

	Smoking status				Smoking quantity ⁺			
	Never smoker (n=890)	Ex-smoker (n=652)	Current smoker (n=489)	P- value	Light smoker (n=199)	Heavy smoker (n=166)	P- value	
Age, mean (SD) years	47.6 (14.8)	54.2 (13.6)	44.5 (12.9)	<0.001	42.7 (13.4)	47.6 (11.6)	<0.001	
Male	562 (63%)	459 (70%)	356 (73%)	<0.001	139 (70%)	127 (77%)	0.154	
Meets mNY criteria for AS	597 (67%)	499 (77%)	335 (69%)	<0.001	139 (70%)	117 (70%)	0.895	
HLA-B27 positive ⁺	530 (77%)	375 (82%)	283 (79%)	0.179	126 (82%)	89 (79%)	0.533	
Radiographic sacroiliitis*	597 (82%)	499 (88%)	335 (85%)	0.003	139 (85%)	117 (88%)	0.500	
Inflammatory lesion on MRI ⁺	483 (81%)	299 (75%)	295 (88%)	<0.001	109 (84%)	104 (90%)	0.127	
Good response to NSAIDs	614 (71%)	434 (70%)	266 (58%)	<0.001	99 (53%)	99 (62%)	0.091	
Elevated CRP**	432 (50%)	324 (52%)	286 (62%)	<0.001	119 (64%)	103 (65%)	0.877	
Symptom duration, median (IQR) years	18.5 (7.9 to 32.5)	27.3 (13.0 to 37.1)	15.1 (6.9 to 27.0)	<0.001	13.2 (6.2 to 26.3)	18.0 (7.8 to 29.1)	0.096	
BMI, mean (SD)	27.5 (5.6)	28.6 (5.1)	27.1 (5.8)	<0.001	26.6 (5.7)	28.2 (6.0)	0.018	
Quintiles of Index of Multiple Deprivation	1, most deprived	94 (11%)	83 (13%)	132 (27%)	<0.001 ***	57 (29%)	46 (28%)	0.365* **
	2	149 (17%)	98 (15%)	99 (20%)		39 (20%)	38 (23%)	
	3	188 (21%)	145 (22%)	102 (21%)		31 (16%)	35 (21%)	
	4	220 (25%)	177 (27%)	93 (19%)		41 (21%)	31 (19%)	
	5, most affluent	239 (27%)	149 (23%)	63 (13%)		31 (16%)	16 (10%)	
Highest level of education	Secondary school	219 (25%)	231 (36%)	199 (41%)	<0.001	82 (42%)	78 (48%)	0.290
	Apprenticeship	66 (7%)	65 (10%)	55 (11%)		23 (12%)	25 (15%)	
	Further education college	273 (31%)	211 (33%)	133 (28%)		57 (29%)	42 (26%)	

	University degree	232 (26%)	99 (15%)	69 (14%)		26 (13%)	12 (7%)	
	Further degree	94 (11%)	41 (6%)	27 (6%)		7 (4%)	7 (4%)	
Alcohol status	Current	698 (79%)	494 (76%)	330 (68%)	<0.001	17 (9%)	18 (11%)	0.444
	Ex	114 (13%)	122 (19%)	113 (23%)		53 (27%)	36 (22%)	
	Never	67 (8%)	33 (5%)	42 (9%)		126 (64%)	112 (67%)	
Number of comorbidities	0	554 (63%)	318 (50%)	264 (54%)	<0.001 ***	111 (56%)	81 (49%)	0.279* **
	1	228 (26%)	186 (29%)	152 (31%)		58 (29%)	60 (36%)	
	2	75 (9%)	87 (14%)	50 (10%)		22 (11%)	18 (11%)	
	≥3	24 (3%)	50 (8%)	23 (5%)		8 (4%)	7 (4%)	
Medication in the past 6 months	NSAIDs	667 (76%)	443 (69%)	381 (78%)	<0.001	150 (75%)	132 (80%)	0.347
	DMARDs	95 (16%)	57 (13%)	43 (12%)	0.310	12 (9%)	16 (13%)	0.210

Data presented as mean (standard deviation), median (interquartile range), number (percentage). Comparisons used t-test for continuous variables, Chi-squared test for categorical variables. Bold text highlights significant differences.

*Not all current smokers provided information on smoking quantity. Not all variables have complete data, in particular: HLA-B27 status tested in 1773 and MRI results were available for 1606.

*Radiographic sacroiliitis defined as grade 2 or more bilaterally or grade 3 or greater unilaterally.

**Above upper normal limit.

***Non-parametric test for trend across ordered groups.

SD, standard deviation; IQR, interquartile range; mNY, modified New York criteria; BMI, body mass index.

Table 2. Differences in extra-axial manifestations and measures of disease severity according to smoking status and quantity. A selection of disease severity measures is shown here with other variables shown in supplementary table 2.

