

PRENATAL PROVIDER COUNSELING AND EXCESSIVE GESTATIONAL WEIGHT GAIN

Sarah Zelek

Department of Epidemiology

Maternal and Child Health Leadership Training Program

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BACKGROUND

□ Current Institute of Medicine (IOM) Recommendations

Pre-pregnancy Body Mass Index (BMI), kg/m ²	Weight gain range, lbs
Underweight , <18.5	28-40
Normal Weight , 18.5-24.9	25-35
Overweight, 25.0-29.9	15-25
Obese, ≥ 30	11-20

Gestational Weight Gain

Fewer than 50 % of all women are gaining within the IOM recommendations.

- **Incidence of Excessive Gain:**

- About 40% of normal weight women
- Studies show increase overtime

- **Consequences:**

- Associated with poor pregnancy, birth, and long term maternal and child health outcomes including weight retention and obesity.



Prenatal Weight Gain Counseling

- Role of providers and the importance of weight counseling stressed in new IOM guidelines
 - Important to understand whether weight gain advice is effective
 - Previous research inconclusive
 - Cogswell et al 1999: no advice associated with gain outside recommended ranges
 - Ferrari et al 2012: no association found



OBJECTIVE & SIGNIFICANCE

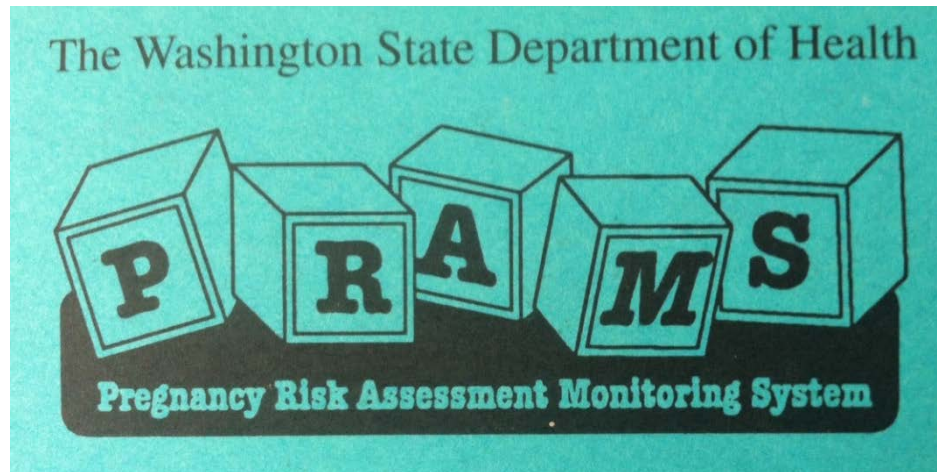
- To assess whether receipt of pregnancy weight gain counseling during prenatal care was associated with a decreased risk of excessive weight gain among pre-pregnant normal weight women.



METHODS

Study design

- Case control study using linked WA State Birth Certificate and Pregnancy Risk Assessment Monitoring System (PRAMS) data from 2004-2008.

