

A NATIONAL POPULATION-BASED STUDY  
OF PREGNANCY COMPLICATIONS AND  
ADVERSE BIRTH OUTCOMES:  
THE IMPORTANCE OF WOMEN'S  
PRECONCEPTION MENTAL HEALTH



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### Presenter Disclosures

**Whitney P. Witt, PhD, MPH**

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

- No relationships to disclose

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Overview

- Background and Aims
- Methods
- Results
- Conclusions
- Implications

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BACKGROUND AND AIMS

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Background

- Pregnancy complications and poor birth outcomes are pervasive public health problems in the United States.
- Little is known about women's mental health *prior* to pregnancy as a predictor of such outcomes.

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## Significance

- Poor mental health during pregnancy is associated with adverse obstetric outcomes.
- Additional research is needed to examine the effects of mental health *prior* to pregnancy and subsequent obstetric outcomes.

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## Study Aims

- To determine if and to what extent women's preconception mental health status impacts subsequent obstetric outcomes, including:
  - ▣ Pregnancy complications
  - ▣ Non-live birth
  - ▣ Low birth weight

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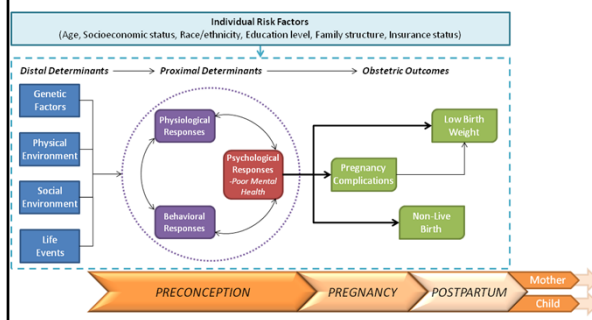
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## Conceptual Framework of the Preconception Determinants of Adverse Obstetric Outcomes




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## METHODS

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### Study Design

- Complete data from ten full panels of the 1996-2006 Medical Expenditure Panel Survey (MEPS)
  - ▣ Supplemental data from the Pregnancy Detail File
- Nationally representative sample of the civilian non-institutionalized population in the United States
- Data collection occurred over five rounds throughout a two-year period

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### Sample

- Sample Sizes:
  - ▣ 3,373 women (pregnancy complications)
  - ▣ 2,671 women (non-live birth)
  - ▣ 2,108 women (low birth weight)

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### Main Outcome Variables

- Pregnancy Complications
  - ▣ e.g. anemia, toxemia/pre-eclampsia/eclampsia
- Non-Live Birth
  - ▣ Miscarriage or Stillbirth
- Low Birth Weight
  - ▣ <2,500 grams

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### Main Independent Variables

- Preconception Mental Health
  - ▣ Women's self report of:
    - Symptoms of mental health conditions, defined as global mental health rating of "fair" or "poor" before conception
  - ▣ Preconception period of <1 to 18 months

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### Control Variables

- Maternal and family sociodemographic variables:
  - ▣ Race/ethnicity
  - ▣ Age
  - ▣ Education
  - ▣ Marital/partner status
  - ▣ Health insurance status
  - ▣ Family income
  - ▣ Number of children in the household

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### Analytic Approach

- Data were weighted to reflect complex sampling design
- $\chi^2$  analyses
- Logistic regression models were estimated for each outcome

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### RESULTS

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### Descriptive Results

	Any Complication		Non-Live Birth		Low Birth Weight	
	Yes	No	Yes	No	Yes	No*
TOTAL: Weighted N	1,886,630	3,621,629	796,668	3,611,467	207,080	2,873,927
Weighted %	34.3%	65.7%	18.1%	81.9%	6.0%	83.8%
<b>Poor Preconception Mental Health</b>						
Yes (%)	8.7%	5.8%	8.9%	5.7%	12.7%	5.7%
No (%)	91.3%	94.2%	91.1%	94.3%	87.3%	94.3%

\*Normal Birth Weight (2,500-3,999 grams), data for High Birth Weight (4,000+ grams) not shown

