Situational and Financial Barriers to Prenatal Care in a Sample of Low-Income, Inner-City Women

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Synopsis

The relationship between the use of prenatal care and factors that may impede access to care was examined in a sample of low-income, inner-city women. Situational and financial barriers to care were not important correlates of utilization. In unadjusted analyses, only insurance status and employment status were associated with utilization. Of the sociodemographic characteristics studied, only parity was strongly associated with the use of prenatal care.

When the apparent associations between utilization and insurance status and utilization and employment were analyzed controlling for parity, the estimated strength and statistical significance of these relationships diminished considerably. Multiparous women who were more likely than primiparous women to be underutilizers were also more likely to be on medical assistance and to be unemployed.

These findings suggest that situational and financial barriers are not important correlates of utilization for low-income, adult women living in urban areas where there are accessible clinic facilities and public transportation. Efforts to identify and surmount other kinds of barriers may prove to be a more effective approach to prenatal outreach for women in these circumstances.

STUDIES of the use of prenatal care have identified a number of financial, situational, institutional, and attitudinal barriers that may impede access to care. Factors mentioned most often in the literature include lack of insurance coverage, transportation problems, inability to take time off from work for clinic appointments, inability to obtain child care, and the distance traveled to services (*1–7*). Additional deterrents for some are inconveniences imposed by clinic organization, forbidding settings, shortage of providers or unwillingness of some providers to care for low-income women, and cultural and attitudinal factors that can limit use of care (*1, 2, 7*).

Much of the available information concerning barriers to care has been elicited only from women who either received no prenatal care or delayed registration for care until late in pregnancy. Researchers who have compared late with early initiators of care have found that at least some situational and financial factors were not exclusively a problem for late initiators (*6–8*). To better understand the importance of these factors to the use of prenatal care, in the present study we compared the frequency of their occurrence in groups of women who underutilized care and in those who utilized care appropriately.

Methods

The sample was drawn from a population of low-income, inner-city women giving birth at a university teaching hospital in Baltimore, MD. The medical records of women admitted to the postpartum unit were reviewed daily to determine eligibility. Women were eligible to participate if they (*a*) received prenatal care through the hospital's antepartum clinics, Maternal and Infant Care clinics, health department clinics, or (*b*) received no prenatal care through any service. Nearly all low-income women in the hospital catchment area received their prenatal care from the sources just mentioned.

Because the focus of the study was on the discretion-

ary use of preventive services, women were not eligible for the study if their records indicated that they had a history of, or had experienced during the current pregnancy, a major reproductive, medical, or psychiatric condition. Women were also excluded if they were less than 18 years old at the time of their first prenatal visit. There were several reasons for this restriction.

First, this research was part of a larger study on social network factors and utilization (*9*). Teens were not eligible to participate since their social networks were expected to differ significantly from those of the general population of childbearing women. Similarly, teens and adults were expected to experience vastly different types of financial, situational, and attitudinal barriers to care. Second, as an additional consideration, special community outreach efforts to encourage teens to register early for prenatal care were taking place during the data collection phase of this study. Consequently, teens in this population may not have been representative of those in other low-income, inner-city neighborhoods.

Information on the timing and number of prenatal visits was abstracted from the medical record and used to assign eligible respondents to comparison groups referred to as "utilizers" and "underutilizers." The assignment was based on an adaptation of an index of utilization developed by the Institute of Medicine (*10*). Utilizers were women who made their first prenatal visit on or before the 13th week of pregnancy and made nine or more visits for prenatal care. Underutilizers were women who made their first prenatal visit after the 13th week of pregnancy or made fewer than nine visits for prenatal care, or both.

Women who agreed to participate were interviewed in the hospital. Respondents were asked to report the usual time required to travel to the clinic for appointments; the type of transportation used to travel to clinic; whether or not they were covered by health insurance (and the type of coverage) when pregnancy was first recognized; their employment and school enrollment status; and their age, race, marital status, parity, and education.

The interviewer remained blind to the respondents' assignments to comparison groups. Data were collected during 15 of the 23 months between April 1984 and February 1986. The data analyses were done using the Statistical Analysis System's (SAS) computer program package Version 4 (*11–13*).

Results

Of the eligible women approached, 185 participated in the study—87 utilizers and 98 underutilizers. The response rate was 84 percent.

Table 1. Relationships between the sociodemographic variables and the use of prenatal care (percentages)

Variable	Underutilizers (N=98)	Utilizers (N=87)	P-value (chi-square test)
Maternal age			NS
Under 21 years	44	43	
21 years or older	56	57	
Marital status			NS
Married or cohabiting	68	67	
Not married or cohabiting	32	33	
Parity			<.001
Primiparas	33	59	
Multiparas	67	41	
Race			NS
Black	81	76	
White	19	24	
Education			NS
Less than 12 years	42	38	
Equal to or more than 12 years	58	62	

NOTE: NS = not significant.

The sample was composed largely of women in the sociodemographic subgroups that tend to be the poorest utilizers of care (*14–16*). The sample was predominently black (78 percent), and the majority of the respondents were unmarried (68 percent). The mean age of the respondents was 21.3 years [standard deviation (S.D.) = 3.3 years]. Their mean number of completed years of education was 11.6 (S.D. = 1.6).

With the exception of parity, the sociodemographic variables were not associated with prenatal care utilization (table 1). Multiparous women were more likely than primiparous women to underutilize care ($P<.001$).

