

Factors Associated With Maternal Smoking in Wisconsin and the United States, 2002

Melissa A Umland, BS; Ronald E Gangnon, PhD; Karen A Palmersheim, PhD; Maureen S Durkin, PhD, DrPH; Patrick L Remington, MD, MPH

Introduction

- Smoking during pregnancy is associated with increased risk of premature birth, low birth weight, small for gestational age, placental abruption, placenta previa, spontaneous abortion, and perinatal and neonatal mortality.
- The National Healthy People 2010 goal for abstinence from smoking during pregnancy is 99%.
- However, it is estimated that about one out of every ten women giving birth in the United States smokes during pregnancy.

Methods

- Data for the analysis came from birth certificates.
- The 2002 national natality dataset was obtained from the National Center for Health Statistics and contains individual level data on all births occurring in the United States among U.S. residents.
- The total number of births in the U.S. in 2002 was 3,474,381.
- Prevalence estimates were calculated for maternal smoking by age, race/ethnicity, education, parity, marital status, and alcohol use during pregnancy for both Wisconsin and the United States.
- The relative risks (RR) were calculated by dividing the prevalence for Wisconsin by the prevalence for the United States.
- 95% confidence intervals were also calculated for the RRs in order to test for significance.
- Multiple logistic regression was used to examine the relationship between individual characteristics and smoking during pregnancy (SAS version 9.1).

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Figure 1. Percent Maternal Smoking by Age

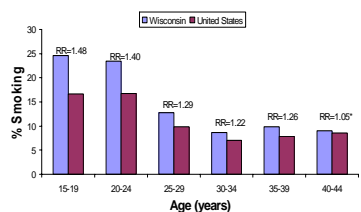


Figure 2. Percent Maternal Smoking by Parity

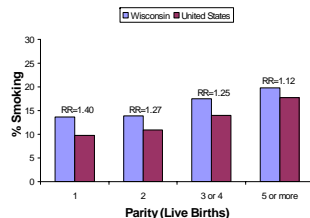


Figure 3. Percent Maternal Smoking by Race/Ethnicity

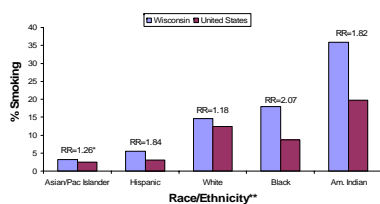


Figure 4. Percent Maternal Smoking by Marital Status

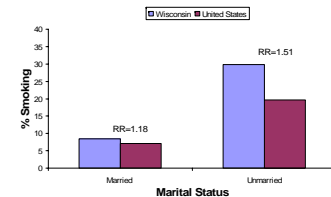


Figure 5. Percent Maternal Smoking by Alcohol Use

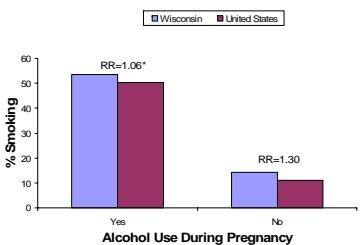
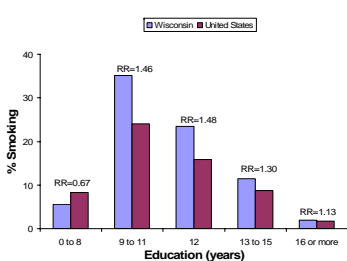


Figure 6. Percent Maternal Smoking by Education



*95% Confidence Interval not significant **Race and Ethnicity are not independent

Results

- Compared to the United States women in Wisconsin are significantly more likely to smoke during pregnancy, 14.9% versus 11.4% (RR= 1.43, 95% CI = 1.40, 1.46). (Data not shown)
- The rate of maternal smoking is lower for each subsequent age group in both Wisconsin and the United States. In addition, Wisconsin's women smoke at a significantly higher rate compared to women in the U.S. for every age group, with the exception of women 40 to 44 (Figure 1).
- As parity increases, maternal smoking rates also increase (Figure 2).
- Maternal smoking is related to race/ethnicity, with significant differences between Wisconsin and the United States. Minority women in Wisconsin are particularly more likely to smoke during pregnancy compared to minority women in the U.S. (Figure 3).
- Unmarried women are at a much higher risk for maternal smoking compared to married women. Unmarried women in Wisconsin are about 50% more likely to smoke compared to unmarried women in the U.S. (Figure 4).
- Women who report drinking alcohol during their pregnancy are also more likely to smoke during their pregnancy (Figure 5).
- Women with higher levels of education are less likely to smoke during pregnancy, with the exception of women in the lowest education group. The disparity between Wisconsin and U.S. women remains for each education group except 0 to 8 years, where Wisconsin's women are actually less likely to smoke (Figure 6).
- After controlling for covariates, minority groups are actually less likely to smoke during pregnancy compared to white women (Table 1).
- After controlling for covariates, women living in Wisconsin are significantly more likely to smoke compared to women living in the rest of the United States (Table 1).

Table 1. Adjusted Odds Ratios of Maternal Smoking in Wisconsin and the United States, 2002*

Characteristic	Odds Ratio (95% CI)
Age (years)	
<15	1.0 (Reference)
15-19	2.07 (1.86, 2.30)
20-24	3.05 (2.73, 3.39)
25-29	2.68 (2.40, 2.98)
30-34	2.45 (2.20, 2.73)
35-39	2.66 (2.39, 2.97)
40-44	2.65 (2.37, 2.96)
Race	
White	1.0 (Reference)
Asian/Pacific Islander	0.17 (0.17, 0.18)
Black	0.21 (0.21, 0.21)
American Indian	0.61 (0.59, 0.62)
Ethnicity	
Non-Hispanic	1.0 (Reference)
Hispanic	0.08 (0.08, 0.08)
Parity (live births)	
1	1.0 (Reference)
2	1.39 (1.38, 1.41)
3 or 4	1.84 (1.82, 1.86)
5 or more	2.33 (2.29, 2.37)
Education (years)	
0-8	1.0 (Reference)
9-11	1.93 (1.89, 1.96)
12	0.94 (0.93, 0.96)
13-15	0.49 (0.48, 0.50)
16 or more	0.11 (0.10, 0.11)
Marital Status	
Married	1.0 (Reference)
Unmarried	3.00 (2.97, 3.02)
Alcohol Use	
Yes	1.0 (Reference)
No	0.95 (0.94, 0.96)
Location	
United States	1.0 (Reference)
Wisconsin	1.26 (1.23, 1.28)

*Model is adjusted for all variables in the table.

Conclusion

- Rates of maternal smoking vary significantly by age, race/ethnicity, parity, education, marital status, and alcohol use.
- After controlling for these individual level characteristics, women living in Wisconsin are still significantly more likely to smoke during pregnancy compared to women living in the rest of the United States.