Supplementary Materials

Supplementary table 1. Comparisons between light (≤10 cigarettes/day) and heavy smokers (>10 cig/day) using partially and fully adjusted regression models. Sensitivity analyses using cigarettes per day as continuous variable are also shown.

		Model effect	Partially adjusted*	Fully adjusted**	Fully adjusted with quantity as continuous variable***
Extra axial manifestations	Uveitis	OR	1.42 (0.76 to 2.66)	1.37 (0.72 to 2.62)	1.12 (0.88 to 1.42)
	IBD	OR	0.67 (0.27 to 1.63)	0.60 (0.24 to 1.50)	0.68 (0.45 to 1.02)
	Psoriasis	OR	1.19 (0.61 to 2.32)	1.21 (0.61 to 2.39)	1.03 (0.80 to 1.34)
	Peripheral arthritis	OR	1.05 (0.63 to 1.75)	1.10 (0.65 to 1.84)	1.05 (0.63 to 1.75)
	Dactylitis	OR	1.08 (0.45 to 2.57)	1.05 (0.44 to 2.53)	1.14 (0.82 to 1.60)
	Enthesitis	OR	0.88 (0.49 to 1.58)	0.88 (0.48 to 1.63)	1.05 (0.83 to 1.32)
Disease activity	BASDAI	β	0.08 (-0.42 to 0.58)	0.09 (-0.41 to 0.59)	0.01 (-0.18 to 0.21)
	ASDAS	β	0.08 (-0.17 to 0.32)	0.09 (-0.16 to 0.33)	0.01 (-0.09 to 0.11)
	Spinal pain	β	0.09 (-0.54 to 0.71)	0.12 (-0.51 to 0.75)	0.03 (-0.21 to 0.27)
	Ln(CRP+1)	β	0.13 (-0.10 to 0.37)	0.11(-0.13 to 0.35)	0.01 (-0.08 to 0.10)
	Ln(ESR)	β	-0.06 (-0.51 to 0.39)	-0.06 (-0.54 to 0.41)	-0.02 (-0.20 to 0.17)
Function	BASFI	β	0.28 (-0.29 to 0.86)	0.32(-0.26 to 0.89)	0.16 (-0.06 to 0.38)
	BASMI	β	0.39 (-0.09 to 0.88)	0.42 (-0.07 to 0.91)	0.13 (-0.06 to 0.31)
Quality of life	ASQoL	β	0.51 (-0.63 to 1.65)	0.48 (-0.65 to 1.61)	0.23 (-0.21 to 0.66)
	EQ-VAS	β	1.75 (-3.43 to 6.92)	1.53 (-3.71 to 6.77)	0.28 (-1.74 to 2.30)
	EQ-5D	β	-0.01 (-0.07 to 0.05)	-0.005 (-0.07 to 0.06)	-0.004 (-0.03 to 0.02)
BASG		β	0.18 (-0.37 to 0.72)	0.18 (-0.36 to 0.72)	0.07 (-0.13 to 0.28)
Chalder Fatigue Scale		β	-0.62 (-1.99 to 0.75)	-0.57 (-1.96 to 0.82)	0.03 (-0.50 to 0.57)
Sleep		β	0.87 (-0.57 to 2.30)	0.99 (-0.45 to 2.43)	0.52 (-0.03 to 1.08)
HADS	Anxiety	β	0.07 (-1.04 to 1.18)	-0.02 (-1.13 to 1.09)	0.04 (-0.39 to 0.47)
	Depression	β	0.33 (-0.68 to 1.33)	0.22 (-0.78 to 1.21)	0.11 (-0.27 to 0.50)

Results shown as odds ratios (95%CI) for extra-axial manifestations and regression coefficients β (95%confidence interval) for disease severity measures.

