

SUPPLEMENTAL FILES

Supplemental Table S1. Comparison of MADRES population characteristics between those included and excluded in the current analyses

	Excluded N=642	Included N=79	F/ χ^2	P
Maternal age	28.13 (5.97)	29.62 (5.80)	2.09	0.04
Pre-Pregnancy BMI	28.70 (6.84)	27.45 (4.99)	2.01	0.05
Maternal country origin				
<i>Latin America</i>	218 (33.96)	35 (44.30)	7.38	0.03
<i>North America</i>	290 (45.17)	37 (46.84)		
<i>Asia/Unknown</i>	134 (20.87)	7 (8.86)		
Maternal ethnicity			0.45	0.50
<i>Non-Hispanic</i>	133 (22.32)	15 (18.99)		
<i>Hispanic</i>	463 (77.68)	64 (81.01)		
Maternal marital status				
<i>Married</i>	161 (25.08)	23 (29.11)	11.45	<0.01
<i>Cohabiting</i>	196 (30.53)	36 (45.57)		
<i>Separated/Unknown</i>	285 (44.39)	20 (25.32)		
Household annual income				
$\geq \$30,000$	121 (18.85)	27 (34.18)	10.13	<0.01
<\$30,000	521 (81.15)	52 (65.82)		
Maternal education				
<i>Some college or above</i>	245 (38.16)	45 (56.96)	10.34	<0.01
<i>High school or lower</i>	397 (61.84)	34 (43.04)		
Pre-Pregnancy BMI categories				
<i>Normal/Underweight</i>	217 (33.80)	27 (34.18)	3.37	0.19
<i>Overweight</i>	188 (29.28)	30 (37.97)		
<i>Obese</i>	237 (36.92)	22 (27.85)		
Birth order				
<i>First</i>	460 (71.65)	43 (54.43)	9.89	<0.01
<i>Second or later</i>	182 (28.35)	36 (45.57)		
Glucose intolerant/GDM/T2DM				
<i>No</i>	430 (66.98)	59 (74.68)	1.91	0.17
<i>Yes</i>	212 (33.02)	20 (25.32)		
Asthma				
<i>No</i>	450 (70.09)	69 (87.34)	1.06	0.30
<i>Yes</i>	94 (14.64)	10 (12.66)		
PE/HTN/PIH				
<i>No</i>	506 (78.82)	65 (82.28)	0.51	0.47
<i>Yes</i>	136 (21.18)	14 (17.72)		
Depression			2.34	0.13
<i>No</i>	67 (10.52)	4 (5.06)		
<i>Yes</i>	570 (89.48)	75 (94.94)		

Supplemental Table S2. Exponentiated marginal means* of 12-month postpartum lipids by breastfeeding duration among 79 MADRES pilot participants additional adjusting for pregnancy complications

Biomarkers	Breastfeeding duration	Marginal mean (95% CI)	P value†
Triglyceride	≥12 months (N=27)	80.69 (57.29, 113.66)	0.03
	≥6-12 months (N=24)	98.75 (67.61, 144.24)	0.50
	<6 months (N=28)	108.93 (74.70, 158.86)	Ref.
Total Cholesterol	≥12 months (N=27)	181.61 (161.01, 204.84)	0.40
	≥6-12 months (N=24)	176.44 (154.44, 201.56)	0.83
	<6 months (N=28)	174.47 (152.81, 199.20)	
HDL Cholesterol	≥12 months (N=27)	44.90 (37.17, 54.25)	0.02
	≥6-12 months (N=24)	41.34 (33.54, 50.95)	0.26
	<6 months (N=28)	37.79 (30.68, 46.53)	Ref.
LDL Cholesterol	≥12 months (N=27)	116.50 (97.94, 138.59)	0.37
	≥6-12 months (N=24)	108.24 (89.33, 131.15)	0.87
	<6 months (N=28)	109.58 (90.51, 132.67)	Ref.
VLDL Cholesterol	≥12 months (N=27)	16.14 (11.46, 22.73)	0.03
	≥6-12 months (N=24)	19.75 (13.52, 28.84)	0.50
	<6 months (N=28)	21.78 (14.94, 31.77)	Ref.
Total to HDL Cholesterol Ratio	≥12 months (N=27)	4.04 (3.35, 4.88)	0.08
	≥6-12 months (N=24)	4.27 (3.46, 5.26)	0.33
	<6 months (N=28)	4.62 (3.75, 5.68)	Ref.

