: Oregon PRAMS, 1998–1999, 2000, 2001

Characteristic	Adjusted OR (95% CI)
Perceived discrimination	
No (Ref)	1.00
Yes	0.81 (0.62, 1.07)
Maternal age at delivery, y	
≤ 19	0.87 (0.61, 1.25)
20–34 (Ref)	1.00
≥ 35	0.88 (0.63, 1.23)
Maternal marital status	
Not married	1.26 (0.96, 1.66)
Married (Ref)	1.00
Maternal race/ethnicity	
White (Ref)	1.00
African American	1.06 (0.78, 1.45)
American Indian/ Alaska Native	0.96 (0.74, 1.24)
Asian/Pacific Islander	1.02 (0.80, 1.29)
Hispanic	0.95 (0.73, 1.23)
Annual household income, \$	
< 15 000	1.27 (0.87, 1.85)
15 000–29 999	1.24 (0.89, 1.72)
30 000–49 999	1.17 (0.86, 1.59)
≥ 50 000 (Ref)	1.00
Received prenatal care during first trimester	
Yes (Ref)	1.00
No	1.05 (0.82, 1.34)
Type of prenatal care provider	
Private physician or HMO (Ref)	1.00
Hospital clinic	1.13 (0.79, 1.62)
Health Department	1.40 (0.91, 2.14)
Other	1.23 (0.75, 2.01)
Homeless while pregnant	
No (Ref)	1.00
Yes	0.79 (0.48, 1.28)
Unable to pay bills during pregnancy	
No (Ref)	1.00
Yes	0.89 (0.70, 1.14)
Type of insurance coverage for delivery	
Employer sponsored (Ref)	1.00
Oregon Health Plan	1.12 (0.84, 1.49)
Other or none	1.28 (0.84, 1.94)

Continued

TABLE 3—Continued

Infant birthweight, g	
< 1500	2.20*** (1.81, 2.68)
≥ 1500 (Ref)	1.00
Type of well-baby care provider	
Private physician or HMO (Ref)	1.00
Hospital clinic	1.09 (0.77, 1.55)
Health Department	1.17 (0.80, 1.73)
Other	1.36 (0.80, 2.32)
Baby's age at time of survey	1.00 (0.99, 1.02)

Note. PRAMS = Pregnancy Risk Assessment Monitoring System; OR = odds ratio; CI = confidence interval; HMO = health maintenance organization. Data were weighted to account for oversampling, nonresponse, and noncoverage.
*** $P < .001$.

included in the study, heightened sensitivity to the quality of services, and their current feelings about pregnancy, childbirth, or motherhood.

Our results have provided further support for the need to examine discrimination in the delivery of health care. More specifically, studies that examine women's experiences during prenatal care, labor, and delivery and their consequences in greater depth, from the perspective of women and health care providers, would be especially beneficial for improving the quality of care for women. ■

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Contributors

M. De Marco helped plan the analyses, managed the data, completed the analyses, and helped interpret the findings. S. Thorburn originated the study, supervised its implementation, and interpreted the findings. W. Zhao assisted with the study and helped plan the analyses. All authors contributed to the writing of the article.

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Human Participation Protection

This study was approved by Oregon State University's institutional review board.

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Age at Menarche and First Pregnancy Among Psychosocially At-Risk Adolescents

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We sought to determine which factors influence the association between menarche and conception among adolescent study participants ($n=1030$), who demonstrated an earlier age of menarche than did national samples. Age at first sexual intercourse (coitarche) mediated the relationship between age at menarche and first pregnancy among White girls, whereas gynecologic age at coitarche (age at coitarche minus age at menarche) and age at menarche explained the timing of the first pregnancy among Black and Hispanic girls. Pregnancy prevention interventions to delay coitarche should also include reproductive education and contraception. (*Am J Public Health*. 2008;98:1822–1824. doi:10.2105/AJPH.2007.120444)

Early-maturing females tend to become pregnant at younger ages than do later-maturing females.^{1–4} Speculations about this nonrandom association include the effect of sex hormones,⁵ the schism between rapid physical development and cognitive and psychosocial maturity,^{6–13} and genetic influences.^{14–26} Given the trend toward earlier menarche^{27–29} and the desirability of preventing adolescent childbearing,^{22,30,31} a better understanding of the underlying mechanisms could improve pregnancy prevention interventions for young adolescent girls.