*Partially adjusted model: y = smoking quantity + age + gender + BMI

**Fully adjusted model: y= smoking quantity + age + gender + BMI + education + IMD + comorbidities + symptom duration + alcohol status

*** in units of 5 cigarettes per day

BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; Ln(CRP+1), log-transformed CRP; Ln(ESR), log-transformed ESR; BASFI, Bath AS functional index; BASMI, Bath AS metrology index; ASQoL, AS quality of life questionnaire; EQ-5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score; Sleep, Jenkins Sleep Evaluation Questionnaire; HADS, Hospital Anxiety and Depression Scale; IBD, inflammatory bowel disease.

Supplementary table 2. Differences in additional measures of disease severity according to smoking status and quantity.

		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
Disease activity, median (IQR)	Spinal pain	**3 (1 to 7)**	**5 (2 to 7)**	**6 (3 to 8)**	**<0.001**	6 (3 to 8)	7 (4 to 8)	0.415
	CRP[+] (mg/dL)	**0.5 (0.1 to 2)**	**0.5 (0.2 to 2)**	**0.8 (0.3 to 2.5)**	**0.003**	0.8 (0.3 to 2.2)	1.2 (0.3 to 3.0)	0.136
	ESR[+] (mm/hr)	10 (5 to 21)	10 (5 to 23)	13 (5 to 27)	0.163	13 (5 to 29)	14 (6 to 27)	0.767
	BASMI[+]	**3.2 (2.0 to 4.8)**	**4.2 (2.6 to 5.6)**	**4.2 (2.6 to 5.8)**	**<0.001**	**4.2 (2.4 to 5.7)**	**5.0 (3.2 to 6.4)**	**0.005**
Quality of life, median (IQR)	EQ-VAS	**70 (50 to 80)**	**62 (45 to 78)**	**55 (35 to 73)**	**<0.001**	51 (35 to 73)	50 (36 to 70)	0.895
	EQ-5D	**0.79 (0.55 to 0.89)**	**0.73 (0.51 to 0.86)**	**0.54 (0.31 to 0.80)**	**<0.001**	0.54 (0.32 to 0.75)	0.52 (0.27 to 0.74)	0.490
BASG[+], median (IQR)		**4.5 (2.0 to 7.0)**	**5.0 (2.5 to 7.5)**	**6.5 (4.5 to 8.0)**	**<0.001**	6.5 (5.0 to 8.0)	7.0 (5.5 to 8.0)	0.208

Bold text highlights significant differences.

[+]Not all current smokers provided information on smoking quantity. Not all variables have complete data, in particular: 1887 had CRP, 915 ESR, 1766 BASMI.

IQR, interquartile range; BASMI, Bath AS metrology index; EQ-5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score.

Supplementary table 3. Additional disease severity measure comparisons between current, ex- and never smokers using fully adjusted regression models.*

		Never smokers	Ex-smokers	Current smokers	Ex-smokers	Current smokers
Disease activity	Spinal pain	Reference	**0.49 (0.16 to 0.81)**	**0.98 (0.62 to 1.34)**	Reference	**0.49 (0.11 to 0.88)**
	Ln(CRP+1)	Reference	-0.05 (-0.16 to 0.05)	**0.12 (0.00 to 0.23)**	Reference	**0.17 (0.05 to 0.29)**
	Ln(ESR)	Reference	0.05 (-0.16 to 0.26)	0.20 (-0.03 to 0.43)	Reference	0.15 (-0.09 to 0.39)
	BASMI	Reference	0.18 (-0.05 to 0.40)	**0.62 (0.37 to 0.87)**	Reference	**0.44 (0.18 to 0.71)**
Quality of life	EQ-VAS	Reference	**-2.53 (-5.01 to -0.06)**	**-7.22 (-9.98 to -4.47)**	Reference	**-4.69 (-7.62 to -1.76)**
	EQ-5D	Reference	-0.03 (-0.05 to 0.001)	**-0.12 (-0.15 to -0.09)**	Reference	**-0.09 (-0.12 to -0.06)**
	BASG	Reference	**0.40 (0.10 to 0.70)**	**1.12 (0.79 to 1.46)**	Reference	**0.72 (0.37 to 1.08)**

Results shown as regression coefficients β (95%confidence interval). Bold text highlights significant coefficients and odds ratios.
*Fully adjusted model: y= smoking status + age + gender + BMI + education + IMD + comorbidities + symptom duration + alcohol status
Ln(CRP+1), log-transformed CRP; Ln(ESR), log-transformed ESR; EQ-5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score.

