

**Supplemental Information**

Protective Effect of Breastfeeding on Recurrent Cough in Adulthood

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ETable 1. Characteristics of participants included in the current analysis compared to those excluded because of missing data. Proportions compared by chi-square test.

Characteristic	Category	Included		Excluded		p-value
		%	n	%	n	
<b>All</b>		63.1	786	36.9	460	-
<b>Sex</b>	Male	47.1	370	52.8	243	0.050
	Female	52.9	416	47.2	217	
<b>Race/Ethnicity</b>	Non-Hispanic White	65.0	511	48.5	223	<0.001
	Hispanic White	22.5	177	20.2	93	
	Other	12.5	98	31.3	144	
<b>Maternal Asthma</b>	No	89.3	692	88.4	336	0.657
	Yes	10.7	83	11.6	44	
<b>Smoking</b>	No	85.1	669	77.5	354	0.001
	Yes	14.9	117	22.5	103	
<b>Education</b>	<=12yr	24.1	189	45.0	205	<0.001
	>12yr	75.9	596	55.0	251	
<b>Age</b>	<=28yr	59.8	470	64.5	296	0.101
	>28yr	40.2	316	35.5	163	
<b>Paternal Asthma</b>	No	87.2	648	89.5	314	0.287
	Yes	12.8	95	10.5	37	
<b>Smoking</b>	No	72.5	563	61.9	278	<0.001
	Yes	27.5	214	38.1	171	
<b>Education</b>	<=12yr	22.9	177	41.4	184	<0.001
	>12yr	77.1	595	58.6	261	
<b>Age</b>	<=28yr	42.1	326	53.5	243	<0.001
	>28yr	57.9	449	46.5	211	

1 ETable 2. Frequency of recurrent cough at each age by enrollment characteristics. Proportions compared by chi-square test.

Characteristics	Group	Recurrent cough											
		22yr			26yr			32yr			22-32yrs		
		N	%+	p	N	%+	p	N	%+	p	N	%+	p
<b>All</b>		713	16.7	-	654	14.7	-	588	16.0	-	786	28.4	-
<b>Sex</b>	Male	330	15.5		296	13.2		261	13.0		370	24.9	
	Female	383	17.8	0.412	358	15.9	0.323	327	18.4	0.080	416	31.5	0.040
<b>Race/Ethnicity</b>	Non-Hispanic White	466	15.9		430	14.4		392	13.8		511	27.0	
	Hispanic White	160	16.3		147	15.0		126	22.2		177	31.6	
	Other	87	21.8	0.387	77	15.6	0.959	70	17.1	0.076	98	29.6	0.479
<b>Maternal Asthma</b>	No	629	15.7		581	14.6		519	15.6		692	27.6	
	Yes	75	22.7	0.126	65	16.9	0.622	62	21.0	0.279	83	34.9	0.161
<b>Smoking</b>	No	613	16.0		555	14.4		505	15.6		669	28.1	
	Yes	100	21.0	0.213	99	16.2	0.651	83	18.1	0.576	117	29.9	0.688
<b>Education</b>	<=12yr	164	17.1		160	18.1		132	22.0		189	30.2	
	>12yr	549	16.6	0.881	493	13.6	0.159	455	14.3	0.034	596	27.9	0.540
<b>Age</b>	<=28yr	420	16.7		400	16.0		349	17.5		470	30.6	
	>28yr	293	16.7	0.984	254	12.3	0.231	239	13.8	0.233	316	25.0	0.086
<b>Paternal Asthma</b>	No	591	14.6		537	14.0		480	15.2		648	26.9	
	Yes	84	26.2	0.006	82	18.3	0.301	74	18.9	0.414	95	34.7	0.109
<b>Smoking</b>	No	510	15.7		465	14.8		425	15.5		563	27.4	
	Yes	196	19.4	0.238	181	14.9	0.980	156	18.0	0.483	214	31.8	0.223

Infant Feeding and Recurrent cough

<b>Education</b>	<=12yr	164	15.2		142	16.2		120	22.5		177	29.9
	>12yr	537	16.8	0.646	501	14.2	0.546	458	14.4	0.032	595	27.9 0.596
<b>Age</b>	<=28yr	299	14.1		281	17.1		247	15.8		326	29.1
	>28yr	405	18.0	0.158	366	12.6	0.106	335	16.1	0.915	449	27.6 0.642

ETable 3. Frequency of recurrent cough at each age by potential predictors in early life. Proportions compared by chi-square test.

		Recurrent cough											
Characteristics	Group	22yr			26yr			32yr			22-32yrs		
		N	%+	p	N	%+	p	N	%+	p	N	%+	p
<b>Childhood</b>													
<b>RSV LRI</b>	No	454	13.7		406	13.8		375	16.8		494	26.3	
	Yes	124	20.2	0.073	121	15.7	0.598	100	13.0	0.357	140	29.3	0.485
<b>Early Wheeze</b>	No	302	13.3		270	12.2		245	15.1		329	23.4	
<b>Phenotypes</b>	Early	118	13.6		114	14.9		104	16.4		131	24.4	
	Late	90	15.6		80	17.5		66	19.7		97	32.0	
	Persistent	69	20.3	0.491	68	14.1	0.603	64	14.1	0.800	80	36.3	0.063
<b>Cold Air BHR Age 6</b>	No	289	14.2		262	12.6		250	16.0		311	25.7	
	Yes	46	13.0	0.836	46	13.0	0.933	43	14.0	0.733	50	24.0	0.795
<b>Atopy Age 6</b>	No	350	14.3		317	16.4		292	15.4		379	28.2	
	Yes	221	18.6	0.175	211	12.3	0.195	189	15.9	0.891	241	27.8	0.907

