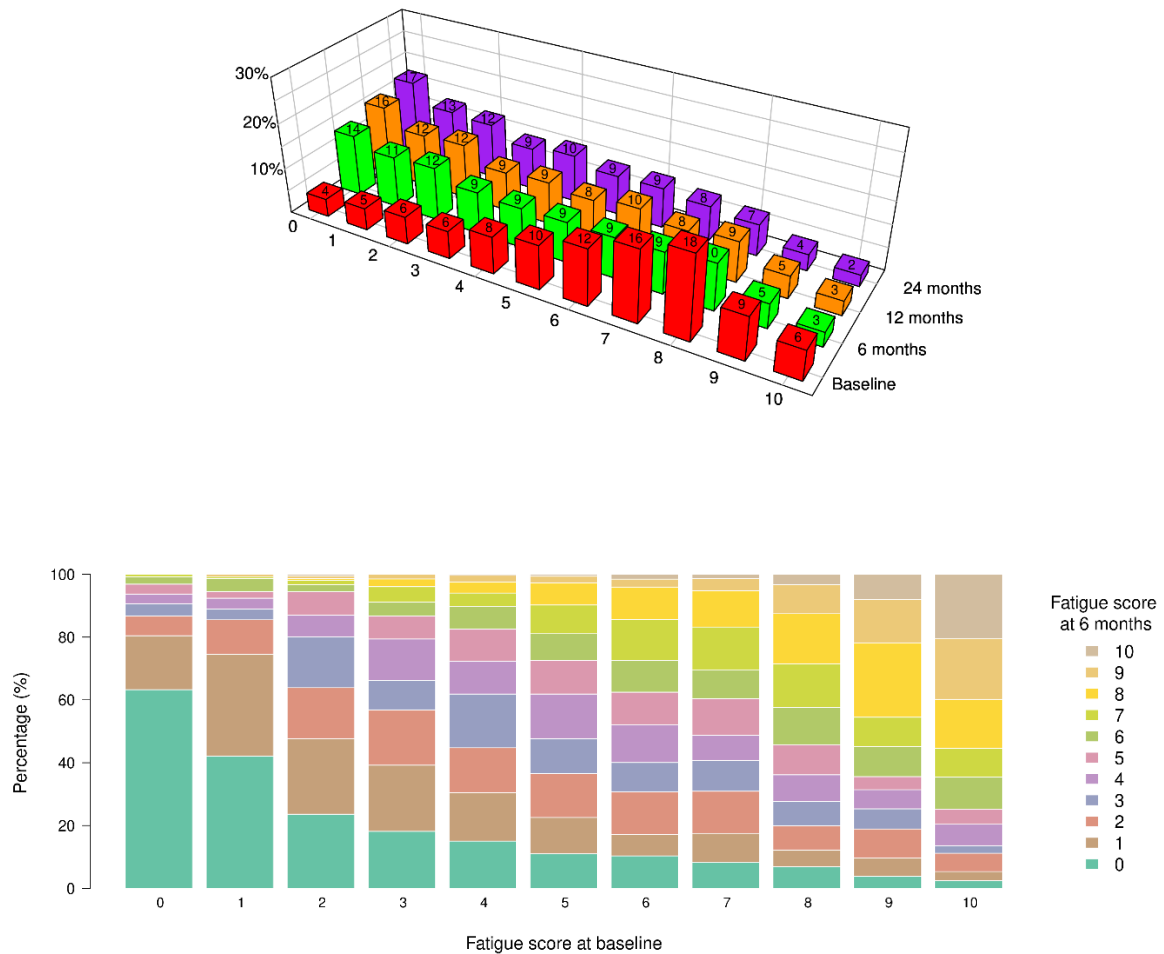


Figure S1. Mean change in PROs from baseline after 6, 12 and 24 months after initiation of 1st, 2nd and 3rd TNFi treatment in the full cohort.

