

Supplementary materials

Supplementary Table 1 – Self-reported characteristics for 12,713 patients with inflammatory arthritis stratified by diagnosis

	Total	Rheumatoid arthritis	Psoriatic arthritis	Spondyloarthritis
	N= 12,713	N= 8,331	N= 2,390	N= 1,992
Anxiety, HADS-A				
Total score, median (IQR)	4 (6)	4 (5)	5 (6)	6 (6)
Total score, mean (\pm SD)	5.20 (3.93)	4.77 (3.75)	5.82 (4.11)	6.23 (4.12)
Non-case, ≤ 7 (%)	9,186 (72.3)	6,319 (75.9)	1,586 (66.4)	1,281 (64.3)
Possible case, 8-10 (%)	1,868 (14.7)	1,097 (13.2)	420 (17.6)	351 (17.6)
Definite case, ≥ 11 (%)	1,350 (10.6)	694 (8.3)	331 (13.9)	325 (16.3)
Missing, n (%)	309 (2.4)	221 (2.7)	53 (2.2)	35 (1.8)
Depression, HADS-D				
Total score, median (IQR)	3 (6)	3 (5)	4 (6)	4 (6)
Total score, mean (\pm SD)	4.44 (3.77)	4.14 (3.60)	4.99 (4.00)	5.01 (4.05)
Non-case, ≤ 7 (%)	9,798 (77.1)	6,646 (79.8)	1,703 (71.3)	1,449 (72.7)
Possible case, 8-10 (%)	1,713 (13.5)	997 (12.0)	397 (16.6)	319 (16.0)
Definite case, ≥ 11 (%)	962 (7.6)	521 (6.3)	240 (10.0)	201 (10.1)
Missing, n (%)	240 (1.9)	167 (2.0)	50 (2.0)	23 (1.2)
Adherence, n (%)				
Low adherence; CQR5 low	7,716 (60.7)	5,332 (64.0)	1,397 (58.5)	987 (49.6)
Missing	741 (5.8)	442 (5.3)	139 (5.8)	160 (8.0)
Patient activation, n (%)				
Low activation; Can tell when outpatient care is needed, no	1,653 (13.0)	955 (11.5)	373 (15.6)	325 (16.3)
Missing,	571 (4.5)	386 (4.6)	102 (4.3)	83 (4.2)
Low activation; Can handle new situations or problems with health condition, no	2,887 (22.7)	1,660 (19.9)	647 (27.1)	580 (29.1)
Missing, n (%)	740 (5.82)	502 (6.0)	133 (5.5)	105 (5.3)
Physical activity				
Low; <150 minutes weekly	8,354 (65.7)	5,494 (66.0)	1,635 (68.4)	1,225 (61.5)
Missing, n (%)	88 (0.7)	62 (0.7)	16 (0.7)	10 (0.5)

Abbreviations: SD: standard deviation; IQR: interquartile range; HADS-A: Hospital Anxiety & Depression Scale – anxiety subscale; HADS-D: Hospital Anxiety & Depression Scale – depression subscale; CQR5: Compliance Questionnaire for Rheumatology – 5 item version

Supplementary Table 2: Test for interaction of diagnosis in the association between anxiety/depression and self-management

Outcome measure	p-value for crude association	p-values for adjusted association
Anxiety		
Adherence to treatment CQR5	0.1519	0.5247
Can tell when outpatient care is needed PAM #5	0.5734	0.3398
Can handle new situations or problems with health condition PAM #12	0.9749	0.8006
Physical activity	0.5704	0.4692
Depression		
Adherence to treatment	0.0888	0.2869
Can tell when outpatient care is needed PAM #5	0.4770	0.3649
Can handle new situations or problems with health condition PAM #12	0.7819	0.7352
Physical activity	0.3397	0.3038

Supplementary Table 3: Sensitivity analysis on disease activity for patients with RA. Results of logistic regression analysis showing odds ratios (OR) separately for patients with RA

