

Prenatal Care and Medical Risk in Low-Income, Primiparous, Mexican-Origin and African American Women*

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The purposes of this study are to assess selected prenatal factors that are associated with initiation of prenatal care for Mexican-origin and African American women, and to explore ethnic-specific differences in content of prenatal care at first visit, relationship with medical risk, and perceived medical risk. Face-to-face interviews were conducted with 1,544 low-income African American and Mexican-origin women in 22 community-based, prenatal care clinics in Los Angeles. Medical risk data were abstracted from prenatal medical charts. Study variables included maternal characteristics, prenatal health and substance use behaviors, medical risk, and self-report content of prenatal care. The multiple regression results showed that the significant predictors of early initiation of prenatal care

were ethnicity, full-time work, living with baby's father, ability to go for prenatal care as soon as wanted, being at medical risk, and having Medi-Cal. The second set of results revealed that African American women were less likely to be informed of their medical risk, to get a pelvic exam, or to get advice than were Mexican-origin women. The study concludes that institutional prenatal care practices must be modified to increase access and quality of prenatal care for low-income women.

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PRENATAL care is regarded as a central means to improve pregnancy outcome, but it is not uniformly accessible (Ahmed, 1990; Institute of Medicine, 1988; National Committee to Prevent Infant Mortality, 1990; Rowley, Hogue, Blackmore, et al., 1993). Prior studies show that low socioeconomic status, marital status, insurance status, health behaviors such as substance use, sociocultural attitudes, immigrant status, lack of support from baby's father, and ethnicity are associated with prenatal care patterns (Balcazar, Cole, & Hartner, 1992; Moss & Hensleigh, 1990; Petitti, Hiatt, Chin, & Croughan-Minihane, 1991). Barriers associated with delayed use of prenatal care include

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financial barriers that are linked to health insurance, inadequate capacity in the prenatal care systems relied on by many low-income women, and practices and atmosphere of the prenatal care facilities themselves that can limit use of care.

National data reveal that about 60% of low-income, ethnic minority women initiate prenatal care in the first trimester, compared to 80% of non-Hispanic white women. In 1987, only 5% of non-Hispanic white women, compared with 11.1% of Hispanic women and 12.7% of African American women, received less than adequate care. Despite similar rates of poverty and reduced access to prenatal care, Mexican-origin women, compared to African American women, have significantly lower rates of low birthweights (Health Access Report, 1988; Institute of Medicine, 1988). This has been called the "Mexican Paradox." However, recent data on Mexican-origin women suggest the importance of distinguishing between Mexican American and Mexican immigrant women in light of evidence showing that Mexican American women have higher rates of low birthweight than Mexican immigrant women (Balcazar et al., 1992).

Extensive research efforts have been expended in understanding the interplay between maternal characteristics, health behaviors, organizational and medical factors, and initiation of prenatal care patterns. However, limited attention has focused on ethnic-specific differences in initiation of prenatal care, accounting for socioeconomic status, and content of prenatal care and medical risk in primiparous women once a woman enters a prenatal care system (Devane, Richwald, Elftman, et al., 1990; Lia-Hoaberg, Rode, Skovholt, et al., 1990; Poland, Ager, Olson, & Sokol, 1990; Public Health Services, 1989). Two central questions guided our analyses: (1) Are there ethnic-specific sociodemo-

graphic, prenatal health, and substance use behaviors associated with patterns of initiation of prenatal care?; (2) Is there a relationship between self-reported content of care received, medical risk, and ethnicity? Understanding differences in patterns of use of prenatal care, medical risk, and content of prenatal care by ethnicity and place of birth may further our understanding of ethnic differences in birth outcome.

METHOD

In the conduct of this study, a rigorous set of procedures was used to select a community, clinic-based sample of pregnant African American and Mexican-origin respondents. We used instruments that had been administered in prior studies with low-income, multi-ethnic respondents. Data collection procedures were specifically tailored and developed during the course of the study to insure cross-culturally sensitive instruments and procedures, enhance the rate of cooperation from the respondents, and collect data that were reliable and valid (Zambrana, 1991).

Subjects and Procedures

All respondents were primiparous (no prior pregnancies beyond 16 weeks gestation) and between the ages of 17-35. These criteria for both parity and age permitted us to obtain a relatively homogeneous sample and to diminish the confounding effects of medical risk related to age or prior pregnancies. All respondents were to be at least 20 weeks gestation in order to decrease attrition of subjects because they miscarried or decided not to carry the fetus to term; had completed 12 years of education or less; and had self-pay, county, or Medi-Cal (commonly known as Medicaid) insurance status.