Fatigue scores, 1st TNFi treatment

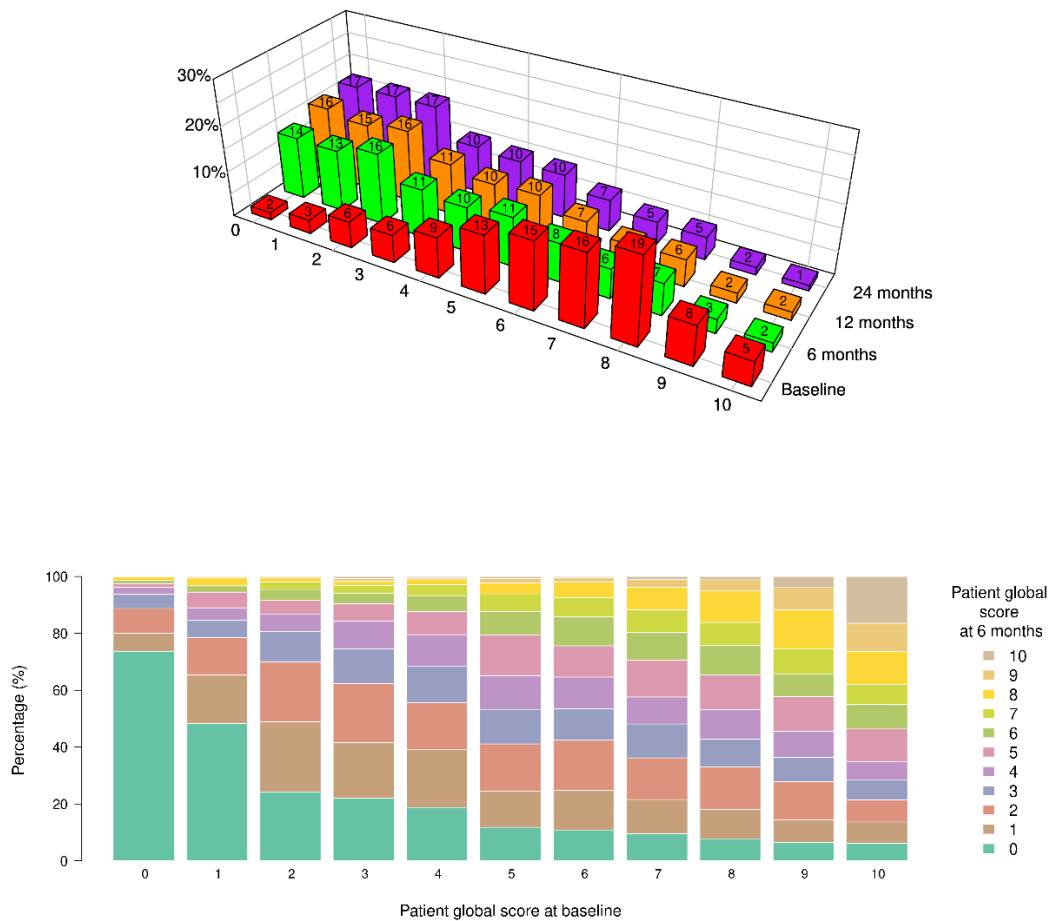


Fatigue scores at baseline	Fatigue scores at 6 months after start of 1 st TNFi treatment										
	0	1	2	3	4	5	6	7	8	9	10
0	63%	17%	6%	4%	3%	3%	2%	1%	0%	0%	0%
1	42%	32%	11%	3%	3%	2%	4%	1%	0%	1%	0%
2	24%	24%	16%	16%	7%	7%	2%	1%	0%	1%	0%
3	18%	21%	18%	9%	13%	7%	4%	5%	2%	1%	0%
4	15%	15%	14%	17%	10%	10%	7%	4%	3%	2%	0%
5	11%	12%	14%	11%	14%	11%	9%	9%	7%	2%	1%
6	10%	7%	14%	9%	12%	10%	10%	13%	10%	3%	2%
7	8%	9%	13%	10%	8%	12%	9%	14%	12%	4%	1%
8	7%	5%	8%	8%	8%	10%	12%	14%	16%	9%	3%
9	4%	6%	9%	6%	6%	4%	10%	9%	24%	14%	8%
10	2%	3%	6%	2%	7%	5%	10%	9%	16%	19%	20%

Online supplementary figure S2 a. Upper figure: Three-dimensional bar charts of the relative frequency (y-axis) of fatigue scores (x-axis) among all PsA patients at baseline, 6, 12 and 24 months after start of 1st TNFi treatment (z-axis). Lower figure: Stacked bar chart showing the distribution of PsA patients' fatigue scores at 6 months dependent on how the same patients scored at start of TNFi treatment (baseline).

Table: Percentages as illustrated in stacked bar charts.

Patient global scores, 1st TNFi treatment



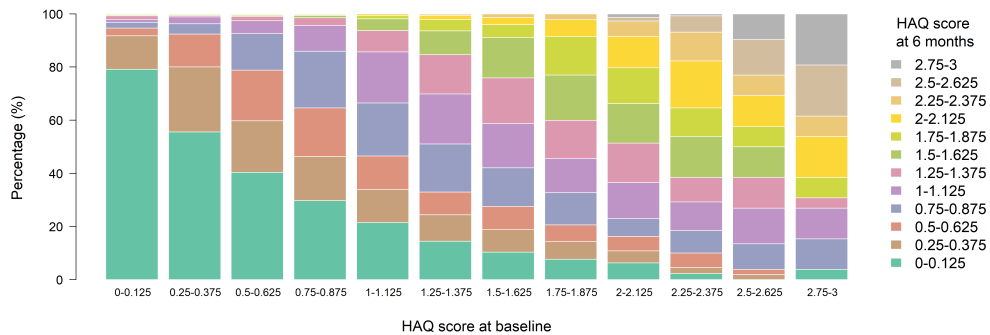
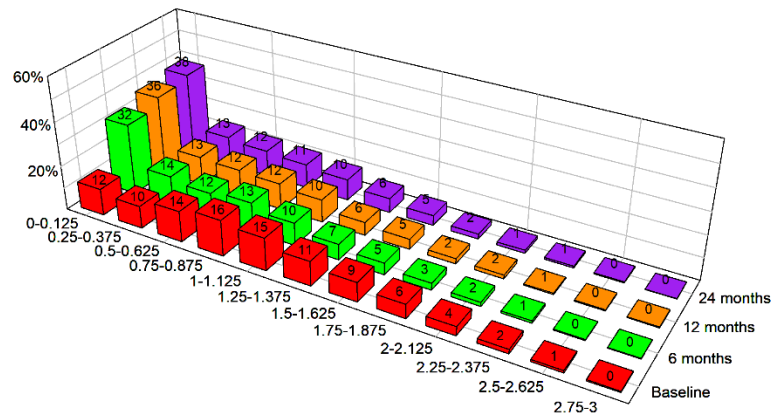
Patient global scores at baseline	Patient global scores at 6 months after start of 1 st TNFi treatment										
	0	1	2	3	4	5	6	7	8	9	10
0	74%	6%	9%	5%	2%	1%	1%	0%	1%	0%	0%
1	48%	17%	13%	6%	4%	5%	2%	0%	3%	1%	0%
2	24%	25%	21%	11%	6%	5%	4%	3%	1%	1%	0%
3	22%	20%	21%	12%	10%	6%	4%	3%	1%	1%	1%
4	19%	20%	17%	13%	11%	8%	6%	4%	2%	0%	1%
5	12%	13%	17%	12%	12%	14%	8%	6%	4%	1%	1%
6	11%	14%	18%	11%	11%	11%	10%	7%	5%	1%	0%
7	10%	12%	15%	12%	9%	13%	10%	8%	8%	3%	1%
8	8%	10%	15%	10%	10%	12%	11%	8%	11%	4%	1%
9	7%	8%	13%	9%	9%	12%	8%	9%	14%	8%	4%
10	6%	7%	8%	7%	6%	12%	8%	7%	11%	10%	16%

Online supplementary figure S2 b. Upper figure: Three-dimensional bar charts of the relative frequency (y-axis) of patient global scores (x-axis) among all PsA patients at baseline, 6, 12 and 24 months after start of 1st TNFi treatment (z-axis). Lower figure: Stacked bar chart showing the distribution of PsA patients' patient global scores at 6 months depending on how the same patients scored at start of TNFi treatment (baseline).

Table: Percentages as illustrated in stacked bar charts.

Patient global: Patient's global assessment of disease activity.

HAQ scores, 1st TNFi treatment



HAQ scores at baseline	HAQ scores at 6 months after start of 1 st TNFi treatment											
	0-0.125	0.25-0.375	0.5-0.625	0.75-0.875	1-1.125	1.25-1.375	1.5-1.625	1.75-1.875	2-2.125	2.25-2.375	2.5-2.625	2.75-3
0-0.125	80%	12%	3%	2%	1%	1%	0%	0%	0%	0%	0%	0%
0.25-0.375	56%	25%	12%	4%	3%	1%	0%	0%	0%	0%	0%	0%
0.5-0.625	40%	19%	19%	14%	5%	2%	0%	0%	0%	0%	0%	0%
0.75-0.875	30%	17%	18%	21%	9%	3%	1%	0%	0%	0%	0%	0%
1-1.125	22%	13%	12%	19%	19%	8%	4%	1%	0%	0%	0%	0%
1.25-1.375	15%	10%	9%	18%	19%	14%	9%	4%	1%	0%	0%	0%
1.5-1.625	11%	9%	8%	16%	16%	17%	14%	5%	3%	1%	0%	0%
1.75-1.875	8%	7%	6%	12%	13%	15%	16%	15%	6%	2%	0%	0%
2-2.125	7%	4%	6%	7%	14%	16%	15%	14%	11%	5%	1%	1%
2.25-2.375	2%	2%	6%	9%	11%	9%	16%	9%	17%	11%	6%	1%
2.5-2.625	0%	2%	2%	11%	13%	11%	9%	7%	13%	7%	13%	11%
2.75-3	4%	0%	0%	12%	12%	4%	0%	8%	15%	8%	19%	19%

Online supplementary figure S2 c. Upper figure: Three-dimensional bar charts of the relative frequency (y-axis) of HAQ scores (x-axis) among all PsA patients at baseline, 6, 12 and 24 months after start of 1st TNFi treatment (z-axis).