Table 2 shows that underutilizers were more likely to be on medical assistance, while utilizers were more likely to be uninsured ($P<.05$). Underutilizers were also more likely to be employed, but this association was not statistically significant ($P<.10$). No other situational or financial factors were found to be associated with utilization.

When the apparent associations between utilization and employment and utilization and insurance status were analyzed controlling for parity (Mantel-Haenszel method) (*17*), the estimated strength and statistical significance of these relationships diminished considerably —because parity was a confounder in both of these associations. Multiparous women, who were more likely than primiparous women to be underutilizers, were also more likely to be on medical assistance and to be unemployed at the start of pregnancy. While the crude odds ratio for the association between medical assistance and underutilization was 2.39 [95 percent confidence interval (C.I. 1.32, 4.32)], the adjusted

Table 2. Relationships between financial and situational barriers variables and the use of prenatal care (percentages)

Variable	Underutilizers (N=98)	Utilizers (N=87)	P-value (chi-square test)
Travel time			NS
Less than 30 minutes	80	87	
More than 30 minutes	20	13	
Transportation			NS
Own car	30	40	
Other	70	60	
Employment status			<.10
Unemployed	59	45	
Employed	41	55	
School enrollment			NS
Not enrolled	68	75	
Enrolled	32	25	
Health insurance			<.05
Not insured	31	46	
Medical assistance	58	37	
Other insurance	11	17	

NOTE: NS = not significant.

(Mantel-Haenszel) odds ratio was 1.69 (95 percent C.I., 0.88, 3.25). For the association between underutilization and being unemployed at the start of pregnancy, the crude odds ratio was 1.78 (95 percent C.I. 1.00, 3.20) and the adjusted odds ratio was 1.52 (95 percent C.I., 0.83, 2.80).

Discussion

The reason for the strong association between parity and the use of prenatal care cannot be ascertained from these data, but others have suggested that women who have had previous normal pregnancy experiences sometimes fail to recognize the importance of care. They are more relaxed about their pregnancies and secure in the knowledge of what to expect (*7*). Having young children to care for, they also are faced with more demands on their time, which may be another reason to delay seeking care.

In a different sense, parity is of interest because it was found to be a mediating variable that accounted for the negative association between Medicaid coverage and the use of prenatal care. A similar relationship between Medicaid and use of prenatal care was noted by Cooney (*18*) in analyses of data from certificates of live births that occurred in New York City. Since parity was not included among her study variables, the extent to which its inclusion might have attenuated the observed association between insurance coverage and utilization is unclear. The results of the present study, nevertheless, cast doubt on her conclusion that Medicaid is no longer an effective means of assuring access to prenatal care.

The study findings also suggest that situational and financial barriers to care are not necessarily important determinants of the use of prenatal care among adult, low-income women living in urban areas where there are accessible public transportation and clinic facilities. Generalization to other subgroups of the population is inappropriate since the presence and importance of financial and situational barriers to care may be quite different for women living in rural areas or in areas where care is not readily available.

That situational and financial barriers did not affect the use of prenatal care suggests that efforts to identify and surmount other kinds of barriers may prove to be a more effective approach to prenatal outreach in inner-city populations. Attitudes and institutional barriers, for example, may be more important determinants of utilization for women in these circumstances.

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Gestational Age Reporting and Preterm Delivery

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The computation procedure used to impute gestational ages by the 'Preceding Case' method is available from the authors upon request. The procedure is written in SAS statistical computing language.

Synopsis

This study examines recent trends in the reporting completeness and quality of gestational age estimates derived from the date of the last normal menses (DLNM) as reported in South Carolina vital records from 1974 to 1985. Noteworthy improvements in the completeness of reporting emerged during this period with a decline from 31.1 percent missing information in 1974 to 6.6 percent missing in 1985. Completeness of reporting and strategies for imputing values for missing data were analyzed for their impact on the calculation of the percentage of preterm live births. The results indicate that the underreporting of gestational age can lead to marked underestimation of the preterm percentage in a population and to misinterpretation of trends in these percentages.

Based on the results of this analysis, it is recommended that preterm percentages be based on cases with DLNM gestational age values between 20 and 50 weeks. Since cases with missing or implausible gestational age data have a greater risk of a poor pregnancy outcome, these findings emphasize the importance of identifying both the completeness of data reporting and the use of imputation and deletion strategies when employing population-based DLNM data to calculate gestational age related indicators.

ACCURATE DETERMINATION OF gestational age is important in obstetric and pediatric clinical practice (*1, 2*). In public health policy and research, accurate population based gestational age data are needed for a variety of purposes. These include monitoring the incidence of preterm delivery and intrauterine growth retardation, investigating the potential risk factors associated with preterm birth, constructing prenatal care use indices, and evaluating interventions focused on the prevention of preterm labor and delivery. Unfortunately, the precise determination of the duration of pregnancy in the human female represents a formidable task.

The clinical use of the date of last normal menses (DLNM) to estimate the duration of gestation has been established for well over 130 years (*3*). The gestational age interval, as calculated from the DLNM and the date of delivery, has been used to assess the validity of a number of antenatal and postnatal gestational age estimation procedures (*4–8*). Although the interval based on the DLNM is considered to exceed the interval from conception to delivery by approximately 2 weeks (*9*), the gestational interval has become the standard measurement to describe duration of pregnancy and the gestational age of the infant.

Although the use of the DLNM to calculate the gesta-