Face-to-face interviews were conducted with 1,544 African American and Mexican-

origin women in 22 community-based, prenatal care clinics in Los Angeles county during the years 1987–1990. Two distinct groups of Mexican-origin respondents were recruited for this study: Mexican Americans and recent Mexican immigrants (born in Mexico and living in the United States for 7 years or less), which allowed us to assess differences by place of birth. Ethnic descriptors were based on self-identification. Bilingual-bicultural, trained female interviewers conducted a review of all prenatal care charts of primiparous women scheduled for the clinic. Respondents, awaiting prenatal care, were sequentially approached and asked a series of questions to confirm education level, place of birth, number of years in the United States, and ethnic self-identification. Informed written consent was obtained for the interview if a woman agreed to participate. Approximately two-thirds (64%) of the interviews were conducted in Spanish. On average, women were 30 weeks gestation at time of interview. There was no significant difference between ethnic groups in the refusal rate for participation in the study, which was 4.5% overall.

Measures

A 76-item, structured interview instrument was used to obtain data on sociodemographic characteristics of the mother, prenatal health behaviors, prenatal substance use behaviors, prenatal medical risk, and respondent self-report of content of prenatal care. *Sociodemographic characteristics of the mother* included age, education, employment status, living arrangements with baby's father, and health insurance. *Prenatal health behaviors included items* on week of initiation of care, whether the pregnancy was planned, and whether women perceived they were able to obtain pregnancy care "as soon as they wanted," once they knew they were pregnant. The latter two items had response

options of yes or no. Open-ended response options also obtained data on reasons for women not obtaining care "as soon as wanted."

Substance use behaviors were measured using a modified version of the Human Population Laboratory questionnaire (Belloc & Breslow, 1972). Respondents were asked about frequency of their use of alcohol, cigarettes, illicit drugs, over-the-counter (OTC) medications (excluding vitamins), and prescription drugs "three months before they became pregnant." The illicit drugs specified were cocaine, PCP, marijuana, and heroin. All items were rated on a 6-point scale (1 = never to 6 = daily intake). Respondents who reported the use of alcohol were recoded into those who reported three or more drinks at one sitting, several times a week or daily (1 = heavy drinkers); all others were coded as 0. Respondents' smoking status was coded into two groups (never = 0, all others = 1). For use of drugs, those who reported never using drugs were coded as 0, and all others as 1. For use of OTC medications, respondents who reported use once a week or more were recorded as 1 = heavy users, and all others as 0. For prescription drugs, respondents were coded as 0 if they reported never taking prescription drugs, and all others were coded as 1.

Prenatal medical risk was defined to include pre-existing chronic conditions and pregnancy-induced problems such as gestational diabetes. These data were abstracted by trained interviewers from the prenatal medical chart, using a standardized study protocol at the interview site. Using standard risk definitions (Institute of Medicine, 1988), a respondent was defined as being at medical risk if at least one of these conditions was indicated on her prenatal care chart, using criteria from the Problem-Oriented Prenatal Risk Assessment System (POPRAS; Hobel,

Youkeles, & Forsythe, 1979). Excluded from the list were use of alcohol, cigarettes, and drugs, because these items were study variables.

Content of prenatal care items were measured using self-report interview data for first medical visit (excluding pregnancy test visit). Four items were assessed regarding exams or tests (pelvic, blood or urine test, blood pressure) and advice given. Response options were yes or no. Two additional items asked whether they were advised of medical problems at any visit, and how worried they were about these problems. Respondents who reported they had been told of problems were asked to rate the level of worry using a Likert-type scale (1 = not at all worried to 4 = very worried).

Data Analysis

Bivariate analyses (chi-square tests and ANOVAS) were used to examine ethnic group differences on sociodemographic characteristics, prenatal health and substance use behaviors, and medical risk. Multiple regression techniques were used to examine the relationship of ten independent variables to the dependent measure, weeks pregnant at initiation of prenatal care for the total sample and by ethnicity. The independent variables included: use of OTC medications (coded 1 = heavy), alcohol use (coded 1 = heavy), work status (coded 1 = full-time), perceived ability to obtain care as soon as wanted (coded 1 = yes), medical risk (coded 1 = yes), live with baby's father (coded 1 = yes), use of drugs (coded 1 = yes), number of years of school completed (continuous variable), have Medical (coded 1 = yes), and planned pregnancy (coded 1 = yes). The second analytic goal, using chi-square tests, was to explore the relationships among identified medical risk, women's perception of their medical risk, and the self-reported content of prenatal care.