Supplementary table 4. Comparisons between current, ex- and never smokers using *partially* adjusted regression models.*

		Model effect	Never smokers	Ex-smokers	Current smokers	Ex-smokers	Current smokers
Extra axial manif estations	Uveitis	OR	Reference	0.96 (0.74 to 1.24)	**0.67 (0.48 to 0.91)**	Reference	**0.69 (0.50 to 0.97)**
	IBD	OR	Reference	1.42 (0.98 to 2.03)	1.06 (0.68 to 1.65)	Reference	0.75 (0.48 to 1.16)
	Psoriasis	OR	Reference	1.01 (0.69 to 1.46)	**1.68 (1.13 to 2.48)**	Reference	**1.67 (1.10 to 2.53)**
	Peripheral arthritis	OR	Reference	0.95 (0.75 to 1.21)	0.83 (0.63 to 1.08)	Reference	0.87 (0.65 to 1.15)
	Dactylitis	OR	Reference	1.10 (0.74 to 1.65)	1.13 (0.71 to 1.79)	Reference	1.03 (0.63 to 1.67)
	Enthesitis	OR	Reference	1.04 (0.80 to 1.36)	0.89 (0.65 to 1.21)	Reference	0.85 (0.62 to 1.18)
Disease activity	BASDAI	β	Reference	**0.38 (0.10 to 0.65)**	**1.05 (0.75 to 1.35)**	Reference	**0.68 (0.35 to 1.00)**
	ASDAS	β	Reference	**0.13 (0.002 to 0.27)**	**0.47 (0.32 to 0.62)**	Reference	**0.33 (0.18 to 0.49)**
	Spinal pain	β	Reference	**0.51 (0.19 to 0.84)**	**1.11 (0.75 to 1.46)**	Reference	**0.59 (0.21 to 0.98)**
	Ln(CRP+1)	β	Reference	-0.06 (-0.16 to 0.04)	0.11 (-0.002 to 0.23)	Reference	**0.17 (0.05 to 0.29)**
	Ln(ESR)	β	Reference	0.03 (-0.17 to 0.24)	0.20 (-0.02 to 0.42)	Reference	0.17 (-0.07 to 0.41)
Function	BASFI	β	Reference	**0.58 (0.28 to 0.88)**	**1.47 (1.14 to 1.80)**	Reference	**0.89 (0.54 to 1.24)**
	BASMI	β	Reference	**0.18 (-0.04 to 0.41)**	**0.69 (0.44 to 0.94)**	Reference	**0.51 (0.24 to 0.77)**
Quality of life	ASQoL	β	Reference	**1.02 (0.42 to 1.62)**	**3.02 (2.35 to 3.68)**	Reference	**2.00 (1.29 to 2.71)**
	EQ-VAS	β	Reference	**-3.02 (-5.51 to -0.52)**	**-8.26 (-11.03 to -5.48)**	Reference	**-5.24 (-8.20 to -2.28)**
	EQ-5D	β	Reference	**-0.03 (-0.06 to -0.003)**	**-0.13 (-0.16 to -0.10)**	Reference	**-0.10 (-0.13 to -0.07)**
BASG		β	Reference	**0.43 (0.13 to 0.73)**	**1.24 (0.91 to 1.58)**	Reference	**0.81 (0.45 to 1.17)**
Chalder Fatigue Scale		β	Reference	**0.21 (-0.40 to 0.83)**	**1.68 (0.99 to 2.36)**	Reference	**1.46 (0.73 to 2.19)**
Sleep		β	Reference	**0.85 (0.15 to 1.55)**	**2.13 (1.35 to 2.90)**	Reference	**1.28 (0.45 to 2.10)**
HADS	Anxiety	β	Reference	**0.80 (0.29 to 1.31)**	**2.08 (1.52 to 2.65)**	Reference	**1.28 (0.68 to 1.88)**
	Depression	β	Reference	**0.71 (0.27 to 1.16)**	**2.19 (1.69 to 2.69)**	Reference	**1.48 (0.95 to 2.01)**

Results shown as odds ratios (95%CI) for extra-axial manifestations and regression coefficients β (95%confidence interval) for disease severity measures. Bold text highlights significant coefficients and odds ratios.

