

Pre-pregnancy Health Status and the Risk of Preterm Delivery

Jennifer Haas, MD

Elena Fuentes-Afflick, Anita Stewart, Rebecca
Jackson, Mitzi Dean, Phyllis Brawarsky,
Gabriel Escobar

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Pre-term Delivery

- National public health priority.
- Incidence is rising; twice as high among black women compared with whites.
- Despite extensive evaluation, our understanding is incomplete.
- Policies – like expansions of public coverage programs – have had limited effect.

Hypothesis

- Focus on the prenatal period is too narrow.
- Too late to:
 - Modify health behaviors.
 - Identify and treat chronic illness.
 - Identify and treat infection.
 - Improve maternal health status.

Project WISH (Women and Infants Starting Healthy)

- Goal to examine the relationship between a woman's pre-pregnancy health status and her risk of subsequent preterm delivery.
- Longitudinal cohort of women:
 - Received prenatal care at an office/ clinic affiliated with 6 delivery hospitals in San Francisco area.
 - ≥ 18 years; English, Spanish, or Cantonese
 - Presented before 16 weeks gestational age.
 - Access to a telephone.
- Enrolled May 2001 – July 2002.

Procedures

- Series of up to 4 telephone interviews:
 - Before 20 weeks – recall health status during the month prior to pregnancy.
 - 24 – 28 weeks
 - 32 – 36 weeks
 - 8 – 12 weeks post-partum.
- Medical record review
 - Gestational age at delivery.
 - Adequacy of prenatal care.

Measurements

- Health status:
 - MOS SF-36 (physical function, vitality).
 - CES-D (depression)
- Detailed demographics
- Chronic illness

Variables

- Outcome: preterm delivery (< 37 weeks GA).
- Independent variables: Age, race/ ethnicity, country of birth, marital status, education, economic deprivation, parity, exercise prior to pregnancy, pre-pregnancy BMI, chronic conditions, pregnancy complications, tobacco use (before/ during), prenatal care, physical function, depression.