Limitations of Data

Our results are limited by a number of factors. First, respondents' recall may have influenced the content of care information and their responses to being told about complications; thus, the empirical relationships observed may be biased. Second, the geographic and organizational context of health services in Los Angeles county may not reflect other public healthcare systems. Since all women were in a prenatal care system, these data are not generalizable to women who do not receive prenatal care. Another limitation is reliability of self-report measures of substance use. Although our overall rates of substance use appear comparable to national rates, if use of substances was under-reported we may not be measuring the actual consumption. The most valid measurement of use of substances is self-report data combined with a confirmatory, laboratory urine assay test at multiple points during the pregnancy (Robins & Mills, 1993).

Nonetheless, these data provide a unique opportunity to examine and compare a community-based sample of women of similar educational and income levels by ethnicity, controlling for age and parity, and to assess simultaneously the multiple factors that have been found to be associated with the use of prenatal care.

RESULTS

Sample Description

Ethnic breakdown consisted of 764 (48%) Mexican immigrants, 525 (33%) Mexican Americans, and 255 (16%) African Americans. Table 1 displays selected sociodemographic characteristics, prenatal health behaviors, and substance use behaviors by ethnicity. The overall mean age for the total sample was 21.0 (SD = 3.3) with a mean educational level of 9.6 years (SD = 2.6). African American women had the highest number of years of school

TABLE 1

Maternal Characteristics, Prenatal Health and Substance Use Behaviors by Ethnicity (N = 1,544)

Variables	Afr-Am (n = 255)	Mex-Am (n = 525)	Mex-Imm (n = 764)
Maternal Characteristics			
Years of education (SD)**	11.52 (.74)	10.46 (1.87)	8.18 (2.74)
Age (SD)**	20.54 (3.35)	20.03 (2.90)	21.83 (3.35)
Employment*			
Full-time	10.6%	15.7	23.2
Other	89.4%	89.3	84.4
Medi-Cal (yes)**	64.3%	47.2	13.2
Live with baby's father (yes)**	24.7%	53.0	72.8
Prenatal Health Behaviors			
Initiation of prenatal care < 13 weeks**	64.7%	64.4	54.7
Planned pregnancy (yes)**	20.4%	54.1	79.6
Able to go for care as soon as wanted (yes)**	69.0%	81.3	80.8
Substance Use Behaviors			
Use of alcohol**			
Other	94.5%	98.3	99.3
Heavy	5.5%	1.7	.7
Smoking status**			
Never	65.4%	72.2	81.2
Other	34.6%	27.8	18.8
Use of drugs**			
Never	76.8%	92.4	98.8
Other	23.2%	7.6	1.2
Use of OTC medications			
Other	94.1%	97.0	95.9
Heavy	5.9%	3.0	4.1
Use of prescription medicine			
Never	87.4%	90.6	90.9
Other	12.6%	9.4	9.1

* $p \leq .01$; ** $p \leq .001$

completed, while Mexican immigrants had the least. Mexican immigrant women were over two times more likely to be employed full-time than African American women, but African American women were the most likely to have Medi-Cal. African American women, compared to Mexican-origin women, were the least likely to report planning their pregnancy or to live with the baby's father. Interestingly, Mexican American women were significantly less likely than Mexican immigrant women to report planning their pregnancy or to live with baby's father.

While only 60% of the total sample initiated prenatal care in the first trimester,

Mexican-origin women were significantly more likely to report "being able to obtain care as soon as wanted." It is notable that while African American women were significantly more likely to initiate early prenatal care, they were significantly less likely to report "obtaining pregnancy care as soon as they wanted." For the total sample, self-reported reasons for not obtaining pregnancy care "as soon as wanted" revealed that money (37%), access (27.8%), personal attitudes (16.0%), transportation (9.6%), job (5.7%), and other (3.9%) contributed to delay in initiation of prenatal care. Access included insurance problems (not having Medi-Cal), inability to get appoint-

ment, and clinic location not easily accessible by available transportation. Personal attitudes and other constraints included "didn't like nearby clinic," didn't perceive prenatal care as necessary," or "was in process of moving/traveling."

