

RACE, RACISM & RACIAL DISPARITIES IN ADVERSE BIRTH OUTCOMES



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OBJECTIVES

- 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

	U.S.	CA
OVERALL	6.9	5.4
NONHISPANIC WHITE	5.7	5.0
HISPANIC	5.5	5.1
ASIAN/PACIFIC ISLANDER	4.8	4.4
NATIVE AMERICAN	8.9	7.6
NONHISPANIC BLACK	13.5	11.4

Mathews, Menacker, & MacDorman, 2004

Preterm Birth

< 37 weeks gestation

	U.S.	CA
OVERALL	12.5%	10.3%
NONHISPANIC WHITE	11.6%	9.4%
HISPANIC	12.0%	10.4%
ASIAN/PACIFIC ISLANDER	10.5%	9.7%
NATIVE AMERICAN	13.7%	11.9%
<i>NONHISPANIC BLACK</i>	<i>17.7%</i>	<i>15.2%</i>

Martin, Hamilton, Sutton, Ventura, Menacker, & Munson, 2004

Low Birthweight

< 2500 grams

	U.S.	CA
OVERALL	7.8%	6.4%
NONHISPANIC WHITE	6.9%	6.0%
HISPANIC	6.5%	5.8%
ASIAN/PACIFIC ISLANDER	7.8%	7.2%
NATIVE AMERICAN	7.5%	6.6%
<i>NONHISPANIC BLACK</i>	13.4%	11.9%

Martin, Hamilton, Sutton, Ventura, Menacker, & Munson, 2004

RELATED SEQUELAE

- *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

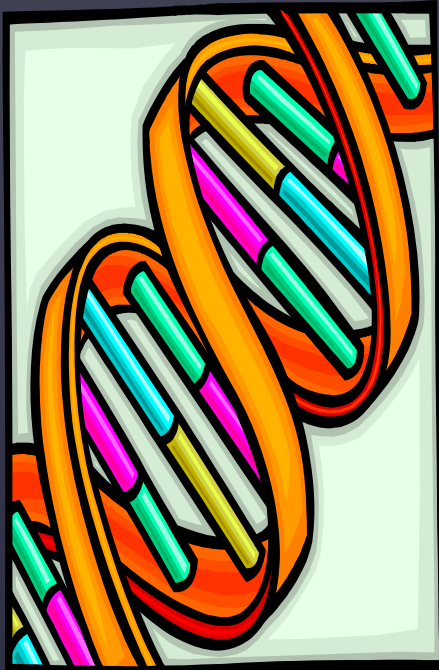
BEHAVIORAL

risk factors



IS IT GENETIC?

HIGHLY UNLIKELY!



- *Nativity differentials*
- *European genetic admixture*
- *Disparities across all the leading causes of poor outcome*
- *Disparities in health across life course*

