

Center for Demography and Ecology

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A COMPARISON BY MARITAL STATUS

OF WISCONSIN MEDICAID WOMEN

GIVING BIRTH IN 1990

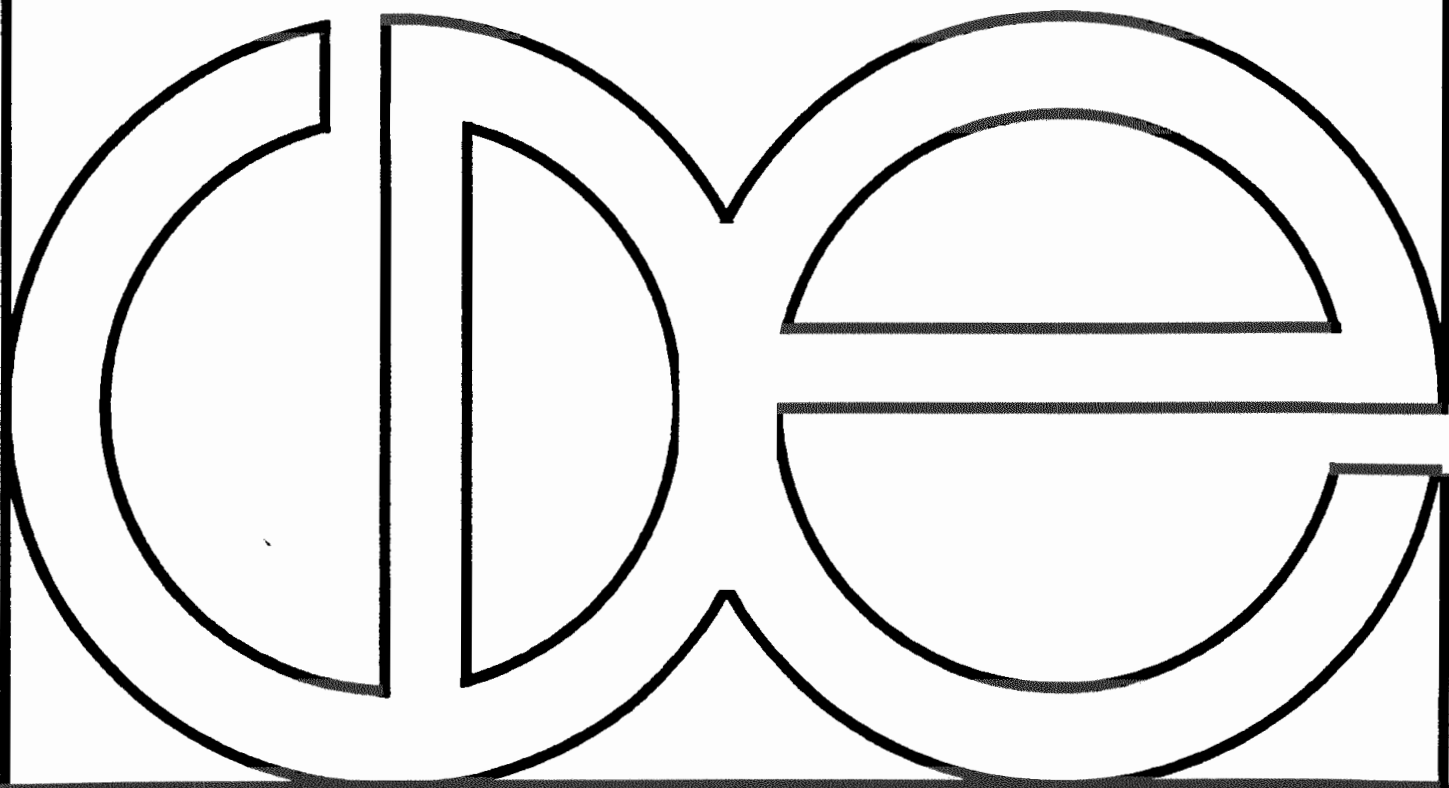
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ABSTRACT

