RACE, RACISM & RACIAL DISPARITIES IN ADVERSE BIRTH OUTCOMES

Tyan Parker Dominguez, PhD, MPH, MSW
School of Social Work, University of Southern California
1) Review statistics on racial/ethnic disparities

2) Discuss bio-psycho-social mechanisms by which racism may adversely affect pregnancy

3) Describe racial/ethnic differences in exposure to racism and impact on pregnancy
# Infant Mortality

*deaths before age 1 per 1000 live births*

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL</td>
<td>6.9</td>
</tr>
<tr>
<td>NONHISPANIC WHITE</td>
<td>5.7</td>
</tr>
<tr>
<td>HISPANIC</td>
<td>5.5</td>
</tr>
<tr>
<td>ASIAN/PACIFIC ISLANDER</td>
<td>4.8</td>
</tr>
<tr>
<td>NONHISPANIC BLACK</td>
<td>13.5</td>
</tr>
</tbody>
</table>

*Mathews, Menacker, & MacDorman, 2004; Peristats Database, 2007*
## Preterm Birth

< 37 weeks gestation

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL</td>
<td>12.5%</td>
</tr>
<tr>
<td>NONHISPANIC WHITE</td>
<td>11.6%</td>
</tr>
<tr>
<td>HISPANIC</td>
<td>12.0%</td>
</tr>
<tr>
<td>ASIAN/PACIFIC ISLANDER</td>
<td>10.5%</td>
</tr>
<tr>
<td>NONHISPANIC BLACK</td>
<td>17.7%</td>
</tr>
</tbody>
</table>

Martin et al., 2004; Peristats Database, 2007
### Low Birthweight

< 2500 grams

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>7.8%</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>6.9%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6.5%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>7.8%</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>13.4%</td>
</tr>
</tbody>
</table>

Martin et al., 2004; Peristats Database, 2007
• **In childhood:**
  Cerebral palsy, epilepsy, chronic lung disease, deafness, blindness, ADHD, cognitive deficits, learning disabilities

• **In adulthood:**
  Cardiovascular disease, diabetes, hypertension
  *(Barker thesis = fetal programming)*
Intergenerational Perpetuation of Risk

**MOTHER**
- Birthweight
- Gestational age

**INFANT**
- Birthweight
- Gestational age
- Fetal Growth
- Gestational age
Disparity not fully explained by established

SOCIODEMOGRAPHIC

MEDICAL

BEHAVIORAL

risk factors
IS IT GENETIC?

HIGHLY UNLIKELY!

- Nativity differentials
- European genetic admixture
- Disparities across all the leading causes
- Disparities across life course
Environmental demands that tax or exceed one’s ability to adapt, resulting in emotional and biological responses that may increase disease risk

Cohen, Kessler, & Gordon, 1995
African-American pregnant women report more stress exposure and greater emotional distress from that exposure than other groups

Feldman, Dunkel-Schetter, Woo & Hobel, 1997; Zambrana et al., 1999
A Bio-psycho-social Model

STRESS

Neuroendocrine system

Immune system

Cardiovascular system

Birth outcomes
Neuroendocrine System
Placental CRH controls placental clock

Maternal stress → maternal CRH, ACTH, cortisol released

Triggers additional CRH expression in placenta
Elevated levels of CRH significantly related to:

- **PRETERM LABOR** (Korebritis et al, 1998; Wadhwa et al, 1998)
- **PRETERM DELIVERY** (Hobel et al, 1999; McLean et al, 1995; Wadhwa et al, 2004)
- **FETAL GROWTH RESTRICTION** (Wadhwa et al, 2004)

*independent of medical risk*
Immune System
INFECTION

- Paternal antigens → immunosuppression
- Stress → immunosuppression
- Infection major risk factor for PTD
- BV most common
- Proinflammatory cytokines promote placental CRH expression
High maternal stress significantly associated with…

- **DEPRESSED LYMPHOCYTE ACTIVITY**
  (Herrera et al, 1998)

- **BACTERIAL VAGINOSIS**
  (Culhane et al, 2001)

*independent of confounders*
Cardiovascular System
HYPERTENSIVE DISORDERS

- Stress → cardiovascular disorders
- Preg-induced hypertension and preeclampsia
- Major risk factors for PTD
- Significantly elevated CRH levels (Jeske et al, 1990; Perkins et al, 1995; Warren et al, 1995)
• Elevated CRH related to abnormal UTEROPLACENTAL BLOOD FLOW (Giles et al, 1996)

• DBP REACTIVITY to stress predicts gestational length and infant birthweight (McCubbin et al, 1996)
RACISM

. . . a likely fundamental cause of the
drations’s enduring racial/ethnic
disparities in health

- James, 2003
RACISM LINKED TO

Health Behaviors
Mental & Physical Health,
including

INFANT MORTALITY
PRETERM DELIVERY
LOW BIRTHWEIGHT
ALLOSTATIC LOAD
Physiologic toll of repeated and/or chronic stress system activation

McEwen & Stellar, 1993
Allostatic Load in African Americans?