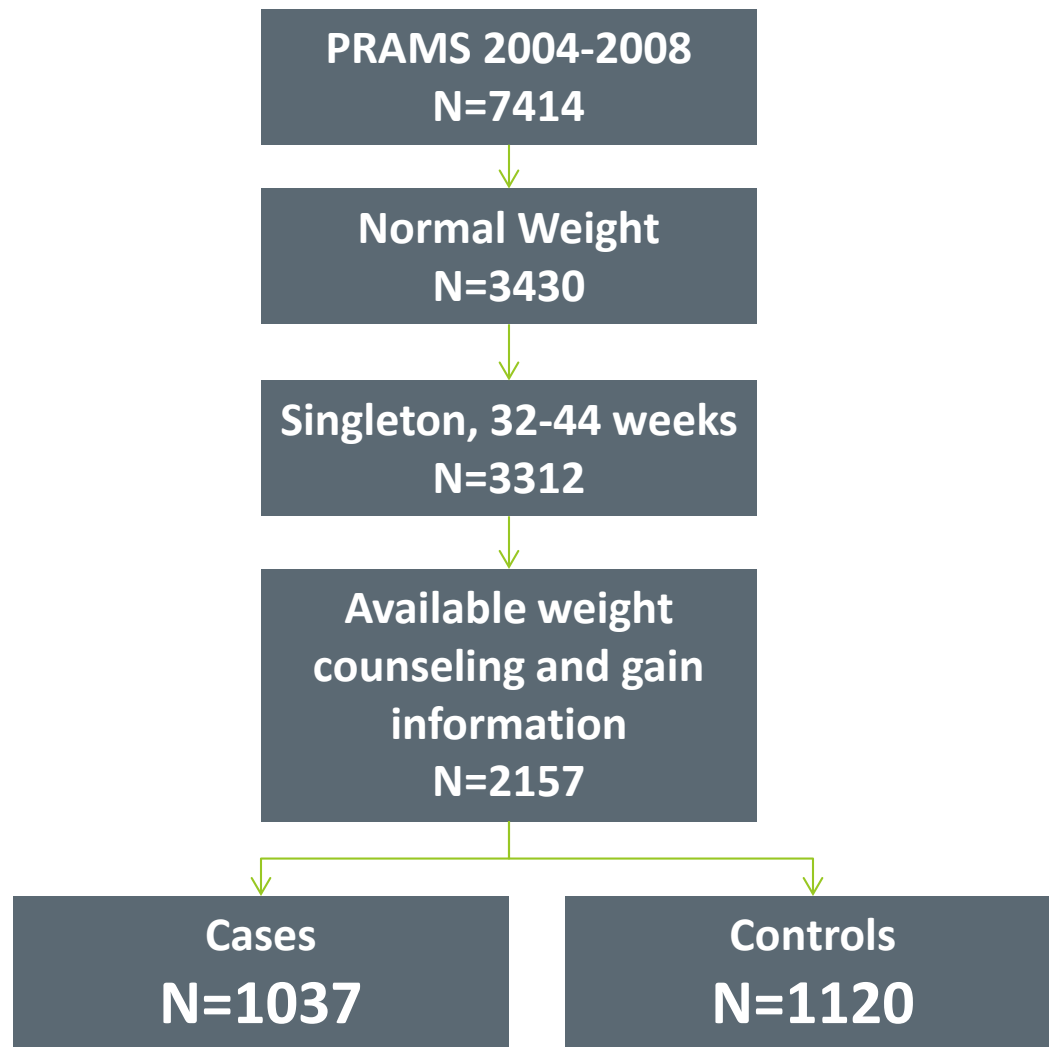


Pregnancy Risk Assessment Monitoring System (PRAMS)



- Ongoing state and population-based surveillance project of the CDC and state health departments
 - ▣ Telephone or mail survey at 2 to 6 post-delivery
 - ▣ Linked to birth certificate data
 - ▣ Spanish or English
 - ▣ Oversamples certain race/ethnicities and geographic locations

METHODS: Study Population Selection



METHODS: Outcome

- Cases: gained **excessive** gestational weight
 - BMI 18.5-19.8: >40 lbs
 - BMI 19.8+: >35 lbs
- Controls: gained **adequate** gestational weight
 - BMI 18.5-19.8: 28-40 lbs
 - BMI 19.8+: 25-35 lbs

