

Supplementary materials

E-table 1. Definitions used in the questionnaires at SPAIS I–III.

Definitions	SPAIS I	SPAIS II	SPAIS III
Asthma	Ever having had parent- or self-reported asthma in combination with having used inhaled corticosteroid treatment or having wheezing or whistling in the chest or having a respiratory infection that caused wheezing or whistling in the chest in the preceding year.	Ever having had self-reported asthma in combination with having used inhaled corticosteroid treatment or having wheezing or whistling in the chest or having a respiratory infection that caused wheezing or whistling in the chest in the preceding year.	Ever having had self-reported asthma in combination with having used any inhaled asthma treatment or having wheezing or whistling in the chest or having a respiratory infection that caused wheezing or whistling in the chest in the preceding year.
Wheeze	Having had wheezing or whistling in the chest at any time in the preceding year.	Having had wheezing or whistling in the chest at any time in the preceding year.	Having had wheezing or whistling in the chest at any time in the preceding year.
Rhinitis	Having had sneezing, nasal congestion, or rhinorrhoea during the preceding year, without having a cold.	Having had sneezing, nasal congestion, or rhinorrhoea during the preceding year, without having a cold.	Having had sneezing, nasal congestion, or rhinorrhoea during the preceding year, without having a cold.
Allergic symptoms to cat, dog or pollen	The subject's hypersensitivity to cat, dog, or pollen, noticed and reported by the parents.	Self-reported hypersensitivity to cat, dog, or pollen,	Self-reported experience of ever having had allergic symptoms to cat, dog, or pollen

E-table 2. Baseline characteristics of females and males in the study population and those lost to follow up, N = 959.

	Females		p value	Males		p value
	SPAIS III n = 273	Lost to follow-up n = 209		SPAIS III n = 218	Lost to follow-up n = 259	
FeNO _{0.1} (ppb)	4.60 (4.19, 5.15)	4.11 (3.56, 4.73)	0.30	4.78 (4.13, 5.54)	5.39 (4.75, 6.12)	0.28
FEV ₁ (% predicted)	94.69 ± 0.58	95.33 ± 0.84	0.51	95.06 ± 0.76	95.04 ± 0.65	0.99
FEV ₁ (< -1.65 SD) (%)	7.0	11.1	0.11	8.3	7.4	0.73
BMI (kg/m ²)	19.7 ± 0.18	20.3 ± 0.23	0.05	19.8 ± 0.20	19.9 ± 0.19	0.90
Height (cm)	160.9 ± 0.39	160.3 ± 0.46	0.35	163.6 ± 0.64	164.8 ± 0.55	0.18
Asthma (%)	8.1	10.1	0.45	8.7	8.1	0.81
Wheeze (%)	14.7	14.8	0.96	12.8	10.8	0.49
Rhinitis (%)	25.6	24.4	0.76	23.9	27.0	0.43
Family smoking (%)	30.4	42.6	0.006	24.8	33.6	0.04
Allergic symptoms to cat (%)	10.3	8.6	0.54	9.6	12.4	0.35
Allergic symptoms to dog (%)	6.2	4.3	0.36	6.4	4.3	0.29
Allergic symptoms to pollen (%)	16.9	15.8	0.76	20.6	17.0	0.31

Abbreviations: BMI, body mass index; FeNO_{0.1}, fractional exhaled nitric oxide measured at 100 mL/s; FEV₁, forced expiratory volume in 1 second; ppb, parts per billion; SD, standard deviation.

All results presented as percent (%) or mean ± standard deviation or geometric mean and 95% confidence interval.

E-table 3. Development of reported symptoms between SPAIS I (age 12–15 years) and SPAIS II (age 16–19 years).

	Prevalence of symptoms at SPAIS I	Remission of symptoms between SPAIS I and II	Persistence of symptoms between SPAIS I and II	Incidence of symptoms between SPAIS I and II	Prevalence of symptoms at SPAIS II	†p value
Wheeze, (%)						
All subjects, n = 491	13.8	7.1	6.7	8.6	15.3	0.43
Females, n = 273	14.7	7.3	7.3	10.6	17.9	0.20
Males, n = 218	12.8	6.9	6.0	6.0	11.9	0.71
Asthma, (%)						
All subjects, n = 491	8.1	1.8	6.3	0.6	7.1	0.08
Females, n = 273	8.1	1.1	7.0	0.4	7.3	0.32
Males, n = 218	8.3	2.8	5.5	0.9	6.4	0.16
Cat symptoms, (%)						
All subjects, n = 461	10.2	0.4	9.8	5.4	15.2	< 0.001
Females, n = 258	10.5	0	10.5	6.2	16.7	< 0.001
Males, n = 203	9.9	1.0	8.9	4.4	13.3	0.03

†p values compare prevalence rates at SPAIS I and II (McNemar's test).
All results presented as percent (%).