Objectives: The purpose of this study was to compare: (1) demographic characteristics, prenatal care utilization and birth outcomes among married and single women on Medicaid; and (2) prenatal care utilization and birthweight among Medicaid and non-Medicaid married women, matched on demographic characteristics. *Methods:* Linked live birth certificate files and hospital inpatient files were used. For purpose one, files of married (n=5,532) and single (n=10,060) Medicaid clients were used; for purpose two, the sample consisted of married women on Medicaid and not on Medicaid (equal samples, 4,753 each) who were matched on demographic characteristics. Chi-square tests were used to test differences, and logistic regression was conducted. *Results:* Results revealed that the single women group had the most risk factors and the highest percent of low birthweight infants. However, married women on Medicaid exhibited many risk factors (although some differed from the single women), had poor prenatal care utilization, and had significantly more low birthweight infants than their matched counterparts. *Conclusions:* These results demonstrate that married women on Medicaid who give birth also need services targeted to their specific risk factors.

**A Comparison by Marital Status of Wisconsin Medicaid Women
Giving Birth in 1990**

Recognizing the risks to infants born to poor women in the United States^{1,2,3}, Congress took the initiative to make prenatal care available to more women through Medicaid (MA) coverage by enacting a series of legislative acts (DEFRA, SOBRA, OBRAs) from 1985 through the present^{3,4,5}. These legislative acts severed the tie between MA and categorical programs, allowed women in two-parent families to become eligible, and permitted presumptive eligibility to encourage early prenatal care among this new group of eligible women. States then have selectively developed their own enhanced MA programs for women and children including components such as case management, homevisiting and others, based on federal allowances and requirements. In Wisconsin, the enhanced program, Healthy Start, was initiated in 1988, and by 1991, financial eligibility was raised from $\leq 133\%$ to $\leq 155\%$ of poverty. This enhanced program has resulted in a rising percent of births whose costs are reimbursed by MA in Wisconsin (1989=21%; 1990=23%).

One of the primary purposes of expanding the availability of prenatal care through MA is to reduce the incidence of low birthweight infants among poor women. Low birthweight (LBW) is a primary contributor to infant morbidity and mortality^{2,3,4,6,7}; the target incidence of LBW for the United States (U.S.) for the year 2000 is 5% or less⁸. Women who receive early and continuous prenatal care are less likely to have low birthweight infants than women who do not obtain enough care. By the year 2000, the U.S. goal is that at least 90% of all pregnant women will enter prenatal care during the first trimester⁸.

The issue of prenatal care is broader than just the prevention of low birthweight⁹. The issue of prenatal care is a community issue and involves access to preventive programs. Prenatal care is a preventive program that is structured to enhance the health and well-being of the mother, the infant, and the family for up to one year after the birth of the child¹⁰. The stated purposes of prenatal care are: 1) for mothers--to reduce maternal health

risks, promote maternal well-being and foster parenting skills; and 2) for infants--to reduce infant morbidity and mortality, to promote appropriate infant health services, and to reduce child abuse and neglect; and 3) for the family--to encourage family development and to prevent unintended childbearing.

The MA enhancements enacted should result in positive changes for families of the expanded group of MA eligible women. There is, however, a paucity of information about these new women on MA. What are the characteristics of the married women on MA who participate in the enhanced programs? How do they compare to single women on MA who give birth? And, finally, are their care patterns and birth outcomes different from other married women who have similar characteristics but are not on MA? These questions were answered for one state (Wisconsin) in this study. The purpose of this study was to: (1) compare demographic characteristics, prenatal care utilization and birth outcomes among married and single women on MA; and (2) compare prenatal care utilization and birthweight among MA and non-MA married women, matched on demographic characteristics.