Lower figure: Stacked bar chart showing the distribution of PsA patients' HAQ scores at 6 months dependent on how the same patients scored at start of TNFi treatment (baseline).

Table: Percentages as illustrated in stacked bar charts.

HAQ: Health Assessment Questionnaire disability index.

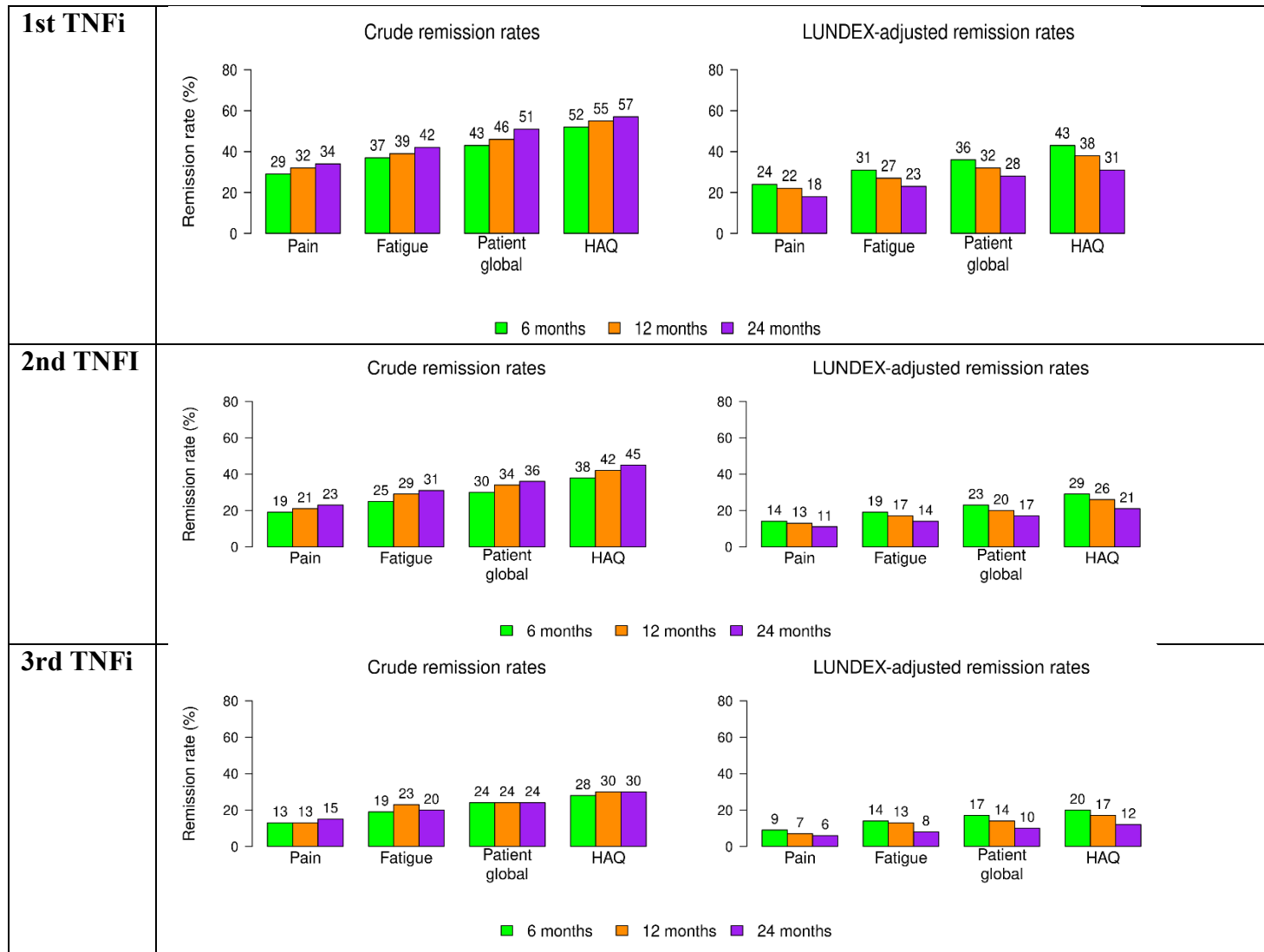


Figure S3. Crude and LUNDEX-adjusted PRO remission rates after initiation of 1st, 2nd or 3rd TNFi treatment in the overall cohort.

Online supplementary table S1, to be continued. Pain and fatigue overall and by registry at baseline and 6, 12 and 24 months after start of 1st TNFi treatment between January 1, 2009, and December 31, 2018.

	Pain							
	Baseline		6 months		12 months		24 months	
	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)
All patients	9000 (73%)	6 (4-8)	7857 (68%)	3 (1-6)	5679 (60%)	3 (1-5)	2901 (42%)	2 (1-5)
Registry								
-ATTRA	537 (75%)	7 (5-8)	466 (69%)	2 (1-4)	379 (66%)	2 (1-4)	328 (72%)	2 (0-4)
-DANBIO	1646 (81%)	6 (4-8)	1575 (85%)	3 (1-6)	1194 (84%)	3 (1-6)	866 (83%)	2 (1-5)
-ROB-FIN	218 (94%)	6 (4-7)	182 (83%)	3 (1-5)	129 (69%)	2 (1-5)	105 (74%)	2 (0-4)
-ICEBIO	87 (30%)	7 (5-8)	181 (65%)	3 (1-6)	117 (49%)	2 (1-5)	110 (63%)	2 (1-5)
-GISEA	1204 (84%)	6 (5-8)	766 (55%)	5 (2-6)	579 (46%)	4 (2-6)	430 (53%)	4 (2-6)
-NOR-DMARD	680 (96%)	5 (3-6)	565 (86%)	2 (1-5)	388 (74%)	2 (1-4)	268 (71%)	2 (0-4)
-Reuma.pt	343 (56%)	6 (5-8)	394 (66%)	3 (1-5)	392 (72%)	3 (1-5)	319 (72%)	3 (1-5)
-RRBR ^b	<50	NC	78 (92%)	3 (1-4)	71 (91%)	2 (1-3)	53 (90%)	1 (1-2)
-Biorx.si ^b	354 (96%)	7 (6-8)	282 (82%)	4 (2-6)	245 (85%)	3 (1-5)	178 (83%)	3 (1-5)
-BIOBADASER	-	-	-	-	-	-	-	-
-SRQ	3400 (73%)	6 (4-8)	3111 (71%)	2 (1-4)	1869 (55%)	3 (1-6)	<50	NC
-SCQM ^b	341 (68%)	6 (4-7)	106 (23%)	2 (1-5)	192 (51%)	2 (1-5)	136 (47%)	2 (1-5)
-TURKBIO	174 (70%)	8 (6-8)	151 (63%)	2 (1-4)	123 (59%)	2 (0-3)	108 (76%)	2 (0-3)
Metaanalyses^c	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)
All patients	98.3%	6.3 (5.8,6.8)	96.7%	3.0 (2.5,3.5)	93.2%	2.5 (2.1,2.9)	93.6%	2.3 (1.8,2.8)
	Fatigue							
	Baseline		6 months		12 months		24 months	
	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)
All patients	5748 (39%)	6 (4-8)	4738 (41%)	4 (2-7)	3205 (34%)	4 (1-6)	1322 (19%)	3 (1-6)
Registry								
-ATTRA	-	-	-	-	-	-	-	-
-DANBIO	1575 (77%)	7 (5-8)	1534 (83%)	5 (2-8)	1169 (82%)	4 (2-7)	853 (82%)	4 (2-7)
-ROB-FIN	-	-	-	-	-	-	-	-
-ICEBIO	87 (30%)	7 (5-8)	181 (65%)	4 (1-7)	117 (49%)	3 (1-6)	110 (63%)	2 (1-6)
-GISEA	-	-	-	-	-	-	-	-
-NOR-DMARD	599 (84%)	4 (2-7)	518 (79%)	2 (1-5)	357 (68%)	2 (0-6)	251 (67%)	2 (1-4)
-Reuma.pt	-	-	-	-	-	-	-	-
-RRBR ^b	-	-	-	-	-	-	-	-
-Biorx.si ^b	-	-	-	-	-	-	-	-
-BIOBADASER	-	-	-	-	-	-	-	-
-SRQ	2290 (49%)	6 (4-8)	2341 (54%)	4 (1-6)	1437 (42%)	4 (1-6)	< 50	NC
-SCQM ^b	<50	NC	<50	NC	<50	NC	-	-
-TURKBIO	174 (70%)	7 (5-8)	151 (63%)	2 (0-4)	123 (59%)	1 (0-3)	108 (76%)	1 (0-2)
Metaanalyses^c	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)
All patients	98.8%	6.0 (5.0,7.1)	98.5%	3.4 (2.2,4.6)	98.0%	2.8 (1.6,4.0)	99.3%	2.0 (0.4,3.6)

