

Pre-pregnancy obesity associated with lower odds of meeting breastfeeding recommendations when controlling for prenatal intentions

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Background

- The CDC recommends¹
 - Exclusive breastfeeding (EBF) to 6 months
 - Continued breastfeeding (BF) ≥ 1 year
- Maternal obesity has been associated with reduced duration of EBF and BF²
 - Few studies included degree of obesity
 - Few studies included prenatal BF intentions
 - May be confounded by race, income, education
- We compared BF intentions, initiation rates, achievement of prenatal BF recommendations, and BF duration by pre-pregnancy BMI category controlling for maternal race, income, education, intention

Methods

The PREVAIL Cohort³ (n=245) is a CDC-sponsored, 2-year prospective birth cohort of healthy, term, singleton infants in Cincinnati, OH

Data Collection (April 2017 - October 2020)

- Prenatal (3rd trimester) enrollment visit
 - Socio-demographics
 - Pre-pregnancy weight and height
 - Intention to EBF to 6 months⁴
 - Strongly or somewhat agree=positive intention
 - Neutral or disagree=no intention
- BMI categorized as not overweight (<25), overweight (25-29.9), obesity 1 (30-34.9), and obesity 2+ (≥35)
- Breastfeeding initiation, exclusivity, and duration collected during postnatal quarterly study surveys

Statistical Analysis

- Fisher exact test compared demographics, EBF intention, and initiation proportions
- Logistic regression compared adjusted odds (aOR) of EBF to 6 months and BF to 1 year
 - Adjusted for maternal race, education, and family income, stratified intention
 - Not overweight BMI, reference
- Restricted mean survival time compared duration of BF by BMI category controlling for race, education, income, and intention
- All analysis performed using R Statistical Environment⁵

References

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Table 1: Study characteristics and breastfeeding behaviors by pre-pregnancy BMI category

		not overweight	overweight	obesity 1	obesity 2+	Totals	p
		n = 90	n = 55	n = 43	n = 57	N = 245	
Maternal Age	Years, (med (IQR))	29.5 (25.9, 32.5)	30.7 (24.4, 33.9)	30.1 (28.0, 35.7)	28.9 (25.3, 33.2)	29.6 (25.8, 32.2)	0.37
Race	Black	25 (27.8%)	18 (32.7%)	24 (55.8%)	40 (70.2%)	107 (43.7%)	<0.001
	Not Black	65 (72.2%)	37 (67.3%)	19 (44.2%)	17 (29.8%)	138 (56.3%)	
Ethnicity	Not Hispanic	86 (95.6%)	53 (96.4%)	43 (100%)	57 (100%)	239 (97.6%)	0.25
	Hispanic	4 (4.4%)	2 (3.6%)	0 (0%)	0 (0%)	6 (2.4%)	
Married	Yes	49 (54.4%)	34 (61.8%)	20 (46.5%)	15 (26.3%)	118 (48.2%)	<0.001
	No	41 (45.6%)	21 (38.2%)	23 (53.5%)	42 (73.7%)	127 (51.8%)	
Lives with partner	Yes	66 (73.3%)	37 (67.3%)	29 (67.4%)	30 (52.6%)	162 (66.1%)	0.08
	No	24 (26.7%)	18 (32.7%)	14 (32.6%)	27 (47.4%)	83 (33.9%)	
Annual family income	>\$50,000	53 (58.9%)	29 (52.7%)	23 (53.5%)	13 (22.8%)	118 (48.2%)	<0.001
	≤\$50,000	37 (41.1%)	26 (47.3%)	20 (46.5%)	44 (77.2%)	127 (51.8%)	
Insurance	Private	47 (52.2%)	30 (54.5%)	18 (41.9%)	11 (19.3%)	106 (43.3%)	<0.001
	Public	43 (47.8%)	25 (45.5%)	25 (58.1%)	46 (80.7%)	139 (56.7%)	
Education	>HS	53 (41.1%)	28 (50.9%)	24 (55.8%)	25 (43.9%)	130 (53.0%)	0.34
	≤HS	37 (58.9%)	27 (49.1%)	19 (44.2%)	32 (56.1%)	115 (47.0%)	
Intention to EBF to 6 months	Strongly agree	30 (33.3%)	17 (30.9%)	19 (44.2%)	15 (26.3%)	81 (33.1%)	0.20
	Somewhat agree	22 (24.4%)	8 (14.5%)	10 (23.3%)	10 (17.5%)	50 (20.4%)	
	Neutral or disagree	38 (42.2%)	30 (54.5%)	14 (32.6%)	32 (56.1%)	114 (46.5%)	
Initiated breastfeeding	Yes	80 (88.9%)	47 (85.5%)	37 (86.0%)	48 (84.2%)	212 (86.5%)	0.83
	No	10 (11.1%)	8 (14.5%)	6 (14.0%)	9 (15.8%)	33 (13.5%)	

