

## **SUPPLEMENTAL INFORMATION**

### **The Burden of AD in Europe: Analyses of the National Health and Wellness Survey**

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**Table S1.** Demographic and clinical characteristics by self-reported AD severity

	<b>Mild-to-moderate AD</b>		<b>Moderate-to-severe AD</b>	
	<b>AD cohort N = 4039</b>	<b>Matched non-AD control cohort N = 4039</b>	<b>AD cohort N = 1346</b>	<b>Matched non-AD control cohort N = 1346</b>
Age, mean (range), years	45.7 (18–91)	45.5 (18–87)	44.6 (18–91)	44.4 (18–84)
Female, n (%)	2743 (67.9%)	2767 (68.5)	963 (71.6)	964 (71.6)
Geographic location, n (%)				
UK	1373 (34.0)	1339 (33.2)	386 (28.7)	379 (28.2)
France	1041 (25.8)	1091 (27.0)	387 (28.8)	383 (28.5)
Spain	626 (15.5)	659 (16.3)	207 (15.4)	220 (16.3)
Germany	589 (14.6)	544 (13.5)	193 (14.3)	190 (14.1)
Italy	410 (10.2)	406 (10.1)	173 (12.9)	174 (12.9)
Employed, n (%)	2223 (55.0)	2329 (57.7)	738 (54.8)	799 (59.4)
Charlson comorbidity index, n (%)				
0	3323 (82.3)	3417 (84.6)	1085 (80.6)	1104 (82.0)
1	426 (10.6)	384 (9.5)	143 (10.6)	133 (9.9)
2	181 (4.5)	145 (3.6)	78 (5.8)	70 (5.2)
≥3	109 (2.7)	93 (2.3)	40 (3.0)	39 (2.9)
Other atopic condition (allergic rhinitis, asthma), n (%)	1502 (37.2)	1482 (36.7)	517 (38.4)	512 (38.0)

*AD* Atopic dermatitis, *UK* United Kingdom

<sup>a</sup> AD cohort versus matched non-AD control cohort

**Table S2.** History of disease by self-reported AD severity

	<b>Mild-to-moderate AD cohort N = 4039</b>	<b>Moderate-to-severe AD cohort N = 1346</b>
Time since diagnosis, n (%)		
<5 years	1412 (35.0)	473 (35.1)
6–10 years	508 (12.6)	179 (13.3)
11–15 years	338 (8.4)	108 (8.0)
≥16 years	1655 (41.0)	556 (41.3)
Missing/unknown	126 (3.1)	30 (2.2)
Diagnosing healthcare professional, n (%)		
Primary care/general practice	1974 (48.9)	555 (41.2)
Dermatologist	1489 (36.9)	591 (43.9)
Allergist	153 (3.8)	70 (5.2)
Pediatrician	127 (3.1)	41 (3.1)
Nurse practitioner/physician assistant	94 (2.3)	29 (2.2)
Other	76 (1.9)	30 (2.2)
Missing/unknown	126 (3.1)	30 (2.2)
Self-reported severity, n (%)		
Mild	2862 (70.9)	0
Moderate	1177 (29.1)	1177 (87.4)
Severe	0	169 (12.6)
AD location, n (%)		
Hands	1401 (34.7)	533 (39.6)
Face/neck	1255 (31.1)	492 (36.6)
Lower arm	1061 (26.3)	427 (31.7)
Lower leg	1006 (24.9)	373 (27.7)
Upper arm	872 (21.6)	373 (27.7)
Scalp/head	855 (21.2)	354 (26.3)
Upper leg	615 (15.2)	294 (21.8)
Feet	585 (14.5)	241 (17.9)
Chest/torso	567 (14.0)	256 (19.0)
Back	500 (12.4)	239 (17.8)
Buttocks	317 (7.9)	167 (12.4)
Other	340 (8.4)	120 (8.9)

Over-the-counter treatment for AD, n (%)		
Yes	1093 (27.1)	415 (30.8)
No	2260 (56.0)	658 (48.9)
Missing/unknown	686 (17.0)	273 (20.3)
Prescription treatment for AD, n (%)		
Yes	1706 (42.2)	578 (42.9)
No	2333 (57.8)	768 (57.1)
Prescribing healthcare professional, n (%)		
Primary care/general practice	1033 (25.6)	289 (21.5)
Dermatologist	537 (13.3)	248 (18.4)
Allergist	52 (1.3)	22 (1.6)
Nurse practitioner/physician assistant	40 (1.0)	11 (0.8)
Other	44 (1.1)	8 (0.6)
DLQI, n (%)		
No effect (0 or 1)	1680 (41.6)	286 (21.3)
Small effect (2–5)	1448 (35.9)	519 (38.6)
Moderate effect (6–10)	560 (13.9)	277 (20.6)
Very large effect (11–20)	295 (7.3)	219 (16.3)
Extremely large effect (21–30)	56 (1.4)	45 (3.3)