Methods

This retrospective study was a secondary analysis of a dataset that linked live birth certificate and hospital inpatient files for infants born to Wisconsin residents in Wisconsin hospitals during 1990. The hospital file was linked to the birth certificate file to identify MA births and provide charge information. All variables reported here except the in-hospital birth charge (excludes the physician fees) are from the birth certificate file. Two separate samples were used to address the stated purposes. The first purpose was to examine differences among MA women based on their marital status. For purpose one, the sample consisted of married (n=5,532) and single (n=10,060) MA clients who gave birth during 1990. Single women included women who never married or were divorced at the time of birth. All data are described, and Chi-square tests were used to test differences by marital status. Logistic regression models were used to determine predictors among the two MA groups of

the occurrence of LBW infants (weighing 1,500-2,499 Grams [Gms.]), very low birthweight (VLBW) infants (<1,500 Gms.), and prematurity (<37 weeks gestation).

The second purpose was to examine differences in care utilization and birth outcomes among married women with different pay sources, matched on demographic characteristics. For purpose two, the sample consisted of married women on MA (n=4,743) and not on MA (n=4,743) who were matched to the MA group on mother's age, race and education. The reason that the previous sample size of married women (5,532) decreased was because there were 789 married MA women who had demographic variables (combination of) that had no match in the married non-MA population. All data are described, and Chi-square tests were used to test differences between the MA and non-MA groups.

Results

Comparison of Married and Single Women on MA

The married and single women on MA differ from each other considerably in demographic characteristics (Table 1). The married women are significantly older than the single women ($X^2=1149.2$, $p < .001$). Among the single women, 73% of the population is age 24 or less while the married women are almost equally divided between women less than age 24 and those older. In terms of at-risk age groups, the single women consist of a considerably higher percent of teens (34%) than the married group (12%), while the percent of women over 34 is more than twice as large among the married women (7%) as single women (3%). Married and single MA women are also significantly different in terms of race ($X^2=2597.3$, $p < .001$). Among the married participants, there is a much larger percent of non-Hispanic white women (68%) and Indo-Chinese women (14%) than among the single group (50% and <1%, respectively). Conversely, 40% of the single group are non-Hispanic blacks whereas the percent of non-Hispanic blacks is much smaller among the married women (9%). Married and single women are also significantly different when comparing education ($X^2=845.5$, $p < .001$). The married and single women are similar in that more than 80% in each group have high school or less education. However, the married women have a

significantly larger percent of women with elementary or less education--perhaps reflecting the large percent of Southeast Asian immigrants.

The married women on MA are also different than the Wisconsin overall totals. The married women on MA tend to be younger and comprise a more racial/ethnically diverse group than overall Wisconsin women. Both the married and single women on MA have much less education than overall Wisconsin totals.

The single women had a much larger percent of first births (43%) than married women (21%) or the Wisconsin average (38%) (not shown in a table). These proportions are consistent with the ages shown above. The percent of married women having 4 or more births (28%) was twice or more as large as the single women (14%) and the Wisconsin average (11%). Of women having their second birth or more, the interpregnancy interval was nearly identical among married and single women on MA, with 39% and 40%, respectively, having births less than 2 years after the previous pregnancy; the Wisconsin average was 17%¹¹. Four percent of the women in each MA group had an interpregnancy interval of less than one year, compared with 1% overall Wisconsin average¹¹.

Single (44%) and married (35%) women on MA are much more likely to smoke than the Wisconsin average¹¹. At least 70% of the women in each group on MA reported that they smoke less than one pack of cigarettes per day (not shown in a table).

Both groups of women on MA do poorly in terms of prenatal care utilization when compared to Wisconsin women overall (Table 2). Only 64% of the married and 60% of the single women on MA initiate care during the first trimester compared to 82% of all women in Wisconsin. Nevertheless, the single women do significantly worse than the married women in initiation of prenatal care ($\chi^2=65.9$, $p < .001$). Although the percents are small, less than one percent of married women never receive care; this is the same as the overall Wisconsin total. However, twice as many single women (2%) never receive prenatal care.

