# **Breastfeeding and Childhood Health Outcomes**

Marianne Zapata-Agreda, Charles H. Hillman, Lauren B. Raine

### Purpose

- Breastfeeding has been linked to cognitive and physical health benefits.
- The role of breastfeeding on body composition and IQ in 8–9-year-old children is unknown.
- Aim: examine the associations between breastfeeding, body composition, and cognitive function (IQ) in children.

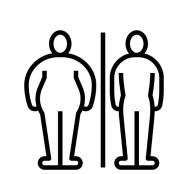
#### Measures

#### Breastfeeding



 Retrospective Questionnaire by Parents: "Did you breastfeed, yes or no?"

#### **Body Composition**



Dual Energy X-ray Absorptiometry (DXA)

- Lean and fat mass
- Adjusted for total body mass

#### Intelligence Quotient (IQ)



- KBIT
- KBIT2
- Woodcock Johnson

#### **Preliminary Statistical Analyses**



18%

60%

- Two-sided t-test
- Univariate analysis

Overweight

Obese

 Controlling for sex and mothers' education (proxy of SES)

29%

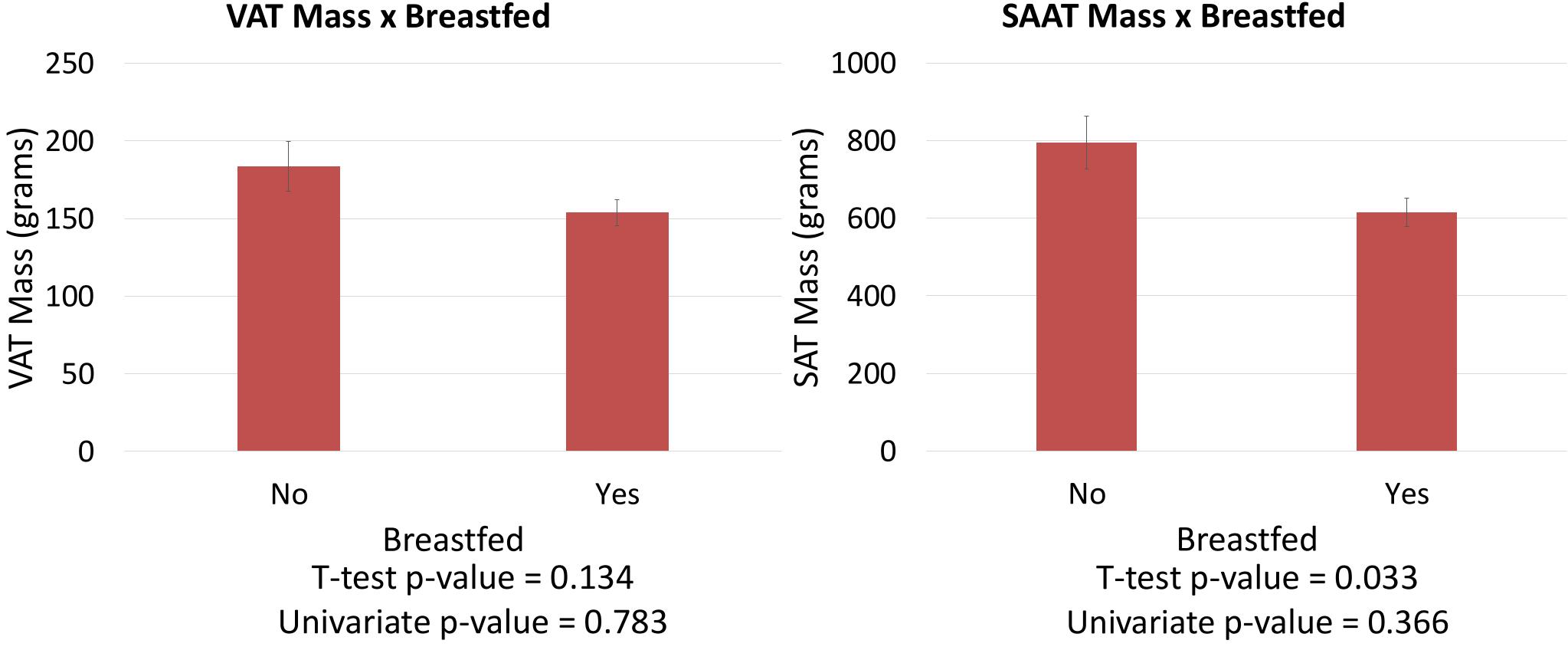
Bachelor Degree

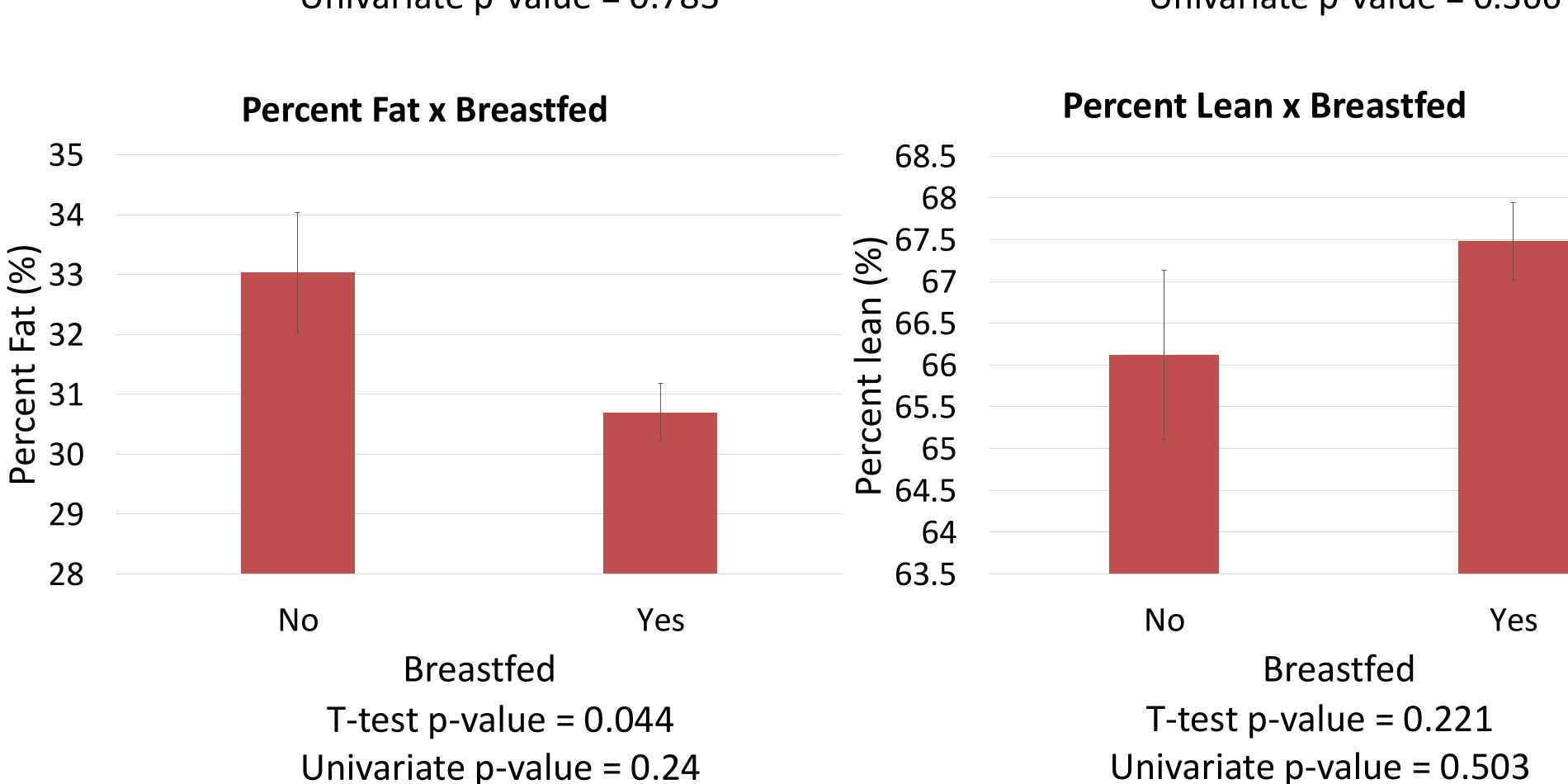
Advanced

## Demographics

| Variable  | Mean (SE)                              | <ul><li>American</li><li>Indian or</li><li>Alaska Native</li></ul>                  |
|---|--|---|
| N   | 343                                    | Asian   |
| Breastfed, yes<br>Breastfed, No<br>Age, years<br>Sex, female N, % | $282$ $61$ $9.21 \pm 0.88$ $168, 49\%$ | 21% 1% 9% 16%    Black or African American  White or Caucasian  Other of mixed race |
| 2%  | Underweight  Normal Weight             | chers Education  Did not complete High School High School Graduate  Some College    |

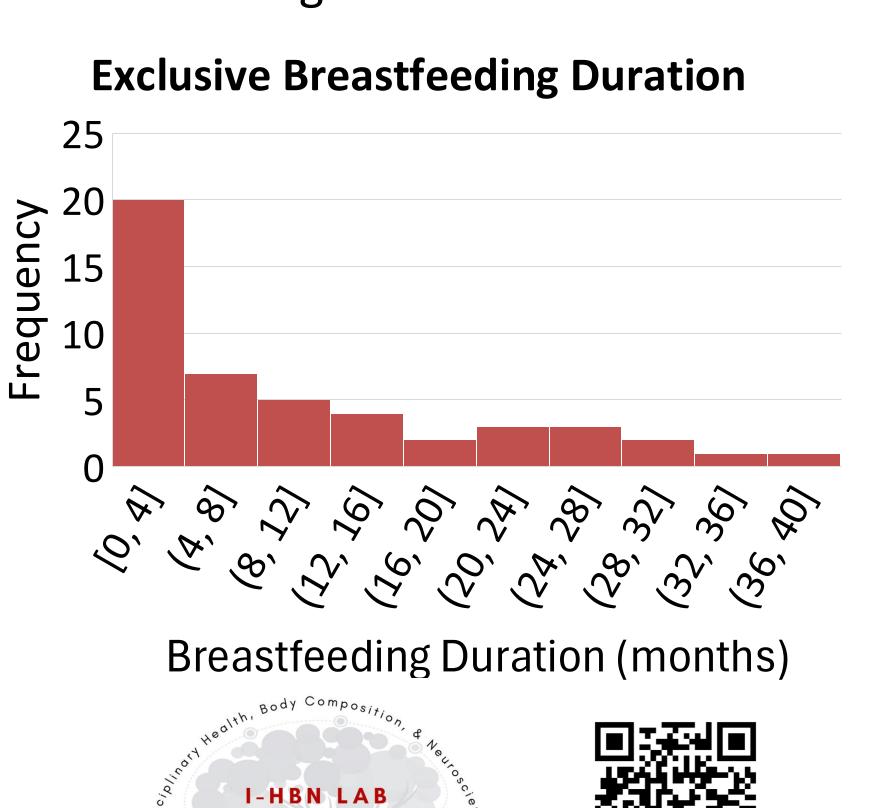
#### Results **BMI Percent x Breastfed BMI** x Breastfed IQ x Breastfed 114 o 112 110 20.5 cent (%) 50 50 (kg/m<sub>2</sub>) 19.5 19 S 108 원 104 104 o 100 面 20 17.5 96 No Yes Yes Breastfed Breastfed Breastfed T-test p-value = 0.036T-test p-value = 0.007T-test p-value < 0.001 Univariate p-value = 0.351 Univariate p-value = 0.006 Univariate p-value = 0.109





# **Conclusions and Future Directions**

- Breastfeeding is associated with higher IQ scores even after adjustments.
- Associations with body composition (BMI, fat mass) appear weaker when adjusting for covariates.
- Thus, breastfeeding on its own may not account for differences in body composition in later childhood.
- Future investigations should examine breastfeeding duration.



R01 HD094054 (NICHD, NIH); R01 HD055352 (NICHD, NIH); R01 HD069381 (NICHD, NIH)