^a Number of patients and % of patients with available data for pain and fatigue at the specified time point. I²: percentage of variation across studies that is due to heterogeneity rather than chance.

^b RRBR, biorx.si and SCQM used a 0-10 numeric rating scale (NRS) for pain and fatigue while the remaining registries used a 0-100 scale. Scores on a 0-100 scale were converted to 0-10 by dividing with 10 and rounding to nearest integer.

^c Metaanalyses across registries

'-': no data available; NC: Not calculated due to <50 patients with data.

IQR: Interquartile range.

Online supplementary table S1, continued. Patient global and HAQ overall and by registry at baseline and 6, 12 and 24 months after start of 1st TNFI treatment between January 1, 2009 and December 31, 2018.

	Patient global							
	Baseline		6 months		12 months		24 months	
	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)
All patients	9577 (78%)	6 (4-8)	8220 (71%)	3 (1-6)	6112 (65%)	3 (1-5)	3236 (46%)	2 (1-5)
Registry								
-ATTRA	717 (100%)	7 (6-8)	614 (90%)	2 (1-4)	493 (86%)	2 (1-4)	392 (86%)	2 (1-4)
-DANBIO	1655 (81%)	7 (5-9)	1590 (86%)	4 (2-7)	1207 (85%)	3 (1-6)	878 (84%)	3 (1-6)
-ROB-FIN	208 (90%)	5 (3-7)	175 (80%)	2 (1-5)	121 (65%)	2 (1-3)	102 (72%)	2 (1-4)
-ICEBIO	90 (31%)	7 (5-8)	203 (72%)	4 (1-6)	127 (53%)	3 (1-6)	127 (73%)	3 (1-5)
-GISEA	1215 (85%)	6 (5-8)	800 (57%)	4 (2-6)	610 (49%)	4 (2-6)	467 (57%)	4 (2-5)
-NOR-DMARD	676 (95%)	5 (3-7)	565 (86%)	2 (1-5)	389 (74%)	2 (0-4)	269 (71%)	2 (0-4)
-Reuma.pt	414 (67%)	6 (5-8)	467 (79%)	3 (1-5)	449 (82%)	3 (1-5)	366 (83%)	3 (1-5)
-RRBR ^b	<50	NC	78 (92%)	3 (1-4)	71 (91%)	2 (1-3)	53 (90%)	1 (1-2)
-Biorx.si ^b	350 (95%)	7 (6-8)	290 (85%)	3 (2-5)	252 (87%)	3 (2-5)	182 (85%)	3 (2-4)
-BIOBADASER	300 (79%)	6 (5-8)	<50	NC	193 (63%)	2 (0-5)	157 (69%)	2 (0-5)
-SRQ	3426 (74%)	6 (4-8)	3142 (72%)	3 (1-5)	1884 (55%)	3 (1-5)	<50	NC
-SCQM ^b	336 (67%)	6 (4-7)	104 (23%)	2 (1-5)	192 (51%)	2 (1-5)	135 (47%)	2 (1-5)
-TURKBIO	174 (70%)	7 (5-8)	151 (63%)	2 (1-4)	124 (59%)	2 (1-3)	108 (76%)	2 (1-3)
Metaanalyses^c	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)
All patients	97.7%	6.3 (5.8,6.7)	97.5%	3.0 (2.4,3.5)	94.1%	2.5 (2.2,2.9)	94.8%	2.4 (2.0,2.9)
	HAQ							
	Baseline		6 months		12 months		24 months	
	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)	N (%) ^a	Median (IQR)
All patients	8484 (69%)	0.9 (0.5-1.4)	7563 (66%)	0.5 (0.1-1.0)	5491 (58%)	0.5 (0.0-1.0)	2861 (41%)	0.4 (0.0-0.9)
Registry								
-ATTRA	709 (99%)	1.2 (0.9-1.6)	603 (89%)	0.6 (0.1-1.1)	491 (85%)	0.6 (0.1-1.1)	392 (86%)	0.6 (0.1-1.1)
-DANBIO	1562 (77%)	1.0 (0.6-1.5)	1513 (81%)	0.8 (0.2-1.1)	1150 (81%)	0.5 (0.1-1.1)	833 (80%)	0.5 (0.0-1.0)
-ROB-FIN	186 (81%)	0.9 (0.5-1.4)	158 (72%)	0.4 (0.1-1.0)	109 (58%)	0.4 (0.0-0.9)	88 (62%)	0.4 (0.1-1.0)
-ICEBIO	87 (30%)	1.2 (0.8-1.5)	191 (68%)	0.6 (0.0-1.1)	123 (52%)	0.5 (0.0-1.1)	123 (71%)	0.5 (0.0-1.0)
-GISEA	876 (61%)	0.9 (0.2-1.2)	685 (49%)	0.4 (0.0-1.0)	569 (45%)	0.4 (0.0-0.9)	473 (58%)	0.2 (0.0-0.9)
-NOR-DMARD	681 (96%)	0.5 (0.2-0.9)	565 (86%)	0.2 (0.0-0.6)	390 (74%)	0.1 (0.0-0.5)	266 (71%)	0.1 (0.0-0.5)
-Reuma.pt	298 (49%)	1.1 (0.5-1.5)	319 (54%)	0.5 (0.0-1.1)	298 (54%)	0.4 (0.0-1.0)	247 (56%)	0.5 (0.0-1.0)
-RRBR	<50	NC	<50	NC	<50	NC	<50	NC
-Biorx.si	354 (96%)	1.1 (0.5-1.6)	282 (82%)	0.5 (0.1-1.1)	246 (85%)	0.5 (0.1-0.9)	178 (83%)	0.5 (0.1-1.0)
-BIOBADASER	-	-	-	-	-	-	-	-
-SRQ	3202 (69%)	0.9 (0.5-1.2)	2969 (68%)	0.5 (0.1-1.0)	1776 (52%)	0.5 (0.0-1.0)	<50	NC
-SCQM	354 (71%)	0.8 (0.3-1.1)	105 (23%)	0.2 (0.0-0.6)	199 (53%)	0.2 (0.0-0.6)	142 (49%)	0.1 (0.0-0.6)
-TURKBIO	172 (69%)	0.8 (0.6-0.9)	150 (63%)	0.2 (0.0-0.6)	123 (59%)	0.0 (0.0-0.5)	108 (76%)	0.0 (0.0-0.4)
Metaanalyses^c	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)	I ²	Pooled Estimate (95% CI)
All patients	98.3%	1.0 (0.8,1.1)	98.8%	0.5 (0.4,0.7)	98.7%	0.4 (0.3,0.5)	98.4%	0.4 (0.2,0.5)