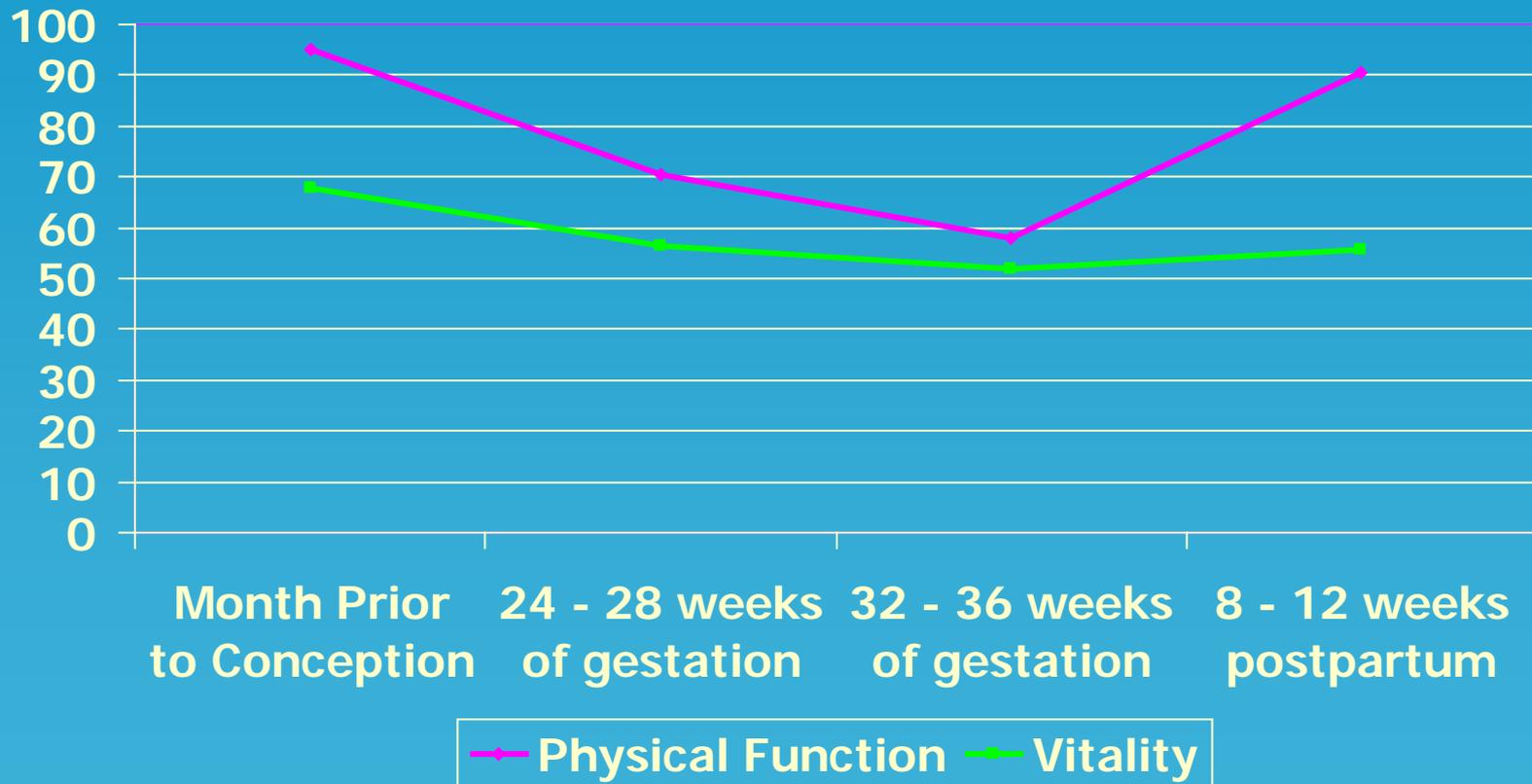
Conceptual Framework/ Analysis

- Perinatal Health Framework
 - “Distal” determinants: demographic and socioeconomic characteristics
 - “Proximal” determinants: biomedical conditions and behavioral practices.
- Series of 3 logistic regression models:
 - SES only
 - SES + pre-pregnancy factors
 - SES + pre-pregnancy + prenatal factors