The reasons varied significantly by ethnicity. In comparing groups, Mexican immigrant women were significantly more likely than the other two groups to report transportation (77.8%), money (54.8%), personal attitudes (55.6%), and jobs (50%). African American and Mexican American women were most likely to report access issues (56.4% and 33.3%, respectively), compared to only 10.3% of Mexican immigrant women. Interestingly, only 6.7% of African American women reported personal attitudes or constraints as a reason for delay in initiating prenatal care.

In examining substance use behaviors, African American women were significantly more likely than Mexican-origin women to use any substance. However,

Mexican American women were significantly more likely than Mexican immigrant women to smoke and use drugs.

Predictors of Prenatal Care

Based on correlational analyses, fitted linear regressions were performed to examine, multivariately, major predictors of initiation of prenatal care for total sample and by ethnicity. The dependent measure is number of weeks gestation at initiation of prenatal care, using the African American sample as the referent group. Since the dependent measure is a continuous variable, positive regression coefficients are interpreted as the number of weeks of delay for initial visit. Negative regression coefficients are interpreted as number of weeks, on average, of earlier initiation of prenatal care.

Table 2 shows the predictors associated with initiation of prenatal care for total sample and by ethnicity. All models were significant. In the first model, 12 indepen-

TABLE 2
Predictors of Initiation of Prenatal Care for Total Sample and by Ethnicity:
Betas (β) and Standard Errors (SE)

Variable ^a	Total β^b (SE)	Afr-Am (n = 255) β (SE)	Mex-Am (n = 525) β (SE)	Mex-Imm (n = 764) β (SE)
Mexican American	1.55 (.52)**	-	-	-
Mexican immigrant	2.31 (.60)***	-	-	-
African American ^c	-	-	-	-
Years of education ^a	-.60 (.07)	-.54 (.54)	.02 (.15)	-.45 (.65)
Employed full-time	-1.41 (.49)**	-1.26 (1.45)	-2.44 (.92)**	-1.02 (.63)
Have Medi-cal	-1.66 (.39)***	-2.09 (.87)*	-2.35 (.60)***	-.15 (.66)
Live with baby's father	-2.15 (.37)***	-.12 (.95)	-1.56 (.60)**	-3.32 (.53)***
Planned pregnancy	.05 (.38)	-1.19 (1.01)	.30 (.60)	-.02 (.58)
Able to go for care	-4.71 (.40)***	-3.15 (.87)***	-4.30 (.72)***	-5.50 (.58)***
Medical risk status	-1.00 (.44)*	-1.61 (.87)	-.98 (.81)	-.45 (.65)
Heavy alcohol use	1.56 (1.26)	5.03 (1.80)**	-1.83 (2.24)	-1.85 (2.89)
Any use of drugs	-.42 (.68)	-.51 (.96)	-.59 (1.11)	1.90 (2.18)
Heavy OTC medication use	-1.29 (.83)	-.53 (1.71)	-.02 (1.67)	-2.75 (1.14)*
R^2	.135	.129	.117	.175
F	19.50***	3.49***	6.72***	15.68***

* $p < .05$; ** $p \leq .01$; *** $p \leq .001$

Notes: ^a "Years of education" is continuous while all other variables are dichotomous. ^b Positive betas are interpreted as numbers of weeks of delay in initiation, and negative betas are interpreted as numbers of weeks of earlier initiation of prenatal care. ^c African American is the referent group.

dent variables including ethnicity, Mexican immigrant, Mexican American group, with African American as the referent group, were entered in the model. Overall, the significant predictors of early initiation of prenatal care were ethnicity, full-time work, living with baby's father, able to go for prenatal care as soon as wanted, being at medical risk, and having Medi-Cal. The first model accounted for 12.7% of the variance.

Ethnic differences in predictors of initiation of prenatal care are displayed in separate models. For African American women, heavy drinkers delayed initiation of prenatal care by 5 weeks ($\beta = 5.03$), while having Medi-Cal ($\beta = -2.09$) and stating that they were "able to go for prenatal care as soon as wanted" ($\beta = -3.15$) contributed to earlier initiation of prenatal care by 2 and 3 weeks, respectively, accounting for close to 13% of the variation in initiation of prenatal care. For Mexican American women, the ability "to go as soon as they wanted," working full-time, and having Medi-Cal significantly contributed to earlier initiation of care, while living with the baby's father increased initiation of care by 1.5 weeks. For Mexican immigrants, use of OTC

medications and living with baby's father each contributed to earlier initiation of care by almost 3 weeks. The ability "to go as soon as they wanted" increased initiation of prenatal care by 5.5 weeks.