E-table 4. Development of reported symptoms between SPAIS II (age 16–19 years) and SPAIS III (age 28–31 years).

	Prevalence of symptoms at SPAIS II	Remission of symptoms between SPAIS II and III	Persistence of symptoms between SPAIS II and III	Incidence of symptoms between SPAIS II and III	Prevalence of symptoms at SPAIS III	†p value
Wheeze, (%)						
All subjects, n = 491	15.3	7.5	7.7	10.6	18.3	0.11
Females, n = 273	17.9	8.1	9.9	11.7	21.6	0.17
Males, n = 218	11.9	6.9	5.0	9.2	14.2	0.40
Asthma, (%)						
All subjects, n = 491	7.1	2.2	4.7	10.0	14.7	< 0.001
Females, n = 273	7.3	1.8	5.5	12.8	18.3	< 0.001
Males, n = 218	6.4	2.8	3.7	6.4	10.1	0.07
Cat symptoms, (%)						
All subjects, n = 461	15.2	2.2	13.0	9.5	22.6	< 0.001
Females, n = 258	16.7	3.5	13.2	8.9	22.1	0.01
Males, n = 203	13.3	0.5	12.8	10.3	23.2	< 0.001

†p values compare prevalence rates at SPAIS II and III (McNemar's test). All results presented as percent (%).

E-table 5. Sex differences in relation to baseline characteristics at SPAIS I (age 12–15 years) and data reported at SPAIS III (age 28–31 years).

	SPAIS I			SPAIS III		
	Males n=218	Females n=273	p value	Males n=218	Females n=273	p value
FeNO _{0.1} (ppb)	4.78 (4.13, 5.54)	4.60 (4.10, 5.15)	0.68	NR	NR	
FEV ₁ (% predicted)	95.06± 11.19	94.69± 9.65	0.70	NR	NR	
FEV ₁ (< -1.65 SD), (%)	8.3	19 (7.0)	0.59	NR	NR	
Age (years)	13.59 ± 0.39	13.55 ± 0.41	0.29	NR	NR	
BMI (kg/m ²)	19.83 ± 2.96	19.74 ± 2.97	0.74	NR	NR	
Height (cm)	163.6 ± 9.49	160.9 ± 6.43	< 0.001	NR	NR	
Menarche, (%)	NR	72.5	NR	NR	NR	
Family asthma, (%)	25.7	33.7	0.06	NR	NR	
Family rhinitis, (%)	53.7	56.0	0.60	NR	NR	
Family smoking, (%)	24.8	30.4	0.17	NR	NR	
Current smoking, (%)	NR	NR		10.4	11.5	0.69
Cat at home, (%)	28.4	25.6	0.49	13.4	17.7	0.19
Dog at home, (%)	21.1	18.7	0.50	9.3	13.0	0.20

Abbreviations: BMI, body mass index; FeNO_{0.1}, fractional exhaled nitric oxide measured at 100 mL/s; FEV₁, forced expiratory volume in one second; NR, not relevant; ppb, parts per billion; SD, standard deviation.

All results presented as percent(%) or mean ± standard deviation or geometric mean and 95% confidence interval.

E-table 6. Sex differences in relation to prevalence of reported symptoms at SPAIS I (age 12–15 years), SPAIS II (age 16–19 years), and SPAIS III (age 28–31 years).

	SPAIS I			SPAIS II			SPAIS III		
	Males n = 218	Females n = 273	p value	Males n = 218	Females n = 273	p value	Males n = 218	Females n = 273	p value
Wheeze, (%)	12.8	14.7	0.56	11.9	17.9	0.07	14.2	21.6	0.04
Rhinitis, (%)	23.9	25.6	0.65	29.6	33.3	0.35	44.5	51.7	0.12
	n = 203	n = 258		n = 203	n = 258		n = 203	n = 258	
Allergic symptoms to dog, (%)	5.9	6.6	0.77	8.4	8.5	0.95	11.8	14.7	0.36
Allergic symptoms to pollen, (%)	20.7	17.1	0.32	22.7	23.3	0.88	42.4	45.7	0.47

All results presented as percent (%).