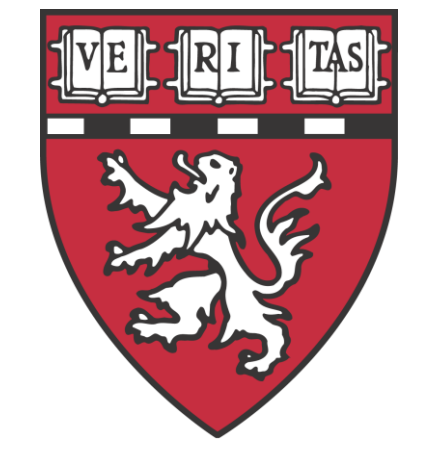


# EARLY BREASTFEEDING EXPERIENCE AND POSTPARTUM DEPRESSION: A LONGITUDINAL STUDY



Stephanie Watkins MSPH, MSPT <sup>1\*</sup>; Samantha Meltzer-Brody MD, MPH <sup>2</sup>; Denniz Zolnoun MD, MPH <sup>2</sup>; Alison Stuebe MD, MSc <sup>2</sup>  
Gillings School of Global Public Health <sup>1</sup> and School of Medicine <sup>2</sup>, University of North Carolina

## ABSTRACT

**Objective:** We measured the association between early breastfeeding experience and maternal mood at two months postpartum.

**Methods:** We used logistic regression to evaluate the association between early breastfeeding experience and maternal mood, quantified with the Edinburgh Postnatal Depression Scale (EPDS), among women who initiated breastfeeding in the Infant Feeding Practices Survey II. Women reported their early breastfeeding experiences at 1 month, and they completed the EPDS at 2 months.

**Results:** In the neonatal period, 2586 women reported ever breastfeeding, among whom 223 (8.6%) met criteria for major depression (EPDS  $\geq 13$ ) at 2 months postpartum. Women who reported disliking breastfeeding in the first week were more likely to meet criteria for major depression at 2 months (OR 1.42, 95% CI 1.04-1.93), adjusting for maternal age, parity, education, ethnicity, and postnatal WIC participation. We also found that women who were depressed were more likely to report severe breastfeeding pain in the first day (adjusted OR 1.96, 95% CI 1.17-3.29, vs. no pain), the first week, (adjusted OR 2.13, 95% CI 0.74-6.15, vs no pain), and in the second week (adjusted OR 2.24, 95% CI 1.18-4.26, vs. no pain).

**Conclusions:** Women who disliked breastfeeding or experienced severe pain in the neonatal period were more likely to have depressive symptoms at 2 months postpartum. Early breastfeeding difficulties may identify a subgroup of women at high risk for postpartum depression.

## INTRODUCTION

Approximately 10% of mothers develop perinatal depression, leading to substantial morbidity for mother and child. Curtailed breastfeeding is also common: all major medical organizations recommend exclusive breastfeeding for the first six months of life, but only 14% of US women achieve this recommendation. **We hypothesized that early breastfeeding difficulties would be associated with an increased risk of perinatal depression.** The purpose of this study was to estimate the association between early breastfeeding experiences in the neonatal period and post partum depression at two months in a cohort of women who initiated breastfeeding.

## METHODS

**Study Population: 4,900 healthy pregnant women enrolled in the Infant Feeding and Practices Study II (IFPSII) cohort**

- Women were identified from a national consumer opinion panel of 500,000 US households and followed prospectively between May 2005 and June 2007 from seven months gestation through the child's first year of life
- Cohort: healthy mothers  $\geq 18$  years old during the prenatal questionnaire, healthy full term or near full term singleton, birthweight  $\geq 5$  lbs, no illness likely to affect feeding, ever breastfed
- Study population is not nationally representative of the US population