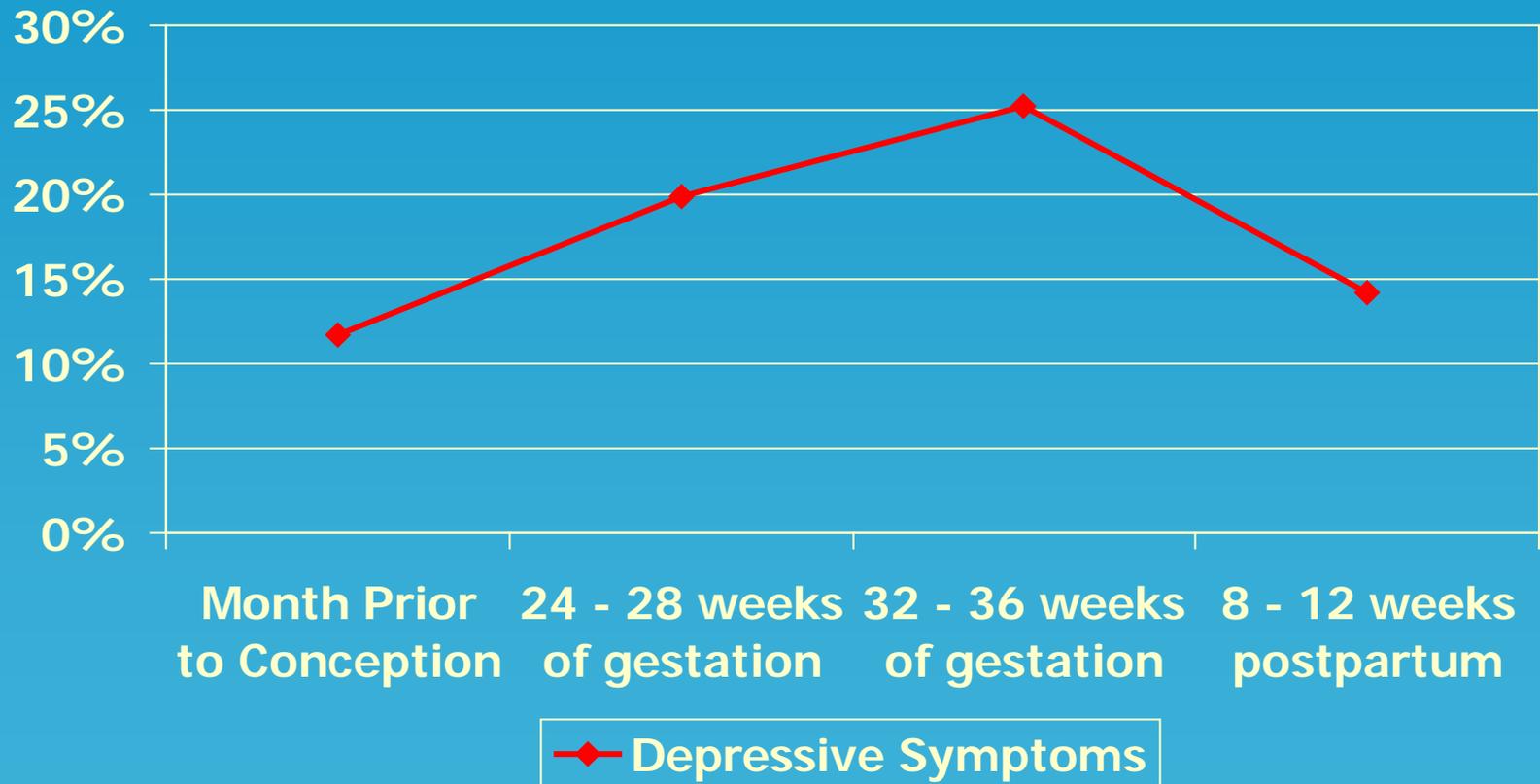
Results

- Response rate = 63%; retention > 90%.
- Final sample of 1,619 women.
- Median age 30 years; 47% nulliparous
- Race/ ethnicity:
 - 35% Latina, 32% white, 18% black, 15% Asian
 - 60% US-born
- Education:
 - 16% < HS; 43% HS grad; 41% college grad
- Rate of preterm delivery 8.0%

Changes in Health Status During Pregnancy



Changes in Depression



Multivariate Models:

Model 1 – Demographics only.

- Race/ ethnicity (relative to white):
 - African American: 1.94 (1.07-3.51)
 - Latina: 1.11 (0.58-2.11)
 - Asian: 1.07 (0.55-2.12)
- Education (relative to college graduate):
 - High school graduate: 1.68 (1.01-2.79)
 - Did not finish high school: 1.82 (0.92-3.59)

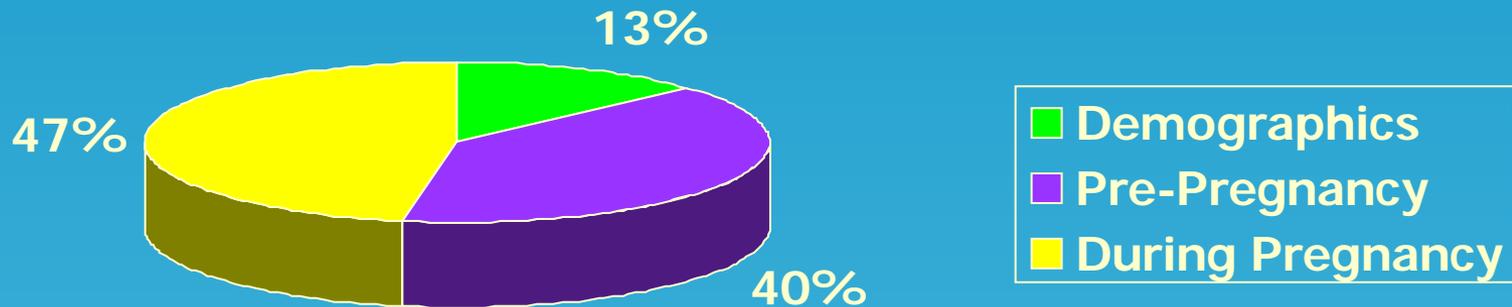
Model 2 – Demographic + Pre-pregnancy Risk Factors

- Poor physical function: 2.31 (1.41-3.77)
- Depressive symptoms: 1.21 (0.71-2.08)
- Chronic HTN: 3.12 (1.94-5.02)
- Other chronic conditions: 1.46 (1.00-2.13)
- Smoker: 2.20 (1.29-3.75)
- No exercise: 1.21 (0.79-1.86)

Model 3 – Demographic + Pre-pregnancy Risk Factors + Prenatal Factors

- Race/ ethnicity (relative to white):
 - African American: 1.57 (0.84-2.94)
 - Latina: 1.03 (0.53-2.02)
 - Asian: 0.87 (0.42-1.77)
- Prior poor physical function: 1.97 (1.18-3.30)
- Chronic HTN: 1.77 (1.02-3.06)
- Pregnancy-associated HTN: 3.17 (1.87-5.37)
- Other pregnancy conditions: 2.24 (1.33-3.78)

Relative Contribution of Demographic, Pre-Pregnancy, and Pregnancy Factors



Limitations

- Retrospective recall of pre-pregnancy health
 - Occurred before outcome assessment
 - Similar or better than normative data for non-pregnant, reproductive-age women.
- Not causal.
- Maternal health in the immediate pre-conception period.

Conclusions

- Maternal health status, specifically physical function, prior to pregnancy is associated with the risk of preterm delivery.
- Improving the rates of preterm delivery may require attention to the health status of women before pregnancy.