

Supplementary Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Characteristics of 12,183 participants with valid lung function data

Characteristic	N (%)		
	Total (n = 12183)	Intervention (n = 6360)	Control (n = 5823)
Measured at child's birth			
Maternal age, y			
<20	1649 (13.5)	893 (14.0)	756 (13.0)
20-34	10038 (82.4)	5209 (81.9)	4829 (82.9)
≥35	496 (4.1)	258 (4.1)	238 (4.1)
Maternal education			
Completed university	1653 (13.6)	905 (14.2)	748 (12.8)
Advanced secondary or partial university	6221 (51.1)	3009 (47.3)	3212 (55.2)
Common secondary	3881 (31.9)	2174 (34.2)	1707 (29.3)
Incomplete secondary	428 (3.5)	272 (4.3)	156 (2.7)
Paternal education			
Completed university	1584 (13.0)	853 (13.4)	731 (12.6)
Advanced secondary or partial university	5565 (45.7)	2600 (40.9)	2965 (50.9)
Common secondary	4384 (36.0)	2553 (40.1)	1831 (31.4)
Incomplete secondary or unknown	650 (5.3)	354 (5.6)	296 (5.1)
Stratum-level variable			
East/Urban	3682 (30.2)	1950 (30.7)	1732 (29.7)
East/Rural	1947 (16.0)	980 (15.4)	967 (16.6)
West/Urban	3174 (26.1)	2130 (33.5)	1044 (17.9)
West/Rural	3380 (27.7)	1300 (20.4)	2080 (35.7)
Number children in household			
0	6923 (56.8)	3750 (59.0)	3173 (54.5)
1	4252 (34.9)	2123 (33.4)	2129 (36.6)
2+	1008 (8.3)	487 (7.7)	521 (8.9)
Maternal smoking during pregnancy			
No	11940 (98.0)	6207 (97.6)	5733 (98.5)
Yes	243 (2.0)	153 (2.4)	90 (1.5)

Characteristic	N (%)		
	Total (n = 12183)	Intervention (n = 6360)	Control (n = 5823)
Child at birth			
Child sex			
Female	6288 (51.6)	3252 (51.1)	3036 (52.1)
Male	5895 (48.4)	3108 (48.9)	2787 (47.9)
Birthweight, mean (SD), kg	3.44 (0.42)	3.44 (0.42)	3.44 (0.42)
Gestation length, mean (SD), weeks	39.4 (1.0)	39.4 (1.0)	39.3 (1.0)
Measured in child's first year			
Duration of exclusive breastfeeding, mo			
<3	8870 (73.3)	3465 (55.1)	5405 (92.9)
3-<6	2794 (23.1)	2429 (38.6)	365 (6.3)
≥6	437 (3.6)	391 (6.2)	46 (0.8)
Duration of breastfeeding, mo			
<3	4207 (34.8)	1872 (29.8)	2335 (40.2)
3-<6	2785 (23.0)	1417 (22.5)	1368 (23.5)
≥6	5111 (42.2)	3000 (47.7)	2111 (36.3)

SD = standard deviation

eTable 2. Lung function in those who reported a diagnosis of asthma and wheezing

	Wheezing in past 12 months					
	Yes	No	Cluster adjusted		Further adjusted*	
	n=767	n=11382				
Outcome	Mean (SD)		β (95% CI)	p-value	β (95% CI)	p-value
FEV1 z-score	-0.59 (1.44)	-0.41 (1.40)	-0.13 (-0.23,-0.04)	0.01	-0.14 (-0.23,-0.04)	0.004
FVC z-score	-0.49 (1.26)	-0.35 (1.19)	-0.05 (-0.13, 0.04)	0.27	-0.05 (-0.13, 0.03)	0.26
FEV1/FVC ratio z-score	0.02 (1.61)	0.12 (1.62)	-0.19 (-0.29,-0.09)	0.01	-0.19 (-0.29,-0.09)	0.0003
	Ever asthma					
	Yes	No	Cluster adjusted		Further adjusted*	
	n=204	n=11941				
Outcome	Mean (SD)		β (95% CI)	p-value	β (95% CI)	p-value
FEV1 z-score	-0.77 (1.34)	-0.42 (1.40)	-0.24 (-0.41,-0.06)	0.01	-0.26 (-0.44,-0.08)	0.004
FVC z-score	-0.44 (1.14)	-0.36 (1.20)	-0.08 (-0.24, 0.07)	0.29	-0.08 (-0.24, 0.07)	0.29
FEV1/FVC ratio z-score	-0.35 (1.65)	0.12 (1.62)	-0.31 (-0.50,-0.11)	0.01	-0.34 (-0.53,-0.14)	0.001
	Asthma attack past 12 months					
	Yes	No	Cluster adjusted		Further adjusted*	
	n=49	n=12092				
Outcome	Mean (SD)		β (95% CI)	p-value	β (95% CI)	p-value
FEV1 z-score	-0.85 (1.60)	-0.42 (1.40)	-0.21 (-0.57, 0.15)	0.26	-0.26 (-0.61, 0.10)	0.16
FVC z-score	-0.39 (1.22)	-0.36 (1.20)	0.00 (-0.31, 0.31)	>0.99	-0.01 (-0.32, 0.30)	0.94
FEV1/FVC ratio z-score	-0.43 (1.91)	0.12 (1.62)	-0.30 (-0.69, 0.09)	0.13	-0.34 (-0.73, 0.05)	0.08