Abbreviations: RSV Respiratory syncytial virus; BHR bronchial hyper-responsiveness; Atopy skin prick test positive to at least one local aeroallergen

1 ETable 4. Association of recurrent cough with concurrent symptoms. Proportions compared by chi-  
 2 square test.

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Recurrent cough		Wheeze		MD Asthma		Allergic Rhinitis*		Sinus Trouble*		Heartburn*	
		n	%+	n	%+	n	%+	n	%+	n	%+
<b>22yr</b>	No	591	32.2	590	15.1	591	17.6	570	15.3	-	-
	Yes	119	71.4	118	35.6	118	27.1	112	31.3	-	-
<b>p=</b>		<0.001		<0.001		0.016		<0.001		-	
<b>26yr</b>	No	556	33.6	552	16.9	554	19.0	548	18.1	555	59.6
	Yes	96	72.9	95	39.0	94	34.0	91	27.5	95	70.5
<b>p=</b>		<0.001		<0.001		0.001		0.036		0.044	
<b>32yr</b>	No	493	29.6	494	16.8	448	24.1	441	20.0	447	56.2
	Yes	94	59.6	93	30.1	82	30.5	79	40.5	81	65.4
<b>p=</b>		<0.001		0.003		0.220		<0.001		0.120	

4 \*Slightly fewer responses were available for these symptoms at age 32; No heartburn data was  
 5 available at age 22

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Infant Feeding and Recurrent cough

7 ETable 5. Relation of infant feeding to adult smoking. Proportions compared by chi-square test.

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Breastfed	Active Smoking											
	22yr			26yr			32yr			22-32yrs		
	N	%+	p	N	%+	p	N	%+	p	N	%+	p
<1 month	135	31.9		124	21.8		104	16.4		151	35.8	
>=1 to <4 months	361	27.4		326	24.2		296	15.9		389	33.2	
≥4 months	225	18.7	0.011	205	20.5	0.586	197	14.7	0.915	245	27.4	0.160

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10 ETable 6. Logistic and longitudinal models (GEE with exchangeable correlation) for the relation of breastfeeding duration to recurrent cough

		22yr (n=668)			26yr (n=611)			32yr (n=549)			22-32yrs (n=735; 1828 obs) ‡		
		β	95%CI	p	β	95%CI	p	β	95%CI	p	β	95%CI	p
<b>Breastfeeding Duration</b>	Increasing Dose (ordinal)	0.72	0.52, 1.00	<b>0.049</b>	0.75	0.53, 1.06	0.108	0.65	0.44, 0.94	<b>0.021</b>	0.71	0.56, 0.89	<b>0.004</b>
<b>Sex</b>	Female vs. Male	1.22	0.79, 1.88	0.369	1.34	0.84, 2.14	0.225	1.48	0.90, 2.44	0.124	1.35	0.99, 1.85	0.055
<b>Race/Ethnicity*</b>	Hispanic White vs. NHW	1.05	0.61, 1.79	0.858	0.93	0.53, 1.64	0.803	1.58	0.89, 2.80	0.121	1.10	0.76, 1.60	0.605
	Other vs. NHW	1.01	0.46, 2.21	0.987	0.69	0.27, 1.74	0.432	1.42	0.60, 3.39	0.424	0.93	0.52, 1.66	0.809
<b>Participant Smoking†</b>	Yes vs. no	1.99	1.26, 3.15	<b>0.003</b>	1.89	1.13, 3.17	<b>0.016</b>	4.09	2.33, 7.19	<b>&lt;0.001</b>	2.15	1.57, 2.93	<b>&lt;0.001</b>
<b>Maternal Asthma</b>	Yes vs. no	1.93	1.04, 3.56	<b>0.037</b>	1.31	0.63, 2.74	0.475	1.76	0.86, 3.57	0.120	1.69	1.08, 2.66	<b>0.022</b>
<b>Maternal Smoking</b>	Yes vs. no	1.19	0.64, 2.21	0.587	0.84	0.42, 1.68	0.616	1.11	0.54, 2.30	0.780	0.96	0.61, 1.51	0.863
<b>Maternal Education</b>	<=12yr vs. >12yr	1.19	0.65, 2.19	0.582	1.33	0.73, 2.42	0.350	0.87	0.45, 1.67	0.675	1.18	0.78, 1.78	0.437
<b>Maternal Age</b>	>28yr vs. <=28yr	0.78	0.47, 1.30	0.344	0.90	0.50, 1.63	0.721	0.55	0.30, 1.00	0.050	0.76	0.52, 1.11	0.159
<b>Paternal Asthma</b>	Yes vs. no	1.83	1.05, 3.19	<b>0.032</b>	1.34	0.72, 2.50	0.356	1.22	0.63, 2.37	0.554	1.43	0.95, 2.15	0.085
<b>Paternal Smoking</b>	Yes vs. no	1.08	0.65, 1.79	0.775	0.95	0.54, 1.67	0.848	0.83	0.46, 1.49	0.529	0.98	0.68, 1.41	0.901
<b>Paternal Education</b>	<=12yr vs. >12yr	0.68	0.36, 1.29	0.236	0.77	0.40, 1.48	0.432	1.47	0.76, 2.85	0.250	0.88	0.57, 1.36	0.564
<b>Paternal Age</b>	>28yr vs. <=28yr	1.65	0.98, 2.78	0.061	0.77	0.44, 1.36	0.369	1.51	0.84, 2.70	0.170	1.24	0.86, 1.80	0.254

11 \*NHW = Non-Hispanic White

12 † Current smoking

13 ‡ Includes an adjustment for year: 26 vs. 22 OR=0.90, (0.68, 1.18), p=0.443 and 32 vs. 22 OR=1.07, (0.80, 1.42), p=0.662