METHODS: Exposure

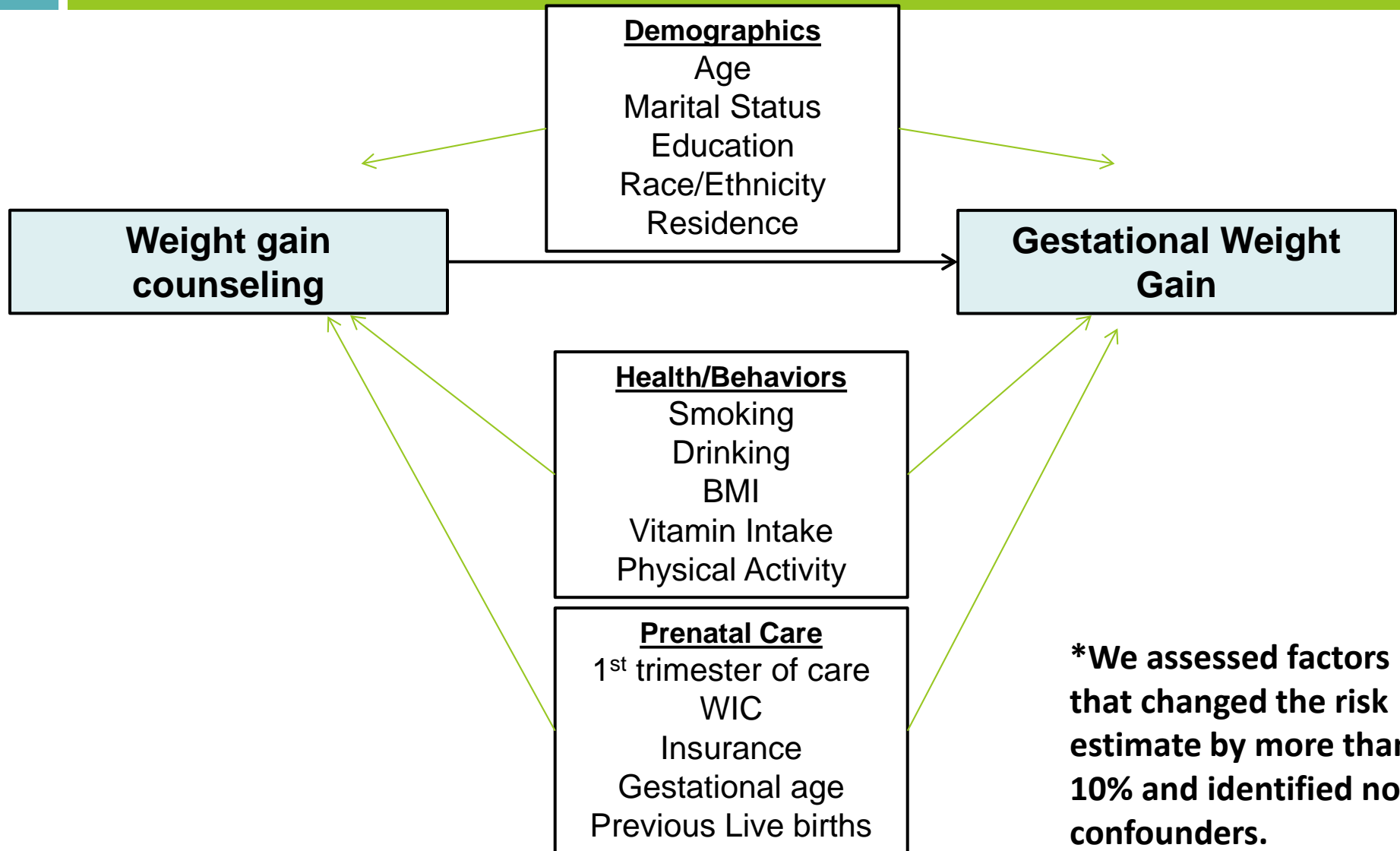
- Weight Gain Counseling:
 - At any time during your pregnancy did your doctor, nurse, or other health care worker talk to you about the following things:
 - How much weight to gain during pregnancy? (Yes/No)

METHODS

□ *Data Analysis*

- Compared cases and controls on demographic, perinatal, and behavioral characteristics.
- Poisson regression to estimate the relative risk (RR) and 95% confidence interval (CI) for the association between prenatal weight counseling and excessive weight gain.