Psychosocial Stress

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



STRESS



BW

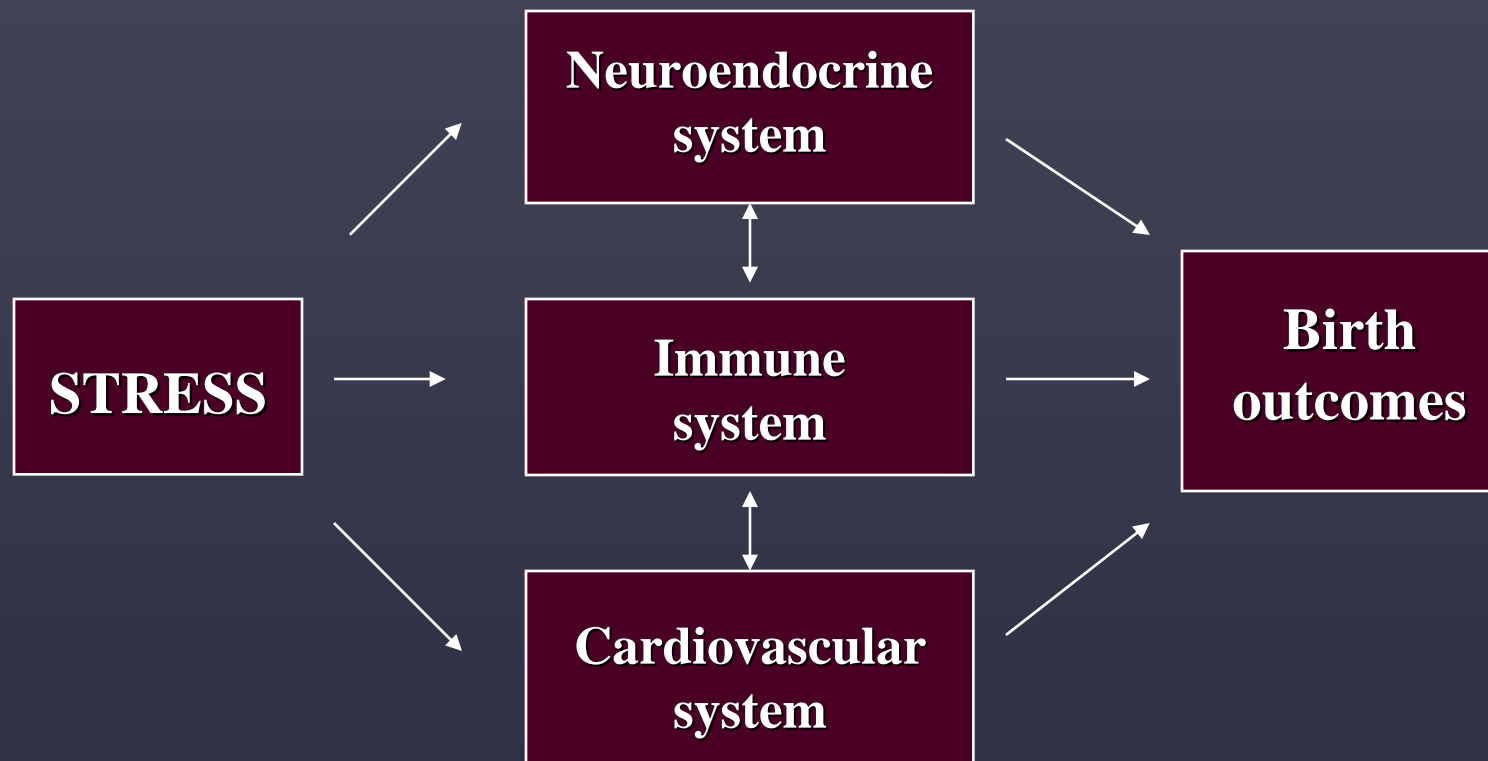
GA



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



Neuroendocrine System

THE HPA AXIS

- ✓ **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 nations's enduring racial/ethnic disparities in health