Two measures of adequacy of prenatal care were used (Table 2). The first adequacy measure was computed using the definition of inadequate care usually employed in Wisconsin vital statistics reports, i.e. third trimester onset, no prenatal care or <5 prenatal care visits. Using this definition, both married (11%) and single (15%) women on MA had a much higher percent of women receiving inadequate care than the overall Wisconsin proportion (4%). Also, the proportion of single women receiving inadequate care was significantly higher than the married group ($X^2=51.6$, $p < .001$).

The Kessner index shows that few women in either MA group receive adequate care (married=12%; single=11%). This index of adequacy relies highly on first trimester entry into care¹², so the large percent of women entering late undoubtedly influenced this result. Significantly more single women received inadequate care (14%) than married women (11%) using this index ($X^2=44.4$, $p < .001$). Both of the above adequacy measures show that women on MA do poorly in terms of prenatal care utilization, but the single women do significantly worse than the married women.

Delivery methods in both MA groups are quite similar to overall Wisconsin statistics (not shown in a table). Three-fourths or more of the deliveries in all three groups are vaginal. Forceps are used slightly more often in the overall Wisconsin average (5%) than among married (2%) and single women (4%) on MA. The Cesarean-section percentage among married MA women is also slightly lower (8%) than the Wisconsin overall (10%) or single women on MA (10%).

The percent of LBW infants (8.0%) and VLBW infants (1.8%) among the single MA women is significantly higher than the married MA women ($X^2=69.5$, $p < .001$); the percents are also higher than the overall Wisconsin figures (Table 3). The proportion of married women on MA giving birth to infants weighing less than 2,500 Gms. (6.0%) is nearly the same as the overall Wisconsin proportion (5.9%). Married women on MA had slightly less VLBW (0.9%) infants than the Wisconsin average (1.1%).

Consistent with the differences in low birthweight between married and single women on MA, the average in-hospital birth charge to MA was higher among single women (\$2,044) than married women (\$1,386) in 1990. Because these figures are based on infants born in Wisconsin, the figures are probably less than the real costs since some low birthweight infants are hospitalized in other states. The overall MA average charge for in-hospital birth was \$1,615; the average charge for all births regardless of pay source was \$1,417 in 1990.

Logistic regression results by marital status are displayed in Table 4. In the regression predicting LBW, nearly all the significant factors (black, smoking, medical risks in this pregnancy and inadequate care) have very similar effects in the married and single MA groups. Previous fetal or live-born deaths were not a significant predictive factor in the single MA group; however, the single MA group has a much larger proportion of first births than the married MA group.

In the VLBW logistic regression, significant factors in the models differed. Among the married MA women, being black or having previous fetal or live-born deaths made women more than twice as likely to have a VLBW infant; neither of these factors were significant in the single MA group. Medical risks in this pregnancy increased the likelihood of having a VLBW infant more than 5 times among married MA women and greater than 8 times among the single MA women. The effects of inadequate care were larger among the married MA women (OR=4.35) than the single MA women (OR=3.52). Smoking increased the likelihood of delivering a VLBW infant among single MA women but not among the married MA women.

In the logistic model predicting prematurity, again most significant factors (black, <12 years education, medical risks and inadequate care) were the same in both MA groups and had effects of similar magnitude. Being <18 years old was a significant predictor only in the single MA group.

Comparison of MA and Non-MA Married Women

Prenatal care utilization was compared for married women by payment source, i.e., MA and non-MA. Non-MA married women were matched on age, race and education to the MA group. Prenatal care initiation by non-MA women is very similar to overall Wisconsin figures (Table 5). Married women on MA, however, initiate prenatal care significantly later than non-MA women ($X^2=198.4$, $p < .001$). The proportion of MA women who enter prenatal care during the third trimester (6%) is twice the proportion in the non-MA or Wisconsin groups (3%).

As shown in Table 6, married women on MA also obtain significantly fewer prenatal care visits than the matched non-MA married women ($X^2=155.6$ $p < .001$). The major difference lies in the 5-9 prenatal visits category (MA women=29%; non-MA women=20%). The number of visits among the non-MA group were very similar to Wisconsin women overall.