		Smoking status				Smoking quantity ⁺		
		Never smoker (n=890)	Ex-smoker (n=652)	Current smoker (n=489)	P-value	Light smoker (n=199)	Heavy smoker (n=166)	P-value
Extra axial manifestations, n (%)	Uveitis	241 (27%)	166 (26%)	76 (16%)	<0.001	29 (15%)	30 (18%)	0.366
	IBD	87 (10%)	82 (13%)	47 (10%)	0.135	19 (10%)	12 (7%)	0.429
	Psoriasis	87 (10%)	77 (12%)	69 (14%)	0.058	24 (12%)	26 (16%)	0.319
	Peripheral arthritis	358 (41%)	270 (43%)	166 (36%)	0.044	66 (35%)	60 (38%)	0.665
	Dactylitis	75 (9%)	58 (9%)	36 (8%)	0.672	15 (8%)	14 (9%)	0.805
	Enthesitis	211 (24%)	156 (25%)	103 (22%)	0.546	44 (24%)	34 (21%)	0.615
Disease activity, median (IQR)	BASDAI	4.3 (2.2 to 6.4)	4.9 (2.7 to 6.7)	6.1 (4.1 to 7.5)	<0.001	6.1 (4.4 to 7.4)	6.4 (4.7 to 7.6)	0.403
	ASDAS ⁺	2.1 (1.3 to 2.9)	2.3 (1.5 to 3.0)	2.8 (2.1 to 3.4)	<0.001	2.7 (2.1 to 3.4)	2.9 (2.3 to 3.6)	0.114
BASFI, median (IQR)		3.4 (1.4 to 6.0)	5.0 (2.4 to 7.3)	5.9 (3.5 to 8.1)	<0.001	5.8 (3.7 to 7.9)	6.8 (4.9 to 8.3)	0.026
ASQoL, median (IQR)		6 (2 to 11)	8.5 (3 to 13)	12 (7 to 16)	<0.001	12 (8 to 16)	13 (9 to 16)	0.373
Chalder Fatigue Scale, median (IQR)		14 (11 to 19)	14 (11 to 18)	17 (11 to 21)	<0.001	17 (12 to 21)	17 (12 to 20)	0.466
Sleep, median (IQR)		9 (4 to 15)	10 (5 to 16)	13 (6 to 17)	<0.001	12 (6 to 17)	14 (9 to 18)	0.057
HADS, median (IQR)	Anxiety	6 (3 to 10)	7 (4 to 11)	10 (6 to 13)	<0.001	10 (6 to 13)	10 (6 to 13)	0.555
	Depression	4 (2 to 7)	5 (3 to 9)	8 (4 to 11)	<0.001	8 (4 to 11)	8 (4 to 11)	0.623

Bold text highlights significant differences.

⁺Not all current smokers provided information on smoking quantity. 1596 patients had ASDAS.

IQR, interquartile range; BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; BASFI, Bath AS functional index; ASQoL, AS quality of life questionnaire; Sleep, Jenkins Sleep Evaluation Questionnaire; HADS, Hospital Anxiety and Depression Scale; IBD, inflammatory bowel disease.

Table 3. Comparisons between current, ex- and never smokers using fully adjusted regression models. A selection of disease severity measures is shown here with other variables shown in supplementary table 3.

		Never smokers	Ex-smokers	Current smokers	Ex-smokers	Current smokers
Extra axial manifestations	Uveitis	Reference	0.97 (0.74 to 1.27)	0.68 (0.49 to 0.94)	Reference	0.70 (0.50 to 0.99)
	IBD	Reference	1.40 (0.96 to 2.03)	1.03 (0.66 to 1.61)	Reference	0.73 (0.47 to 1.14)
	Psoriasis	Reference	0.94 (0.64 to 1.37)	1.56 (1.05 to 2.32)	Reference	1.66 (1.09 to 2.54)
	Peripheral arthritis	Reference	0.93 (0.73 to 1.19)	0.82 (0.62 to 1.08)	Reference	0.88 (0.65 to 1.17)
	Dactylitis	Reference	1.07 (0.71 to 1.60)	1.08 (0.68 to 1.72)	Reference	1.02 (0.62 to 1.65)
	Enthesitis	Reference	1.05 (0.80 to 1.38)	0.89 (0.65 to 1.22)	Reference	0.85 (0.61 to 1.18)
Disease activity	BASDAI	Reference	0.35 (0.08 to 0.62)	0.94 (0.64 to 1.24)	Reference	0.59 (0.27 to 0.91)
	ASDAS	Reference	0.14 (0.01 to 0.28)	0.46 (0.32 to 0.61)	Reference	0.32 (0.17 to 0.47)
BASFI		Reference	0.53 (0.24 to 0.82)	1.30 (0.97 to 1.62)	Reference	0.77 (0.42 to 1.11)
ASQoL		Reference	0.88 (0.30 to 1.47)	2.64 (1.98 to 3.29)	Reference	1.75 (1.06 to 2.44)
Chalder Fatigue Scale		Reference	0.02 (-0.60 to 0.63)	1.34 (0.66 to 2.02)	Reference	1.32 (0.60 to 2.05)
Sleep		Reference	0.72 (0.02 to 1.42)	1.89 (1.11 to 2.67)	Reference	1.17 (0.35 to 2.00)
HADS	Anxiety	Reference	0.75 (0.25 to 1.26)	1.86 (1.30 to 2.42)	Reference	1.11 (0.52 to 1.70)
	Depression	Reference	0.63 (0.19 to 1.06)	1.9 (1.41 to 2.38)	Reference	1.27 (0.75 to 1.79)
<p>Results shown as regression coefficients β (95%confidence interval) for disease severity markers and odds ratios (95%CI) for extra-axial manifestations. Bold text highlights significant coefficients and odds ratios. BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; BASFI, Bath AS functional index; ASQoL, AS quality of life questionnaire; Sleep, Jenkins Sleep Evaluation Questionnaire; HADS, Hospital Anxiety and Depression Scale; IBD, inflammatory bowel disease.</p>						