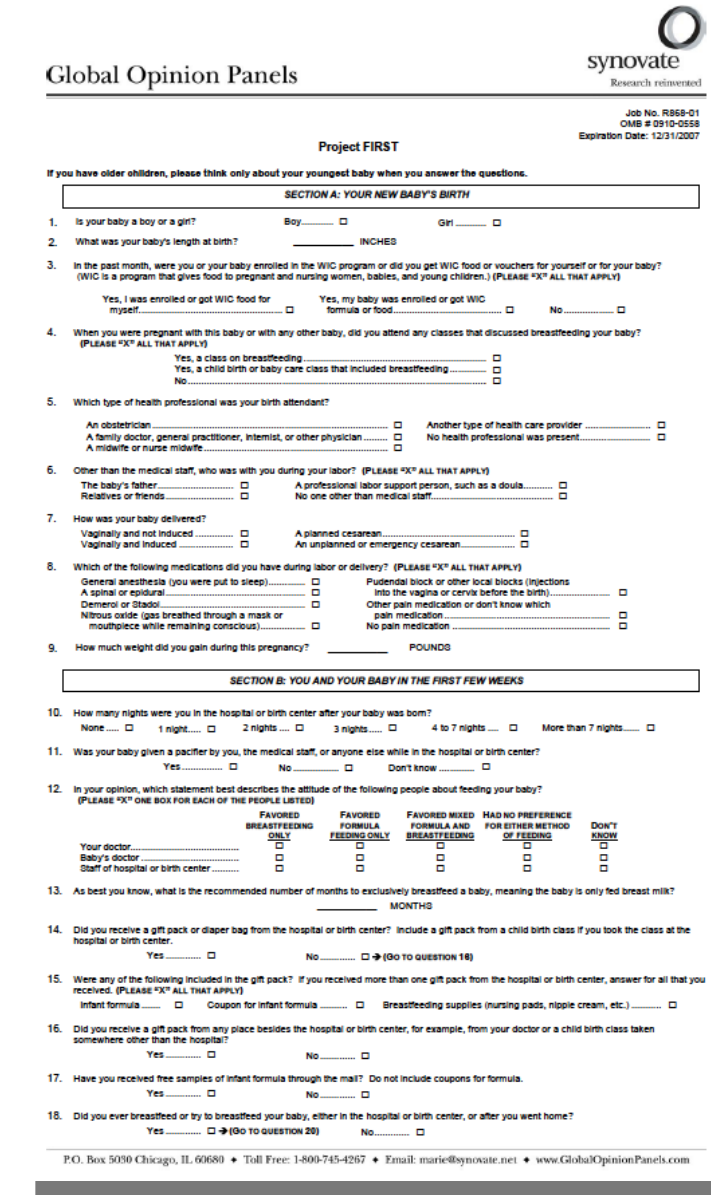
## METHODS

**Data Collection: Self report questionnaire between late pregnancy and 12 months post partum**

- Questionnaires:** Prenatal in 3<sup>rd</sup> trimester, Neonatal at 3 wks of age, Postnatal monthly between 2-7 months post-partum and every 7<sup>th</sup> week between 7-12 months post-partum
- Edinburgh Postnatal Depression Scale (EPDS)** administered at two months post partum. A cut off score  $\geq 13$  defined major depression.<sup>1</sup> Sensitivity (75%), Specificity (84%)<sup>2</sup>
- Covariates:** Household size, marital status, race/ethnicity, maternal age, parity, education, employment status, maternal occupation, and postnatal WIC participation. Data taken from national opinion panel and prenatal questionnaire

**Data Analysis**

- Complete case analysis using logistic regression
- Maternal age and breast pain modeled as categorical variables
- Linearity assumption met for ordinal variables



## RESULTS

**Demographic characteristics among 2,586 women who initiated breastfeeding in IFPS II**

|                | Major Depression* (N=223) | Not Depressed* (N=1965) |
|----------------|---------------------------|-------------------------|
| Postnatal WIC  |                           |                         |
| Yes            | 99 (44.39)                | 693 (35.27)             |
| Missing        |                           |                         |
| Household Size |                           |                         |
| 1 to 2         | 62 (27.80)                | 549 (27.94)             |
| 3 to 4         | 124 (55.61)               | 1139 (57.96)            |
| 5+             | 37 (16.59)                | 277 (14.10)             |
| Missing        |                           |                         |
| Marital Status |                           |                         |
| Married        | 153 (68.61)               | 1530 (77.86)            |
| Missing        | 21 (9.42)                 | 99 (5.04)               |
| Race Ethnicity |                           |                         |
| White          | 178 (79.82)               | 1628 (82.85)            |
| Black          | 8 (3.59)                  | 77 (3.92)               |
| Hispanic       | 15 (6.73)                 | 126 (6.41)              |
| Other          | 11 (4.93)                 | 92 (4.68)               |
| Missing        | 11 (4.93)                 | 42 (2.14)               |