Covariates



Effect Modification Testing

- Potential Effect Modifiers:
 - Possible confounders tested
 - Language preference
 - Life stress events intimate partner violence during the 12 months prior to delivery
 - Available social support food security

We evaluated for effect modification using the Wald test and found no effect modification.

RESULTS

	<i>Adequate weight gain (N=1,120)</i>	<i>Excessive weight gain (N=1,037)</i>
	<u>%</u>	<u>%</u>
Age (years)		
<19	4.2	6.6
19-25	21.4	28.3
25-30	25.9	26.7
30-34	30.8	27.4
35+	17.8	15.7
Married	75.8	69.5
Years of Education		
<12	13.2	12.4
12	19.4	22.0
13+	67.4	65.6
Race		
Non-Hispanic White	66.6	73.5
Non-Hispanic Black	2.6	2.5
Hispanic	15.1	11.5
Asian	11.7	6.9
American Indian/Alaska Native	1.1	1.4
Multiple Race/Other	3.0	4.2

RESULTS

	Adequate weight gain (N=1,120) <u>%</u>	Excessive weight gain (N=1,037) <u>(%)</u>
Previous live birth	55.4	46.2
Used WIC	32.4	36.7
Smoking Status		
<i>Never smoked</i>	88.2	77.5
<i>Smoked during pregnancy</i>	6.7	9.8
<i>Quit during pregnancy</i>	5.1	12.7
Intentional Pregnancy	69.5	61.6
Late Prenatal Care	15.9	19.1

RESULTS

Weight gain:

- Mean weight gain:
 - **38.3 lbs** (95% CI: 37.7-38.8 lbs)
- **49.6%** gained excessive gestational weight



RESULTS

Weight Gain Counseling:

- **83.9%** of all women reported prenatal weight gain counseling
 - 84.3% cases
 - 83.4% controls

- Weight counseling was not associated with a decreased risk of excessive gestational weight gain:
 - **RR 1.03, 95% CI 0.88-1.20**

CONCLUSIONS

- Almost half of normal weight women gaining excessive gestational weight
 - Consistent with previous research of ~50%
- High percent reporting receipt of gestational weight gain advice
 - Other studies range from 41.7% to 73%.

CONCLUSIONS



- Our findings do not provide evidence for an association between provider counseling and a decreased risk of excessive gestational weight gain.
 - ▣ Weight gain counseling limitations
 - ▣ Study limitations

LIMITATIONS



- Limited exposure information
 - No content, timing, dose, patient response
 - Reverse causality potential
- Recall bias
 - Surveyed 2-6 months post-delivery
- Selection bias
 - PRAMS Sample
 - Missing data

CONCLUSIONS

- Further research should identify effective counseling methods and resources, in addition to other important maternal and community factors that contribute to healthy weight gain during pregnancy.