*Partially adjusted model: y= smoking status + age + gender + BMI + education + IMD

BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; Ln(CRP+1), log-transformed CRP; Ln(ESR), log-transformed ESR; BASFI, Bath AS functional index; BASMI, Bath AS metrology index; ASQoL, AS quality of life questionnaire; EQ-5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score; Sleep, Jenkins Sleep Evaluation Questionnaire; IBD, inflammatory bowel disease.

Supplementary table 5. Comparing characteristics of participants with and without smoking status data.				
		With smoking data (n=2031)	Without smoking data (n=389)	P-value
Age, mean (SD) years		**49.0 (14.5)**	**43.6 (13.2)**	**<0.001**
Male		1377 (68%)	278 (71%)	0.160
Meets mNY criteria for AS		1431 (70%)	260 (67%)	0.150
HLA-B27 positive		1188 (79%)	222 (80%)	0.680
Radiographic sacroiliitis*		1431 (85%)	260 (81%)	0.120
Inflammatory lesion on MRI		1077 (81%)	234 (85%)	0.140
Good response to NSAIDs		1314 (68%)	245 (66%)	0.650
Elevated CRP**		1042 (54%)	182 (49%)	0.130
Symptom duration, median (IQR) years		**20.0 (8.7 to 33.5)**	**14.8 (7.2 to 25.6)**	**<0.001**
BMI, mean (SD)		27.7 (5.5)	27.2 (5.0)	0.130
Quintiles of Index of Multiple Deprivation	1, most deprived	**309 (15%)**	**78 (20%)**	**0.001*** **
	2	**346 (17%)**	**92 (24%)**	
	3	**435 (21%)**	**68 (17%)**	
	4	**490 (24%)**	**72 (19%)**	
	5, most affluent	**451 (22%)**	**79 (20%)**	
Highest level of education	Secondary school	649 (32%)	11 (34%)	0.770
	Apprenticeship	186 (9%)	4 (13%)	
	Further education college	617 (31%)	11 (34%)	
	University degree	400 (20%)	5 (16%)	
	Further degree	162 (8%)	1 (3%)	
Alcohol status	Current	1522 (76%)	12 (75%)	0.444
	Ex	349 (17%)	3 (19%)	
	Never	142 (7%)	1 (6%)	
Number of comorbidities	0	**1136 (56%)**	**250 (65%)**	**0.008*** **
	1	**566 (28%)**	**81 (21%)**	
	2	**212 (11%)**	**33 (9%)**	
	≥3	**97 (5%)**	**21 (5%)**	
Medication in the past 6 months	NSAIDs	1491 (74%)	302 (78%)	0.062
	DMARDs	195 (14%)	40 (13%)	0.790

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.

*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.

Supplementary table 6. Sensitivity analyses using inverse sampling weights derived from differences between responders and non-responders to the smoking status question.*