Note: Model further adjusted for T2DM, pregnancy-related complications, including GDM, glucose intolerance, pre-eclampsia, hypertensive disorders of pregnancy, and depression, in addition to fasting status, demographic variables including maternal age, country of origin, marital status, annual household income, and education, maternal pre-pregnancy BMI and birth order. *Model estimates were back-transformed and presented as exponentiated marginal means for interpretability. †P values indicate the significance of comparison with breastfeeding <6 months as the reference group.

Supplemental Table S3. Regression coefficients (95% confidence interval) for the association of each month increase in breastfeeding duration with natural log-transformed 12-month postpartum lipids, excluding 27 participants who were currently breastfeeding at 12 months

Natural log-transformed lipids	Model 1		Model 2		Model 3		Model 4	
	Beta (95% CI)	P value	Beta (95% CI)	P value	Beta (95% CI)	P value	Beta (95% CI)	P value
Triglyceride	-0.02 (-0.08, 0.04)	0.56	-0.03 (-0.08, 0.03)	0.37	-0.04 (-0.11, 0.02)	0.16	-0.03 (-0.09, 0.03)	0.23
Total Cholesterol	0.01 (-0.01, 0.03)	0.32	0.01 (-0.01, 0.02)	0.42	0.00 (-0.02, 0.02)	0.70	0.01 (-0.01, 0.03)	0.49
HDL Cholesterol	0.04 (0.01, 0.07)	0.01	0.04 (0.01, 0.07)	0.01	0.04 (0.01, 0.07)	0.01	0.04 (0.01, 0.07)	0.01
LDL Cholesterol	0.00 (-0.03, 0.03)	0.94	0.00 (-0.03, 0.02)	0.87	0.00 (-0.03, 0.03)	0.79	0.00 (-0.03, 0.03)	0.99
VLDL Cholesterol	-0.02 (-0.08, 0.04)	0.56	-0.03 (-0.08, 0.03)	0.37	-0.04 (-0.11, 0.02)	0.16	-0.03 (-0.09, 0.03)	0.30
Total to HDL Cholesterol Ratio	-0.03 (-0.07, 0.00)	0.05	-0.04 (-0.07, 0.00)	0.04	-0.04 (-0.07, 0.00)	0.03	-0.03 (-0.07, 0.00)	0.06

Note: Model adjusted for fasting status, demographic variables including maternal age, country of origin, marital status, annual household income, education, maternal pre-pregnancy BMI, and birth order.

Supplemental Table S4. Comparison of MADRES population characteristics by breastfeeding duration categories

