Risk Factors for Postpartum Depressive Symptoms in Oregon Women:

An Analysis of the PRAMS 2004 Data Set

Marika Wolfe, MS4
Thesis Defense Presentation
March 10, 2008

Why This Topic?

Objective 1

Determine prevalence of postpartum depressive symptoms (PDS) among Oregon women

Objective 2

Determine significant risk factors for PDS in Oregon women

Objective 3

Explore race and ethnicity and income level by subcategories

Presentation Outline

1. Background and Significance

2. Methods

3. Results/Discussion

4. Limitations

5. Future Research/Recommendations

"I was filled with the anxiety … and … grief because my life changed so irrevocably. I was terrified … I was ready to die of grief and the feeling of entrapment…I didn't want her."

"Why do mothers have to pretend … Why does PPD have a certain shame to it... it is, in fact, the most logical manifestation on the face of the earth? … "Labor is a set of contractions/and then a mother is born."

"I always thought I would immediately feel closer to my child than I did to anybody else in my life… What a horrible mother I was!…I felt numb to her crying…My profound detachment made me suffer unbearably… I remember … envisioning myself jumping…the frightening part was that my thoughts felt extremely rational."

Definition

Postpartum Blues: 50% of women

Postpartum Depression: 12-16% of women

Postpartum Psychosis: 0.1% of women

Biological Causes

Declining reproductive hormones:

- **Not clearly established**

- **Challenged by miscarriage, abortion and adoption**

Social and Environmental Risk Factors

- Lower self-esteem
- History of depression before or during pregnancy
- Increased life stress
- Decreased social support
- Difficult marital relationship
- Infant temperament
- Younger age
- Non-White race and ethnicity
- Unplanned or unwanted pregnancy
- Lower education
- Unmarried
- Lower income
- Medicaid recipient
- Overweight or obese women higher risk

Importance of Early recognition

Adverse outcomes for Mother and Child:

- **Depression later on in life**

- **Maternal-infant bonding**

- **Attachment**

- **Social interaction**

- **General cognitive and emotional development**

Difficulties in Recognition

More than 50% of women with PPD are missed:

- Difficult adjustment period
- Minimal doctor contact
- Insufficient physician training or screening of women
- Social stigma

Screening Instruments

Edinburgh Postnatal Depression Scale (EPDS)

- **Self-administered 10 item scale**

- **Assesses women who might be at higher risk**

Who should screen?

Ob/gyn:

- Prenatal care and birth
- *But* minimal contact after delivery

Pediatricians:

- Consistent contact with mother
- *But* limited time, insufficient training
- *But h*ealth insurance referral limitations

Family Doctors:

- Involved in mother and infant care
- Training appropriate
- *But* time barriers

Methods: PRAMS Data

Pregnancy Risk Assessment and Monitoring System

- **Created by CDC**

- **Implemented by 39 states**

- **Maternal experiences before, during and after pregnancy**

- **Survey of 80 questions**

- **Large selection of questions**

- **PRAMS administration process:**
  1. **Pre-letter**
  2. **Full questionnaire, second and third follow-up**
  3. **Phone call follow up**

PRAMS: Sampling Methodology

- **1998: Oregon PRAMS**

- **Depression questions added in 2004**

- **Administered by Office of Family Health, Oregon Dept of Human Services**

- **Stratified random sample of women**

- **Linked to birth certificate data**

PRAMS: Weighting Methodology

Weighted to reflect Oregon Population by three factors:

- **Sampling, six strata:**
  1. **Non-Hispanic White, normal birth weight (>=2500g)**
  2. **Non-Hispanic White, low birth weight (<2500g)**
  3. **Non-Hispanic African American**
  4. **Hispanic**
  5. **Non-Hispanic Asian/Pacific Islander**
  6. **Non-Hispanic American Indian/Alaskan Native**

- **Non-response**

- **Non-coverage**

Outcome Variable: Qualification

- Postpartum depression a clinical diagnosis

- PRAMS: *postpartum depressive symptoms (PDS)*

- Study: Same two questions had similar sensitivity and specificity to longer validated diagnosing tools

- Suggests women experiencing PDS also experience PPD

- For accuracy, outcome is PDS

Outcome Variable: Coding

Outcome variable	Original questions	Collapsed answers	Combined answer
Postpartum Depressive Symptoms	Since your new baby was born, how often did you feel down, depressed, or hopeless? Since your new baby was born, how often have you had little interest or little pleasure in doing things?	Yes=Always, often No=Sometimes, rarely, never Yes=Always, often No=Sometimes, rarely, never	Yes=yes to both or either question No=No to both

Methods: Statistical Analysis

- Tools: STATA Version 8.2

- Steps:

  1. Descriptive Statistics

  2. Logistic Regression:
     a) Bivariate
     b) Multivariate

  3. Analysis:
     a) race/ethnicity
     b) income subcategories

Methods: Data Management

Independent variables:

- **Risk factors in prior literature**

- **Additional variables of interest**
    - **Dental care**
    - **Partner related stress**
    - **Behavioral**

- **Recoded into binary variables**

Initial Model: Independent Variables

Demographic variables:

- **Mother's race/ethnicity**

- **Income**

- **Mother's age**

- **Medicaid recipient**

- **Marital Status**

- **Education Level**

- **WIC status**

- **Birth-place**

- *Urban/rural location*

Initial Model: Independent Variables

Characteristic and behavioral variables:

- **Mother's BMI**

- **Prenatal Stress (Partner-related, Emotional, Financial, Traumatic)**

- **Physical abuse Pregnancy intention**

- **Insufficient Dental Care**

- *Exercise*

- *Breastfeeding*

- *Previous live births, terminations, and pregnancy losses*

- *Maternal smoking and alcohol use*

- *Prenatal care*

Race/Ethnicity & Income: Subcategories

Race/Ethnicity:

- **Non-Hispanic (NH) White (referent)**
- **Hispanic**
- **NH Black**
- **NH American Indian**
- **NH Asian/Pacific Islander**

Income (% Federal Poverty Level for 2004):

- **0-49**
- **50-99**
- **100-199**
- **200-299**
- **300+ (referent)**

Objective 1 Results: PDS Prevalence

Risk Factor	PDS Prevalence	% difference
Overall	13.2%	N/A
Unmarried	18.9	+8.5
Age < or = 24	17.2	+6.4
Education <12 years	19.6	+7.9
WIC enrolled	17.9	+8.1
Medicaid Recipient	26.1	+14.6
Mistimed pregnancy Unwanted pregnancy	13.6 25.6	+3.3 +15.3
Physical abuse during pregnancy	40.8	+28.2
Mother's >= 25m/kg	16.9	+7
Maternal Smoking	16.9	+4.3
Maternal Alcohol Use	24.8	+11.7

Objective 1 Results: PDS Prevalence

| Risk Factor	PDS Prevalence (% weighted)	% difference
Race and Ethnicity		
Non-Hispanic White	11.5	Referent
Hispanic	17.4	+5.9
Non-Hispanic Black	21.6	+10.1
Non-Hispanic AI	20.9	+9.4
Non-Hispanic A/PI	15.8	+4.3
Income (% FPL)		
300+	7.1	Referent
200-299	13.5	+6.4
100-199	14.0	+6.9
50-99	14.3	+7.2
0-49	23.8	+16.7

Discussion: Objective 1

Prevalence

- **OR: 13.2%**
- **Similar to prior studies: 12-16%**

Trend for race and ethnicities and income similar

Objective 2 Results : Risk Factors

Risk Factors	Multivariate OR (95% CI)
Race/Ethnicity Non-Hispanic White Non-White	 **Referent** **1.17 (1.03, 1.33)**
Mother BMI <25 m/kg2 > = 25 m/kg2	 **Referent** **1.70 (1.07, 2.70)**
Partner-related stress No Yes	 **Referent** **3.44 (2.14, 5.54)**
Income (%FPL) >Or = 300 <300	 **Referent** **1.28 (1.10, 1.48)**
Insufficient Dental Care No Yes	 **Referent** **1.93 (1.08, 3.45)**
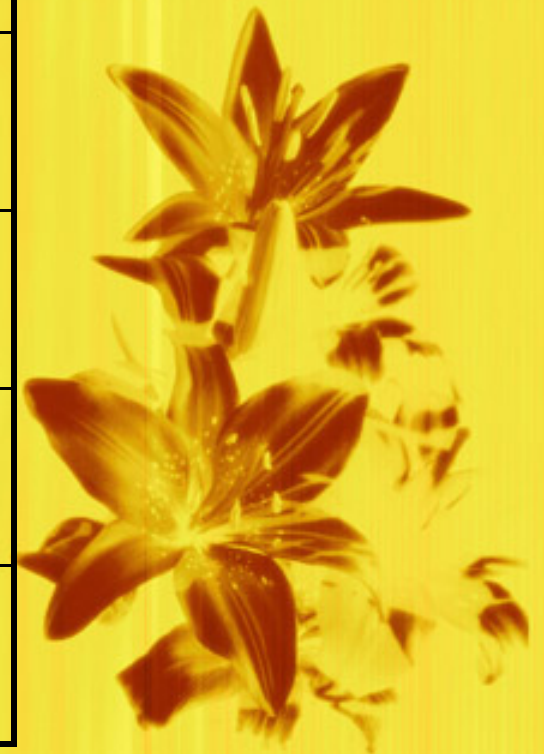
Discussion: Objective 2 (Not Surprising)