As demonstrated in Table 7, married women on MA delivered significantly more infants that weighed <2,500 Gms. than their matched married counterparts, with a 1% difference in the 1,500-2,499 Gms. category ($X^2=6.3$, $p < .05$). However, the MA married women had the same percentage of infants <2,500 Gms. as the Wisconsin average (5.9%).

Discussion

So, what does this study reveal about women on MA who give birth? The first striking finding is that the enhanced MA program has changed the composition of the group of MA women who give birth. Prior to the enhanced programs, nearly all of the women on MA who gave birth were single; now 35% of the women on MA are married. Examining women's risk factors by marital status has shown us risks for the single and married groups. The difference in risk factors demonstrates that a variety of approaches is needed in designing services for pregnant women on MA.

The single MA group exhibits significantly more risk factors in terms of young age and racial composition (particularly being black) than the married group, and the single group has the largest percent of women who smoke. These

findings explain why being single is a potent predictor of poor birth outcomes, a finding from other national studies³ and from the evaluation of prenatal care coordination pilot projects in Wisconsin¹³. The single MA group also experiences significantly more LBW and VLBW infants than the married MA group. Therefore, single women on MA are the highest risk group. These women should receive the most medical, social and nutritional services when we have to determine the priorities for services according to risk.

However, married women on MA are not without risk. The married group has less risk for LBW and VLBW infants than the single group; however, married MA women had significantly more LBW infants than their matched married non-MA counterparts. In a study comparing low birthweight infants among MA and non-MA married women in Illinois, married women on MA had nearly twice the proportion of low birthweight infants than non-MA mothers,¹⁴ a much larger difference than noted in this study. However, in the Illinois study, the two samples were not matched. The present study with matched samples shows that twice the proportion between MA and non-MA married women is probably an exaggerated effect. However, the incidence of LBW still is significantly higher among MA populations than non-MA.

Furthermore, both the married and single MA women do poorly in terms of prenatal care utilization even though the single women perform significantly worse. The married MA women are also significantly more at risk for poor utilization of prenatal care when compared with other married non-MA women. Poor prenatal care utilization is critical when we consider the overall intended benefits of prenatal care to the woman, the infant, and the family¹⁰. Moreover, inadequate care was a predictor of LBW and VLBW infants in logistic models for both single and married MA women.

In addition, married women on MA have more risk characteristics than Wisconsin women overall. Married MA women were less educated, more likely to be in their fourth or more pregnancy, more likely to smoke, more likely to have a short interpregnancy interval, and less likely to enter prenatal care early or receive adequate care.

What do the findings of this study mean for prenatal care among MA women in Wisconsin? A screening tool has been designed to assess risk among women on MA who might receive prenatal care coordination; due to budgetary restraints, the service is targeted to 25% of MA women. In the prenatal care coordination screening tool, being single or a teen increases the woman's risk score. Therefore, it is likely that a larger percent of single MA women will qualify for prenatal care coordination services than married MA women, and only married MA women with very high medical or social risks will receive services. Certainly, serving these groups is appropriate because evaluation data from the prenatal care coordination pilot projects reveal a great impact on the incidence of LBW and VLBW in these groups¹³.

But what about prenatal care utilization and birth outcomes among married women on MA that exhibit low or moderate risk? No one will be providing and coordinating the other support services that these women in poverty need to improve their birth outcomes and care utilization. Also, no one will be monitoring these women to prevent moderate risk women from becoming high risk. Expanding MA to more women and enhancing services to MA women are important steps in improving birth outcomes among MA women in this country. However, just expanding MA will not substantially decrease the occurrence of LBW infants among low-income women¹⁵. Other factors, such as the content of prenatal care and the availability of physicians, are also important in improving birth outcomes.