*Adjusted for stratum-level variables (urban vs rural and East vs West Belarus residence), maternal and paternal education, and child sex, birth weight, gestation length, and age at follow-up

eTable 3. Instrumental Variable and Observational Associations of Duration and Exclusivity of Breastfeeding (≥3 Months vs. <3 Months) With Lung Function Outcomes

	Instrumental variable analysis		Observational analysis	
	Exclusive breastfeeding ≥3 vs. <3 months (control)		Exclusive breastfeeding ≥3 vs. <3 months (control)	
	Cluster-adjusted	Further adjusted *	Cluster-adjusted	Further adjusted *
Lung Function	β (95% CI)		β (95% CI)	
FEV1 z-score	-1.14 (-2.31, 0.02)	-1.00 (-2.17, 0.18)	0.03 (-0.03, 0.09)	0.03 (-0.03, 0.10)
FVC z-score	-0.62 (-1.56, 0.32)	-0.49 (-1.61, 0.63)	0.03 (-0.03, 0.08)	0.03 (-0.02, 0.08)
FEV1:FVC ratio z-score	-0.41 (-2.06, 1.25)	-0.41 (-2.30, 1.47)	0.01 (-0.06, 0.08)	0.01 (-0.06, 0.08)
FEV1:FVC ratio x 100	-5.34 (-17.76, 7.08)	-5.23 (-19.31, 8.85)	0.09 (-0.44, 0.62)	0.10 (-0.43, 0.62)

*Adjusted for stratum-level variables (urban vs. rural and East vs. West Belarus), and for child age at follow-up, sex, birthweight, and both maternal and paternal education. Asthma and lung function models were also adjusted for gestational age at birth.

eTable 4. Intention-to-treat analysis with multiple imputation, comparing intervention vs control groups (N = 17,046)

	Group, No. (%)		OR (95% CI)	
	Intervention (n=8865)	Control (n=8181)	Cluster-adjusted	Further adjusted*
Flexural eczema on skin examination	29 (0.3)	49 (0.6)	0.57 (0.32, 1.00)	0.55 (0.32, 0.95)
Flexural eczema past year	41 (0.5)	52 (0.6)	0.66 (0.34, 1.27)	0.66 (0.34, 1.27)
Sleep-disturbed flexural eczema past year	18 (0.2)	28 (0.3)	0.63 (0.28, 1.39)	0.65 (0.28, 1.52)
	Group, No. (%)		OR (95% CI)	
	Intervention (n=8865)	Control (n=8181)	Cluster-adjusted	Further adjusted*
Ever asthma	140 (1.6)	136 (1.7)	0.86 (0.56, 1.32)	0.85 (0.56, 1.29)
Wheezing past 12 months	542 (6.1)	524 (6.4)	0.77 (0.48, 1.22)	0.71 (0.45, 1.10)
Asthma attack in the past 12 months	37 (0.4)	29 (0.4)	1.09 (0.57, 2.06)	1.09 (0.57, 2.06)
	Group, mean (SD)		β (95% CI)	
	Intervention (n=8865)	Control (n=8181)	Cluster-adjusted	Further adjusted*
FEV1 z-score	-0.68 (1.53)	-0.23 (1.22)	-0.34 (-0.66,-0.01)	-0.29 (-0.60, 0.02)
FVC z-score	-0.46 (1.25)	-0.31 (1.14)	-0.19 (-0.51, 0.13)	-0.14 (-0.46, 0.17)
FEV1:FVC ratio z-score	-0.02 (2.75)	0.32 (2.09)	-0.09 (-0.66, 0.49)	-0.09 (-0.65, 0.47)
FEV1:FVC ratio x 100*	85.15 (15.2)	88.38 (10.6)	-1.51 (-5.36, 2.34)	-1.49 (-5.26, 2.29)

*Adjusted for stratum-level variables (urban vs. rural and East vs. West Belarus), and for child age at follow-up, sex, birthweight, and maternal and paternal education. Asthma and lung function models were also adjusted for gestational age at birth.