**Supplementary Materials**

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| 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. | | | | | |

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| 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. | | | | | | | | |

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| 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. | | | | | | |

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| 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 manifestations | 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. | | | | | | | | |

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| 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. | | | | |

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| 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. | | | | | | | |

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| 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. | | | | | | | |