What can we do to assure that married MA women receive needed the other support services? First, public health providers and private providers can meet to discuss needs that each have observed in this group of women. Second, the private provider can assess whether these married MA women are receiving WIC services. All MA women should qualify for WIC based on income. Third, private providers could screen their married MA women to determine social and behavioral risks using the Wisconsin prenatal care coordination screening tool. Screening could be done by the provider, an office nurse, or through a contract with public health nurses. This tool can be revealing to providers

regarding other conditions that may affect the birth outcome and health care utilization among these married MA women. Barriers to obtaining prenatal care such as lack of transportation are also identified when using this screening tool. Finally, private providers can contract with prenatal care coordination providers to provide other support services and/or educational classes to married MA women. Thus, collaborative models of care can be developed to meet the needs of these married women in poverty.

Some questions remain after these analyses. First, what percent of women who are eligible for MA actually receive it? And whom are we missing? The answers to these questions might influence our conclusions about single and married women on MA. Moreover, we are challenged to look beyond marital status to other possible reasons why these two groups on MA differ. These other reasons may not be evident from using only birth certificate data. However, the results from this birth certificate analysis are helpful baseline information on risk factors among single and married MA women. It is our hope that these findings will lead other states to examine differences among their MA women who give birth and use their results to develop appropriate services to enhance the likelihood of having healthy infants among all women in poverty.

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Table 1: Demographic Characteristics of Women Giving Birth in 1990

	<u>MA</u>		<u>Total</u>
	<u>Married</u> (N=5,532)	<u>Single</u> (N=10,060)	<u>Wisconsin</u> (N=72,630)
	%	%	%
Age in years			
<14-19	12	34	10
20-24	40	39	24
25-34	42	24	57
35->40	7	3	9
Race			
Non-Hispanic white	68	50	84
Non-Hispanic black	9	40	10
American Indian	2	4	1
Hispanic	6	5	3
Indo-Chinese	14	<1	2
Other	1	<1	<1
Education			
Elementary or less	14	4	3
Some high school	26	43	14
High school graduate	44	41	42
Some college	13	11	22
College graduate	3	1	19
Unknown	<1	<1	<1

NOTE: All percents may not add to 100 due to rounding.

Source. MA: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Source. Wisconsin total: Division of Health, Department of Health and Social Services. Maternal and Child Health Statistics: Wisconsin--1990. Madison, WI Division of Health; 1992.

Table 2: Prenatal Care Utilization by MA Women

	<u>Married</u> (N=5,532)	<u>Single</u> (N=10,060)
	%	%
Initiation		
First trimester	64	60
Second trimester	29	30
Third trimester	6	8
Never	<1	2
Unknown	<1	<1
Adequacy		
Adequate	89	85
Inadequate*	11	15
Kessner Index Adequacy		
Adequate	12	11
Intermediate	78	75
Inadequate	11	14

*Inadequate = Third trimester onset, no prenatal care, or <5 visits.

NOTE: All percents may not add to 100 due to rounding.

Source. MA: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Table 3: Birthweight Among Women Giving Birth in 1990

	<u>MA</u>		<u>Total</u>
	<u>Married</u> (N=5,532)	<u>Single</u> (N=10,060)	<u>Wisconsin</u> (N=72,636)
	%	%	%
<1,500 Gms.	0.9	1.8	1.1
1,500 - 2,499 Gms.	5.1	8.0	4.8
>2,500 Gms.	94.0	90.2	94.1

Source. MA: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Source. Wisconsin total: Division of Health, Department of Health and Social Services. Maternal and Child Health Statistics: Wisconsin--1990. Madison, WI Division of Health; 1992.