Prenatal Medical Risk

Table 3 presents descriptive data on prenatal medical risk, respondents' self-report of whether they were told of medical risk, the extent of worry experienced by the respondent if told of medical risk, and reported content of prenatal care items received, by ethnicity. There were significant ethnic differences in prenatal medical risk status as recorded in the prenatal charts, and recollection by respondents that they were informed of medical risk. African American women were more than twice as likely as Mexican-origin women to be identified in the prenatal charts as at medical risk; yet only 8.2% ($n = 20$) reported that they had been informed of medical complications on any visit for prenatal care up to the time of interview. Women who reported being told of problems or complications were asked how worried they were about those problems. There were significant ethnic differences by level of worry, with Mexican-

TABLE 3
Frequency (%) Distribution of Prenatal Medical Risk, Self-Report of Being Told About Risk,
and Content of Prenatal Care by Ethnicity

Variable	Afr-Am (n = 255)	Mex-Am (n = 525)	Mex-Imm (n = 764)
Prenatal medical risk	32.3	14.2	14.1
Self-report of being told about risk	8.2	14.7	19.1
Extent of worry			
Not worried	19.0	9.1	9.0
Somewhat worried	33.3	23.4	26.2
Moderately worried	19.0	32.5	50.3
Very worried	28.6	35.1	14.5
Self-report of content of prenatal care items			
Pelvic	86.2	93.3	94.2
Blood and urine test	98.4	97.7	99.0
Blood pressure	96.9	98.1	99.0
Get advice	79.6	87.2	89.9

* $p \leq .01$; ** $p \leq .001$

origin women significantly more likely than African American women to report being moderately to very worried. These group differences on level of worry may be related to few African American women being informed of any medical risk.

Table 3 also displays the frequency distribution of content of care items by ethnicity. Overall, African American women were significantly less likely than Mexican-origin women to receive a pelvic exam or to get advice about their pregnancy during their first prenatal care visit. In a second set of analyses, content of care items (pelvic exam, blood or urine test, blood pressure taken, and get advice) were grouped to determine what percent of women reported that they obtained all 4 items, 3 items, 2 items, and 1 item only. The data revealed that 82.3% of all respondents said they obtained all 4 items, with differences by ethnicity (African American women, 72%; Mexican American, 82%; and Mexican immigrants, 86%). African American women were twice as likely as Mexican American or Mexican immigrant women (7.8%, 3.6%, and 3.2%, respectively) to report receiving 2 content of care items or less ($\chi^2 [4] = 29.31; p \leq .001$), and significantly less likely to report obtaining all 4 items of care ($\chi^2 [4] = 30.47; p \leq .001$).

Analyses were also conducted to assess the association of medical risk status and content of prenatal care at first prenatal visit by ethnicity. In comparing all women *not at medical risk*, African American women were significantly less likely than Mexican-origin women to report getting a pelvic exam ($\chi^2 [2] = 11.14; p \leq .01$), blood pressure taken ($\chi^2 [2] = 11.63; p \leq .01$), and advice ($\chi^2 [2] = 22.4; p \leq .001$). In comparing content of care items received by all *high-risk* women, there were no significant ethnic group differences.

DISCUSSION

This study examined the associations between selected maternal sociodemographic characteristics, prenatal health and substance use behaviors, and initiation of prenatal care; it also explored a set of relationships among content of prenatal care, medical risk status, and recollection of being informed of medical risk by ethnicity. The first set of findings show that there are significant ethnic differences in factors associated with initiation of prenatal care. Access to care "as soon as wanted" was associated with earlier prenatal care use for all three groups. Early initiation of prenatal care for African American women was positively associated with having Medi-Cal and negatively associated with heavy alcohol use. The delayed initiation of prenatal care for respondents who use alcohol may be partly due to fear of being reprimanded by the providers (Robins & Mills, 1993). The association of heavy use of OTC medications and earlier initiation of prenatal care in the Mexican immigrant group may reflect less general access to health services related to ineligibility for Medi-cal and perceived poorer health status. Our data confirm that for Mexican-origin women, living with baby's father remains an important factor associated with initiation of prenatal care. Living with a partner represents an important source of emotional, financial, and instrumental support (Institute of Medicine, 1988; National Committee to Prevent Infant Mortality, 1990).

