THE UNSOLVED MYSTERY
OF RACIAL DISPARITIES IN BIRTH
OUTCOMES: IS RACISM-RELATED
STRESS A MISSING PART OF
THE PUZZLE?

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RACIAL DISPARITIES IN BIRTH OUTCOMES: SEEING CLUES IN THE PATTERNS

- Large, unexplained Black-White disparities in low birth weight (LBW) and preterm birth (PTB)
- Why the differences are likely to involve social factors
  - Racism-related stress could be important
    - Stress related to economic hardship/insecurity
    - Stress related to experiencing/anticipating discrimination
  - Across the life course
- Implications for science, policy, & practice
PERSISTENT DISPARITIES: LOW BIRTH WEIGHT

PERSISTENT DISPARITIES: PRETERM BIRTH

WHY DO WE CARE ABOUT BIRTH OUTCOME DISPARITIES?

- Infant mortality
- Serious disability
  - Cognitive
  - Emotional-behavioral
  - Physical
- Family burden
- Economic costs
  - Medical care
  - Special education
  - Social services
  - Lost productivity
- Starting life unequal
CAUSES OF ADVERSE BIRTH OUTCOMES

**Known**
- Tobacco
- Alcohol
- Illegal drugs
- Low pre-pregnancy weight
- Inadequate weight gain
- Short maternal stature
- Chronic disease

**Suspected**
- Infections?
- Environmental toxins?
- Physically demanding work?
- Genes? Gene-environment interactions?
- Psychosocial factors?
  - Stress?
  - Lack of social support as a stressor &/or modifier of stress effects
CAUSES OF BLACK-WHITE DISPARITIES

- Largely unexplained by:
  - Tobacco
  - Alcohol
  - Drugs
  - Weight/weight gain
  - Maternal stature
  - Chronic disease

- Infections?
  - Rx hasn’t always improved outcomes

- Environmental toxins?

- Genetic component?
  - No single LBW/PTB gene – complex cascades of events
  - Some patterns don’t fit
  - Gene-environment interactions?

- Stress?
- Social support?
UNDERSTANDING THE CAUSES OF BIRTH OUTCOME DISPARITIES

More questions than answers, but what can we learn from the social patterns?
### RATIO OF LOW BIRTH WEIGHT RATES AMONG BLACKS VS WHITES AT DIFFERENT INCOME LEVELS

<table>
<thead>
<tr>
<th>Family income in relation to the federal poverty level *</th>
<th>Black to White ratio</th>
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<tbody>
<tr>
<td>Poor (at or below the poverty line)</td>
<td>1.3 times</td>
</tr>
<tr>
<td>Near-poor (1-2 times the poverty line)</td>
<td>1.6 times</td>
</tr>
<tr>
<td>Not low-income (more than 2 times the poverty line)</td>
<td>Around 2.5 times</td>
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</tbody>
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* California Maternal & Infant Health Assessment (MIHA), ’99-’05
  * During ’99-’05, federal poverty level for a family of 4 was around $17,000-$20,000.
DISPARITIES BY NATIVITY (IMMIGRANT VS US-BORN)

Latinas/Hispanics
- Immigrants have good birth outcomes
  - despite poverty, less schooling, less care
- US-born have unfavorable outcomes

Blacks
- African/Afro-Caribbean immigrants have relatively good outcomes
- US-born (African-Americans) have unfavorable outcomes

- Difficult to explain by genetics alone
- Immigrants would have a larger “dose” of the adverse gene(s)
DISPARITIES BY NATIVITY
(IMMIGRANT VS US-BORN)

- Differences by nativity persist even after considering healthy immigrant selection and healthier behaviors
- Immigration is stressful, so difficult to explain by stress in general
- What about chronic stress, especially at critical periods, e.g., awareness of discrimination in childhood for US-born?
- Resources that buffer effects of stress?
A ROLE FOR STRESS: NOT PROVEN, BUT BIOLOGICALLY PLAUSIBLE

- Physiological pathways documented in humans
- Neuroendocrine pathways (Hypothalamic-Pituitary-Adrenal [HPA] axis) & Sympathetic Nervous System
  - Release of "stress hormones" during pregnancy (cortisol, epinephrine, norepinephrine)
  - Could → premature labor (and LBW)
    - via effects on Corticotrophin Releasing Hormone and vascular, immune, and/or inflammatory processes
  - Chronically high cortisol before pregnancy may → dysregulation of HPA axis and immune responses
    - May → increased stress reactivity and/or susceptibility to infection later
WHO HAS THE MOST STRESS?