	<6 months N=220	≥6-11 months N=126	>=12 months N=142	F/ χ^2	P
Maternal age	28.27 (5.57)	29.87 (6.67)	29.77 (5.94)	4.16	0.02
Pre-Pregnancy BMI	29.69 (6.96)	27.64 (7.23)	28.32 (5.15)	4.49	0.01
Maternal country origin					
<i>Latin America</i>	78 (34.36)	60 (46.15)	73 (50.69)	11.02	0.03
<i>North America</i>	129 (56.83)	59 (45.38)	61 (42.36)		
<i>Asia/Unknown</i>	20 (8.81)	11 (8.46)	10 (6.94)		
Maternal ethnicity				3.35	0.19
<i>Non-Hispanic</i>	45 (19.91)	32 (25.00)	23 (16.08)		
<i>Hispanic</i>	181 (80.09)	96 (75.00)	120 (83.92)		
Maternal marital status				3.65	0.45
<i>Married</i>	63 (27.75)	41 (31.54)	50 (34.72)		
<i>Cohabiting</i>	86 (37.89)	49 (37.69)	57 (39.58)		
<i>Separated/Unknown</i>	78 (34.36)	40 (30.77)	37 (25.69)		
Household annual income				2.70	0.26
<i>≥\$30,000</i>	45 (19.82)	31 (23.85)	39 (27.08)		
<i><\$30,000</i>	182 (80.18)	99 (76.15)	105 (72.92)		
Maternal education				5.02	0.08
<i>Some college or above</i>	88 (38.77)	65 (50.00)	68 (47.22)		
<i>High school or lower</i>	139 (61.23)	65 (50.00)	76 (52.78)		
Pre-Pregnancy BMI categories				14.35	0.01
<i>Normal/Underweight</i>	66 (29.07)	49 (37.69)	37 (25.69)		
<i>Overweight</i>	61 (26.87)	44 (33.85)	58 (40.28)		
<i>Obese</i>	100 (44.05)	37 (28.46)	49 (34.03)		
Birth order				4.34	0.11
<i>First</i>	142 (62.56)	91 (70.00)	104 (72.22)		
<i>Second or later</i>	85 (37.44)	39 (30.00)	40 (27.78)		
Glucose intolerant/GDM/T2DM				0.89	0.64
<i>No</i>	142 (62.56)	84 (64.62)	97 (67.36)		
<i>Yes</i>	85 (37.44)	46 (35.38)	47 (32.64)		
Asthma				2.39	0.30
<i>No</i>	186 (84.55)	99 (78.57)	121 (84.62)		
<i>Yes</i>	34 (15.45)	27 (21.43)	22 (15.38)		
PE/HTN/PIH				1.35	0.51
<i>No</i>	178 (78.41)	104 (80.00)	120 (83.33)		
<i>Yes</i>	49 (21.59)	26 (20.00)	24 (16.67)		
Depression				0.49	0.78
<i>No</i>	25 (11.01)	12 (9.23)	17 (11.81)		
<i>Yes</i>	202 (88.99)	118 (90.77)	127 (88.19)		

Supplemental Table S5. Adjusted lipids levels by breastfeeding duration and frequency*

	Triglycerides	P	Total-C	P	HDL-C	P	LDL-C	P	VLDL-C	P	T/H-C ratio	P
Longitudinal breastfeeding frequency over 12months postpartum												
	78.50		166.45		35.91		110.91		15.70		4.64	
0	(53.33, 115.54)	Ref.	(145.50, 190.42)	Ref.	(29.35, 43.93)	Ref.	(91.57, 134.34)	Ref.	(10.67, 23.11)	Ref.	(3.77, 5.70)	Ref.
	103.34		167.63		40.28		101.44		20.67		4.16	
1-6 times/day	(84.87, 125.82)	0.17	(156.53, 179.52)	0.92	(36.35, 44.64)	0.26	(92.01, 111.84)	0.36	(16.97, 25.16)	0.16	(3.74, 4.63)	0.31
	98.82		173.14		45.77		101.68		19.76		3.78	
≥7 times/day	(74.88, 130.40)	0.36	(157.21, 190.69)	0.65	(39.61, 52.89)	0.06	(88.62, 116.66)	0.48	(14.98, 26.08)	0.36	(3.26, 4.39)	0.13
Breastfeeding duration												
	120.51		168.47		40.10		99.09		24.10		4.20	
<6 months	(93.99, 154.50)	Ref.	(154.52, 183.69)	Ref.	(35.22, 45.64)	Ref.	(87.60, 112.07)	Ref.	(18.80, 30.90)	Ref.	(3.68, 4.80)	Ref.
	90.23		168.21		40.29		103.22		18.04		4.17	
6-11 months	(66.46, 122.50)	0.13	(151.23, 187.10)	0.98	(34.35, 47.26)	0.96	(88.70, 120.11)	0.66	(13.29, 24.50)	0.13	(3.54, 4.92)	0.95
	73.72		170.48		40.98		111.86		14.74		4.16	
≥12 months	(55.29, 98.31)	0.02	(154.23, 188.43)	0.87	(35.27, 47.61)	0.84	(96.99, 129.01)	0.24	(11.06, 19.66)	0.02	(3.56, 4.86)	0.93
P-interaction												
		0.28		0.14		0.16		0.07		0.28		0.02

Note: *Interaction product term of breastfeeding duration and frequency was NOT included in the model because it was not significant. Model adjusted for maternal age, country of origin, marital status, household annual income, education, pre-pregnancy BMI and birth order.