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Timing of WIC Enrollment and Exclusive Breastfeeding: Results from the National WIC-Infant and Toddler Feeding Practices Study 2
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WIC & BREASTFEEDING

- ▶ WIC is a U.S. federal food assistance program which targets low-income, nutritionally at-risk women and children aged 0–5 years of age
 - ▶ In 2018, ~675,000 pregnant women yet, represents ~50% eligible
- ▶ Participation in WIC is associated with early discontinuation of breastfeeding¹⁻³
 - ▶ Possible reasons include free formula and poor access to lactation support

¹Jones et al. Breastfeed Med, 2015; ²Anstey et al. MMWR, 2017; ³Sparks P.J. Women's Health Issues, 2011
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RACIAL DISPARITIES IN BREASTFEEDING

Reported as % Breastfeeding

	Ever	Exclusive 3 months	Exclusive 6 months	Any 6 months	Any 12 months
White	87	52	29	62	38
Hispanic	84	42	22	55	34
Black	74	39	21	48	26

The decision to breastfeed is often made before birth hence; the prenatal period may be critical for breastfeeding counselling

Source: National Immunization Survey 2018-2019, among 2017 births
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OBJECTIVES

- ▶ To explore whether the timing of WIC enrollment had an effect on breastfeeding exclusivity at 1, 3, 5, and 7 months
 - ▶ To determine whether maternal race/ethnicity and timing of WIC enrollment have an effect on breastfeeding outcomes

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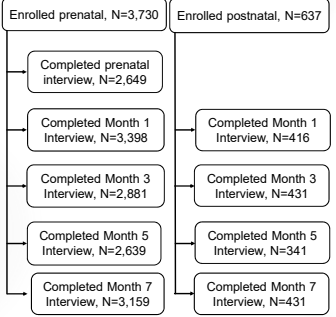
METHODS

- ▶ WIC Infant Toddler Feeding Practices Study-2 (ITFPS2)
 - ▶ National longitudinal study of WIC participants and their children, 2013-2019
 - ▶ Data from prenatal through 7-months post-partum interviews, sample size 3,777 mothers (34% non-Hispanic White, 26% Black and 40% Hispanic)
- ▶ Measures
 - ▶ WIC enrollment as prenatal (1st, 2nd or 3rd trimester) or post-partum
 - ▶ Exclusive breastfeeding as being fed "only breastmilk" at each time point

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STUDY DESIGN

Figure 1. Flow of participants in the study



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    graph TD
        A[Enrolled prenatal, N=3,730] --> B[Completed prenatal interview, N=2,649]
        A --> C[Enrolled postnatal, N=637]
        B --> D[Completed Month 1 Interview, N=3,398]
        C --> E[Completed Month 1 Interview, N=416]
        D --> F[Completed Month 3 Interview, N=2,881]
        E --> G[Completed Month 3 Interview, N=431]
        F --> H[Completed Month 5 Interview, N=2,639]
        G --> I[Completed Month 5 Interview, N=341]
        H --> J[Completed Month 7 Interview, N=3,159]
        I --> K[Completed Month 7 Interview, N=431]
    
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RESULTS

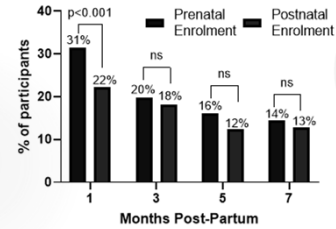
Table 1. Descriptive Characteristics by Timing of WIC Enrollment

Variable	Enrollment		P-value	
	Prenatal (N=3,730)	Postnatal (N=637)		
Age	16-19 years	433 (12.9)	43 (7.4)	<0.001
	20-25 years	1,381 (41.1)	254 (43.7)	
	≥26 years	1,548 (46.0)	284 (48.9)	
Race/Ethnicity	Non-Hispanic White	1,439 (38.6)	214 (33.6)	0.009
	Non-Hispanic Black	1,165 (31.2)	232 (36.4)	
	Hispanic	903 (24.2)	142 (22.3)	
	Non-Hispanic Other	223 (6.0)	49 (7.7)	
Highest Education	≤ High school	2,182 (63.1)	328 (56.5)	0.003
	> High school	1,276 (36.9)	253 (43.5)	
Poverty Level	≤ 75%	2,377 (63.7)	387 (60.8)	0.003
	75-130%	1,012 (27.1)	164 (25.7)	
	>130%	341 (9.2)	86 (13.5)	
Parity	1 st -born	1,485 (42.8)	208 (35.8)	<0.001
	2 nd -born	939 (27.1)	153 (26.3)	
	≥ 3 rd born	1,044 (30.1)	220 (37.9)	

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RESULTS

Figure 2. Proportion (%) exclusive breastfeeding by month and timing of enrollment



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RESULTS

Table 2. Results of logistic regression on exclusive breastfeeding at 1, 3, 5 and 7 months by timing of WIC enrollment (pre vs. postnatal). Presented as Odds Ratio [95% Confidence Interval], P-value.