	Crude OR (95% CI)	Adjusted OR¹ (95% CI)	Adjusted OR¹ + DAS28 (95% CI)
Adherence to treatment			
Anxiety, HADS-A	N=7,718	N=7,666	N=7,260
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.06 (0.92;1.22)	1.16 (1.01;1.35)	1.12 (0.96;1.30)
Definite case, ≥11	1.08 (0.90;1.28)	1.37 (1.14;1.65)	1.29 (1.06;1.56)
Depression, HADS-D	N=7,759	N=7,705	N=7,297
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.27 (1.09;1.48)	1.38 (1.18;1.61)	1.33 (1.13;1.57)
Definite case, ≥11	0.92 (0.76;1.12)	1.13 (0.92;1.38)	1.08 (0.87;1.34)
Patient activation			
Can tell when outpatient care is needed			
Anxiety, HADS-A	N=7,761	N=7,717	N=7,310
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.35 (1.97;2.81)	2.28 (1.90;2.73)	2.12 (1.76;2.55)
Definite case, ≥11	4.04 (3.33;4.89)	3.76 (3.09;4.57)	3.28 (2.67;4.04)
Depression, HADS-D	N=7,806	N=7,759	N=7,351
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	3.28 (2.76;3.90)	3.21 (2.70;3.82)	2.91 (2.43;3.50)
Definite case, ≥11	5.50 (4.46;6.78)	5.00 (4.10;6.30)	4.52 (3.60;5.78)
Patient activation			
Can handle new situations or problems with health condition			
Anxiety, HADS-A	N=7,647	N=7,602	N=7,199
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.93 (2.53;3.39)	2.90 (2.51;3.36)	2.73 (2.35;3.19)
Definite case, ≥11	5.69 (4.80;6.75)	5.47 (4.59;6.50)	4.82 (4.01;5.79)
Depression, HADS-D	N=7,691	N=7,644	N=7,239
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	4.11 (3.55;4.75)	4.04 (3.49;4.68)	3.67 (3.15;4.28)
Definite case, ≥11	7.16 (5.88;8.72)	6.75 (5.53; 8.25)	6.00 (4.86;7.42)
Physical activity			
Anxiety, HADS-A	N=8,066	N=8,012	N=7,581
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.34 (1.16;1.54)	1.29 (1.12;1.49)	1.19 (1.02;1.37)
Definite case, ≥11	1.85 (1.54;2.23)	1.78 (1.48;2.15)	1.55 (1.27;1.89)
Depression, HADS-D	N=8,119	N=8,062	N=7,630
Non-case, ≤7	ref	Ref	ref
Possible case, 8–10	2.20 (1.87;2.58)	2.13 (1.81;2.50)	1.93 (1.63;2.28)
Definite case, ≥11	2.66 (2.11;3.35)	2.54 (2.01;3.21)	2.14 (1.68;2.73)

Abbreviations: RA: rheumatoid arthritis; OR: Odds ratio, HADS: Hospital Anxiety and Depression Scale; Adjusted OR¹: adjusted for age, sex, and educational level + comorbidity

Supplementary Table 4: Sensitivity analysis on disease activity for patients with PsA. Results of logistic regression analysis showing odds ratios (OR) separately for patients with PsA

	Crude OR (95% CI)	Adjusted OR¹ (95% CI)	Adjusted OR¹ + DAPSA (95% CI)
Adherence to treatment			
Anxiety, HADS-A	N=2,209	N=2,201	N= 2,027
Non-case, ≤7	Ref	ref	ref
Possible case, 8–10	1.07 (0.85;1.34)	1.16 (0.92;1.47)	1.11 (0.87;1.42)
Definite case, ≥11	1.14 (0.89;1.47)	1.33 (1.02;1.74)	1.20 (0.91;1.60)
Depression, HADS-D	N= 2,212	N=2,202	N= 2,029
Non-case, ≤7	Ref	ref	ref
Possible case, 8–10	1.13 (0.90;1.43)	1.21 (0.95;1.54)	1.10 (0.86;1.43)
Definite case, ≥11	1.21 (0.90;1.61)	1.42 (1.05;1.92)	1.37 (0.99;1.90)
Patient activation			
Can tell when outpatient care is needed			
Anxiety, HADS-A	N=2,242	N= 2,232	N= 2,048
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.33 (1.75;3.10)	2.14 (1.59;2.87)	2.03 (1.49;2.77)
Definite case, ≥11	4.92 (3.71;6.52)	4.52 (3.38;6.06)	3.84 (2.81;5.25)
Depression, HADS-D	N= 2,243	N=2,232	N= 2,048
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.78 (2.11;3.67)	2.55 (1.92;3.38)	2.23 (1.64;3.02)
Definite case, ≥11	4.48 (3.28;6.10)	4.15 (3.02;5.71)	3.34 (2.37;4.71)
Patient activation			
Can handle new situations or problems with health condition			
Anxiety, HADS-A	N= 2,212	N=2,202	N=2,020
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.84 (2.24;3.60)	2.73 (2.14;3.47)	2.45 (1.90;3.16)
Definite case, ≥11	5.46 (4.21;7.07)	5.06 (3.88;6.61)	3.90 (2.93;5.17)
Depression, HADS-D	N= 2,216	N= 2,205	N=2,022
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	3.76 (2.96;4.77)	3.56 (2.79;4.54)	2.99 (2.31;3.87)
Definite case, ≥11	8.06 (5.95;10.93)	7.61 (5.58;10.39)	5.98 (4.30;8.31)
Physical activity			
Anxiety, HADS-A	N= 2,325	N= 2,315	N= 2,125
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.33 (1.05;1.69)	1.27 (0.99;1.62)	1.27 (0.98;1.65)
Definite case, ≥11	1.64 (1.25;2.16)	1.50 (1.13;1.99)	1.38 (1.02;1.86)
Depression, HADS-D	N= 2,328	N= 2,318	N= 2,128
Non-case, ≤7	ref	Ref	ref
Possible case, 8–10	1.62 (1.26;2.09)	1.55 (1.20;2.00)	1.50 (1.15;1.97)
Definite case, ≥11	2.23 (1.59;3.14)	2.08 (1.47;2.93)	1.85;1.29;2.66)

