

# Preconception Dieting and Multivitamin Use: Results from Michigan Pregnancy Risk

## Assessment Monitoring System (PRAMS), 2009



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### Background

Recent research has found that maternal preconception dieting may be a risk factor for neural tube defects. The Multivitamin Research Council has concluded that folic acid supplementation beginning before pregnancy is the most effective method in preventing neural tube defects in children. However, little is known about the association between pre-pregnancy dieting and multivitamin use among women delivering a live birth.

### Study Question

Is preconception dieting associated with preconception multivitamin use in the Michigan PRAMS population?

### Methods

PRAMS 2009 data were used to measure exposure (dieting to lose weight at any time during the 12 months before pregnancy) and outcome (use of a multivitamin during the month before pregnancy) (N=1667). Logistic regression was used to estimate prevalence ratios for multivitamin use among women who were dieting before pregnancy compared to those who were not dieting.

Potential confounders considered were maternal age, race, education, insurance status, marital status, parity, pregnancy intention, BMI, number of stressors, and anemia. However, none of these had more than a 10% effect, so they were not included in the model.

Figure 1. Prevalence of vitamin use frequencies by dieting status, Michigan PRAMS 2009.

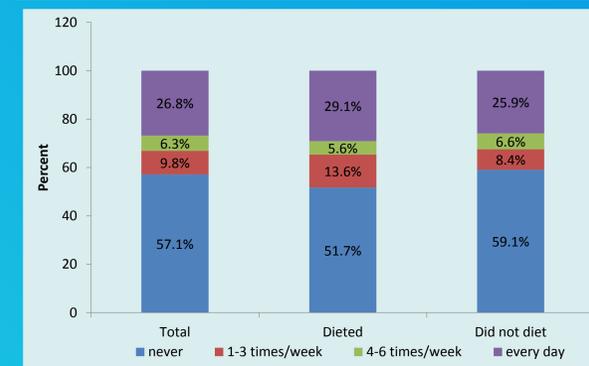


Table 2. Association between preconception dieting and preconception multivitamin use, Michigan PRAMS 2009.

Dieting status	Crude PR (95% CI)
Dieting before pregnancy	1.18 (1.03, 1.36)
Not dieting before pregnancy	Reference

Table 1. Any vitamin use by maternal demographic characteristics, Michigan PRAMS 2009.

Maternal Characteristic	Weighted Sample Size	Weighted Percent	95% Confidence Interval
<b>Age</b>			
<20 Years	2772	22.9	(16.4-31.0)
20-29 Years	21022	35.4	(31.7-39.3)
30+ Years	16632	40.1	(35.6-44.9)
<b>Race/Ethnicity</b>			
White	38430	46.4	(42.9-50.0)
Black	5869	28.5	(25.0-32.2)
Other	3951	43.4	(32.8-54.5)
<b>Education</b>			
<High School	4318	26.5	(20.0-34.3)
HS grad/GED	8451	26.7	(22.1-31.8)
Some college	15144	44.2	(39.2-49.2)
College degree+	20341	67.6	(62.3-72.6)
<b>Insurance</b>			
Uninsured	5420	25.4	(19.9-31.9)
Medicaid	7990	29.1	(24.3-34.4)
Private	34707	55.1	(51.2-58.9)
<b>Marital status</b>			
Married	35649	56.4	(52.4-60.2)
Other	12764	25.8	(22.2-29.7)
<b>Parity</b>			
1 child	20189	41.9	(37.6-46.3)
2+ children	28139	44	(40.3-47.8)

### Results

About 43% of Michigan mothers delivering in 2009 used multivitamins within the month before pregnancy began (Figure 1). The demographic characteristics of these mothers are shown in Table 1.

Women who were on a diet in the year before pregnancy were 1.18 times as likely to use a multivitamin in the month before pregnancy than those who were not on a diet [95% CI: (1.03, 1.36)] (Table 2).

Multinomial analysis indicated that the association was only present at the lowest frequency of vitamin use: dieters were 65% more likely (95% CI: [1.12, 2.37]) to take multivitamins 1-3 times per week than non-dieters (Table 3). Dieters were not more likely to take vitamins 4-6 times per week (PR: 0.86; 95% CI: [0.51, 1.45]) or every day (PR: 1.12; 95% CI: [0.91, 1.38]) than those not dieting before pregnancy (Table 3).

### Conclusions

Dieting before pregnancy was associated with increased preconception multivitamin use, but not at the recommended daily frequency.

Table 3. Associations between preconception dieting and preconception multivitamin use at different frequencies, Michigan PRAMS 2009.

Vitamin frequency	Dieting before pregnancy	Not dieting before pregnancy
	Crude PR (95% CI)	Crude PR (95% CI)
Every day	1.12 (0.91, 1.38)	Reference
4-6 times/week	0.86 (0.51, 1.45)	Reference
1-3 times/week	1.63 (1.12, 2.37)	Reference
Never	Reference	Reference

### Public Health Implications

These findings from MI PRAMS suggest that women of reproductive age, regardless of dieting status, pregnancy intention or demographic characteristics, may benefit from increased public health interventions designed to increase daily multivitamin use before pregnancy, in order to help prevent neural tube defects.