Predictor:	Outcomes			
	Exclusive Breastfeeding at 1 month (n=2,877)	Exclusive Breastfeeding at 3 months (n=2,877)	Exclusive Breastfeeding at 5 months (n=2,633)	Exclusive Breastfeeding at 7 months (n=3,151)
Postnatal (Reference)	-	-	-	-
Prenatal	1.70 [1.33, 2.19]	<0.001 0.80 [0.50, 1.29]	0.369	1.85 [1.02, 3.37]
			0.042	1.13 [0.49, 2.58]
				0.780

Covariates: Age, race/ethnicity, mother's education level and poverty level; *p<0.05

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CONCLUSIONS

- ▶ Prenatal WIC enrollment was associated with exclusive breastfeeding choice hence, supporting the prenatal period as an opportune time for breastfeeding education.
 - ▶ Effects were only significant at 1 month post partum suggesting that the effects may not be sustained
 - ▶ No interaction effect between race/ethnicity and timing of enrolment

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Comparing the Relationship between Food Parenting Practices and Concern for Child Weight Between Siblings

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BRADLEY
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Introduction

Food Parenting Practices

Controlling practices associated with obesogenic eating behaviors,¹⁻³ lower diet quality^{2,4}, and risk for excessive weight gain⁵

Perception/Concern about Child Weight

Concern for child weight has been associated with more controlling food parenting practices.^{3,6-9}

Paradox between accurate perception and the “right” level of concern.^{3,10}

Feeding Siblings

Conflicting evidence on if parents feed siblings differently.¹¹

Food parenting practices may change based on child eating behavior, food preferences, age, concern for child weight, or perception of child weight.¹²⁻¹⁸

The Gap in the Literature

Mixed methods

Going beyond controlling food parenting practices

Objectives

1. Compare relationships in food parenting practices and parent concern and/or perception of child weight among siblings.
2. Explore parental perceptions of how they feed siblings differently, if at all, and why.

Methodology

Participants & Recruitment

Parents with at least 2 children between 3-10 years old

School email announcements and social media

Amazon Mechanical Turk (mTurk)

Data Collection

Online survey using Qualtrics Survey Software

Comprehensive Feeding Practices Questionnaire (CFPQ)¹⁹

Concern/Perception items from Child Feeding Questionnaire (CFQ)²⁰

7 open-ended questions about food parenting practices, child weight concerns/perceptions, and feeding siblings.

Demographic questions

Analysis

SPSS 21.0

Descriptive statistics on all variables

Intraclass correlation to compare similarities/differences in food parenting and child weight concern/perception items

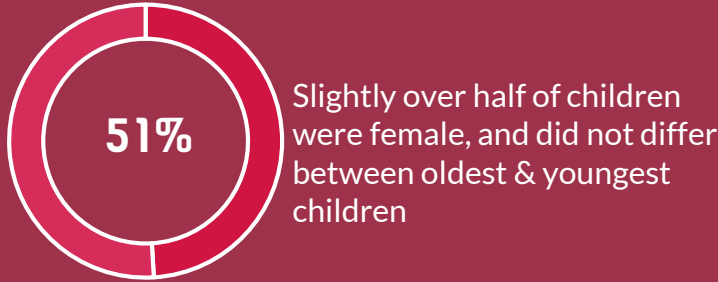
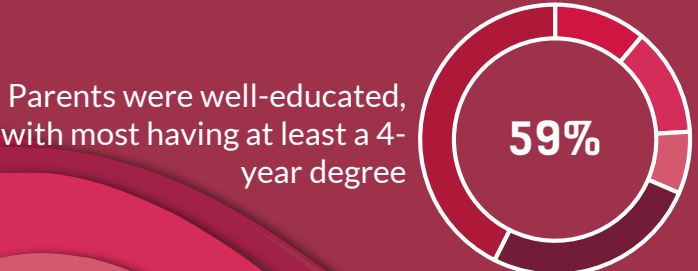
Compare linear regression coefficients for relationships between food parenting practices and concern/perception of child weight (control for age & gender)

Content analysis applied to qualitative data

Open-Ended Questions

- 1** Thinking about your youngest child and oldest child you have answered questions about, are you concerned about either of their weights? If so, how does this impact the way you feed each child, and is it the same for both children?
- 2** Can you explain to us what you think about your youngest child's and oldest child's weight? Do you worry about one more than the other? What kinds of effort do you put into managing each child's weight? Do you use different strategies for each child?
- 3** How do you encourage your youngest child and oldest child to eat healthy food? Do you encourage them in different ways? If so, how?
- 4** What does junk food or bad food mean to you? Can you tell us examples?
- 5** Do you discourage your youngest child and oldest child to eat junk/bad food? If yes, how? If no, why not?
- 6** Do you encourage your youngest child and oldest child to be more active? If yes, how? If no, why not?
- 7** In what ways do you manage your youngest child's and oldest child's weight? Do you manage them differently? How would this be different if they were the opposite gender?