Abbreviations: PsA: psoriatic arthritis; OR: Odds ratio, HADS: Hospital Anxiety and Depression Scale; Adjusted OR¹: adjusted for age, sex, and educational level + comorbidity

Supplementary Table 5: Sensitivity analysis on disease activity for patients with SpA. Results of logistic regression analysis showing odds ratios (OR) separately for patients with SpA

	Crude OR (95% CI)	Adjusted OR¹ (95% CI)	Adjusted OR¹ + ASDAS (95% CI)
Adherence to treatment			
Anxiety, HADS-A	N= 1,803	N= 1,801	N=1,616
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.41 (1.10;1.81)	1.48 (1.15;1.90)	1.35 (1.03;1.77)
Definite case, ≥11	1.46 (1.13;1.88)	1.59 (1.22;2.07)	1.55 (1.16;2.07)
Depression, HADS-D	N= 1,813	N= 1,811	N= 1,627
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.29 (1.08;1.80)	1.46 (1.12;1.89)	1.38 (1.04;1.83)
Definite case, ≥11	1.46 (1.07;2.00)	1.58 (1.15;2.18)	1.45 (1.02;2.06)
Patient activation			
Can tell when outpatient care is needed			
Anxiety, HADS-A	N= 1,877	N= 1,875	N= 1,682
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.66 (1.94;3.63)	2.66 (1.94;3.66)	2.57 (1.83;3.62)
Definite case, ≥11	5.24 (3.90;7.05)	5.32 (3.92;7.20)	4.75 (3.39;6.66)
Depression, HADS-D	N= 1,890	N= 1,888	N= 1,696
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.54 (1.87;3.44)	2.50 (1.84;3.39)	2.10 (1.50;2.94)
Definite case, ≥11	5.38 (3.86;7.50)	5.35 (3.81;7.51)	4.58 (3.14;6.68)
Patient activation			
Can handle new situations or problems with health condition			
Anxiety, HADS-A	N=1,856	N= 1,854	N= 1,660
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	2.93 (2.27;3.80)	2.92 (2.24;3.79)	2.85 (2.15;3.79)
Definite case, ≥11	6.19 (4.72;8.12)	6.34 (4.79;8.38)	5.50 (4.05;7.46)
Depression, HADS-D	N= 1,869	N= 1,867	N= 1,674
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	3.62 (2.79;4.69)	3.53 (2.71;4.59)	3.07 (2.31; 4.08)
Definite case, ≥11	6.59 (4.77;9.11)	6.63 (4.77;9.22)	6.02 (4.18;8.68)
Physical activity			
Anxiety, HADS-A	N= 1,950	N= 1,948	N= 1,744
Non-case, ≤7	ref	ref	ref
Possible case, 8–10	1.45 (1.13;1.86)	1.37 (1.06;1.76)	1.24 (0.94;1.63)
Definite case, ≥11	1.45 (1.12;1.88)	1.36 (1.04;1.77)	1.01 (0.75;1.35)
Depression, HADS-D	N= 1,926	N= 1,960	N= 1,758
Non-case, ≤7	ref	Ref	ref
Possible case, 8–10	1.93 (1.48;2.52)	1.86 (1.42;2.44)	1.60 (1.19;2.14)
Definite case, ≥11	2.39 (1.70;3.37)	2.30 (1.63;3.26)	1.71 (1.12;2.50)