*AD* Atopic dermatitis, *DLQI* Dermatology Life Quality Index

**Table S3.** Comorbidity burden by self-reported AD severity and in matched non-AD control cohorts

	Mild-to-moderate AD cohort N = 4039		Matched non-AD control cohort N = 4039	P value <sup>a</sup>	Moderate-to-severe AD cohort N = 1346		Matched non-AD control cohort N = 1346	P value <sup>a</sup>
	Mild AD n = 2862	Moderate AD n = 1177			Moderate AD n = 1177	Severe AD n = 169		
Atopic comorbidities								
Allergies	1146 (40.0)	567 (48.2)	907 (22.5)	<0.0001	567 (48.2)	87 (51.5)	315 (23.4)	<0.0001
Allergic rhinitis	746 (26.1)	294 (25.0)	925 (22.9)	0.009	294 (25.0)	48 (28.4)	307 (22.8)	0.18
Asthma	632 (22.1)	281 (23.9)	796 (19.7)	0.003	281 (23.9)	46 (27.2)	273 (20.3)	0.03
Food allergies	389 (13.6)	201 (17.1)	229 (5.7)	<0.0001	201 (17.1)	40 (23.7)	92 (6.8)	<0.0001
Cardiac, vascular, and metabolic comorbidities								
Hypertension	604 (21.1)	248 (21.1)	684 (16.9)	<0.0001	248 (21.1)	43 (25.4)	215 (16.0)	0.0004
High cholesterol	578 (20.2)	240 (20.4)	612 (15.2)	<0.0001	240 (20.4)	38 (22.5)	186 (13.8)	<0.0001
Angina	315 (11.0)	137 (11.6)	306 (7.6)	<0.0001	137 (11.6)	25 (14.8)	117 (8.7)	0.008
Type 2 diabetes	183 (6.4)	78 (6.6)	253 (6.3)	0.90	78 (6.6)	13 (7.7)	74 (5.5)	0.34
Atrial fibrillation	39 (1.4)	16 (1.4)	51 (1.3)	0.93	16 (1.4)	7 (4.1)	18 (1.3)	0.02
Heart attack	38 (1.3)	22 (1.9)	55 (1.4)	0.37	22 (1.9)	4 (2.4)	11 (0.8)	0.04
Congestive heart failure	27 (0.9)	17 (1.4)	37 (0.9)	0.26	17 (1.4)	2 (1.2)	15 (1.1)	0.76
Peripheral vascular disease	13 (0.5)	11 (0.9)	14 (0.4)	0.03	11 (0.9)	2 (1.2)	2 (0.2)	0.02
Stroke	27 (0.9)	7 (0.6)	35 (0.9)	0.55	7 (0.6)	1 (0.6)	12 (0.9)	0.67
Neuropsychiatric comorbidities								
Pain	903 (31.6)	413 (35.1)	878 (21.7)	<0.0001	413 (35.1)	66 (39.1)	315 (23.4)	<0.0001

Migraine	513 (17.9)	246 (20.9)	484 (12.0)	<0.0001	246 (20.9)	51 (30.2)	173 (12.9)	<0.0001
Attention deficit disorder	24 (0.8)	14 (1.2)	13 (0.3)	0.0009	14 (1.2)	6 (3.6)	6 (0.5)	0.0003
Attention deficit hyperactivity disorder	17 (0.6)	11 (0.9)	11 (0.3)	0.009	11 (0.9)	6 (3.6)	5 (0.4)	<0.0001

*AD* Atopic dermatitis

Data reported as n (%)

<sup>a</sup> AD cohort [“mild or moderate” or “moderate” or “severe”] versus matched non-AD control cohort

**Table S4.** Sleep burden by self-reported AD severity and in matched non-AD control cohorts

	<b>Mild-to-moderate AD cohort N = 4039</b>		<b>Matched non-AD control cohort N = 4039</b>	<i>P</i> value <sup>a</sup>	<b>Moderate-to-severe AD cohort N = 1346</b>		<b>Matched non-AD control cohort N = 1346</b>	<i>P</i> value <sup>a</sup>
	<b>Mild AD n = 2862</b>	<b>Moderate AD n = 1177</b>			<b>Moderate AD n = 1177</b>	<b>Severe AD n = 169</b>		
At least one sleep difficulty	1418 (49.6)	647 (55.0)	1563 (38.7)	<0.0001	647 (55.0)	105 (62.1)	528 (39.2)	<0.0001
Severity of sleep difficulties								
Mild	758 (26.5)	241 (20.5)	818 (20.3)	<0.0001	241 (20.5)	30 (17.8)	273 (20.3)	<0.0001
Moderate	524 (18.3)	294 (25.0)	576 (14.3)		294 (25.0)	41 (24.3)	202 (15.0)	
Severe	136 (4.8)	112 (9.5)	169 (4.2)		112 (9.5)	34 (20.1)	53 (3.9)	
Impact of sleep difficulties								
No impact	151 (5.3)	58 (4.9)	186 (4.6)	<0.0001	58 (4.9)	11 (6.5)	67 (5.0)	<0.0001
Little impact	423 (14.8)	145 (12.3)	454 (11.2)		145 (12.3)	19 (11.2)	147 (10.9)	
Mild impact	376 (13.1)	171 (14.5)	414 (10.3)		171 (14.5)	18 (10.7)	137 (10.2)	
Moderate impact	349 (12.2)	214 (18.2)	405 (10.0)		214 (18.2)	38 (22.5)	134 (10.0)	
Severe impact	119 (4.2)	59 (5.0)	104 (2.6)		59 (5.0)	19 (11.2)	43 (3.2)	