- James, 2003



RACISM LINKED TO

Health Behaviors

Mental & Physical Health,

including

INFANT MORTALITY

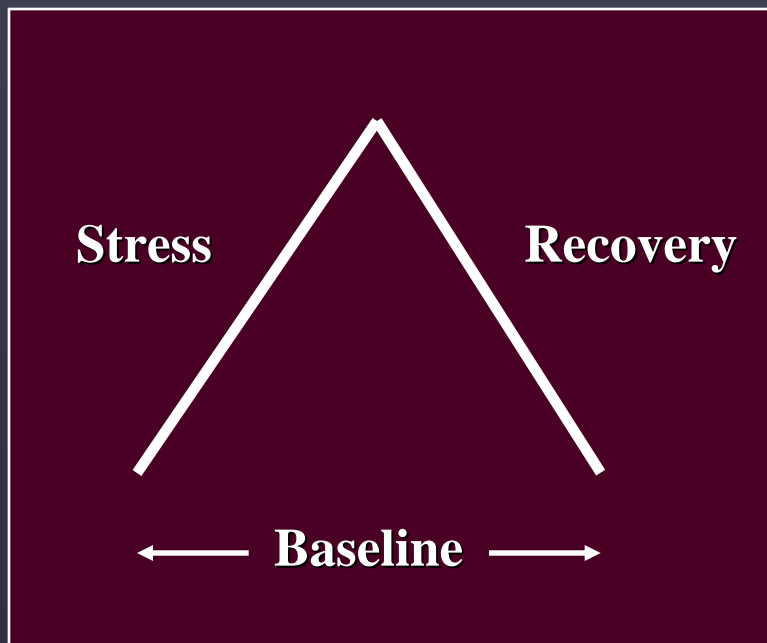
PRETERM DELIVERY

LOW BIRTHWEIGHT

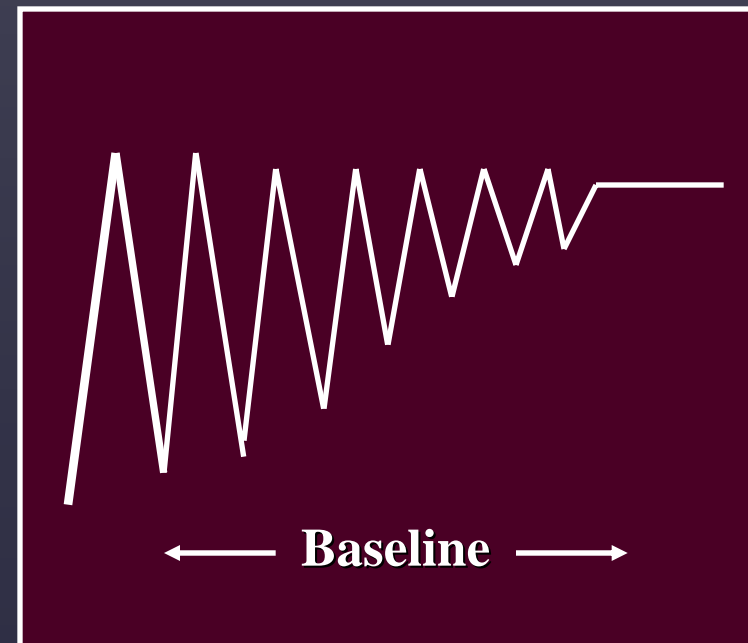
ALLOSTATIC LOAD

Physiologic toll of repeated and/or chronic stress system activation

Allostasis

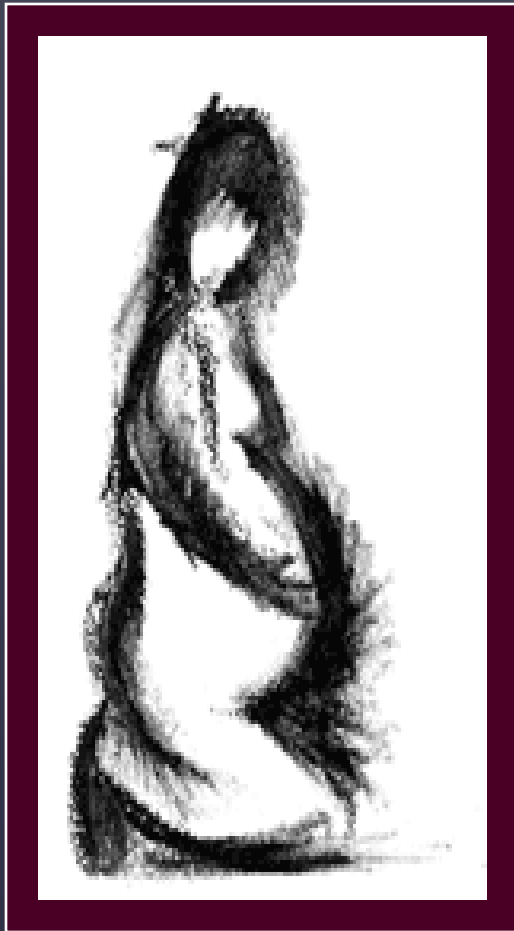


Allostatic Load



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**
- **≥ 18 yrs**
- **≤ 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

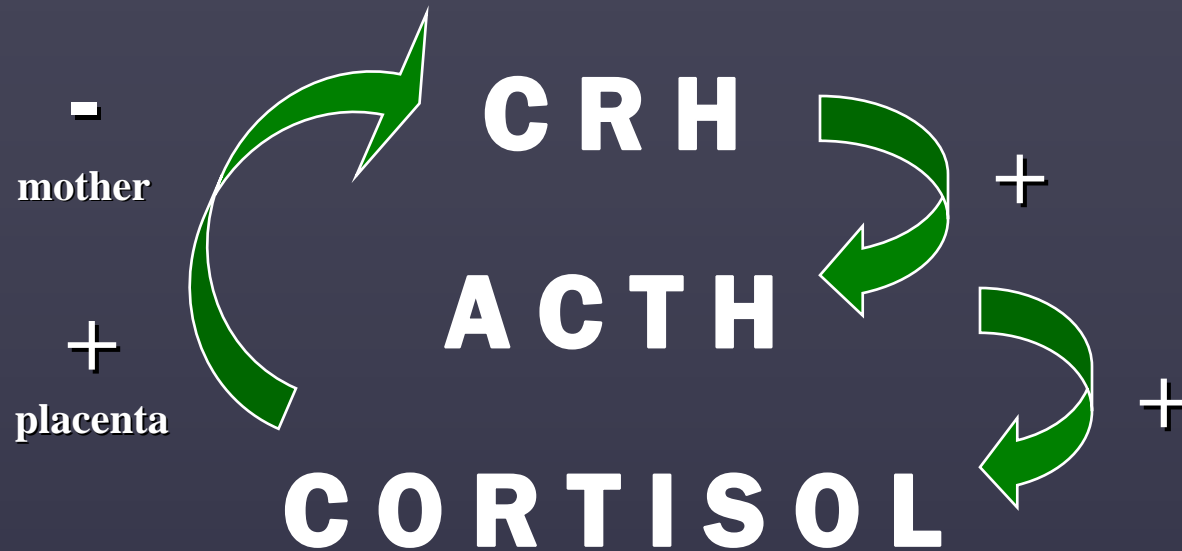
*Racism exposure, particularly
vicarious childhood experiences,
predicts BW and helps to explain racial
differences in BW, controlling for
confounders*



STUDY 2

*Are there physiological
factors that link racism
to birth outcomes?*

Neuroendocrine Variables*



Assayed from blood each trimester

* The neuroendocrine findings are based on preliminary analyses and should not be cited.