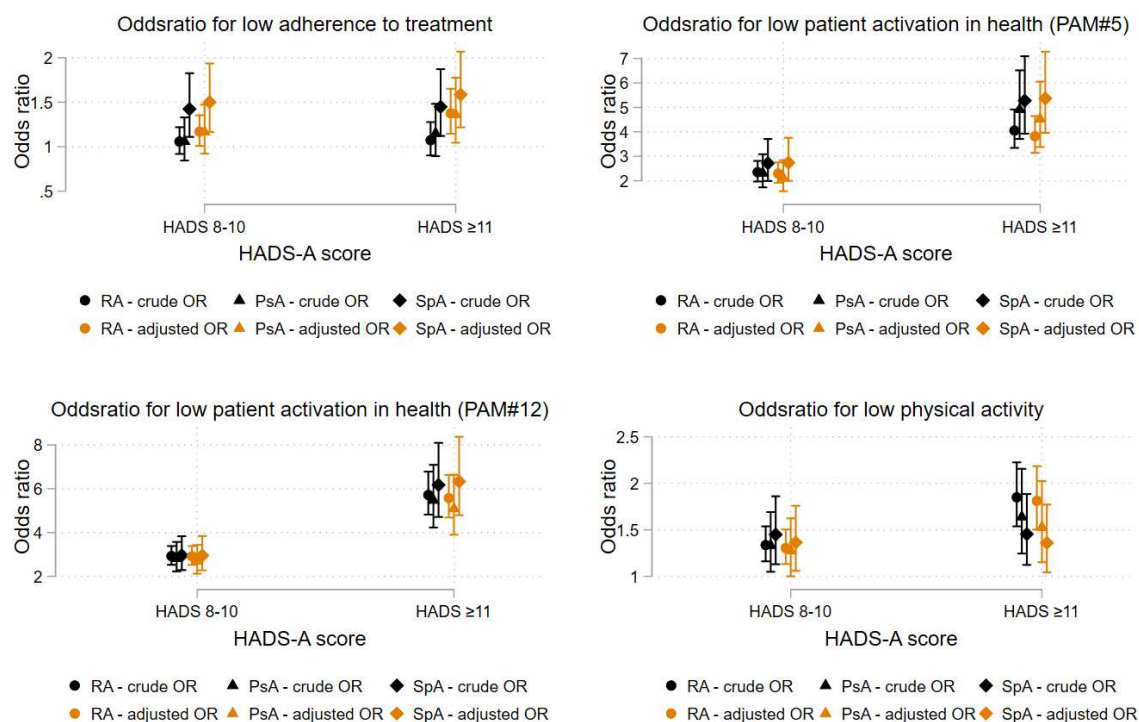
Abbreviations: SpA: spondyloarthritis; OR: Odds ratio, HADS: Hospital anxiety and depression scale
Adjusted OR¹: adjusted for age, sex and educational level + comorbidity

Supplementary Table 6: Sensitivity analysis on impact of COVID-19. Results of logistic regression analysis showing odds ratios (OR) while additionally adjusted for COVID-19

	Adjusted OR¹ + COVID-19 (95% CI)
Adherence to treatment	
Anxiety, HADS-A	n=11,629
Non-case, ≤7	ref
Possible case, 8–10	1.16 (1.04;1.30)
Definite case, ≥11	1.30 (1.13;1.49)
Depression, HADS-D	n= 11,682
Non-case, ≤7	ref
Possible case, 8–10	1.28 (1.14;1.45)
Definite case, ≥11	1.20 (1.03;1.40)
Patient activation	
Can tell when outpatient care is needed	
Anxiety, HADS-A	n= 11,785
Non-case, ≤7	ref
Possible case, 8–10	2.22 (1.93;2.56)
Definite case, ≥11	4.02 (3.47;4.66)
Depression, HADS-D	n= 11,844
Non-case, ≤7	ref
Possible case, 8–10	2.77 (2.42;3.18)
Definite case, ≥11	4.58 (3.90;5.38)
Patient activation	
Can handle new situations or problems with health condition	
Anxiety, HADS-A	N= 11,620
Non-case, ≤7	ref
Possible case, 8–10	2.70 (2.41;3.03)
Definite case, ≥11	5.15 (4.51;5.87)
Depression, HADS-D	N= 11,679
Non-case, ≤7	ref
Possible case, 8–10	3.59 (3.20;4.03)
Definite case, ≥11	6.40 (5.50;7.45)
Physical activity	
Anxiety, HADS-A	N= 12,234
Non-case, ≤7	ref
Possible case, 8–10	1.26 (1.12;1.41)
Definite case, ≥11	1.51 (1.31;1.73)
Depression, HADS-D	N=12,300
Non-case, ≤7	ref
Possible case, 8–10	1.89 (1.67;2.13)
Definite case, ≥11	2.30 (1.94;2.73)