## RESULTS

**Demographic characteristics among 2,586 women who initiated breastfeeding in IFPS II**

|                       | Major Depression* (N=223) | Not Depressed* (N=1965) |
|-----------------------|---------------------------|-------------------------|
| Maternal Age          |                           |                         |
| 18 to <24             | 54 (24.22)                | 508 (25.85)             |
| 24 to < 28            | 52 (23.32)                | 285 (14.50)             |
| 28 to < 32            | 58 (26.01)                | 541 (27.53)             |
| 32+                   | 58 (26.01)                | 631 (32.11)             |
| Missing               | 1 (0.45)                  | 0                       |
| Parity                |                           |                         |
| 0                     | 70 (31.39)                | 585 (29.77)             |
| 1                     | 92 (41.26)                | 762 (38.78)             |
| 2                     | 42 (18.83)                | 371 (18.88)             |
| 3+                    | 17 (7.62)                 | 208 (10.59)             |
| Missing               | 2 (0.90)                  | 39 (1.98)               |
| Education             |                           |                         |
| < High School         | 10 (4.48)                 | 39 (1.98)               |
| High School           | 34 (15.25)                | 276 (14.05)             |
| 1 to 3 years college  | 85 (38.12)                | 733 (37.30)             |
| College/Post Graduate | 71 (31.84)                | 809 (41.17)             |
| Missing               | 23 (10.31)                | 108 (5.50)              |
| Employment Status     |                           |                         |
| Employed Full Time    | 56 (25.11)                | 609 (30.99)             |
| Employed Part Time    | 23 (10.31)                | 218 (11.09)             |
| Full Time Homemaker   | 69 (30.94)                | 625 (31.81)             |
| Other                 | 29 (13.00)                | 275 (13.99)             |
| Missing               | 46 (20.63)                | 238 (12.11)             |

Missing depression status on 15.39% of cohort

**Severe pain on day 1 and at week 2 was associated with an increased risk of postpartum depression.**

| Breastfeeding Pain | Day 1       |                   | Week 1 |           | Week 2      |                   |
|--------------------|-------------|-------------------|--------|-----------|-------------|-------------------|
|                    | OR          | 95% CI            | OR     | 95% CI    | OR          | 95% CI            |
| No Pain            | 1.0         | -                 | 1.0    | -         | 1.0         | -                 |
| Mild Pain          | 0.81        | 0.49,1.33         | 0.60   | 0.19,1.86 | 1.18        | 0.64,2.18         |
| Moderate Pain      | 1.35        | 0.82,2.20         | 1.22   | 0.42,3.54 | 1.85        | 1.00,3.41         |
| Severe Pain        | <b>1.96</b> | <b>1.17,3.29*</b> | 2.13   | 0.74,6.15 | <b>2.24</b> | <b>1.18,4.26*</b> |

Crude estimates were similar to adjusted estimates. Models adjusted for maternal age, parity, education, ethnicity, and postnatal WIC participation.  
\* p=0.01

## RESULTS

**Disliking breastfeeding at week 1 postpartum was associated with an increased risk of depression**

|                                                | Crude Analysis | 95% CI    | Adjusted Analysis* | 95% CI           |
|------------------------------------------------|----------------|-----------|--------------------|------------------|
| Feelings about breastfeeding in the first week |                |           |                    |                  |
| Like Breastfeeding                             | 1.0            | -         | 1.0                | -                |
| Dislike Breastfeeding                          | 1.49           | 1.12,1.98 | <b>1.42*</b>       | <b>1.04,1.93</b> |

**Assistance with breastfeeding, information on support groups, and time until a woman's milk came in were not associated with depression**

|                                                   | Crude Analysis | 95% CI    | Adjusted Analysis* | 95% CI    |
|---------------------------------------------------|----------------|-----------|--------------------|-----------|
| Received help with breast-feeding in the hospital |                |           |                    |           |
| No                                                | 1.0            | -         | 1.0                | -         |
| Yes                                               | 1.11           | 0.80,1.53 | 1.13               | 0.78,1.64 |
| Received breastfeeding support information        |                |           |                    |           |
| No                                                | 1.0            | -         | 1.0                | -         |
| Yes                                               | 0.82           | 0.61,1.10 | 0.87               | 0.63,1.20 |
| Time Until Milk                                   |                |           |                    |           |
| 3 days                                            | 1.0            | -         | 1.0                | -         |
| 1 day                                             | 1.48           | 0.94,2.32 | 1.30               | 0.78,2.15 |
| 2 days                                            | 1.07           | 0.75,1.51 | 0.99               | 0.68,1.43 |
| 4 days                                            | 0.81           | 0.51,1.28 | 0.68               | 0.41,1.12 |
| 5+ days                                           | 1.35           | 0.81,2.21 | 1.10               | 0.63,1.92 |

\*Models adjusted for maternal age, parity, education, ethnicity, and postnatal WIC participation.

## CONCLUSION

- Severe pain and dislike of breastfeeding in the early postnatal period were associated with postpartum depression, independent of sociodemographic risk factors
- Breastfeeding support in the hospital was not associated with postpartum depression symptoms.
- Women experiencing early breastfeeding difficulties should be screened for postpartum depression.