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### Descriptive Results

Any Complication	Non-Live Birth	Low Birth Weight
<ul style="list-style-type: none"> <li><input type="checkbox"/> Black (non-Hispanic)</li> <li><input type="checkbox"/> Never married</li> <li><input type="checkbox"/> Less than a college degree</li> <li><input type="checkbox"/> Publicly insured</li> <li><input type="checkbox"/> Income &lt;100% of FPL</li> <li><input type="checkbox"/> One or more school-aged children</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Older (35+ yrs)</li> <li><input type="checkbox"/> Non-Hispanic</li> <li><input type="checkbox"/> Uninsured</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Younger (20-24 yrs)</li> <li><input type="checkbox"/> Black (non-Hispanic)</li> <li><input type="checkbox"/> Never married</li> <li><input type="checkbox"/> Have a pregnancy complication</li> <li><input type="checkbox"/> Partial health insurance</li> <li><input type="checkbox"/> No children under 5 yrs</li> </ul>

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### Multivariate Results

	Any Complication OR (95% CI)	Non-Live Birth OR (95% CI)	Low Birth Weight OR (95% CI)
<b>Poor Preconception Mental Health</b>	<b>1.40 (1.02-1.92)</b>	<b>1.48 (0.96-2.27)</b>	<b>1.99 (1.00-3.98)</b>
<b>Race/Ethnicity</b>			
White (Non-Hispanic)	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Black (Non-Hispanic)	<b>1.35 (1.05-1.74)</b>	0.73 (0.49-1.08)	1.59 (0.85-2.95)
Other (Non-Hispanic)	1.00 (0.67-1.48)	1.42 (0.81-2.50)	0.82 (0.23-2.87)
Hispanic	1.08 (0.84-1.38)	<b>0.60 (0.42-0.86)</b>	1.02 (0.60-1.74)
<b>Any Pregnancy Complication</b>	-	-	<b>4.07 (2.45-6.76)</b>

OR = Odds Ratio, 95% CI = 95% Confidence Interval  
 Also adjusting for: Age, Marital Status, Education, Health Insurance Status, Income, Family Composition

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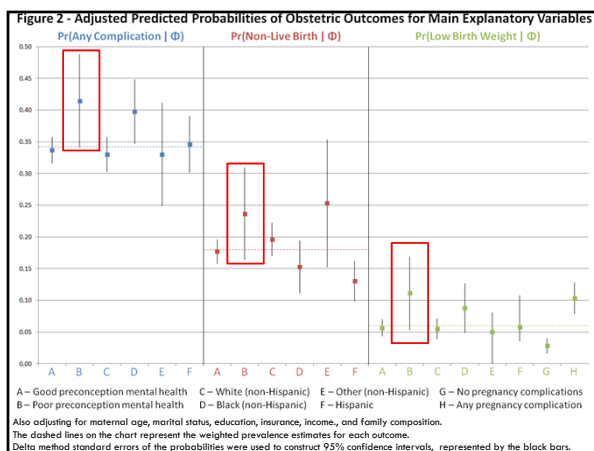
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## CONCLUSIONS

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- ### Conclusions
- Poor pre-pregnancy mental health:
    - ▣ Most significant risk factor for pregnancy complications
    - ▣ Possible risk factor for non-live birth
    - ▣ Strong risk factor for LBW
  - Other findings:
    - ▣ Lack of health insurance increased the risk of non-live birth
    - ▣ Black women more likely to have pregnancy complications than white women
    - ▣ Significant socioeconomic risk factors for pregnancy complications

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- ### Potential Limitations
- Our preconception period may underestimate lifetime prevalence of poor mental health
  - Data on maternal smoking was not collected until 2000

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## Implications

- Preconception mental health is a vital, modifiable risk factor for poor obstetric outcomes.
- Interventions to prevent adverse obstetric outcomes may be most effective if they begin in the preconception period.
- Policy changes should increase access to preconception care.
  - ▣ Expansion of public insurance for women of reproductive age.

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## Thank you!

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