		Model effect	Never smokers	Ex-smokers	Current smokers	Ex-smokers	Current smokers
Extra axial manifestations	Uveitis	OR	Reference	0.96 (0.73, 1.25)	**0.67 (0.49, 0.93)**	Reference	**0.70 (0.50, 0.98)**
	IBD	OR	Reference	1.40 (0.97, 2.03)	1.02 (0.64, 1.62)	Reference	0.73 (0.46, 1.14)
	Psoriasis	OR	Reference	0.92 (0.64, 1.33)	**1.56 (1.04, 2.32)**	Reference	**1.69 (1.11, 2.57)**
	Peripheral arthritis	OR	Reference	0.92 (0.72, 1.18)	0.82 (0.62, 1.08)	Reference	0.89 (0.66, 1.19)
	Dactylitis	OR	Reference	1.06 (0.71, 1.60)	1.08 (0.68, 1.70)	Reference	1.02 (0.63, 1.64)
	Enthesitis	OR	Reference	1.06 (0.80, 1.40)	0.92 (0.67, 1.25)	Reference	0.87 (0.62, 1.20)
Disease activity	BASDAI	β	Reference	**0.34 (0.07, 0.62)**	**0.91 (0.61, 1.21)**	**Reference**	**0.57 (0.25, 0.89)**
	ASDAS	β	Reference	**0.14 (0.01, 0.27)**	**0.45 (0.31, 0.60)**	**Reference**	**0.31 (0.16, 0.46)**
	Spinal pain	β	Reference	**0.49 (0.16, 0.81)**	**0.95 (0.59, 1.32)**	**Reference**	**0.47 (0.08, 0.85)**
	Ln(CRP+1)	β	Reference	-0.06 (-0.16, 0.04)	0.11 (-0.01, 0.24)	Reference	**0.17 (0.05, 0.29)**
	Ln(ESR)	β	Reference	0.05 (-0.16, 0.26)	0.20 (-0.04, 0.43)	Reference	0.15 (-0.10, 0.39)
Function	BASFI	β	Reference	**0.52 (0.23, 0.82)**	**1.27 (0.93, 1.60)**	Reference	**0.74 (0.38, 1.10)**
	BASMI	β	Reference	0.17 (-0.05, 0.39)	**0.61 (0.35, 0.87)**	Reference	**0.44 (0.16, 0.71)**
Quality of life	ASQoL	β	Reference	**0.87 (0.28, 1.46)**	**2.59 (1.92, 3.25)**	Reference	**1.71 (1.00, 2.43)**
	EQ-VAS	β	Reference	**-2.57 (-5.00, -0.14)**	**-7.10 (-9.89, -4.30)**	Reference	**-4.52 (-7.50, -1.55)**
	EQ-5D	β	Reference	-0.03 (-0.05, 0.001)	**-0.12 (-0.15, -0.08)**	Reference	**-0.09 (-0.12, -0.05)**
BASG		β	Reference	**0.40 (0.09, 0.70)**	**1.08 (0.75, 1.42)**	Reference	**0.69 (0.34, 1.04)**
Chalder Fatigue Scale		β	Reference	0.03 (-0.56, 0.61)	**1.34 (0.60, 2.09)**	Reference	**1.32 (0.55, 2.09)**
Sleep		β	Reference	**0.70 (0.001, 1.40)**	**1.88 (1.09, 2.67)**	Reference	**1.18 (0.35, 2.01)**
HADS	Anxiety	β	Reference	**0.77 (0.28, 1.27)**	**1.90 (1.31, 2.48)**	Reference	**1.12 (0.50, 1.74)**
	Depression	β	Reference	**0.62 (0.19, 1.04)**	**1.90 (1.38, 2.41)**	Reference	**1.28 (0.72, 1.84)**

Results shown as odds ratios (95%CI) for extra-axial manifestations and regression coefficients β (95%confidence interval) for disease severity measures. Bold text highlights significant coefficients and odds ratios.

* Weighted for the inverse of the sampling fraction with respect to age, symptom duration, IMD, comorbidities and NSAIDs.

BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; Ln(CRP+1), log-transformed CRP; Ln(ESR), log-transformed ESR; BASFI, Bath AS functional index; BASMI, Bath AS metrology index; ASQoL, AS quality of life questionnaire; EQ-

5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score; Sleep, Jenkins Sleep Evaluation Questionnaire; HADS, Hospital Anxiety and Depression Scale; IBD, inflammatory bowel disease.

