Michigan Department of Community Health

MI PRAMS Delivery

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Life Stressors and Smoking Status During Pregnancy, MI PRAMS 2008

Despite the well established relationship between smoking during pregnancy and several adverse perinatal outcomes[1], some women continue to smoke throughout pregnancy.

Recent research has explored the determinants of smoking cessation during pregnancy, and psychosocial factors such as life stressors, social support mechanisms, and coping strategies. Associations with smoking cessation for pregnant women were found, above and beyond the traditional demographic effects of race, education, and income.[2-4] However, population-based estimates of these predictors are rare.

This issue of the MI PRAMS Delivery investigates the effect of life stressors in the 12 months before delivery on smoking status during the third trimester of pregnancy, using data from the 2008 MI PRAMS survey. ◇

Inside This Issue:

Pre-delivery Life Stressors and Smoking Status Measured by MI PRAMS 2008

Prevalence of life stressors was calculated based on response to the following question from the PRAMS questionnaire: "This question is about things that may have happened during the *12 months before* your new baby was born. For each item, circle Y (Yes) if it happened to you or circle N (No) if it did not." A list of 13 stressors was then given (Figure 1). The total number of stressors experienced for each respondent was than summed and grouped into the following categories: zero stressors, 1-2 stressors, 3-5 stressors, and 6+ stressors.

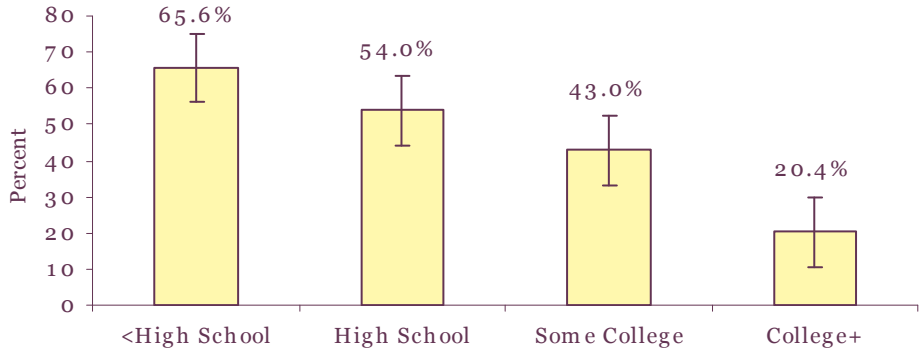
Smoking status was ascertained based on responses to the following two PRAMS survey questions: "In the *3 months before* you got pregnant, how many cigarettes did you smoke on an average day?" and "In the *last 3 months* of your pregnancy, how many cigarettes did you smoke on an average day?" Respondents who indicated that they smoked zero cigarettes per day both before preganncy and during the third trimester were categorized as "nonsmokers", those who smoked at least one cigarette per day before pregnancy and zero cigarettes per day during the third trimester were "quitters", and those who reported smoking at least one cigarette per day at both time points were categorized as "smokers". ◇

Figure 1: List of Pre-delivery Life Stressors Measured, MI PRAMS 2008

- A close family member was very sick and had to go into the hospital
- I got separated or divorced from my husband or partner
- I moved to a new address
- I was homeless
- My husband or partner lost his job
- I lost my job even though I wanted to go on working
- I argued with my husband or partner more than usual
- My husband or partner said he didn't want me to be pregnant
- I had a lot of bills I couldn't pay
- I was in a physical fight
- My husband or partner or I went to jail
- Someone very close to me had a bad problem with drinking or drugs
- Someone very close to me died

Prevalence and Demographic Characteristics of Life Stressors

Figure 2: Prevalence of Three or More Life Stressors by Education Level During the 12 Months Before Delivery, MI PRAMS 2008



In 2008, slightly more than one quarter (28%) of PRAMS respondents reported that they experienced no life stressors in the 12 months leading up to their most recent delivery, while 41% reported that they experienced one to two life stressors during the 12 months before delivery. Twenty-four percent experienced three to five stressors, and the remaining 8% had six or more major life stressors during this time period.

