Black-White disparities in preterm birth: Is worry about racial discrimination a missing piece of the puzzle?

May 3, 2017, Bakersfield, CA
California Conference of Local Health Officers Meeting

Paula Braveman, MD, MPH
Professor of Family & Community Medicine
Director, Center on Social Disparities in Health
University of California, San Francisco
www.ucsf.edu/csdh
The research team

- Paula Braveman, MD, MPH, UCSF
- Katherine Heck, MPH, UCSF
- Susan Egerter, PhD, UCSF
- Tyan Parker-Dominguez, PhD, USC
- Christine Rinki, MPH, MCAH
- Kristen Marchi, MPH, UCSF
- Mike Curtis, PhD, MCAH

MCAH: Maternal, Child, & Adolescent Health Program, Center for Family Health, CDPH
UCSF: Center on Social Disparities in Health and Department of Family & Community Medicine, UCSF
Why did we do this study?

- Persistent Black-White disparity in PTB, with severe long-term consequences
- Causes largely unknown but stress widely suspect
  - Physiologically plausible (neuro-endocrine processes → immune/inflammatory mechanisms which could trigger labor; HPA axis, CRH; ANS)
- Extensive literature links incidents of racial discrimination to several health outcomes, presumably mediated via stress
Rationale for the study, continued

- Literature inconsistent on links between discriminatory incidents and birth outcomes, but different measures used
- Our 2004-05 qualitative study to inform measuring experiences of racism among child-bearing women
  - 40 African-American women in 5 focus groups
  - Spoke of overt and subtle incidents but also of constant vigilance: anticipating, worrying...
  - Vigilance especially among more educated women
  - We have not found literature on worry/vigilance → PTB
Causes of racial disparity in PTB unknown but evidence suggests social causes are important

- Black immigrants from Africa/Caribbean have birth outcomes similar to Whites’
  - But daughters’ birth outcomes are much worse
- No/little racial disparity among poor women
- Disparities vary by neighborhood
- High rates among women who were in foster care
- Lower PTB rates among low-income Black women in *Centering Pregnancy*
Stress is a biologically plausible cause

- Neuro-endocrine processes → immune/inflammatory mechanisms which could trigger labor
  - HPA axis, CRH
  - Autonomic Nervous System
  - Epigenetic effects of stressful experiences

The stress ➔ PTB link: Biologically plausible

STRESSOR ➔ Hypothalamus ➔ Pituitary Gland ➔ Adrenal Glands ➔ CORTISOL

CRH ➔ ACTH ➔ CORTISOL

AFFECTS MULTIPLE ORGANS & SYSTEMS, INCLUDING IMMUNE SYSTEM
Stress due to racial discrimination (RD), including worry about it

- Possibility suggested by many previous studies
- Incidents can be stressful
  - Overt, subtle, or ambiguous
  - Intended or unintended; self or vicarious
  - Incidents have been linked with PTB
- Anxiety/vigilance could be stressful and, if chronic, increase PTB risk
- MCAH/UCSF research team studied this using MIHA
Methods

- Maternal & Infant Health Assessment 2011-2014
- 2,201 Black and 8,122 White US-born women
- Outcome: Preterm birth (PTB)
- Predictor: Worry about racial discrimination
  - “Overall during your life until now, how often have you worried that you might be treated or judged unfairly because of your race or ethnic group?”
    - Very often, somewhat often, not very often, never
  - “Chronic worry”: She reported worrying often that she might experience racial discrimination
Analytic strategy

- Separately among Black & White women:
  - Prevalence of chronic worry
  - Association between chronic worry and PTB
    - Before and after adjusting for potential confounders

- Among Black & White women together: How does the racial disparity in PTB change when chronic worry is introduced as a covariate?
  - Before and after adjusting for potential confounders
Potentially confounding variables

- **Demographic:** age, parity, marital status
- **Socioeconomic:** income, education, % poor in census tract, food insecurity, early prenatal care
- **Psychosocial:** depressive symptoms during pregnancy; number of major stressors during pregnancy
- **Medical risks:** pre-pregnancy (short inter-pregnancy interval, poor/fair self-reported health, underweight, diabetes Dx, HTN Dx), inadequate pregnancy weight gain
Results: Prevalence of worry about racial discrimination

- Black women: 36.9 (32.9-40.9)%
  - Highest among higher-income, college-educated, married women
- White women: 5.5 (4.5-6.5)%
- Varied by demographic and socioeconomic characteristics, sometimes differently among Black women vs White women
Black women who often worried about racial discrimination had ~ 2 times the risk of PTB

- PTB rates: 12.5% vs 7.2% (chronic worry yes vs no)
- Models: Black women who chronically worried had around twice the PTB rate, before & after adjustment.
- Risk of PTB associated with chronic worry expressed as prevalence ratios (and 95% CI):
  - Chronic worry (yes vs no): 1.73 (1.12-2.67)
  - Adding social/demographic variables: 1.95 (1.27-2.97)
  - Adjusted for all variables: 2.00 (1.33-3.01)
After adjustment for chronic worry, the Black-White disparity in PTB was no longer significant.

Black-White disparity in PTB expressed as a prevalence ratio (PR) (& 95% CI)

- Unadjusted: 1.59 (1.21-2.09)
- Adjusted for chronic worry: 1.30 (0.93-1.81)
- Chronic worry + social/demographic variables: 1.08 (0.76-1.54)
- Adding behavioral & medical variables: 1.17 (0.84-1.63)
Strengths and limitations

**Strengths**
- Large, population-based, high response rates
- Array of covariates
- Based on literature & prior qualitative work, and pre-tested cognitively & with recent focus groups
- Dramatic results

**Limitations**
- Only one question
- Psychometric properties have not been formally tested
- Effects may be contingent on factors not explored
Conclusions

- Worry about racial discrimination may be important in the Black-White disparity in PTB.
- Need studies capturing more facets of worry/vigilance along with incidents & other experiences, using psychometrically tested measures.
  - Efforts to address racism need not await confirmation of these findings!
- Do not conclude that racial differences in health reflect underlying biological differences because they persist after adjustment for the usual variables, including socioeconomic measures.