Results – Demographics (n=63)



Parents Feed Siblings Similarly, But Perception of and Concern about Current Child Weight Differs

Food Parenting Practice	Intraclass Correlation Coefficient
Emotional Regulation	.72**
Encourage Balance & Variety	.88**
Environment	.87**
Involvement	.64**
Pressure to Eat	.89**
Restriction for Weight Control	.88**
Restriction for Health	.91**
Food as a Reward	.88**
Teach about Nutrition	.70**
**p<0.001	



Parent Perception/Concern	Intraclass Correlation Coefficient
Perception about Current Weight	.08
Concern about Current Weight	.27
Concern about Future Weight	.53*
*p<0.05	

Relationships Between Food Parenting Practices & Perception of and Concern for Child Weight

	Perception of Current Weight		Concern for Current Weight		Concern for Future Weight	
	Oldest B(SE)	Youngest B(SE)	Oldest B(SE)	Youngest B(SE)	Oldest B(SE)	Youngest B(SE)
Emotional Regulation	-.15(.17)	-.30(.44)	-.07(.12)	.05(.19)	.08(.10)	.06(.13)
Encourage Balance & Variety	.10(.11)	.09(.28)	-.04(.07)	-.10(.12)	-.09(.06)	.12(.08)
Environment	.18(.10)	.04(.23)	.06(.07)	-.10(.10)	.08(.06)	-.08(.07)
Involvement	.31(.21)	.41(.42)	.00(.14)	.03(.18)	-.05(.12)	.03(.12)
Pressure to Eat	-.49(.22)*	.29(.44)	-.32(.15)*	-.14(.20)	-.21(.13)	-.06(.13)
Restriction for Weight Control	.38(.20)	.16(.38)	.55(.11)**	.34(.16)*	.58(.07)**	.41(.10)**
Restriction for Health	.38(.23)	.11(.35)	.36(.15)*	.02(.15)	.26(.13)*	.17(.10)
Food as a Reward	.25(.26)	.51(.49)	.15(.17)	-.29(.21)	.31(.14)*	.14(.14)
Teach about Nutrition	.18(.10)	-.07(.38)	-.03(.07)	.14(.16)	.04(.06)	.20(.11)

*p-value< .05; **p-value<.001

Qualitative Findings (n=25)



Parental Considerations

When deciding what to do regarding child health behaviors, parents take many things into consideration



Food Parenting Strategies

Based on considerations and concerns, parents select specific food parenting strategies to meet their goals.

Theme 1: Parent Considerations

Parents think about the following when choosing their actions, or if actions need to be taken

- Weight Considerations
 - *“I think they naturally have very different body types. The older child has been “overweight” on the growth charts since birth.”*
- Food/Nutritional Considerations
 - *“My youngest child is a picky eater, so I worry more about him eating a good variety of foods, especially vegetables.”*
- Physical Activity Considerations
 - *“Both kids are very active and burn a lot of calories.”*



Theme 2: Food Parenting Strategies

Parents discussed how they achieve their goals

- Different strategies for siblings based on food preferences, personalities, picky eating, and weight concerns.
 - *“My son, the oldest of my kids, has always been ‘underweight’. I try to make sure to give him more of the healthier fats and extra calories, but its never made an impact.”*
- Consistent strategies for siblings were employed regardless of age/gender and parental concerns, including balance, food rules & rituals, educating their children about food and nutrition, modeling healthy habits, covert control, and balance.
 - *“I use the same tactics for both of them. Tell them they can’t have 2nd helpings of the healthy food (roll etc.) at dinner until they eat their healthy food. If there is going to be a treat after a meal, they can’t have it unless they finish their healthy food. Encourage them to ‘take one bite to be polite’ of a new food they might not like. Continue to model healthy eating and offer to let them try my food.”*



Limitations

Small, non-
diverse sample

Self-selection
bias

Social
desirability bias

Cross-sectional
design

Conclusions

- Similar food parenting practices, but may differ based on perception of child weight and concern for child weight and/or food preferences
 - Parents may have trouble labeling their child as overweight/obese even though they are concerned about their child's current or future weight²¹
 - As children get older, parents may become more concerned about their child's weight¹³
 - Restriction for weight control may be especially problematic
- Implications for nutrition educators
 - Tailored messages that acknowledge the uniqueness of children⁹
 - Physical inactivity not be a concern of many parents²²
 - Emphasize how food parenting practices can impact relationships with food
 - Focus on whole diet approach vs. restricting specific foods^{13,23}

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