Table 4: Birth Outcomes: Logistic Regression Results for Married and Single MA Mothers, 1990

	<2,500 grams		<1,500 grams		<37weeks	
Risk Factors	Odds Ratio	C.I.	Odds Ratio	C.I.	Odds Ratio	C.I.
Married (N=5,532)						
Black	1.94	1.44, 2.61	2.32	1.22, 4.41	2.21	1.81, 2.69
Under age 18	0.80	0.37, 1.77	0.00	0.00, 0.00	0.95	0.64, 1.41
Education less than 12 years	1.16	0.92, 1.46	1.09	0.61, 1.95	1.37	1.19, 1.57
Previous fetal or live-born death	1.49	1.18, 1.88	2.59	1.45, 4.63	0.93	0.80, 1.08
Mother smoked	1.96	1.56, 2.46	0.88	0.48, 1.59	1.08	0.94, 1.25
Medical risk factors this pregnancy	2.53	2.00, 3.19	5.70	2.72, 11.93	1.37	1.20, 1.58
Inadequate prenatal care	1.73	1.28, 2.34	4.35	2.37, 7.98	2.04	1.69, 2.47
Number of observations		331		49		1,113
Single (N=10,060)						
Risk Factors	Odds Ratio	C.I.	Odds Ratio	C.I.	Odds Ratio	C.I.
Black	1.91	1.65, 2.21	1.21	0.88, 1.66	1.90	1.73, 2.09
Under age 18	1.00	0.79, 1.26	0.67	0.38, 1.17	1.22	1.05, 1.42
Education less than 12 yrs	1.05	0.91, 1.21	1.18	0.86, 1.63	1.16	1.05, 1.28
Previous fetal or live born death	1.14	0.99, 1.32	1.29	0.93, 1.77	1.05	0.95, 1.17
Mother smoked	1.90	1.65, 2.19	1.39	1.01, 1.90	1.09	0.99, 1.2
Medical risk factors this pregnancy	2.34	2.00, 2.73	8.12	4.73, 13.93	1.41	1.28, 1.55
Inadequate prenatal care	1.61	1.37, 1.89	3.52	2.58, 4.80	2.03	1.80, 2.28
Number of observations		988		179		2,820

Table 5: Prenatal Care Initiation Among MA and Non-MA Married Women Matched on Age, Race, and Education, and Wisconsin Totals

	<u>Matched</u>		<u>Total</u>
	<u>MA</u> (N=4,743)	<u>Non-MA</u> (N=4,743)	<u>Wisconsin</u> (N=72,636)
	%	%	%
First trimester	68	81	82
Second trimester	25	16	14
Third trimester	6	3	3
Never	<1	<1	<1
Unknown	<1	0	<1

Source. Matched: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Source. Wisconsin total: Division of Health, Wisconsin Department of Health and Social Services. Maternal and Child Health Statistics: Wisconsin-1990. Madison, WI: Division of Health, 1992.

Table 6: Number of Prenatal Visits Among MA and Non-MA Married Women Matched on Age, Race, and Education, and Wisconsin Total

	<u>Matched</u>		<u>Total</u>
	<u>MA</u> (N=4,743)	<u>Non-MA</u> (N=4,743)	<u>Wisconsin</u> (N=72,636)
	%	%	%
None	<1	<1	<1
1 - 4	5	3	4
5 - 9	29	20	20
10 - 12	41	48	46
13+	24	28	29
Unknown	<1	<1	<1

Source. Matched: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Source. Wisconsin total: Division of Health, Wisconsin Department of Health and Social Services. Maternal and Child Health Statistics: Wisconsin-1990. Madison, WI: Division of Health, 1992.

Table 7: Birthweight Among MA and Non-MA Married Women Matched on Age, Race, and Education, and Wisconsin Total

	<u>Matched</u>		<u>Total</u>
	<u>MA</u> (N=4,743) %	<u>Non-MA</u> (N=4,743) %	<u>Wisconsin</u> (N=72,636) %
<1,500 Gms.	0.8	0.7	1.1
1,500 - 2,499	5.1	4.1	4.8
>2,500 Gms.	94.0	95.2	94.1

NOTE: Percents may not add to 100 due to rounding.

Source. Matched: Linked hospital inpatient and birth certificate file, Wisconsin, 1990. Center for Health Statistics, Division of Health, Department of Health & Social Services.

Source. Wisconsin total: Division of Health, Wisconsin Department of Health and Social Services. Maternal and Child Health Statistics: Wisconsin-1990. Madison, WI: Division of Health, 1992.

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