Supplementary table 7. Moderating effects of gender on associations between smoking statuses and quantity on measures of disease severity and extra-axial manifestations.							
		Gender	Never smokers	Ex-smokers	Current smokers	Ex-smokers	Current smokers
Extra axial manifestations	Uveitis	F	Reference	0.99 (0.63 to 1.56)	**0.53 (0.29 to 0.97)**	Reference	0.54 (0.28 to 1.02)
		M	Reference	0.97 (0.70 to 1.34)	0.75 (0.51 to 1.10)	Reference	0.78 (0.52 to 1.15)
	IBD	F	Reference	1.64 (0.90 to 3.00)	1.26 (0.62 to 2.59)	Reference	0.77 (0.37 to 1.60)
		M	Reference	1.26 (0.79 to 2.02)	0.91 (0.52 to 1.58)	Reference	0.72 (0.42 to 1.23)
	Psoriasis	F	Reference	1.11 (0.57 to 2.19)	**2.48 (1.28 to 4.81)**	Reference	2.22 (1.07 to 4.62)
		M	Reference	0.85 (0.54 to 1.34)	1.25 (0.77 to 2.01)	Reference	1.46 (0.89 to 2.42)
	Peripheral arthritis	F	Reference	1.12 (0.73 to 1.70)	1.42* (0.89 to 2.28)	Reference	1.27 (0.76 to 2.14)
		M	Reference	0.59 (0.31 to 1.14)	**0.62* (0.44 to 0.87)**	Reference	0.74 (0.52 to 1.06)
	Dactylitis	F	Reference	1.26 (0.66 to 2.40)	2.22* (1.16 to 4.27)	Reference	1.76* (0.86 to 3.60)
		M	Reference	1.03 (0.61 to 1.73)	0.63* (0.32 to 1.23)	Reference	0.65* (0.33 to 1.27)
	Enthesitis	F	Reference	1.11 (0.70 to 1.77)	1.46* (0.88 to 2.43)	Reference	1.31 (0.75 to 2.30)
		M	Reference	1.01 (0.72 to 1.40)	0.69* (0.47 to 1.01)	Reference	0.68 (0.46 to 1.02)
Disease activity	BASDAI	F	Reference	**0.65 (0.18 to 1.12)**	**0.55 (0.02 to 1.07)**	Reference	-0.10* (-0.68 to 0.48)
		M	Reference	0.22 (-0.11 to 0.54)	**1.09 (0.73 to 1.44)**	Reference	**0.87* (0.50 to 1.24)**
	ASDAS	F	Reference	**0.32 (0.09 to 0.54)**	0.14* (-0.11 to 0.40)	Reference	-0.18* (-0.45 to 0.10)
		M	Reference	0.07 (-0.09 to 0.23)	**0.59* (0.42 to 0.76)**	Reference	**0.52 (0.34 to 0.70)**
	Spinal pain	F	Reference	**0.85 (0.30 to 1.41)**	**0.70 (0.07 to 1.33)**	Reference	-0.15* (-0.84 to 0.54)
		M	Reference	0.33 (-0.07 to 0.72)	**1.08 (0.65 to 1.50)**	Reference	**0.75* (0.31 to 1.20)**
	Ln(CRP+1)	F	Reference	0.02 (-0.16 to 0.20)	0.02 (-0.18 to 0.22)	Reference	0.004 (-0.22 to 0.22)
		M	Reference	-0.08 (-0.21 to 0.04)	**0.16 (0.02 to 0.29)**	Reference	**0.24 (0.10 to 0.38)**
	Ln(ESR)	F	Reference	-0.02 (-0.36 to 0.33)	-0.08 (-0.48 to 0.33)	Reference	-0.06 (-0.51 to 0.39)
		M	Reference	0.10 (-0.16 to 0.37)	**0.32 (0.05 to 0.58)**	Reference	0.21 (-0.07 to 0.50)
Function	BASFI	F	Reference	**0.67 (0.16 to 1.17)**	**0.84 (0.27 to 1.41)**	Reference	0.17* (-0.46 to 0.80)
		M	Reference	**0.48 (0.13 to 0.83)**	**1.48 (1.10 to 1.87)**	Reference	**1.00* (0.60 to 1.41)**
	BASMI	F	Reference	0.38 (-0.02 to 0.77)	**0.61 (0.15 to 1.07)**	Reference	0.23 (-0.27 to 0.73)
		M	Reference	0.09 (-0.18 to 0.35)	**0.61 (0.32 to 0.90)**	Reference	**0.53 (0.22 to 0.83)**
Quality of life	ASQoL	F	Reference	**1.41 (0.40 to 2.42)**	**1.93 (0.77 to 3.08)**	Reference	0.52* (-0.75 to 1.78)
		M	Reference	0.66 (-0.05 to 1.37)	**2.89 (2.12 to 3.66)**	Reference	**2.24* (1.43 to 3.04)**