The number of stressors experienced in the 12 months before delivery varied by demographic characteristics. Women with three or more stressors were compared to women with less than three stressors for a number of demographic variables.

Black women were exposed to three or more life stressors more often than white women (61% and 49%, respectively). Similar differences were observed between the prevalence of three or more stressors among unmarried (59%) and married (39%) women, as well as between women who were ever enrolled in Medicaid (60%) compared to those never enrolled (30%). Stratification by education level revealed a decreasing linear trend with respect to the prevalence of three or more stressors: two-thirds of women with less than a high school diploma experienced three or more stressors, and the percent decreased with each subsequent level of education, as shown in Figure 2. ◇

About MI PRAMS

The Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based survey, is a CDC initiative to reduce infant mortality and low birth weight.

It is a combination mail/telephone survey designed to monitor selected self-reported maternal behaviors and experiences of women who delivered a live infant in Michigan that occur before and during pregnancy, as well as early postpartum periods. Information regarding the health of the infant is also collected for analysis.

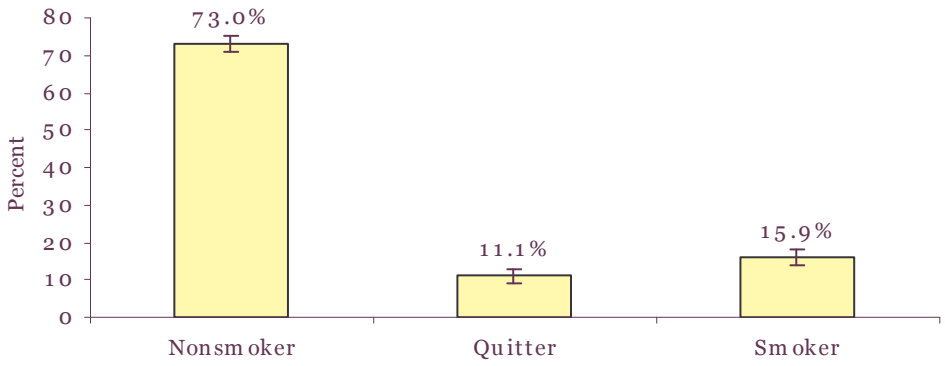
Annually, over 2,000 mothers are selected at random to participate from a frame of eligible birth certificates. Women who delivered a low-birth weight infant were over-sampled in order to ensure adequate representation. The results are weighted to represent the entire cohort of women who delivered during that time frame. ◇

Prevalence of Smoking Status During the Third Trimester

In the three months before pregnancy, 27% of Michigan mothers were smokers, as defined by smoking at least one cigarette per day. Of these pre-pregnancy smokers, 59% were able to quit by the third trimester of pregnancy (quitters), while the remaining 41% continued to smoke throughout pregnancy (and were classified as smokers).

Figure 3 shows smoking behaviors during the third trimester as percentages of the total population (i.e. women who delivered a live birth in 2008). Approximately 11% of women were quitters, while 16% continued to smoke through the third trimester of pregnancy. ◇

Figure 3: Prevalence of Smoking Status From Three Months Before Pregnancy to the Third Trimester of Pregnancy, MI PRAMS 2008



Association Between Life Stressors and Smoking Status During the Third Trimester of Pregnancy

In order to investigate the association between the number of life stressors experienced during the 12 months before delivery and smoking status in the third trimester, a logistic regression model was created, which compared the likelihood of experiencing three or more life stressors among both quitters and smokers to nonsmokers.

Potential confounders considered for the logistic regression model were age, race, education level, marital status, pre-pregnancy insurance status, and parity. Of these, age and parity were not significant confounders and were therefore dropped from the regression model.

Table 1 illustrates the results from the logistic regression analysis. After controlling for confounders, quitters were slightly more likely to have experienced three or more life stressors than nonsmokers (OR: 1.4), but the association did not reach statistical significance (95% CI: 0.7—3.0). (For more information on confidence intervals , see page 4.)