AD Atopic dermatitis

Data reported as n (%)

<sup>a</sup> AD cohort [“mild or moderate” or “moderate” or “severe”] versus matched non-AD control cohort

**Table S5.** EQ-5D-5L Index and VAS scores by self-reported AD severity and in matched non-AD control cohorts

	<b>Mild-to-moderate AD cohort N = 4039</b>		<b>Matched non-AD control cohort N = 4039</b>	<b><i>P</i> value<sup>a</sup></b>	<b>Moderate-to-severe AD cohort N = 1346</b>		<b>Matched non-AD control cohort N = 1346</b>	<b><i>P</i> value<sup>a</sup></b>
	<b>Mild AD n = 2862</b>	<b>Moderate AD n = 1177</b>			<b>Moderate AD n = 1177</b>	<b>Severe AD n = 169</b>		
EQ-5D-5L index	0.78 (0.22)	0.72 (0.26)	0.81 (0.21)	<0.0001	0.72 (0.26)	0.67 (0.29)	0.81 (0.23)	<0.0001
EQ-5D-5L VAS	70.91 (21.87)	66.11 (23.55)	73.85 (21.61)	<0.0001	66.11 (23.55)	61.11 (25.76)	76.13 (21.65)	<0.0001

*AD* Atopic dermatitis, *EQ-5D-5L* EuroQol 5-Dimensions 5-Level, *SD* standard deviation

Data reported as mean (SD)

<sup>a</sup> AD cohort [“mild or moderate” or “moderate” or “severe”] versus matched non-AD control cohort



**Table S6.** Work, productivity, and activity impairment by self-reported AD severity and in matched non-AD control cohorts

	Mild-to-moderate AD cohort		Matched non-AD control cohort	<i>P</i> value <sup>a</sup>	Moderate-to-severe AD cohort		Matched non-AD control cohort	<i>P</i> value <sup>a</sup>
	Mild AD	Moderate AD			Moderate AD	Severe AD		
	<i>N</i> = 4039		<i>N</i> = 4039		<i>N</i> = 1346		<i>N</i> = 1346	
	<i>n</i> = 2862	<i>n</i> = 1177			<i>n</i> = 1177	<i>n</i> = 169		
Activity impairment <sup>b</sup>	28.86 (28.52)	36.94 (29.91)	25.79 (28.28)	<0.0001	36.94 (29.91)	42.84 (30.18)	27.85 (29.04)	<0.0001
Work impairment <sup>c</sup>								
	<i>N</i> = 2053		<i>N</i> = 2150		<i>N</i> = 682		<i>N</i> = 732	
Absenteeism <sup>d</sup>	<i>n</i> = 1457	<i>n</i> = 596			<i>n</i> = 596	<i>n</i> = 86		
	8.82 (22.80)	11.95 (24.98)	6.88 (20.06)	<0.0001	11.95 (24.98)	12.22 (23.60)	7.09 (19.68)	0.0002
	<i>N</i> = 1983		<i>N</i> = 2097		<i>N</i> = 655		<i>N</i> = 720	
Presenteeism <sup>e</sup>	<i>n</i> = 1412	<i>n</i> = 571			<i>n</i> = 571	<i>n</i> = 84		
	21.25 (25.45)	28.88 (27.49)	19.41 (25.02)	<0.0001	28.88 (27.49)	36.43 (28.40)	21.50 (26.00)	<0.0001
	<i>N</i> = 1970		<i>N</i> = 2092		<i>N</i> = 651		<i>N</i> = 716	
Overall work impairment <sup>f</sup>	<i>n</i> = 1402	<i>n</i> = 568			<i>n</i> = 568	<i>n</i> = 83		
	23.51 (27.79)	32.02 (30.33)	21.37 (27.14)	<0.0001	32.02 (30.33)	40.55 (30.24)	23.50 (28.08)	<0.0001

AD Atopic dermatitis, SD standard deviation, WPAI work productivity and activity impairment

Data reported as mean (SD)

<sup>a</sup> AD cohort [“mild or moderate” or “moderate” or “severe”] versus matched non-AD control cohort

<sup>b</sup> Percentage impairment in daily activities because of one’s health in the past 7 days

<sup>c</sup> Work impairment portion of the WPAI questionnaire only administered to respondents who were employed

<sup>d</sup> Percentage of work time missed because of one's health in the past 7 days

<sup>e</sup> Percentage impairment experienced while at work in the past 7 days because of one's health

<sup>f</sup> Combination of absenteeism and presenteeism