	EQ-VAS	F	Reference	-2.29 (-6.58 to 1.99)	**-6.11 (-10.95 to -1.27)**	Reference	-3.81 (-9.14 to 1.51)
		M	Reference	-2.68 (-5.68 to 0.31)	**-7.71 (-10.98 to -4.44)**	Reference	**-5.03 (-8.45 to -1.60)**
	EQ-5D	F	Reference	**-0.05 (-0.10 to -0.0004)**	**-0.09 (-0.14 to -0.03)**	Reference	-0.04* (-0.10 to 0.02)
		M	Reference	-0.02 (-0.05 to 0.02)	**-0.13 (-0.17 to -0.09)**	Reference	**-0.11* (-0.15 to -0.07)**
BASG		F	Reference	0.50 (-0.02 to 1.02)	**0.64* (0.05 to 1.22)**	Reference	0.14* (-0.51 to 0.78)
		M	Reference	**0.37 (0.01 to 0.73)**	**1.32* (0.92 to 1.71)**	Reference	**0.95* (0.54 to 1.36)**
Chalder Fatigue Scale		F	Reference	**1.14* (0.09 to 2.20)**	**1.49 (0.29 to 2.70)**	Reference	0.35 (-0.97 to 1.67)
		M	Reference	-0.52* (-1.26 to 0.22)	**1.21 (0.40 to 2.01)**	Reference	**1.73 (0.88 to 2.57)**
Sleep		F	Reference	1.13 (-0.08 to 2.33)	0.80 (-0.56 to 2.16)	Reference	-0.33* (-1.82 to 1.17)
		M	Reference	0.56 (-0.29 to 1.41)	**2.32 (1.40 to 3.24)**	Reference	**1.76* (0.80 to 2.73)**
HADS	Anxiety	F	Reference	**1.37 (0.50 to 2.24)**	**2.09 (1.11 to 3.08)**	Reference	0.73 (-0.35 to 1.81)
		M	Reference	0.45 (-0.16 to 1.07)	**1.73 (1.07 to 2.39)**	Reference	**1.27 (0.58 to 1.97)**
	Depression	F	Reference	**1.03 (0.27 to 1.79)**	**2.12 (1.26 to 2.97)**	Reference	**1.09 (0.15 to 2.03)**
		M	Reference	0.43 (-0.10 to 0.96)	**1.78 (1.20 to 2.35)**	Reference	**1.35 (0.75 to 1.95)**

Results from gender-interaction models shown as odds ratios (95%CI) for extra-axial manifestations and regression coefficients β (95%confidence interval) for disease severity measures. Bold text highlights statistically significant coefficients.

*statistically significant difference between sexes (ie. significant coefficient for interaction term)

BASDAI, Bath AS disease activity index; ASDAS, AS disease activity score; Ln(CRP+1), log-transformed CRP; Ln(ESR), log-transformed ESR; BASFI, Bath AS functional index; BASMI, Bath AS metrology index; ASQoL, AS quality of life questionnaire; EQ-5D, EuroQoL; EQ-VAS, overall health status visual analogue scale; BASG, Bath AS Global Score; Sleep, Jenkins Sleep Evaluation Questionnaire; HADS, Hospital Anxiety and Depression Scale; IBD, inflammatory bowel disease.