- **Weathering**
  - AfrAms’ risk of LBW increases faster w/age than Whites’

- **PTSD symptoms following racist encounters**
  - HPA axis dysregulation in PTSD; evident in AfrAm girls and pregnant women

- **Heightened & prolonged cardiovascular reactivity to racism**
  - hypertension = cardiovascular dysregulation due to stress hyperreactivity
  - AfrAms have highest rates generally and in pregnancy
RACISM & ADVERSE PREGNANCY OUTCOMES
A Program of Research
Multi-Site Behavior in Pregnancy Study

1997-2002

- Prospective, repeated measures survey
- Psychosocial, medical, physiological variables
- 480 ethnically/SES diverse pregnant women
- Recruited in clinics or referred by MDs
- Fluent English
- \( \geq 18 \) yrs
- \( \leq 18 \) wks gestation, non substance using
STUDY 1

Can stress help to explain racial differences in birth outcomes?
STUDY SAMPLE

51 African-American

73 Nonhispanic White pregnant women born and raised in U.S.

who delivered a live-born infant
RACISM EXPOSURE

Have you ever felt that you (or someone close to you) were (was) discriminated against or the target of prejudice because of race in interpersonal, housing, employment, educational, other situations?
KEY FINDING

Racism exposure, particularly vicarious childhood experiences, predicts BW and helps to explain racial differences in BW, controlling for confounders.
STUDY 2

Are there physiological factors that link racism to birth outcomes?
Neuroendocrine Variables

CRH
- mother

ACTH
+ placenta

CORTISOL

Assayed from blood each trimester
Neuroendocrine Factors

Stress hormone levels rise across pregnancy course in both African Americans and Whites

HOWEVER

Evidence of possible NE dysregulation in African Americans:

- high ACTH, low CRH and Cortisol
- smaller level of change in CRH and Cortisol
KEY FINDINGS

1. Evidence of NE dysregulation in AfrAms

2. Racism associated with AfrAm NE pattern: higher ChV racism = lower CRH

3. Lower late term CRH predicts lower BW

4. CRH helps explain ChV racism effects on BW
STUDY 3

Are there differences across multiple racial/ethnic groups in exposure to and impact of racism?
MS-BIPS SAMPLE of

70 Latinas
177 Nonhispanic Whites
25 Asian/Pacific Islanders
51 African-Americans

with racism data
### RACISM REPORTS

#### LIFETIME

<table>
<thead>
<tr>
<th></th>
<th>AfrAm</th>
<th>API</th>
<th>Latina</th>
<th>White</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>72.5%</td>
<td>88.0%</td>
<td>54.3%</td>
<td>40.7%</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adjusting for sociodemographic differences:

*AfrAms, APIs, Latinas differ from Whites*
### Personal

<table>
<thead>
<tr>
<th>AfrAm</th>
<th>API</th>
<th>Latina</th>
<th>White</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.7%</td>
<td>72.0%</td>
<td>44.3%</td>
<td>27.4%</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adjusting for sociodemographic differences:

AfrAms, APIs, Latinas differ from Whites
### VICARIOUS

<table>
<thead>
<tr>
<th></th>
<th>AfrAm</th>
<th>API</th>
<th>Latina</th>
<th>White</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63.0%</td>
<td>60.0%</td>
<td>37.1%</td>
<td>29.9%</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adjusting for sociodemographic differences:
AfrAms, APIs, Latinas differ from Whites
## RACISM REPORTS

### AS A CHILD

<table>
<thead>
<tr>
<th></th>
<th>AfrAm</th>
<th>API</th>
<th>Latina</th>
<th>White</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.1%</td>
<td>80.0%</td>
<td>40.0%</td>
<td>25.6%</td>
<td>0.000</td>
<td></td>
</tr>
</tbody>
</table>

Adjusting for sociodemographic differences:

APIs differ from Latinas and Whites
RACISM REPORTS

AS AN ADULT

<table>
<thead>
<tr>
<th></th>
<th>AfrAm</th>
<th>API</th>
<th>Latina</th>
<th>White</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63.0%</td>
<td>60.0%</td>
<td>37.1%</td>
<td>29.9%</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adjusting for sociodemographic differences:
AfrAms, APIs, Latinas differ from Whites
AfrAms and Latinas were significantly less distressed than APIs and Whites
RESPONSE

• AfrAms significantly more likely to keep racism experiences to themselves

• AfrAms significantly more likely to accept unfair treatment as a fact of life
Racism & Psych Well-being

In all ethnic groups, racism associated with increased

**CHRONIC STRESS**

**ANXIETY**

**DEPRESSIVE SXS**

and fewer

**PERSONAL RESOURCES**
Racism & Birth Outcomes

Racism only associated with BW in AFRICAN AMERICANS
THRESHOLD EFFECT?
WHAT TO DO???
March of Dimes Community Service Pilot Grant

Aim: increase personal and organizational capital within African American churches for promoting healthy pregnancy

Based on *Body & Soul* model for healthy eating
Moving forward.....

Raise awareness
Promote girls’ and women’s health overall
Advocate for universal health care
Implement IOM recs to reduce disparities in care
Address social determinants of health
Embrace activism
Acknowledgements

Christine Dunkel Schetter
Department of Psychology, UCLA

Laura Glynn
Department of Psychiatry, UC-Irvine

Calvin J. Hobel
Department of Maternal/Fetal Med, Cedars-Sinai

Curt Sandman
Department of Psychiatry, UC-Irvine