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**

* The neuroendocrine findings are based on preliminary analyses and should not be cited.



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*

* The neuroendocrine findings are based on preliminary analyses and should not be cited.



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

<i>AfrAm</i>	<i>API</i>	<i>Latina</i>	<i>White</i>	<i>p-value</i>
72.5%	88.0%	54.3%	40.7%	0.000

Adjusting for sociodemographic differences:

AfrAms, APIs, Latinas differ from Whites

RACISM REPORTS

PERSONAL

<i>AfrAm</i>	<i>API</i>	<i>Latina</i>	<i>White</i>	<i>p-value</i>
58.7%	72.0%	44.3%	27.4%	0.000

Adjusting for sociodemographic differences:

AfrAms, APIs, Latinas differ from Whites

RACISM REPORTS

VICARIOUS

<i>AfrAm</i>	<i>API</i>	<i>Latina</i>	<i>White</i>	<i>p-value</i>
63.0%	60.0%	37.1%	29.9%	0.000

Adjusting for sociodemographic differences:

AfrAms, APIs, Latinas differ from Whites

RACISM REPORTS

AS A CHILD

<i>AfrAm</i>	<i>API</i>	<i>Latina</i>	<i>White</i>	<i>p-value</i>
51.1%	80.0%	40.0%	25.6%	0.000

Adjusting for sociodemographic differences:

APIs differ from Latinas and Whites

RACISM REPORTS

AS AN ADULT

<i>AfrAm</i>	<i>API</i>	<i>Latina</i>	<i>White</i>	<i>p-value</i>
63.0%	60.0%	37.1%	29.9%	0.000

Adjusting for sociodemographic differences:

AfrAms, APIs, Latinas differ from Whites

DISTRESS

**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

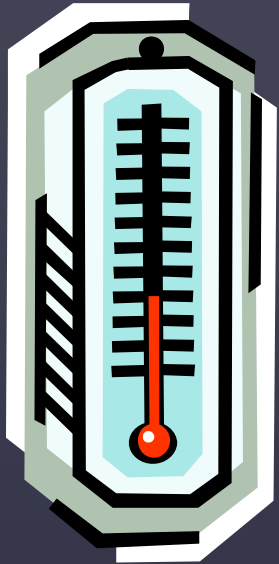
DEPRESSIVE SXS

and fewer

PERSONAL RESOURCES

Racism & Birth Outcomes

Racism only associated
with BW in
AFRICAN AMERICANS



THRESHOLD EFFECT?

WHAT TO DO???



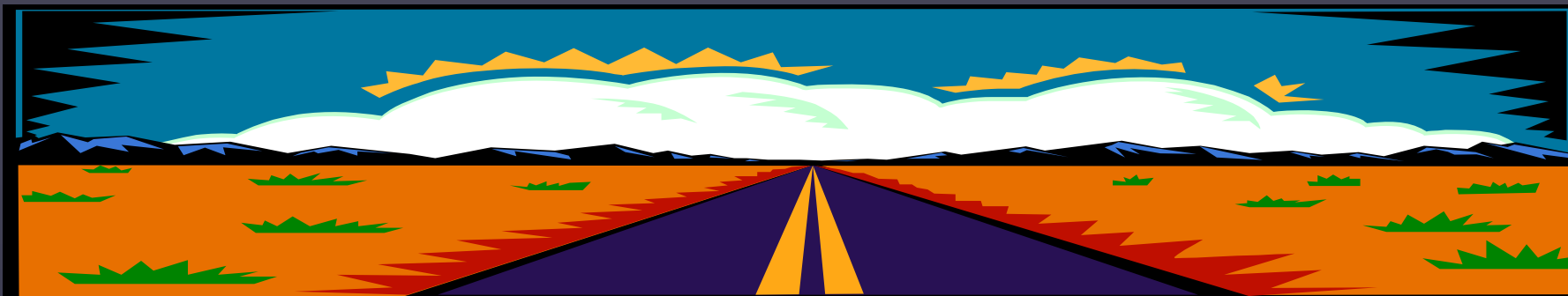
HEALTHY PREGNANCY INTERVENTION

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

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