Table 1: Association Between Three or More Life Stressors and Smoking Status During Pregnancy, MI PRAMS 2008

Smoking Status	Odds Ratio	95% Confidence Interval
Nonsmoker	1.0	Reference
Quitter	1.4	(0.7—3.0)
Smoker	2.5	(1.5—4.2)

Smokers, or women who did not quit smoking by the third trimester of pregnancy, were 2.5 times more likely to have experienced three or more life stressors during the 12 months before pregnancy than nonsmokers, and this association was significant (95% CI: 1.5—4.2).

Results showed that while persistant smokers were signifcantly more likely to experience at least three life stressors than nonsmokers, women who had quit smoking since becoming pregnant were similar to nonsmokers with respect to life stressors. ◊

Resources to Assist Pregnant Smokers

- Call the Michigan Tobacco Quitline at **1-800-480-7848** – they can help develop a plan and give smokers the support needed to quit!
  - The Michigan Tobacco Quitline has been in operation since October 2003 and has recently expanded its protocol for Smoke-Free Families.
    - Pregnant smokers are eligible for at least 10 sessions to help them quit smoking (regular enrollees receive 5 sessions).
    - The sessions span the length of the pregnancy to help women stay quit, even after the birth of their baby.
    - Additional postpartum sessions (open ended after the initial 8 sessions) address:
      - First month postpartum relapse rates (up to 80% of women relapse) and any additional relapse
      - Problem solving: keeping one's baby safe from secondhand smoke and enacting no smoking zones around the baby
- Michigan Department of Community Health, Smoke-Free for Baby & Me – 517-335-9750 (Contact your local health department for program availability.)
- American Legacy's Great Start Quitline at 1-866-66-START and web site: www.americanlegacy.org/greatstart/html/quitline.html
- Booklet from Smoke-Free Families at 919-843-7663 and web site: www.smokefreefamilies.org
- March of Dimes, Michigan Chapter – 248-359-1550
- American Cancer Society, Great Lakes Division – 1-800-227-2345
- American Lung Association of Michigan – 1-800-242-8721 ◊

References

1. Centers for Disease Control and Prevention. Women and Smoking: a report of the Surgeon General (Executive Summary). *MMWR* 2002;51(No. RR-12).
2. Bullock LFC, Mears JLC, Woodcock C, et al. Retrospective study of the association of stress and smoking during pregnancy in rural women. *Addictive Behaviors* 2001;26:405-13.
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4. Weaver K, Campbell R, Mermelstein R, et al. Pregnancy smoking in context: the influence of multiple levels of stress. *Nicotine & Tobacco Research* 2008;10(6):1065-73. ◊

Past and future editions of the MI PRAMS Delivery newsletter are available electronically at:

www.michigan.gov/prams

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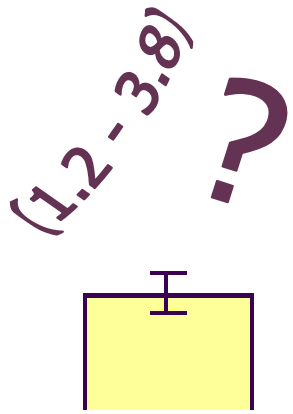
Epi Corner: Confidence Intervals

Confidence intervals are used by Epidemiologists in order to 1) distinguish between estimates that are statistically significant and those that are not and 2) gain information about an estimate's precision.

With regard to statistical significance, confidence intervals can tell whether or not a statistically significant difference exists in various situations. For proportions or percents, if the confidence intervals for two groups do not overlap each other, then statistical significance can be inferred. When examining linear regression results, if the confidence interval does not cross zero, then the estimate is statistically significant. In logistic regression, if the confidence interval does not cross 1, then statistical significance is achieved.

When a 95% confidence interval is statistically significant in the MI PRAMS Delivery, it can be stated that if the MI PRAMS survey were conducted 100 times in the reporting year, then the estimate would be expected to fall within the confidence interval at least 95 times.

Confidence intervals can also give an idea of how precise an estimate is: wider confidence intervals indicate less precise estimates, while narrower ones denote higher precision. ◇



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