- Black vs White women experience more poverty and lower incomes
- We have found striking income gradients & Black-White disparities in stressors among pregnant women in California
- Range of psychosocial stressors associated with poverty/lower income, e.g.,
  - Divorce/separation, job loss, financial insecurity, food insecurity, domestic violence, lack of social support
SEPARATED OR DIVORCED DURING PREGNANCY

% of women

% of Federal Poverty Level

0-100%  101-200%  201-300%  301-400%  >400%

MIHA 2003
PARTNER’S JOB LOSS DURING HER PREGNANCY (SIMILAR PATTERN FOR HER JOB LOSS)

% of women

% of Federal Poverty Level

0-100%  101-200%  201-300%  301-400%  >400%

MIHA 2003
TOTAL NUMBER OF HARDSHIPS* EXPERIENCED DURING PREGNANCY

*Hardships = 'economic hardship', 'food insecurity', 'no practical support', 'no emotional support', 'separated/divorced during pregnancy', 'homeless', 'job loss of spouse/partner', 'her own involuntary job loss', 'incarceration', 'had a lot of unpaid bills', & 'domestic violence'. MIHA 2002-2006
DISPARITIES IN HARDSHIPS, BY INCOME AND RACE

- Similar patterns of income disparity in hardships in data from 19 PRAMS states
- And examining by race in California: Black women had higher prevalence of each hardship — And they experienced more hardships

![Bar chart showing differences in hardships between Black and White women during pregnancy.](CA MIHA 2003-2004)
UNMEASURED SOCIAL FACTORS: HOW COULD A NEIGHBORHOOD AFFECT HEALTH?

- Physical danger
- Safe places to exercise
- Lead, air pollution, mold
- Access to healthy food
- Role models, peer pressure (e.g., for substance abuse)
- Social networks & support
- Stress, fear, anxiety, despair
- Blacks & Whites of similar income/education levels live in different kinds of neighborhoods
- Neighborhood conditions often not considered in studies
LIFE COURSE EXPOSURE TO STRESS

- Poverty/lower income in childhood, adolescence (& adulthood before pregnancy) could be stressful
- Comparing Black & White adult women of a given current income or educational level, the Black women are more likely to have experienced lower socioeconomic conditions as children
- Weathering hypothesis – cumulative stress
- Considering larger racial disparity among higher income women: Could past exposures lead to LBW/PTB in current pregnancy, if a woman is no longer poor?
  - Yes, e.g., via neuroendocrine and/or immune dysregulation
- Childhood conditions are rarely examined in birth outcome studies
Racism As A Source Of Chronic Stress – Cumulative Across Life Course

- Structural racism exposes Black women to more stress related to poverty and worse living conditions including neighborhood conditions
- In addition, concern about being treated unfairly, based on being in a group that has historically suffered discrimination, could be stressful
  — even without overt incidents of clear-cut discrimination
- Some studies have linked racism with adverse birth outcomes; some have not
- Inadequate measures; we (Nuru-Jeter et al.) want to systematically develop measures for birth outcomes research
- Could racism – particularly experiences during childhood – help explain racial disparities and immigrant paradoxes in birth outcomes?
EXPERIENCES OF RACISM AMONG CHILDBEARING WOMEN: EXPLORATORY STUDY FUNDED BY CDC

- Six focus groups with socioeconomically diverse African-American women in 3 Northern California cities
- Overt incidents involving themselves &/or loved ones; childhood incidents especially prominent
- Across multiple domains, e.g., work, school, street, shopping...
- Pervasive vigilance, anticipating threats to themselves or their children
- Poor women more likely to internalize?
RACIAL DISPARITIES IN BIRTH OUTCOMES: SEEING CLUES IN THE PATTERNS

- The social patterns (by income, education, & nativity) tell us that social factors are likely to be involved
- Racism-related stress could be important
  - Stress related to economic hardship/insecurity
  - Stress related to experiencing/anticipating discrimination
- Across the life course
- Biologically plausible albeit unproven
- Not typically measured
RACISM AS A HEALTH ISSUE: IMPLICATIONS FOR SCIENCE, POLICY & PRACTICE

- Do we need to study whether racism harms health?
- We need more multi-level, life course research on birth outcomes –linking psychosocial factors (including stress) & biological consequences; measurement work to support it
- But we know enough now to call for multi-sector efforts to address the health-damaging effects of poverty, poor education, & impoverished neighborhoods
  - Bold experiments with promising interventions
  - No quick fixes – outcomes may lag by generations
- Public health leaders –in research, policy, & practice--need to provide leadership in affirming a commitment to equity
  - A society in which everyone achieves her/his full health potential: Birth outcome disparities are a sentence to health disparities across the life course
  - For pragmatic and ethical reasons
  - A fair chance starting from the beginning of life