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Disparities in Breastfeeding Outcomes Among Women with Opioid Use Disorder

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Increased prevalence of opioid use disorder (OUD) in pregnancy (1) underlines the importance of optimizing outcomes. Prior studies demonstrate benefits of breastfeeding for mothers with OUD and may reduce the severity of Neonatal Opioid Withdrawal Syndrome (NOWS) in infants (2). Only low levels of methadone and buprenorphine are transferred to breast milk (3).

However, there are demonstrated breastfeeding disparities in women with a history of substance use disorders. In the U.S., 83.2% of women initiate breastfeeding and 57.6% of women continue breastfeeding to 6 months postpartum according to the Centers for Disease Control. Hospitals that actively support breastfeeding can now be endorsed by The Baby-Friendly[®] Hospital Initiative. The aim of this secondary analysis was to compare breastfeeding outcomes between women undergoing treatment for OUD and abstaining controls who delivered at a Baby Friendly[®] Hospital in New Mexico (NM).

Pregnant women were recruited for the ENRICH study (4). The study was approved by the university Institutional Review Board in accordance with the Declaration of Helsinki. Study participants were classified into two groups: 1) Abstaining controls and 2) OUD with or without prenatal alcohol exposure (PAE) and were followed-up at delivery and 6 months postpartum. Abstaining controls were recruited from university-affiliated prenatal clinics. Women with OUD were recruited from the university Milagro clinic which treats women with SUD. During prenatal care, Milagro clinicians emphasize the importance of

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breastfeeding as a non-pharmacologic approach to treat newborns at-risk of NOWS. All patients delivered at the same Baby-Friendly® hospital.

Initiation of breastfeeding was assessed at 6 months postpartum through a maternal questionnaire asking if she ever breastfed or provided pumped breastmilk to the infant enrolled in the study. Continued breastfeeding at 6 months postpartum was assessed by asking if she continued to breastfeed or provided pumped milk to the infant, alone or in combination with formula or food, vs. no breastfeeding.

Infant hospital length of stay and gestational age at delivery were obtained from medical records. Pregnancy planning, parity, maternal race/ethnicity, insurance type and enrollment in the supplemental nutrition program for Women, Infants and Children (WIC) were collected via questionnaire.

All statistical analyses were conducted in STATA 14.2 (StataCorp, 2013, College Station, TX). Demographic, health and birth outcome variables were compared between groups using a t-test or rank-sum-test for continuous variables and chi-square or Fisher exact tests for categorical variables. Associations between the study group, demographic and health factors and continued breastfeeding at the 6-month evaluation were assessed using logistic regression (univariate model). The following predictors were examined: socioeconomic status (SES), infant hospital length of stay, planned pregnancy, WIC enrollment, insurance type, gestational age at birth, parity, and ethnicity (full model). Backward elimination included study group, insurance type, total SES, and gestational age at delivery as covariates. Collinearity was examined by evaluating the standard errors of the odds ratio estimates and the correlation matrix. A parsimonious final model included study group and total SES. Hosmer-Lemeshow's test indicated a good fit ($p=0.26$).

Participant characteristics are presented in Table 1. Significant differences between control and OUD groups were observed for SES score (35.2 vs. 28.5, respectively; $p<0.01$), planned pregnancy (61.1% vs. 25.6%, $p<0.01$), and insurance type (% on Medicaid/no insurance: 58.3% vs. 95.4%, $p<0.001$).

Approximately 97% of abstaining controls initiated breastfeeding compared to 82% in the OUD group ($p=0.06$). At 6 months postpartum, 53% of abstaining controls reported continued breastfeeding compared to 23% in the OUD group ($p<0.01$). Duration of infant hospital stay (control: 3.7 vs. OUD: 13.2 days, $p<0.001$) and WIC utilization (control: 45.5% vs. OUD: 97.4%, $p<0.001$) were both significantly different between groups. Within the OUD group, there was no difference in the breastfeeding rates between women who reported alcohol use in pregnancy vs. abstainers ($p=0.728$) or those who used tobacco vs. no tobacco ($p=1.000$).

In the univariate model, study group (OR: 3.70, 95% CI: 1.41–9.67), SES (OR: 0.7, 95% CI: 0.55–0.98), and Medicaid coverage (OR: 6.4, 95% CI: 1.95–20.74) were significant predictors of no breastfeeding at 6 months. The logistic regression model included study group (OR: 3.1, 95% CI: 1.07–8.75 for OUD vs. controls) and SES (OR: 0.8, 95% CI: 0.59–0.99 for increment of 5) as independent predictors of no breastfeeding at 6 months.

This study indicates a persistent disparity in breastfeeding outcomes in women with OUD (81.6% initiate and 23% at 6 months) relative to controls (97% initiate and 53% at 6 months), consistent with prior reports (5). However, the percentage of women who initiate breastfeeding in this Baby Friendly® hospital nearly meets (OUD group) or exceeds (abstaining controls) the national Healthy People 2020 target of 81.9%. This success rate may be related to the Baby Friendly® designation, emerging acceptance of breastfeeding in women with OUD, and the high representation of Hispanic women (~60%). However, breastfeeding rates at 6 months postpartum fall short of the Healthy People 2020 target of 60%, with a larger deficit among women with OUD. This emphasizes the need for breastfeeding support beyond the hospital stay with targeted support for women with OUD.

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Table 1:

Participant characteristics by study group

	Controls (n=36)	OUD (n=43)	p-value ^a
	Mean ± S.D.	Mean ± S.D.	
Maternal age (years)	26.8 ± 5.7	28.2 ± 5.1	0.26
SES score ^b	35.2 ± 12.2	28.5 ± 7.7	<0.01
Gestational age at delivery	39.2 ± 1.3	38.7 ± 2.2	0.3
Duration of infant hospital stay (days)	3.7 ± 3.0	13.2 ± 13.8	<0.001 ^c
	N (%)	N (%)	
Initiated breastfeeding	31 (96.9)	31 (81.6)	0.063
Any breastfeeding at 6 months	19 (52.8)	10 (23.3)	<0.01
Exclusive breastfeeding at 6 months	10 (27.8)	6 (14.0)	0.13
Planned pregnancy	22 (61.1)	11 (25.6)	<0.01
Pre-pregnancy BMI (Kg/m ²)			0.36
Underweight (BMI<18.5)	3 (8.3)	4 (9.3)	
Normal (BMI 18.4–24.9)	15 (41.7)	25 (58.1)	
Overweight (BMI 25.0–29.9)	9 (25.0)	9 (20.9)	
Obese (BMI ≥ 30)	9 (25.0)	5 (11.6)	
Parity (primigravida)	15 (41.7)	10 (23.3)	0.08
Mode of delivery: C-section	9 (25.0)	11 (25.6)	0.95
Preterm delivery (<37 weeks)	3 (8.3)	5 (11.6)	0.72 ^d
WIC utilization	15 (45.5)	37 (97.4)	<0.001
Insurance (Medicaid/no insurance)	21 (58.3)	41 (95.4)	<0.001
Ethnicity: Hispanic	23 (63.9)	30 (69.8)	0.58

Abbreviations: OUD - opioid use disorder, S.D. – standard deviation, SES – socioeconomic status, BMI – Body mass index, C-section – Caesarean section, WIC - supplemental nutrition program for Women, Infants and Children

^a Comparing Controls vs. OUD groups using a t-test, rank-sum or Fisher's exact test, as appropriate.

^b SES score calculated by Barratt Simplified Measure of Social Status (BSMSS)

^c Rank-sum test

^d Fisher exact test