Correlates of Prepregnancy Physical Activity:
Results from the Pregnancy Risk Assessment Monitoring System

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Background

- Physical activity and health
  - Adults
    - Decreased risks of chronic disease and obesity
    - Improved mental and physical well-being
  - Pregnant women
    - Decreased risk of adverse pregnancy and postpartum health outcomes

Background

- Physical activity recommendations
  - CDC: 30+ minutes/day of "moderate-intensity" physical activity, 5+ days/week
  - ACOG: 30+ minutes/day of moderate physical activity, most or all days of the week
- 40-50% of women meet recommendations
- Direct medical costs of inactivity:
  - $76.6 billion (2000)
- Prepregnancy physical activity: strongest predictor of physical activity during pregnancy

Correlates of Physical Activity

- Women of reproductive age
  - Sociodemographic, cultural, and health characteristics
    - Age
    - Race
    - BMI
    - Family size
  - Socioeconomic status
  - Behavioral factors
    - Social support
    - Prepregnancy health behaviors
  - Neighborhood environmental and socioeconomic factors

Study Objectives

- Examine the prevalence of physical activity in the three months prior to pregnancy in a population-based sample of women

- Identify individual sociodemographic, personal, health, and behavioral factors predictive of prepregnancy physical activity

Study Design

- Population-based cross-sectional study
- Data from the Centers for Disease Control and Prevention's Pregnancy Risk Assessment Monitoring System (PRAMS)
- PRAMS survey responses linked with birth certificate data
- Subjects: 4,069 women who delivered a live birth in 2004 in Maine, North Carolina, and Washington State
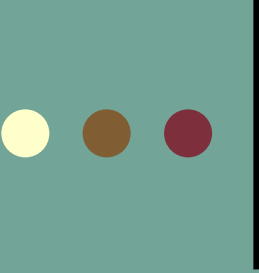
Outcome Measurement

- PRAMS survey question:
  - "During the 3 months before you got pregnant with your new baby, how often did you participate in any physical activities or exercise for 30 minutes or more?"
- Response options classification:
  - Inactive: <1 day/week
  - Moderately active: 1-4 days/week
  - Active: ≥5 days/week

Methods

- Prevalence estimates
  - Prepregnancy physical activity level
  - Characteristics of respondents
- Independent predictors of prepregnancy physical activity
  - Developed a logistic regression model using backward selection methods
  - Calculated prevalence odds ratios and 95% confidence intervals
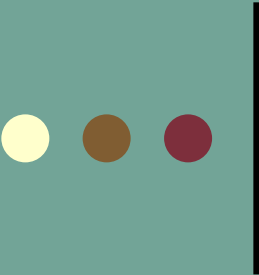 - Evaluated potential confounders

Prevalence of Prepregnancy Physical Activity among PRAMS survey respondents in Maine, North Carolina, and Washington, 2004, by state*

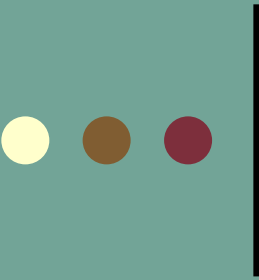| State	Inactive		Moderately active		Active	
	%	95% CI	%	95% CI	%	95% CI
Maine	29.7	26.7 – 32.8	53.9	50.6 – 57.1	16.5	14.2 – 19.1
North Carolina	43.3	40.1 – 46.4	44.5	41.4 – 47.7	12.2	10.3 – 14.5
Washington	35.0	31.7 – 38.3	48.7	45.3 – 52.2	16.3	13.9 – 19.1
TOTAL	39.2	37.1 – 41.4	46.7	44.5 – 49.0	14.1	12.6 – 15.7

*Weighted proportions. N = 4,069.

Level of physical activity prior to pregnancy by selected individual characteristics among PRAMS survey respondents in Maine, North Carolina, and Washington State, 2004

Characteristic		% Inactive (95% CI)*	% Active (95% CI)*
Overall prevalence		39.2 (37.1, 41.4)	60.8 (58.6, 63.0)
Race/ethnicity	Non-Hispanic White	35.2 (32.5 – 38.0)	64.8 (62.1 – 67.5)
	Non-Hispanic Black	49.5 (43.4 – 55.7)	50.5 (44.3 – 56.7)
	Non-Hispanic Other race	41.2 (35.4 – 47.2)	58.8 (52.8 – 64.6)
	Hispanic	46.4 (40.9 – 52.1)	53.6 (47.9 – 59.1)
Previous live births	0	35.1 (31.9 – 38.4)	64.9 (61.7 – 68.1)
	1	39.3 (35.4 – 43.2)	60.8 (56.8 – 64.6)
	2	45.1 (39.4 – 50.9)	54.9 (49.1 – 60.6)
	≥3	49.3 (42.3 – 56.3)	50.7 (43.7 – 57.7)
Prepregnancy BMI	Underweight (BMI < 18.5)	51.2 (40.8 – 61.5)	48.8 (38.5 – 59.2)
	Normal weight (BMI 18.5–24.9)	35.8 (32.8 – 38.9)	64.2 (61.1 – 67.2)
	Overweight (BMI 25-29)	32.9 (28.6 – 37.4)	67.2 (62.6 – 71.4)
	Obese (BMI > 30)	47.0 (41.7 – 52.3)	53.0 (47.7 – 58.3)
Annual household income	<$10,000	45.9 (40.6 – 51.3)	54.1 (48.7 – 59.4)
	$10,000 – $24,999	46.5 (42.0 – 51.0)	53.5 (49.0 – 58.0)
	$25,000 - $49,999	37.6 (33.1 – 42.2)	62.5 (57.8 – 66.9)
	≥ $50,000	28.5 (25.1 – 32.2)	71.5 (67.8 – 74.9)

*Weighted percentages.

Prevalence odds ratios for independent predictors of prepregnancy physical inactivity among PRAMS survey respondents in Maine, North Carolina, and Washington State, 2004

Characteristic		Inactive (vs. active) POR (95% CI)*	*p*
Previous live births	0	Reference	.014
	1	1.20 (0.95 - 1.52)	
	2	1.28 (0.93 - 1.75)	
	≥3	1.78 (1.24 - 2.56)	
Prepregnancy BMI	Underweight (BMI < 18.5)	1.69 (1.05 - 2.69)	<.001
	Normal weight (BMI 18.5–24.9)	Reference	
	Overweight (BMI 25-29)	0.80 (0.62 - 1.04)	
	Obese (BMI > 30)	1.47 (1.12 - 1.93)	
Maternal education (years)	<12	1.36 (0.96 – 1.94)	.007
	12	1.52 (1.17 – 1.97)	
	>12	Reference	
Pregnancy intention	Intended	Reference	.064
	Unintended	1.23 (0.99 - 1.54)	

POR, prevalence odds ratio; CI, confidence interval
*All variables adjusted for each other and for race/ethnicity, annual household income, and prepregnancy tobacco use (results not shown)

Discussion

- Physical inactivity is common among women prior to pregnancy
- Significant predictors of prepregnancy physical activity included prepregnancy body mass index, maternal education level, and parity
- Women with three or more live births prior to the current pregnancy were most likely to be inactive prior to pregnancy
- Study limitations

Implications

- Results suggest physical inactivity is common among women of reproductive age

- Information on factors predictive of prepregnancy physical activity can be used when developing clinical activities and public health interventions which aim to reduce rates of inactivity among women of reproductive age

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