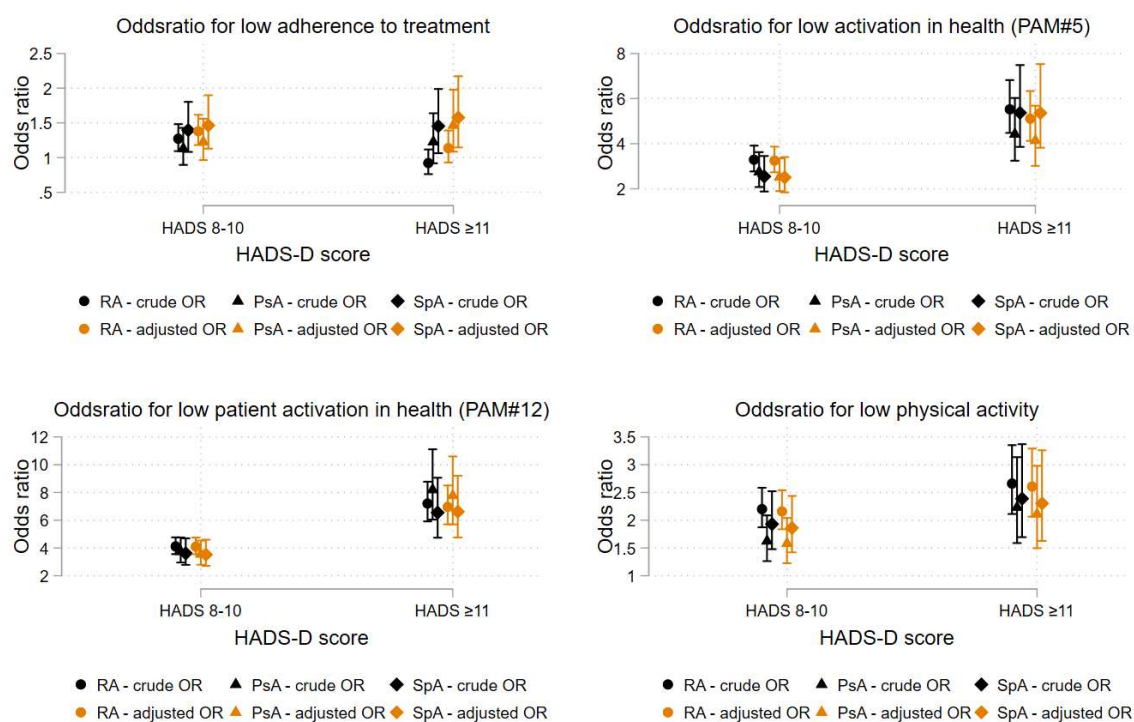
Abbreviations OR: Odds ratio, HADS: Hospital anxiety and depression scale
Adjusted OR¹: adjusted for age, sex and educational level + comorbidity

Supplementary Figure 1 - The association between low self-management behavior and anxiety. Results of logistic regression analyses showing odd ratios, crude and adjusted, stratified by diagnosis (rheumatoid arthritis [RA], psoriatic arthritis [PsA], and spondyloarthritis [SpA])



Abbreviations: PAM#5: The Patient Activation Measure 13 questionnaire (item 5: “I am confident that I can tell whether I need to go the doctor or whether I can handle a health problem myself”), PAM#12: The Patient Activation Measure 13 questionnaire (item 12: “I am confident I can figure out solutions when new situations or problems arise with my health”)

Supplementary Figure 2 - The association between low self-management behavior and depression. Results of logistic regression analyses showing odds ratios, crude and adjusted, stratified by diagnosis (rheumatoid arthritis [RA], psoriatic arthritis [PsA], and spondyloarthritis [SpA])



Abbreviations: PAM#5: The Patient Activation Measure 13 questionnaire (item 5: “I am confident that I can tell whether I need to go the doctor or whether I can handle a health problem myself”),
PAM#12: The Patient Activation Measure 13 questionnaire (item 12: “I am confident I can figure out solutions when new situations or problems arise with my health”)