^a Number of patients and % of patients with available data for patient global and HAQ at the specified time point. I²: percentage of variation across studies that is due to heterogeneity rather than chance.

^b RRBR, biorx.si and SCQM used a 0-10 numeric rating scale (NRS) for patient global while the remaining registries used a 0-100 scale. Scores on a 0-100 scale were converted to 0-10 by dividing with 10 and rounding to nearest integer.

^c Metaanalyses across registries

‘-’: no data available; NC: Not calculated due to <50 patients with available data.

Patient global: Patient's global assessment of disease activity, HAQ: Health Assessment Questionnaire disability index, IQR: Interquartile range.

Online supplementary table S2. Baseline characteristics, stratified by registry, of 13,117 psoriatic arthritis patients initiating a 1st TNFi treatment between January 1, 2009, and December 31, 2018.

Country	Czech Republic	Denmark	The Journal of Rheumatology is not responsible or liable for the content of the supplementary material, which has been supplied by the author(s).							Spain	Sweden	Switzerland	Turkey
Registry	ATTRA	DANBIO								BIOBADASER	SRO	SCQM	TURKBIO
Supplementary Material	717	2036								382	4651	502	438
All patients ^a	717	2036								382	4651	502	438
First patients start TNFi, year	2009	2009	2009	2009	2009	2009	2009	2015	2010	2009	2009	2009	2009
Age at TNFi treatment start, years	49 (40-57)	48 (39-56)	48 (40-56)	50 (40-60)	51 (42-59)	47 (39-57)	49 (40-57)	52 (47-61)	51 (43-57)	50 (40-57)	50 (40-59)	50 (40-58)	40 (33-50)
Age at diagnosis, years	40 (31-49)	43 (34-51)	40 (30-48)	43 (32-53)	45 (36-54)	41 (32-51)	42 (33-51)	47 (39-55)	43 (35-51)	45 (36-53)	43 (33-53)	44 (34-54)	36 (29-45)
Years since diagnosis	6 (2-12)	3 (1-7)	5 (2-11)	4 (1-9)	3 (1-7)	3 (1-9)	5 (2-11)	4 (2-6)	5 (2-10)	3 (1-7)	3 (1-8)	2 (1-7)	3 (1-7)
Men	386 (54%)	912 (45%)	117 (51%)	118 (41%)	645 (45%)	345 (49%)	308 (50%)	36 (42%)	194 (53%)	191 (50%)	2283 (49%)	236 (47%)	94 (38%)
BMI, kg/m ²	28 (25-32)	27 (24-30)	28 (25-32)	30 (27-34)	26 (24-29)	-	27 (24-30)	28 (25-32)	27 (24-30)	27 (24-31)	-	26 (24-30)	28 (25-31)
Current smokers	89 (16%)	567 (28%)	14 (12%)	25 (15%)	65 (9%)	131 (22%)	73 (16%)	4 (5%)	54 (15%)	83 (23%)	477 (11%)	112 (24%)	64 (27%)
1st TNFi drug													
- Infliximab	99 (14%)	564 (28%)	56 (24%)	179 (62%)	104 (7%)	90 (13%)	51 (8%)	8 (9%)	26 (7%)	33 (9%)	819 (18%)	51 (10%)	27 (11%)
- Etanercept	125 (17%)	486 (24%)	59 (26%)	63 (22%)	585 (41%)	210 (30%)	240 (39%)	17 (20%)	63 (17%)	149 (39%)	1999 (43%)	120 (24%)	66 (27%)
- Adalimumab	352 (49%)	611 (30%)	85 (37%)	8 (3%)	538 (38%)	87 (12%)	182 (30%)	41 (48%)	172 (47%)	110 (29%)	1151 (25%)	194 (39%)	98 (40%)
- Certolizumab	47 (7%)	197 (10%)	6 (3%)	0 (0%)	28 (2%)	186 (26%)	11 (2%)	0 (0%)	31 (8%)	34 (9%)	235 (5%)	14 (3%)	22 (9%)
- Golimumab	94 (13%)	178 (9%)	25 (11%)	40 (14%)	173 (12%)	138 (19%)	130 (21%)	19 (22%)	75 (20%)	56 (15%)	447 (10%)	123 (25%)	35 (14%)
1st TNFi start, year													
- 2009-2014	343 (48%)	1203 (59%)	176 (76%)	138 (48%)	1108 (78%)	465 (65%)	315 (51%)	0 (0%)	219 (60%)	67 (18%)	2529 (54%)	370 (74%)	84 (34%)
- 2015-2018	374 (52%)	833 (41%)	55 (24%)	162 (53%)	320 (22%)	246 (35%)	229 (49%)	865 (100%)	148 (40%)	315 (82%)	2122 (46%)	132 (26%)	164 (66%)
Patient-reported outcomes^b													
- Pain, mm	7 (5-8)	6 (4-8)	6 (4-7)	7 (5-8)	6 (5-8)	5 (3-6)	6 (5-8)	8 (7-8)	7 (6-8)	-	6 (4-8)	6 (4-7)	8 (6-8)
- Fatigue, mm	-	7 (5-8)	-	7 (5-8)	-	4 (2-7)	-	-	-	-	6 (4-8)	5 (4-8)	7 (5-8)
- Patient global, mm	7 (6-8)	7 (5-9)	5 (3-7)	7 (5-8)	6 (0-8)	5 (3-7)	6 (5-8)	8 (7-8)	7 (6-8)	6 (5-8)	6 (4-8)	6 (4-7)	7 (5-8)
- HAQ	1.2 (0.9-1.6)	1.0 (0.6-1.5)	0.9 (0.5-1.4)	1.2 (0.8-1.5)	1.0 (0.4-1.5)	0.5 (0.2-0.9)	1.1 (0.5-1.5)	1.6 (1.6-1.7)	1.1 (0.5-1.6)	-	0.9 (0.5-1.2)	0.8 (0.3-1.1)	0.8 (0.6-0.9)
Physician reported outcome													
- Physician global, mm	6 (5-8)	2 (2-4)	4 (3-5)	6 (4-7)	5 (3-7)	3 (2-4)	5 (4-6)	8 (7-8)	6 (4-7)	-	4 (3-55)	4 (3-6)	3 (2-6)
Joint counts (scale)													
- 28SJC	7 (3-10)	1 (0-3)	2 (1-5)	4 (2-6)	1 (0-3)	1 (0-3)	3 (1-6)	5 (3-6)	6 (3-9)	2 (1-4)	2 (0-5)	2 (0-4)	2 (0-4)
- 28TJC	10 (5-13)	4 (1-8)	3 (1-6)	4 (2-6)	3 (1-8)	2 (1-6)	4 (2-9)	11 (4-15)	8 (4-12)	3 (1-6)	4 (2-8)	3 (0-6)	4 (1-8)
- 66SJC	9 (5-12)	3 (0-6)	3 (1-6)	8 (5-10)	1 (0-4)	-	4 (1-8)	6 (5-14)	-	-	3 (1-6)	3 (1-6)	0 (0-3)
- 68TJC	12 (8-19)	8 (4-14)	4 (2-8)	9 (6-13)	4 (2-11)	-	6 (3-13)	16 (7-33)	-	-	6 (3-11)	5 (2-11)	6 (2-10)
Blood tests													
- CRP, mg/l	15 (6-28)	5 (2-12)	6 (3-13)	8 (3-15)	-	5 (2-11)	8 (4-20)	22 (17-40)	7 (3-16)	-	5 (2-12)	5 (3-10)	9 (3-17)
- ESR, mm/hr	30 (17-45)	-	14 (5-23)	-	15 (8-30)	12 (6-22)	24 (11-42)	38 (29-44)	24 (12-40)	18 (8-34)	13 (6-24)	12 (6-20)	-
Composite indices													
- DAS28-CRP	5.2 (4.6-5.8)	4.0 (3.1-4.8)	3.9 (3.2-4.7)	4.3 (3.9-4.9)	-	3.5 (2.7-4.3)	4.4 (3.6-5.2)	5.6 (5.1-6.0)	5.0 (4.1-5.6)	-	4.1 (3.3-4.8)	3.6 (2.7-4.5)	4.2 (3.2-4.9)