Figure 1: Adjusted odds of meeting BF and EBF recommendations
Not overweight BMI, reference; Adjusted for race, education, income

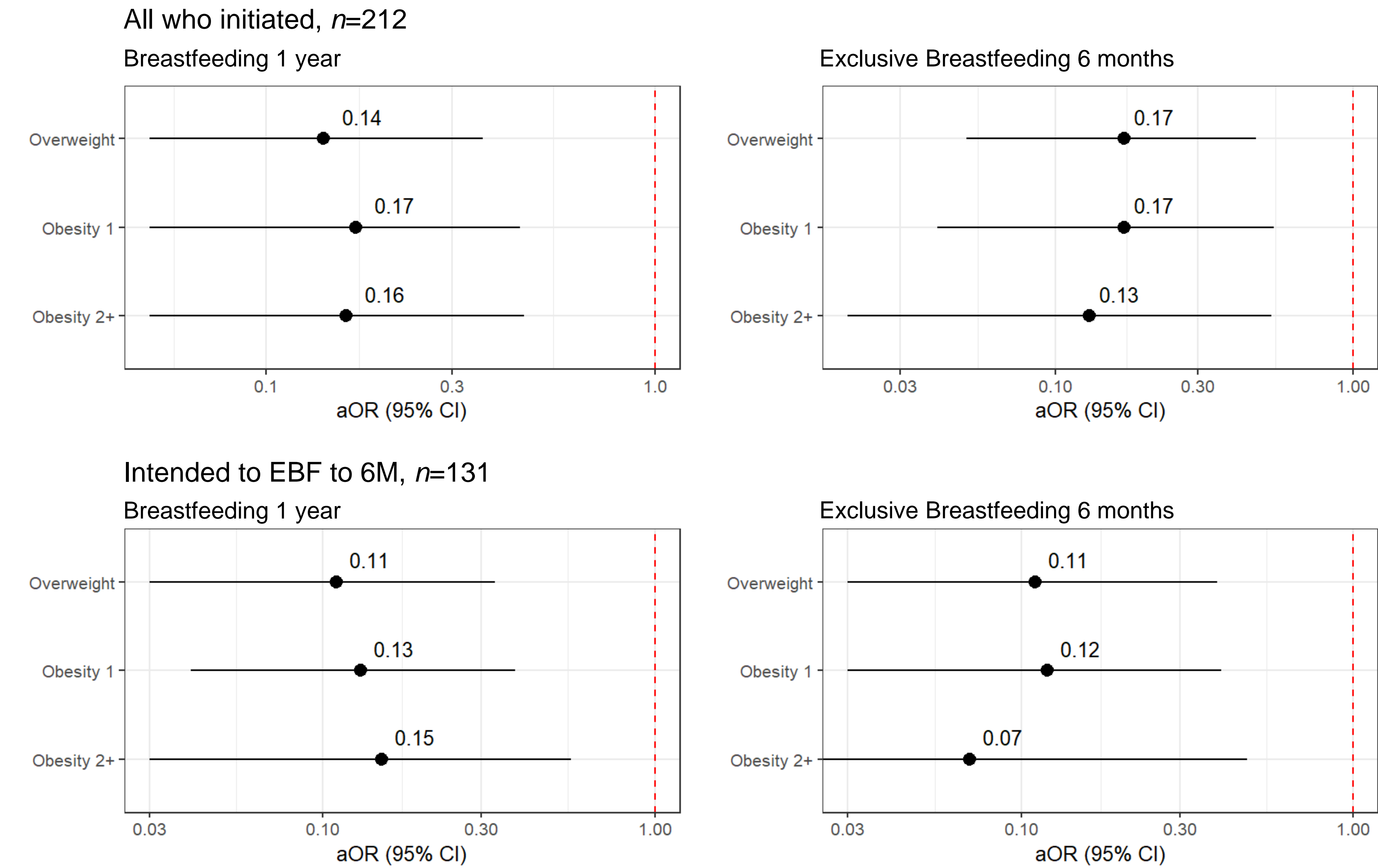
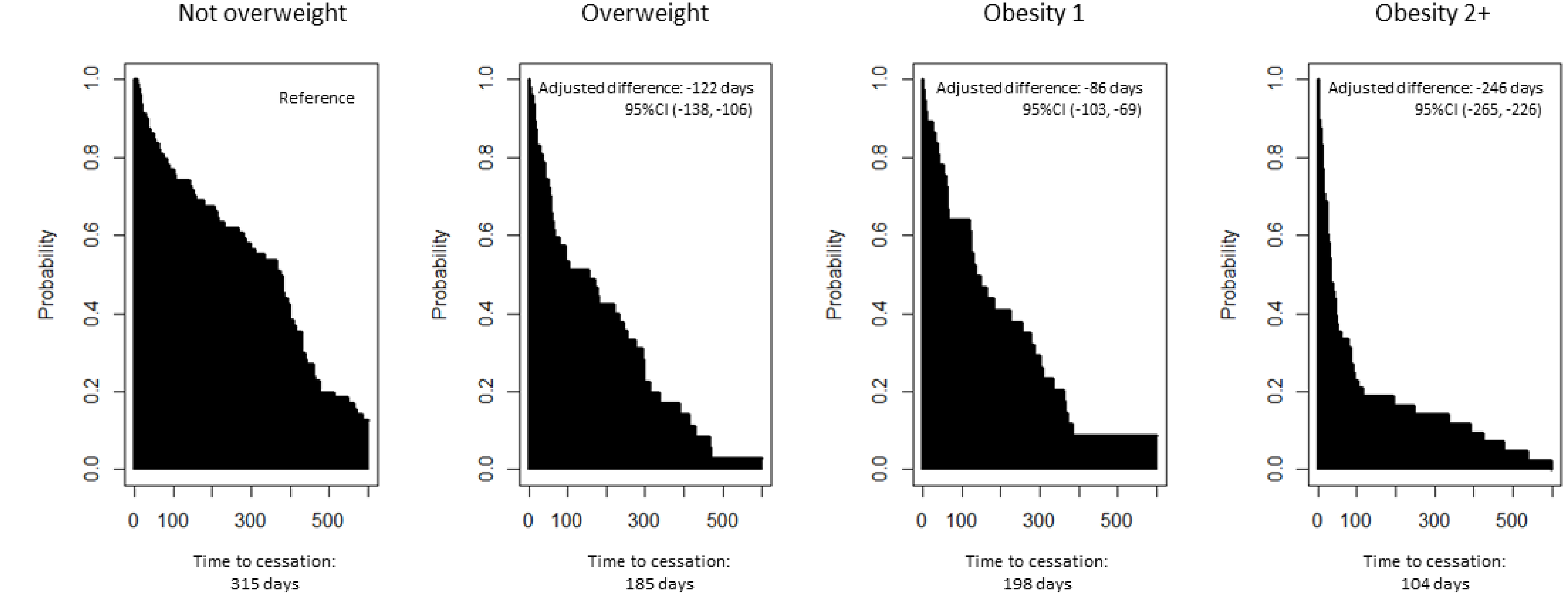