In this study, factors associated with initiation of prenatal care for African American women differ from findings by Petitti and colleagues. They found that black women were less likely than non-Hispanic white women to initiate prenatal care in the first trimester, and suggest that lack of awareness of the importance

of early prenatal care is a factor for these women (Petitti, Coleman, Binsacca, & Allen, 1990). In contrast, these data show that, for African American women, access was the most frequently reported barrier for not obtaining prenatal care, with only 6.7% reporting sociocultural attitudes as a barrier. Not unexpectedly, almost 50% of Mexican-origin women reported attitudinal reasons for delaying prenatal care. The sociocultural attitude that women do not need medical intervention since pregnancy is perceived as a natural event may partially explain why Mexican-origin women were less likely to initiate prenatal care in the first trimester, yet report that they were "obtaining care as soon as wanted" (Balcazar et al., 1992; Institute of Medicine, 1988). The inconsistent findings for African American women may reflect socioeconomic differences in the study populations rather than ethnic differences.

Not surprisingly, the multivariate results reveal ethnic-specific differences in factors associated with initiation of prenatal care, yet these set of factors account for approximately 13% of the total variance. Multiple studies show that, for low-income African American and Hispanic women, other factors such as high levels of multiple environmental stress, unresponsive and overburdened public prenatal care systems, and lack of social supports may be equally powerful determinants of patterns of initiation of care and birth outcome (Coopland, 1990; Hargraves & Thomas, 1993; Lillie-Blanton, Martinez, Taylor, & Robinson, 1993). Future studies need to take into account the multiple factors that have been found to be associated with prenatal care, and to compare women of similar socioeconomic levels when ethnic-specific factors are the central focus of investigation.

The pathways or mechanisms through

which prenatal care influence birth outcome are not yet understood. Recent reports have urged investigators to examine quality of care factors that may contribute to understanding ethnic-specific differences in birth outcome (Institute of Medicine, 1988; Petitti et al., 1991; Public Health Services, 1989). Our data show that African American women are less likely than Mexican-origin women to report being informed about medical risk conditions. Furthermore, less than one-quarter of all respondents report they are given advice, with African American women least likely to get advice. The lack of advice and communication about risk status to low-income, pregnant respondents misses the opportunity to encourage these women to change potentially detrimental health behaviors, to ask questions regarding health-enhancing behaviors, and to promote keeping scheduled appointments.

Our study confirms earlier studies suggesting that access or entry into a health care system does not insure quality and appropriateness of care (Petitti et al., 1991; Public Health Services, 1989; St. Clair, Smeriglio, Alexander, et al., 1990). A recent study found that 61% of Medicaid-enrolled women received insufficient care (Lazarus, 1990). Several investigations have shown that lack of organizational capacity combined with lack of cross-cultural competence of providers may impede communication between provider and patient, discourage early prenatal care, or compromise adequacy and quality of care of low-income, ethnic women. There are a series of possible factors that may contribute to limited communication between healthcare provider and patient. One possible explanation for the lack of perceived communication of medical risk by African American respondents may be that, when they initiate early prenatal

care, they are perceived as more knowledgeable and educated, and thus they receive less time and information. In contrast, negative attitudes toward health professionals has been found in other studies to influence access and quality of care for African American women. Poland et al. (1990) discuss the importance of professional attitudes as a key factor in hindering access and quality of care:

The hurried, and often rude atmosphere of prenatal clinics often communicates a lack of interest and concern. If we want poor women to receive quality prenatal care, we must communicate its importance by the manner in which care is provided. [p. 611]

Unquestionably, prenatal care remains an important mechanism for the early identification of risk, monitoring, and surveillance of medical risk to assure improved birth outcomes. It is estimated that approximately 20% of low-income, ethnic women are at medical risk (Coopland, 1990). Prenatal care offers an unparalleled opportunity for communication and advice on behavioral risk factors such as substance use, parenting education, and contraceptive advice. Appropriate prenatal care consists largely of education; the actual medical component is of lesser importance (Coopland, 1990). The content and process of prenatal care in relation to medical management of risk conditions merits further empirical and observational study (Robins & Mills, 1993; Rowley et al., 1993). The call to focus in a more systematic way on the medical and non-medical components of the prenatal care process seems timely, in view of our national objectives to increase rates of early initiation of prenatal care for all women to 90% by the year 2000, and to decrease rates of low birthweight.

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