- DAS28-ESR	5.6 (4.8-6.3)	-	4.1 (3.0-4.8)	-	4.0 (3.1-5.1)	3.5 (2.6-4.5)	4.8 (3.9-5.6)	6.1 (5.4-6.4)	5.3 (4.4-6.2)	4.3 (3.3-5.0)	4.1 (3.3-4.9)	3.6 (2.7-4.6)	-
- DAPSA28	41 (30-52)	23 (16-34)	21 (16-33)	28 (21-34)	-	17 (12-26)	28 (19-40)	42 (34-49)	38 (26-51)	-	24 (17-35)	19 (13-29)	26 (17-34)
- DAPSA68	36 (27-43)	26 (19-36)	21 (15-29)	33 (24-41)	19 (14-30)	-	26 (19-37)	44 (31-61)	-	-	23 (17-32)	21 (14-32)	19 (14-30)

Data are as observed: n, median (IQR) or n (%). Percentages are of patients with available data; note that information on current smoking were not available for all patients.

IQR: Interquartile Range; BMI: Body Mass Index; TNFi: Tumor Necrosis alpha Inhibitor; VAS: Visual Analogue Scale; HAQ: Health Assessment Questionnaire disability index; CRP: C-reactive protein; ESR: erythrocyte sedimentation rate; DAS: Disease Activity Score; DAPSA: Disease Activity in Psoriatic Arthritis; SJC: Swollen Joint Count; TJC: Tender Joint Count.

^aBy 2009 all relevant TNFi products were on the market and the patients included in this cohort had the same treatment options as patients treated today, however, after 2009 other biologic treatment options, which can replace TNFi drugs, have been marketed.

^bThe scales for the PROs and physician global were 0-10 on an integer scale, except for the HAQ scale which was from 0-3. Three registries (RRBR, biorx.si and SCQM) used a 0-10 numeric rating scale (NRS) for VAS pain, VAS fatigue, patient global and physician global, while the remaining registries used a 0-100 scale. Scores on a 0-100 scale were converted to 0-10 by dividing with 10 and rounding to nearest integer.