Figure 2: Survival models for duration of breastfeeding by pre-pregnancy BMI category
Adjusted for race, education, income, and intention to EBF to 6 months



Results

High rates of obesity, low rates of achieving recommendations (table 1)

- Obesity prevalence was 41% (n=100)
 - 23% (n=57) met obesity 2+ criteria
- Proportions by race & income significantly different between not overweight & obesity 2+ categories
- No differences in prenatal intention strength, initiation rates
- Overall low rates of meeting recommendations:
 - 22% (n=55) met BF
 - 17% (n=41) met EBF

Intention to EBF to 6M increased odds of EBF to 6M

- aOR 7.94 (95%CI 2.7, 29.8)

Compared to those with BMI<25, mothers with BMI≥25

- Lower odds of meeting EBF or BF recommendations (figure 1)
- Provided BF for fewer days (figure 2) when controlling for demographics & intention

Discussion

Despite no differences in prenatal EBF intention or BF initiation, mothers with BMI ≥ 25:

- Met recommendations at lower rates than BMI <25
- BF shorter duration than BMI <25
- BMI categories ≥ 25 did not differ from each other
- Causes: Metabolic differences? Social barriers?

Mothers with obesity 2+ were far less likely than those with BMI<25 to meet recommendations:

- EBF 6 months (4% vs 34%)
- BF 1 year (9% vs 43%)

Women with obesity 2+ had

- Lowest aOR of EBF to six months
- Shortest duration of BF

Intention to EBF 6 months

- Greatly **increased** odds to achieve recommendations
- **BUT: increased disparity** in meeting recommendations

Strengths

- Validated prenatal intention scale
- Longitudinal data, diverse cohort

Limitations

- Small sample size, may not be representative
- Does not address barriers/reasons for cessation

More research is needed

- Identify barriers to meeting recommendations
- Identify metabolic pathways that may explain differences