Among nulligravid American girls, Black females tend to mature at an earlier age than do Hispanic and White girls.^{27–29} However, a report by Dearthoff et al.⁶ indicates that pregnant Black adolescents had a later menarche than did White adolescents. Whereas the age at menarche for White participants was early by US standards, the age at menarche for Black participants was not.^{6,27–29} This unanticipated finding is intriguing and motivated this analysis.

We speculated that early physical maturation is not an important antecedent of early childbearing among Black Americans because the prime mediator of the relationship between early menarche and early pregnancy, early age at coitarche,⁶ is more normative among Black than among White American girls.³⁰ Accordingly, we tested the hypothesis that in a cohort of pregnant adolescents, coitarche explains the association between menarche and first pregnancy among White girls, but fecundity (i.e., fertility) at coitarche underlies the association between these two events among Black and Hispanic girls.

METHODS

Study participants were a racially and ethnically diverse group (31.4% White, 29.9% Black, and 38.7% Hispanic) of 1030 pregnant, primigravid adolescents aged 13 to 18 years. The primary source of data was the Electronic Report on Adolescent Pregnancy of the Colorado Adolescent Maternity Program.³²

Age at menarche was self-reported, and early menarche was defined as age 10 years or younger.^{27,33} Age at first conception was calculated from the patient-reported date of the last menstrual period and verified by ultrasound examination.³⁴ Early pregnancy was defined as conception at age 15 years or younger.^{22,31,35} Reproductive maturity at coitarche was defined as gynecologic age at first intercourse (age at coitarche minus age at menarche), truncated at 5 years.^{19,33,36,37} Age at coitarche was self-reported; early coitarche was defined as age 14 years or younger.^{7–13} Body mass index was used to assess prepregnant body size and was computed as self-reported prepregnant weight in kilograms divided by measured height² in meters,³⁸ and trichotomized as under-, average, and overweight.³⁹

Summary statistics and Pearson correlations were used to describe the study population and examine the association between study

variables. Mean and proportion comparison tests (the t test and analyses of variance for continuous variables and the χ^2 test for categorical variables) were used to test for significant race and ethnic group differences in age at menarche, coitarche, and conception. Hierarchical, forward, stepwise linear regression, with menarche entered as the first block, and the 3 explanatory variables as the second, were used to predict age at first pregnancy. The data were analyzed with SPSS version 14 (SPSS Inc, Chicago, IL).

RESULTS

Age at menarche, coitarche, and first conception are presented in Table 1. Menarche occurred at essentially the same age in all 3 groups. White adolescents reported an earlier coitarche than did their Black and Hispanic peers. Black and Hispanic adolescents conceived at an earlier age than did White adolescents.

Results of regression analyses supported our hypothesis (Table 2). Age at coitarche was the strongest predictor of age at first pregnancy among White girls. The inclusion of this variable significantly decreased the effect of age at menarche, almost entirely mediating the relationship between age at menarche and that at conception. Gynecologic age at coitarche was the strongest predictor of age at first pregnancy among Black and Hispanic girls. The inclusion of this variable in the model enhanced the explanatory power of age at menarche, implying a complex interaction.

DISCUSSION

Although this study was limited by the size and selectivity of the study population, and by the self-reported biases bearing on age at menarche and coitarche, our findings are consistent with prior reports^{5–6}; American adolescents who become pregnant experience menarche at an earlier age than do their nulligravid peers.²⁹ This is particularly true for White girls.

Among Black and Hispanic adolescent girls, gynecologic age was the strongest predictor of age at first pregnancy. Our findings suggest that Black and Hispanic girls may have a higher likelihood of conception than do White girls who engage in the same level of sexual risk-taking behaviors, because they show a longer period between menarche and coitarche. As such, Black and Hispanic girls are more fertile when they begin engaging in sexual activity,