Table S3. LUNDEX-adjusted PRO remission rates (%) at 6, 12 and 24 months after 2nd TNFi treatment start across time since diagnosis, sex, and age at diagnosis.							
Pain remission (≤ 1)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
All	N =4329	465 (14%)	2466 (64%)	331 (13%)	1555 (57%)	176 (11%)	775 (40%)
Sex	Men N=1736	239 (19%)	979 (62%)	183 (18%)	689 (59%)	95 (15%)	340 (39%)
	Women N = 2503	226 (11%)	1487 (66%)	148 (10%)	866 (56%)	81 (8%)	435 (40%)
Years since diagnosis (years)	≤ 5 N=1840	171 (12%)	1051 (65%)	122 (11%)	652 (58%)	78 (9%)	374 (48%)
	6-10 N=699	75 (15%)	397 (64%)	62 (14%)	280 (61%)	44 (13%)	175 (53%)
	>10 N=695	106 (20%)	419 (67%)	72 (17%)	280 (61%)	46 (14%)	175 (53%)
Age at diagnosis (years)	<45 N=1772	224 (17%)	1008 (64%)	161 (15%)	673 (59%)	109 (13%)	400 (49%)
	≥ 45 N=1462	128 (11%)	859 (66%)	95 (11%)	537 (59%)	59 (8%)	324 (51%)
Fatigue remission (≤ 2)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
All	N =4329	418 (19%)	1648 (43%)	290 (17%)	1017 (37%)	122 (14%)	396 (20%)
Sex	Men N=1736	204 (25%)	648 (41%)	136 (18%)	458 (39%)	64 (20%)	174 (20%)
	Women N = 2503	214 (15%)	1000 (44%)	140 (14%)	559 (36%)	58 (11%)	222 (21%)
Years since diagnosis (years)	≤ 5 N=1840	166 (17%)	711 (44%)	123 (14%)	423 (38%)	61 (13%)	204 (26%)
	6-10 N=699	73 (23%)	253 (41%)	43 (17%)	167 (36%)	26 (16%)	85 (26%)
	>10 N=695	57 (19%)	242 (38%)	45 (19%)	143 (30%)	27 (20%)	71 (21%)
Age at diagnosis (years)	<45 N=1772	163 (19%)	638 (41%)	125 (19%)	414 (36%)	67 (15%)	213 (26%)
	≥ 45 N=1462	133 (18%)	568 (44%)	86 (16%)	319 (35%)	47 (15%)	147 (23%)
Patient global remission (≤ 2)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
All	N =4329	774 (23%)	2563 (67%)	556 (20%)	1649 (61%)	306 (17%)	840 (43%)
Sex	Men N=1736	381 (30%)	1017 (64%)	304 (28%)	727 (62%)	158 (23%)	363 (42%)
	Women N = 2503	393 (18%)	1546 (69%)	252 (15%)	922 (59%)	148 (13%)	477 (44%)
Years since diagnosis (years)	≤ 5 N=1840	286 (19%)	1099 (68%)	214 (18%)	698 (62%)	136 (14%)	411 (52%)
	6-10 N=699	138 (26%)	416 (67%)	114 (24%)	304 (66%)	75 (21%)	188 (57%)
	>10 N=695	168 (31%)	432 (69%)	122 (28%)	293 (61%)	80 (23%)	186 (56%)
Age at diagnosis (years)	<45 N=1772	364 (27%)	1044 (67%)	275 (24%)	719 (63%)	177 (20%)	425 (52%)
	≥ 45 N=1462	228 (19%)	903 (70%)	175 (18%)	576 (63%)	114 (14%)	360 (57%)
HAQ remission (≤ 0.5)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
All	N =4329	898 (29%)	2360 (62%)	640 (26%)	1511 (55%)	348 (21%)	772 (40%)
Sex	Men	473 (40%)	937 (59%)	355 (35%)	668 (57%)	191 (30%)	339 (39%)

	N=1736						
	Women N = 2503	425 (22%)	1423 (63%)	285 (19%)	843 (54%)	157 (15%)	433 (40%)
Years since diagnosis (years)	≤5 N=1840	347 (25%)	995 (62%)	276 (25%)	645 (58%)	166 (19%)	375 (48%)
	6-10 N=699	158 (32%)	389 (62%)	121 (29%)	275 (60%)	87 (26%)	176 (53%)
	>10 N=695	175 (35%)	399 (63%)	122 (31%)	262 (55%)	71 (23%)	166 (50%)
Age at diagnosis (years)	<45 N=1772	430 (34%)	959 (61%)	333 (32%)	646 (56%)	198 (25%)	392 (48%)
	≥45 N=1462	248 (23%)	824 (64%)	186 (20%)	536 (59%)	126 (18%)	325 (51%)

Table S4. LUNDEX-adjusted PRO remission rates (%) at 6, 12 and 24 months after 3rd TNFi treatment start across time since diagnosis, sex, and age at diagnosis.

Pain remission (≤ 1)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
		n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available
All	N =1240	88 (9%)	664 (61%)	55 (7%)	417 (57%)	30 (6%)	198 (38%)
Sex	Men N=434	43 (14%)	225 (59%)	24 (10%)	142 (53%)	10 (6%)	74 (39%)
	Women N = 806	45 (7%)	439 (63%)	31 (6%)	279 (59%)	20 (6%)	124 (38%)
Years since diagnosis (years)	≤ 5 N=437	37 (10%)	244 (64%)	15 (5%)	151 (60%)	9 (4%)	96 (55%)
	6-10 N=242	14 (9%)	135 (62%)	15 (11%)	87 (55%)	12 (10%)	57 (51%)
	>10 N=196	12 (8%)	105 (61%)	9 (8%)	70 (61%)	8 (10%)	33 (39%)
Age at diagnosis (years)	<45 N=490	39 (11%)	268 (62%)	26 (9%)	172 (57%)	19 (8%)	107 (50%)
	≥ 45 N=385	24 (8%)	216 (63%)	13 (5%)	136 (61%)	10 (5%)	79 (52%)
Fatigue remission (≤ 2)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
		n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available
All	N =1243	92 (14%)	473 (44%)	68 (13%)	295 (40%)	22 (8%)	111 (21%)
Sex	Men N=434	37 (18%)	149 (39%)	25 (15%)	98 (37%)	7 (8%)	38 (20%)
	Women N = 80	55 (12%)	324 (46%)	43 (12%)	197 (42%)	15 (8%)	73 (22%)
Years since diagnosis (years)	≤ 5 N=437	28 (12%)	164 (43%)	20 (11%)	100 (40%)	12 (8%)	60 (35%)
	6-10 N=242	17 (15%)	90 (42%)	11 (13%)	56 (35%)	6 (11%)	27 (24%)
	>10 N=196	15 (16%)	69 (40%)	12 (17%)	56 (35%)	3 (9%)	14 (17%)
Age at diagnosis (years)	<45 N=490	33 (13%)	184 (43%)	22 (11%)	114 (38%)	14 (9%)	64 (30%)
	≥ 45 N=385	27 (14%)	138 (41%)	21 (14%)	83 (37%)	7 (7%)	37 (24%)
Patient global remission (≤ 2)		n of patients in remission (LUNDEX adjusted rate %)					
Months treated		6		12		24	
		n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available
All	N =1243	162 (17%)	688 (64%)	105 (14%)	432 (59%)	51 (10%)	215 (41%)
Sex	Men N=434	61 (20%)	229 (60%)	33 (14%)	145 (55%)	13 (7%)	77 (41%)
	Women N = 806	101 (15%)	459 (66%)	72 (14%)	287 (62%)	38 (11%)	138 (42%)
Years since diagnosis (years)	≤ 5 N=437	57 (15%)	256 (67%)	34 (12%)	156 (62%)	20 (7%)	103 (60%)
	6-10 N=242	30 (17%)	140 (65%)	25 (18%)	91 (57%)	18 (14%)	60 (54%)
	>10 N=196	30 (20%)	110 (64%)	19 (15%)	76 (67%)	12 (13%)	38 (45%)
Age at diagnosis (years)	<45 N=490	69 (18%)	284 (66%)	45 (15%)	218 (60%)	34 (13%)	114 (53%)
	≥ 45 N=385	48 (15%)	222 (65%)	33 (13%)	141 (63%)	16 (7%)	87 (57%)

N=385		n of patients in remission (LUNDEX adjusted rate (%))					
HAQ remission (≤ 0.5)		n of patients in remission (LUNDEX adjusted rate (%))					
Months treated		6		12		24	
		n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available	n* (LUNDEX adjusted rate)	n (%) available
All	N =1243	171 (20%)	615 (57%)	118 (17%)	395 (54%)	58 (12%)	194 (37%)
Sex	Men N=434	85 (31%)	204 (53%)	53 (24%)	135 (51%)	28 (17%)	72 (38%)
	Women N = 806	86 (15%)	411 (59%)	65 (14%)	260 (56%)	30 (10%)	122 (37%)
Years since diagnosis (years)	≤ 5 N=437	60 (18%)	224 (59%)	37 (14%)	139 (55%)	21 (9%)	93 (54%)
	6-10 N=242	30 (20%)	120 (56%)	26 (20%)	84 (53%)	22 (19%)	54 (49%)
	>10 N=196	26 (19%)	99 (57%)	25 (21%)	69 (61%)	13 (16%)	34 (40%)
Age at diagnosis (years)	<45 N=490	74 (21%)	242 (56%)	53 (20%)	159 (53%)	38 (16%)	103 (48%)
	≥ 45 N=385	42 (15%)	201 (59%)	35 (15%)	133 (59%)	18 (9%)	78 (51%)

n*: number of patients in remission. N: number of patients in cohort; n (%) available: number (percentage) of patients with available data; HAQ: Health Assessment Questionnaire

Online supplementary table S5

Data availability for PROs during 1st TNFi treatment across cohorts.