Mother's BMI:

- **Odds ratio 1.70 (1.07, 2.70)**
- **Similar to Utah PRAMS study results**
  a) **Negative body image**
  b) **Lower self-esteem**

Partner-related prenatal stress:

- **No direct evaluation in prior studies**
  a) **Social support**
  b) **Father involvement**
  c) **Physical abuse**
- **Partner role important**

Discussion: Objective 2 (Surprising)

Insufficient Dental Care

- Nearly 2-fold increased risk OR 1.93 (1.08, 3.45)

- Difficult relationship to elucidate
  a) May be proxy variable
  b) Clinical reasons that this is important?

Objective 3 Results : Race/ethnicity & Income

Risk Factor	Multivariate OR (95% CI)
Income (%FPL) > = 300+ 200-299 100-199 50-99 0-49	Referent 2.03 (0.91, 4.57) 1.83 (0.89, 3.79) 2.15 (0.98, 4.69) **3.01 (1.53, 5.93)**
Race and ethnicity Non-Hispanic White Hispanic NH Black NH American Indian NH Asian/Pacific Islander	Referent 1.34 (0.81, 2.23) 1.54 (0.91, 2.60) 1.45 (0.87, 2.43) **1.90 (1.16, 3.13)**
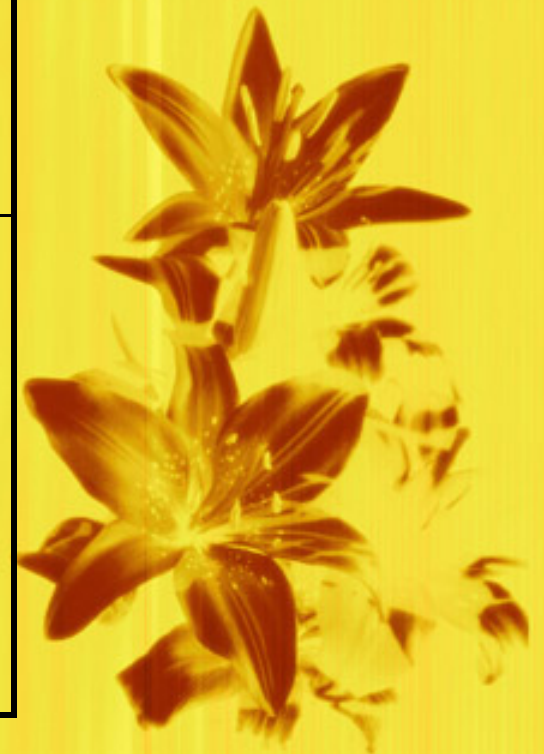
Discussion: Race and ethnicity

Hispanic, NH Black, NH American Indian:

- Not statistically significant

- Limited studies on race/ethnicity, most focused on Black and Hispanic women

- Findings consistent with other studies

Asian/Pacific Islander:

- Statistically significant

- Nearly two fold increase in risk

- Very few studies to compare

Asian/Pacific Islander Risk?

- **Cultural differences:**
  a) **Immigration (77.8% foreign nativity)**
  b) **Acculturation**
- **Perception of mental health**
- **Symptom interpretation**
- **Expectations of motherhood**
- **Family relations**
- **Not enough support upon immigration to U.S.**
- **Cultural traditions of motherhood**
- **Other unidentified cultural factors**

Conclusions

- **Prevalence: Oregon similar to prior studies**

- **Unsurprising significant risk factors:**
    a) **Mother's BMI**
    b) **Partner-related Stress**
    c) **Lower income level**

- **Surprising Significant risk factors:**
    a) **Insufficient Dental Care**
    b) **Asian/Pacific Islander women**

Future Research & Recommendations

- Screening and training (including cultural competence)

- Address social stigma

- Validate with another year's data

- Asian/Pacific Islander subgroups (i.e. foreign vs native)

- Interactions between race/ethnicity, nativity, and income

- Other cultural risk factors

- The role of Oregon weather and SAD
    a) Fall 12.2%
    b) Winter 17%
    c) Spring 11.5%
    d) Summer 12.7%

- Fathers and PDS

Study Limitations

- **Information bias**

- **Recall bias**

- **Timing of survey**

- **Cross-sectional Study**

- **Asian/Pacific Islander women broad group**

Acknowledgements

Committee:
>	Ken Rosenburg
>	Annette Adams
>	Jennifer Wisdom
>	Jodi Lapidus

Office of Family Health
>	Al Sandoval

MD/MPH Support faculty:
>	Katie Riley
>	John Stull

MPH cohort and friends (thanks for pictures!)

Hadley

Mom

Most of all, Peter