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EXTRA SLIDES



Gestational Age Adjustment

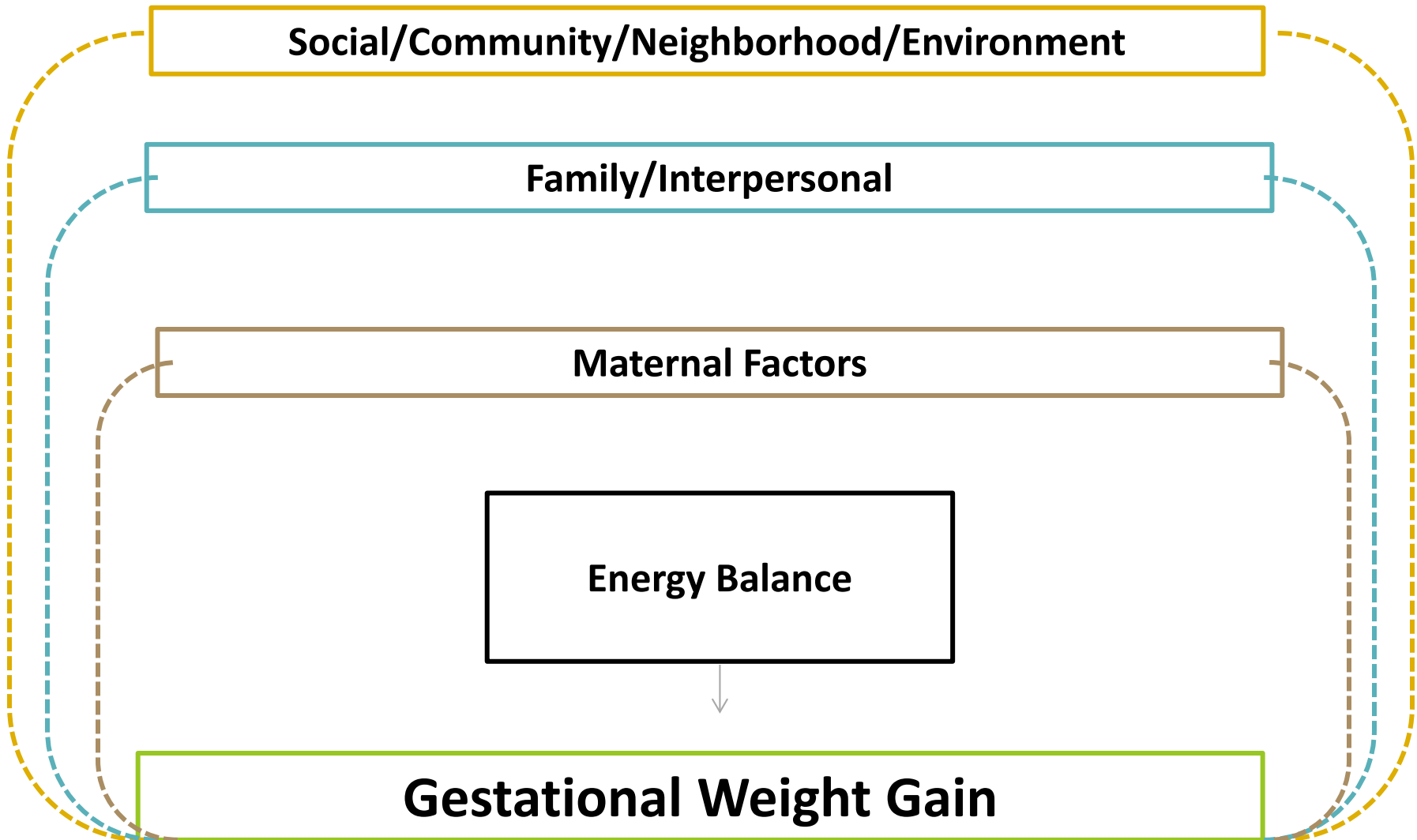
*For women who delivered between 32 and 36 or after 41 weeks, weight gain was categorized based on the rates of weight gain recommended in pounds per week for the second and third trimester of pregnancy:

- BMI 18.5-19.8: 1.3 pounds per week
- BMI 19.8+: 1.0 pound per week

Calculating BMI

- Pre-pregnancy BMI was calculated by dividing the pre-pregnancy weight in kilograms by the height in meters squared.
- If either height or prepregnancy weight or both were missing from the birth certificate, PRAMS data were used to calculate pre-pregnancy BMI.
- This, however, was only necessary for 6% of the eligible study population.

Determinants of Gestational Weight Gain



MISSINGNESS

Overall BMI and/or weight gain category information was missing for **781** women who met all other inclusion criteria.

- Comparing missing and non-missing
 - 83.1% vs. 83.9% reporting counseling
 - Missing weight gain category more likely to deliver in earlier years, have less than high school education, be non-white, prefer Spanish language, live in an urban setting, use WIC, and have inadequate prenatal care.
 - Missing women could also potentially be underweight, overweight, or obese and/or gain inadequate weight and thus not be eligible for participation. .