Percentage available is calculated as number of patients with an available score in the visit window/number of patients who were still treated at the beginning of the visit window.

Months treated	6	12	24	
Pain, n (%)				
All	N =12262	7857 (68%)	5679 (60%)	2901 (42%)
Gender	Men N=5863	3797 (67%)	2952 (61%)	1524 (41%)
	Women N = 6399	4060 (69%)	2727 (60%)	1377 (43%)
Years since diagnosis (years)	≤5 N=6072	3831 (68%)	2720 (60%)	1558 (47%)
	6-10 N=1656	1028 (65%)	830 (61%)	548 (53%)
	>10 N=1770	1141 (67%)	862 (60%)	534 (49%)
Age at diagnosis (years)	<45 N=5224	3364 (68%)	2523 (61%)	1535 (49%)
	≥45 N=4274	2636 (66%)	1889 (59%)	1105 (49%)
Fatigue, n (%)				
All	N =12262	4738 (41%)	3205 (34%)	1322 (19%)
Gender	Men N=5863	2273 (40%)	1679 (35%)	698 (19%)
	Women N = 6399	2465 (42%)	1526 (33%)	624 (19%)
Years since diagnosis (years)	≤5 N=6072	2421 (43%)	1548 (34%)	722 (22%)
	6-10 N=1656	594 (37%)	458 (34%)	233 (23%)
	>10 N=1770	641 (38%)	437 (30%)	206 (19%)
Age at diagnosis (years)	<45 N=5224	2046 (41%)	1417 (34%)	708 (22%)
	≥45 N=4274	1610 (40%)	1026 (32%)	453 (20%)
Patient global, n (%)				
All	N =12262	8220 (71%)	6112 (65%)	3236 (46%)
Gender	Men N=5863	3992 (71%)	3181 (66%)	1709 (46%)
	Women N = 6399	4228 (72%)	2931 (64%)	1527 (47%)
Years since diagnosis (years)	≤5 N=6072	4003 (71%)	2960 (65%)	1754 (53%)
	6-10 N=1656	1109 (70%)	934 (68%)	618 (60%)
	>10 N=1770	1207 (71%)	926 (64%)	586 (54%)
Age at diagnosis (years)	<45 N=5224	3544 (71%)	2739 (66%)	1716 (54%)
	≥45 N=4274	2775 (69%)	2081 (65%)	1242 (55%)
HAQ, n (%)				
All	N =12262	7563 (66%)	5491 (58%)	2861 (41%)
Gender	Men N=5863	3663 (65%)	2849 (59%)	1499 (40%)
	Women N = 6399	3900 (66%)	2642 (58%)	1362 (42%)
Years since diagnosis (years)	≤5 N=6072	3646 (64%)	2615 (57%)	1535 (46%)
	6-10	1008 (63%)	822 (60%)	542 (53%)

	N=1656			
	>10 N=1770	1105 (65%)	830 (58%)	511 (47%)
Age at diagnosis (years)	<45 N=5224	3248 (65%)	2434 (58%)	1510 (48%)
	≥45 N=4274	2511 (63%)	1833 (57%)	1078 (47%)

		1st TNF			2nd TNF			3rd TNFi		
		6 months	12 months	24 months	6 months	12 months	24 months	6 months	12 months	24 months
All		86.7 (86.1-87.3)	77.8 (77.1-78.6)	69.6 (68.8-70.5)	79.3 (78.0-80.5)	69.1 (67.7-70.6)	61.2 (59.6-62.8)	76.7 (74.3-79.2)	66.5 (63.7-69.3)	55.4 (52.3-58.6)
Sex	Men	82.8 (81.9-83.7)	72.5 (71.4-73.6)	63.4 (62.1-64.7)	76.8 (75.2-78.5)	65.4 (63.5-67.4)	57.3 (55.3-59.4)	75.2 (72.3-78.4)	64.3 (60.9-67.9)	53.1 (49.4-57.1)
	Women	90.9 (90.1-91.6)	83.6 (82.6-84.5)	76.3 (75.2-77.5)	82.9 (81.1-84.7)	74.6 (72.5-76.8)	67.0 (64.6-69.4)	79.4 (75.6-83.5)	70.5 (66.1-75.2)	59.6 (54.6-65.1)
Years since diagnosis (years)	≤5	85.4 (84.5-86.3)	76.1 (75.0-77.2)	67.7 (66.4-68.9)	77.2 (75.3-79.2)	67.3 (65.1-69.6)	59.7 (57.3-62.2)	73.6 (69.5-78.0)	62.2 (57.6-67.1)	51.7 (46.8-57.2)
	6-10	90.4 (89.0-91.9)	83.6 (81.8-85.4)	75.6 (73.4-77.8)	83.5 (80.8-86.4)	73.8 (70.4-77.3)	66.5 (62.7-70.4)	82.7 (78.0-87.7)	74.4 (68.9-80.4)	61.3 (54.7-68.8)
	>10	90.9 (89.5-92.2)	83.6 (81.8-85.4)	76.7 (74.6-78.8)	84.9 (82.3-87.7)	75.8 (72.6-79.2)	70.0 (66.4-73.9)	79.8 (74.2-85.9)	69.9 (63.3-77.1)	57.8 (50.4-66.3)
Age at diagnosis (years)	<45	89.2 (88.3-90.0)	81.4 (80.3-82.4)	73.7 (72.4-74.9)	80.4 (78.6-82.4)	72.1 (70.0-74.4)	65.5 (63.1-68.0)	77.9 (74.2-81.7)	68.1 (63.9-72.6)	57.0 (52.3-62.1)
	≥45	85.0 (83.9-86.1)	75.7 (74.4-77.0)	67.1 (65.7-68.7)	80.0 (77.9-82.1)	68.6 (66.1-71.1)	60.9 (58.2-63.7)	77.0 (72.8-81.5)	66.1 (61.3-71.3)	54.2 (48.8-60.1)

Online supplementary table S6 Drug retention rates (% (95% Confidence Interval) in the overall and stratified cohorts.